SCE Textbook list

Siemens Automation Cooperates with Education (SCE) | 10/2025

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Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Beginning Git and GitHub**	Mariot Tsitoara	Apress	2024 **NEW** (2nd Edition)	979-8-8688-0215-7	LINK	Learn the fundamentals of version control through step-by-step tutorials that will teach you the ins-and-outs of Git. This updated version introduces Github workflows, and contains new chapters on how to make Git and GitHub truly yours, covers additional common problems and how to solve them, along with new features of Github pull requests. Divided into three parts – Version Control, Project Management and Teamwork – this book reveals what waits for you in the real world and how to resolve the problems you may run into. Once past the basics of Git, you'll see how to manage a software project, and finally how to utilize Git and GithHub to work effectively as a team. You'll examine how to plan, follow and execute a project with GitHub, and then apply those concepts to real-world situations. Workaround the pitfalls that most programmers fall into when driving a project with Git by using proven tactics to avoid them. You will also be taught the easiest and quickest ways to resolve merge conflicts. A lot of modern books on Git don't go into depth about non-technical topics. Beginning Git and GitHub is your complete guide to how Git and GitHub work in a professional team environment and will help you cover all the bases right at the start of your career. What You'll Learn -Review basic and advanced concepts of Git -Apply Project Management skills using GitHub -Solve conflicts or, ideally, avoid them altogether -Use advanced concepts for a more boosted workflow Who This book Is For -New developers, developers that have never worked in a team environment before, developers with basic knowledge of Git or GitHub, or anyone who works with text documents.
	**MicroPython for the Internet of Things**	Charles Bell	Apress	2024 **NEW** (2nd Edition)	978-1-4842-9861-9	LINK	This book will help you quickly learn to program for microcontrollers and IoT devices without a lot of study and expense. MicroPython and controllers that support it eliminate the need for programming in a C-like language, making the creation of IoT applications and devices easier and more accessible than ever. MicroPython for the Internet of Things is ideal for readers new to electronics and the world of IoT. Specific examples are provided covering a range of supported devices, sensors, and MicroPython boards such as the Raspberry Pi Pico and the Arduino Nano Connect RP2040 board. Programming for microcontrollers has never been easier. The book takes a practical and hands-on approach without a lot of detours into the depths of theory. It'll show you a faster and easier way to program microcontrollers and IoT devices, teach you MicroPython, a variant of one of the most widely used scripting languages, and is written to be accessible to those new to electronics. After completing this book, and its fun example projects, you'll be ready to ready to use MicroPython to develop your own IoT applications. What You Will Learn -Program in MicroPython -Understand sensors and basic electronics -Develop your own IoT projects -Build applications for popular boards such as Raspberry Pi Pico and Arduino Nano Connect RP2040 -Load MicroPython on compatible boards -Interface with hardware breakout boards -Connect hardware to software through MicroPython -Explore connecting your microcontroller to the cloud -Develop IoT projects for the cloud Who This Book Is For -Anyone interested in building IoT solutions without the heavy burden of programming in C++ or C. The book also appeals to those wanting an easier way to work with hardware than is provided by platforms that require more complex programming environments.

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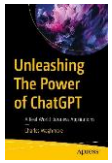
	**Getting Started with Enterprise Architecture**	Eric Jager	Apress	2023	978-1-4842-9858-9	LINK	Implement a basic Enterprise Architecture from start to finish using a four-stage, wheel-based approach. Aided by real-world examples, this book shows what elements are needed for the initial implementation of a fundamental Enterprise Architecture. The book's pragmatic approach keeps existing architecture frameworks and methodologies in mind while providing instructions that are readable and applicable to all. The Enterprise Architecture Implementation Wheel builds on the methodology of existing architecture frameworks and allows you to apply the theory more pragmatically and closer to the reality that an architect encounters in daily practice. While the main focus of the book is on the actual steps taken to design an Enterprise Architecture, other important topics include architecture origin, definition, domains, visualization, and roles. Getting Started with Enterprise Architecture is the ideal handbook for the architect who is asked to implement an Enterprise Architecture in an existing organization. What You'll Learn -Identify a company's needs and develop an appropriate strategy to satisfy those needs -Implement measurable goals and objectives for a baseline architecture -Create meaningful catalogues, diagrams, and maps to communicate the architecture to an organization -Measure the progress of implementing the architecture Who This Book Is For - Novice (Enterprise and Business) architects - Senior management - Executives
	**Building Enterprise IoT Solutions with Eclipse IoT Technologies**	Frédéric Desbiens	Apress	2023	978-1-4842-8882-5	LINK	Build IoT solutions for the enterprise using open-source building blocks from the Eclipse IoT Working Group at the Eclipse Foundation. This book introduces you to key protocols and their implementations, such as CoAP (Eclipse Californium), DDS (Eclipse Cyclone DDS), LwM2M (Eclipse Leshan), and MQTT (Eclipse Paho, Eclipse Mosquitto, and Eclipse Amlen). You will learn about Edge Computing platforms (Eclipse ioFog, Eclipse Kanto), IoT gateways (Eclipse Kura, Eclipse Kapua), and next-generation edge native protocols (Eclipse zenoh).The book also covers production-ready platforms for digital twins (Eclipse Ditto), energy management (Eclipse VOLTTRON), contactless payments (Eclipse Keyple), and much more. Although the book discusses hardware matters, its focus is on software and relevant open standards. The book helps you understand the pros and cons of the technologies available from Eclipse IoT and how they have been used in actual deployments. The examples provided cover a variety of use cases, such as industrial automation, smart agriculture, digital buildings, robotics, and others. The book's contents follow a reference architecture encompassing constrained devices (things), edge devices (gateways, servers), and IoT Cloud platforms. For each of those three pillars, you will learn about relevant open-source components. Usage of code libraries and frameworks is explained through code samples. You will also learn how to deploy and configure platform-type components and how to leverage them. Special attention will be paid to security and edge computing throughout the book. What You Will Learn Describe in your own words the main software components required in an IoT architecture Select the appropriate IoT protocols, components, frameworks, and platforms for a specific project Evaluate the connectivity options at your disposal and select the most appropriate ones Explain the value of business models focused on open-source components and deploy such models in your organization Determine if edge computing is relevant to a project and deploy the relevant components on an edge computing platform Build Enterprise IoT solutions leveraging an array of open-source components and platforms using popular languages such as C, Java, and Rust Who This Book Is For Developers new to enterprise IoT who want to learn about fundamental technologies for that market segment and seek an introduction to relevant, open-source building blocks; experienced IoT developers who seek alternatives to the proprietary platforms they are currently using; software architects designing IoT solutions who want to understand open-source technology options
	**Unleashing The Power of ChatGPT**	Charles Waghmare	Apress	2023	978-1-4842-9529-8	LINK	Explore the role ChatGPT can play in business, including operations, marketing, sales, and delivery. This concise book illustrates how ChatGPT is changing the way individuals interact with machines and how you can take advantage of its capabilities for business. The book starts with an overview of ChatGPT and its impact in the realm of of conversational AI. You will then dive into the technical aspects of ChatGPT and gain an understanding of how machine learning algorithms and natural language processing work in the background. Various business applications of ChatGPT are then discussed, followed by how it can get integrated into your business operations. To wrap things up, you will gain insight into the data and privacy elements that need to be considered while using ChatGPT, and how to maintain its integrity. After completing this book, you will understand the ChatGPT framework and how to integrate it into your own ventures. What You Will Learn - Understand the various technologies and techniques utilized in ChatGPT - Gain insight into the future of human-machine interaction - Analyze the advantages and disadvantages of ChatGPT for your industry - Explore the ethical implications of using AI

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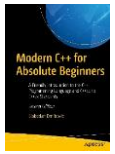
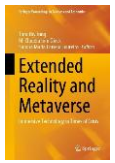
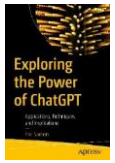
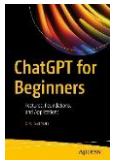
	**Modern C++ for Absolute Beginners**	Slobodan Dmitrović	Apress	2023	978-1-4842-9274-7	LINK	Learn the C++ programming language in a structured, straightforward, and friendly manner. This book teaches the basics of the modern C++ programming language, the C++ Standard Library, and modern C++ standards, including C++23. No previous programming experience is required. C++ is a language like no other, surprising in its complexity, yet wonderfully sleek and elegant in so many ways. It is also a language that cannot be learned by guessing, one that is easy to get wrong and challenging to get right. To overcome this, each section is filled with real-world examples that gradually increase in complexity. Modern C++ for Absolute Beginners, Second Edition teaches more than just programming in C++23. It provides a solid C++ foundation to build upon. The author takes you through the C++ programming language, the Standard Library, and C++11 to C++23 standard basics. Each chapter is accompanied by the right amount oftheory and plenty of source code examples. You will work with C++23 features and standards, yet you will also compare and take a look into previous versions of C++. After reading this book, you'll be able to start programming in modern C++ standards. You will do so with plenty of relevant source code examples, freely available via a dedicated GitHub repository.
	**Extended Reality and Metaverse**	Timothy Jung, M. Claudia tom Dieck, Sandra Maria Correia Loureiro	Apress	2023	978-3-031-25390-4	LINK	This book features the latest research in the area of immersive technologies as presented at the 7th International Extended Reality (XR) Conference, held in Lisbon, Portugal in 2022. Bridging the gap between academia and industry, it showcases the latest advances in augmented reality (AR), virtual reality (VR), extended reality (XR) and metaverse and their applications in various sectors such as business, marketing, retail, education, healthcare, tourism, events, fashion, entertainment, and gaming. The volume gathers selected research papers by prominent AR, VR, XR and metaverse scholars from around the world. Presenting the most significant topics and latest findings in the fields of augmented reality, virtual reality, extended reality and metaverse, it will be a valuable asset for academics and practitioners alike.
	**Exploring the Power of ChatGPT**	Eric Sarrion	Apress	2023	978-1-4842-9529-8	LINK	Learn how to use the large-scale natural language processing model developed by OpenAI: ChatGPT. This book explains how ChatGPT uses machine learning to autonomously generate text based on user input and explores the significant implications for human communication and interaction. Author Eric Sarrion examines various aspects of ChatGPT, including its internal workings, use in computer projects, and impact on employment and society. He also addresses long-term perspectives for ChatGPT, including possible future advancements, adoption challenges, and considerations for ethical and responsible use. The book starts with an introduction to ChatGPT covering its versions, application areas, how it works with neural networks, NLP, and its advantages and limitations. Next, you'll be introduced to applications and training development projects using ChatGPT, as well as best practices for it. You'll then explore the ethical implications of ChatGPT, such as potential biases and risks, regulations, and standards. This is followed by a discussion of future prospects for ChatGPT. The book concludes with practical use case examples, such as text content creation, software programming, and innovation and creativity. This essential book summarizes what may be one of the most significant developments in artificial intelligence in recent history and provides useful insights for researchers, policymakers, and anyone interested in the future of technology.
	**ChatGPT for Beginners**	Eric Sarrion	Apress	2023	978-1-4842-9804-6	LINK	If you're a complete newbie who's wondering exactly what ChatGPT is, what is does, and how it can be a valuable resource for non-coders, this is the book for you. With a comprehensive exploration of ChatGPT's features, foundations, and applications, this guide will serve as a valuable resource for beginners venturing into the world of conversational AI. ChatGPT for Beginners has four parts. Part one provides a step-by-step introduction to using ChatGPT, from accessing the OpenAI website and creating an account to starting conversations, changing responses, and getting conversation summaries. Part two delves into the foundations of the large language model that powers ChatGPT. It covers topics such as the definition of ChatGPT, its knowledge domains, the basics of natural language processing, machine learning techniques applied to language processing, and the role of neural networks in ChatGPT's operation. Part three covers a wide range of practical applications, from letter writing to business content creation, text translation, language learning, recruitment processes, artistic content creation, and fostering innovation and creativity. Part four examines the strengths and limitations of ChatGPT, addressing ethical considerations related to data security, bias, and partiality. It also delves into the future advancements and challenges that lie ahead for ChatGPT, providing insights into the developing landscape of conversational AI. After completing this book, you will be able to harness the full potential of ChatGPT. Whether you are a student, professional, or are just curious about the capabilities of this AI technology, this book will serve as your essential companion in unlocking the possibilities of ChatGPT.

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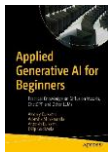	**Applied Generative AI for Beginners**	Akshay Kulkarni, Adarsha Shivananda, Anoosh Kulkarni, Dilip Gudivada	Apress	2023	978-1-4842-9994-4	LINK	This book provides a deep dive into the world of generative AI, covering everything from the basics of neural networks to the intricacies of large language models like ChatGPT and Google Bard. It serves as a one-stop resource for anyone interested in understanding and applying this transformative technology and is particularly aimed at those just getting started with generative AI. Applied Generative AI for Beginners is structured around detailed chapters that will guide you from foundational knowledge to practical implementation. It starts with an introduction to generative AI and its current landscape, followed by an exploration of how the evolution of neural networks led to the development of large language models. The book then delves into specific architectures like ChatGPT and Google Bard, offering hands-on demonstrations for implementation using tools like Sklearn. You'll also gain insight into the strategic aspects of implementing generative AI in an enterprise setting, with the authors covering crucial topics such as LLMOps, technology stack selection, and in-context learning. The latter part of the book explores generative AI for images and provides industry-specific use cases, making it a comprehensive guide for practical application in various domains. Whether you're a data scientist looking to implement advanced models, a business leader aiming to leverage AI for enterprise growth, or an academic interested in cutting-edge advancements, this book offers a concise yet thorough guide to mastering generative AI, balancing theoretical knowledge with practical insights. What You Will Learn Gain a solid understanding of generative AI, starting from the basics of neural networks and progressing to complex architectures like ChatGPT and Google Bard Implement large language models using Sklearn, complete with code examples and best practices for real-world application Learn how to integrate LLM's in enterprises, including aspects like LLMOps and technology stack selection Understand how generative AI can be applied across various industries, from healthcare and marketing to legal compliance through detailed use cases and actionable insights
	**Cloud Native Architecture and Design**	Shivakumar R Goniwada	Apress	2022	978-1-4842-7226-8	LINK	Build enterprise-grade cloud-native systems and learn all about cloud-native architecture and design. This book provides extensive in-depth details of patterns, tools, techniques, and processes with plenty of examples. Cloud Native Architecture and Design begins by explaining the fundamentals of cloud-native architecture and services, what cloud principles and patterns to use, and details of designing a cloud-native element. The book progresses to cover the details of how IT systems can modernize to embrace cloud-native architecture, and also provides details of various enterprise assessment techniques to decide what systems can move and cannot move into the cloud. Architecting and designing a cloud-native system isn't possible without modernized software engineering principles, the culture of automation, and the culture of innovation. As such, this book covers the details of cloud-native software engineering methodologies, and process, and how to adopt an automated governance approach across enterprises with the adoption of artificial intelligence. Finally, you need your cloud-native applications to run efficiently; this section covers the details of containerization, orchestration, and virtualization in the public, private, and hybrid clouds. After reading this book, you will have familiarity with the many concepts related to cloud-native and understand how to design and develop a successful cloud-native application. Technologies and practices may change over time, but the book lays a strong foundation on which you can build successful cloud-native systems.
	**IT Security Controls**	Virgilio Viegas, Oben Kuyucu	Apress	2022 (1st Edition)	978-1-4842-7799-7	LINK	Use this reference for IT security practitioners to get an overview of the major standards and frameworks, and a proposed architecture to meet them. The book identifies and describes the necessary controls and processes that must be implemented in order to secure your organization's infrastructure. The book proposes a comprehensive approach to the implementation of IT security controls with an easily understandable graphic implementation proposal to comply with the most relevant market standards (ISO 27001, NIST, PCI-DSS, and COBIT) and a significant number of regulatory frameworks from central banks across the World (European Union, Switzerland, UK, Singapore, Hong Kong, India, Qatar, Kuwait, Saudi Arabia, Oman, etc.). To connect the book with the real world, a number of well-known case studies are featured to explain what went wrong with the biggest hacks of the decade, and which controls should have been in place to prevent them. The book also describes a set of well-known security tools available to support you.

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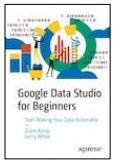
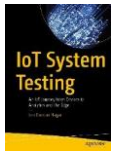
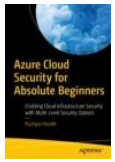
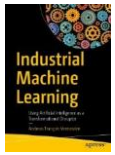
	**Google Data Studio for Beginners**	Grant Kemp, Gerry White	Apress	2021 (1st Edition)	978-1-4842-5156-0	LINK	Google Data Studio is becoming a go-to tool in the analytics community. All business roles across the industry benefit from foundational knowledge of this now-essential technology, and Google Data Studio for Beginners is here to provide it. Release your locked-up data and turn it into beautiful, actionable, and shareable reports that can be consumed by experts and novices alike. Authors Grant Kemp and Gerry White begin by walking you through the basics, such how to create simple dashboards and interactive visualizations. As you progress through Google Data Studio for Beginners, you will build up the knowledge necessary to blend multiple data sources and create comprehensive marketing dashboards. Some intermediate features such as calculated fields, cleaning up data, and data blending to build powerhouse reports are featured as well. Presenting your data in client-ready, digestible forms is a key factor that many find to be a roadblock, and this book will help strengthen this essential skill in your organization. Centralizing the power from sources such as Google Analytics, online surveys, and a multitude of other popular data management tools puts you as a business leader and analyzer ahead of the rest. Your team as a whole will benefit from Google Data Studio for Beginners, because by using these tools, teams can collaboratively work on data to build their understanding and turn their data into action. Data Studio is quickly solidifying itself as the industry standard, and you don't want to miss this essential guide for excelling in it.
	**IoT System Testing**	Jon Duncan Hagar	Apress	2022 (1st Edition)	978-1-4842-8276-2	LINK	To succeed, teams must assure the quality of IoT systems. The world of technology continually moves from one hot area to another; this book considers the next explosion—of IoT—from a quality testing viewpoint. You'll first gain an introduction to the Internet of Things (IoT), V&V, and testing. Next, you'll be walked through IoT test planning and strategy over the full life cycle, including the impact of data analytics and AI. You will then delve deeper into IoT security testing and various test techniques, patterns, and more. This is followed by a detailed study of IoT software test labs, architecture, environments and AI. There are many options for testing IoT qualities based on the criticality of the software and risks involved; each option has positives, negatives, as well as cost and schedule impacts. The book will guide start-up and experienced teams into these paths and help you to improve the testing and quality assessment of IoT systems.
	**Azure Cloud Security for Absolute Beginners**	Pushpa Herath	Apress	2022 (1st Edition)	978-1-4842-7860-4	LINK	Implement cloud security with Azure security tools, configurations and policies that address the needs of businesses and governments alike. This book introduces you to the most important security solutions available in Azure and provides you with step-by-step guidance to effectively set up security and deploy an application on top of Azure platform services, as well as on top of Azure infrastructure. Author Pushpa Herath begins by teaching you the fundamentals of Azure security. An easy to follow exploration of management groups, subscriptions, management locks and Azure policies further elaborate the concepts underlying Azure cloud security. Next, you will learn about Azure Active Directory (AAD) and the utilization of AAD in application and infrastructure security. Essential aspects of maintaining secure application keys and certificates are further explained in the context of Azure Key Vault. New application security implementations such as Azure configurations and Azure Defender for Azure storage are discussed, as are key platform security factors. Network security groups, gateways, load balancers, virtual networks and firewall configurations are all demonstrated in detail. Finally, you'll learn how to create a much more secure environment through Azure App Service Environment in the context of securing infrastructure. If you want to learn the basics of securing Azure, Azure Cloud Security for Absolute Beginners is for you.
	**CompTIA Security+ Certification Study Guide**	Ahmed F. Sheikh	Apress	2020 (1st Edition)	978-1-4842-6234-4	LINK	Prepare for the CompTIA Security+ certification exam that covers the skills required to perform core security functions and pursue a career in IT. You will learn the basic principles of network security. Computer network vulnerabilities and threats are covered and you will learn how to safeguard computer networks. Network security planning, technology, and organization are discussed along with associated legal and ethical issues. Lesson objectives and instruction succinctly review each major topic, including: network fundamentals, operational and organizational security, risk management, wireless security, change management, physical security, forensics, network attacks, and much more.
	**Industrial Machine Learning**	Andreas François Vermeulen	Apress	2020 (1st Edition)	978-1-4842-5316-8	LINK	Understand the industrialization of machine learning (ML) and take the first steps toward identifying and generating the transformational disruptors of artificial intelligence (AI). You will learn to apply ML to data lakes in various industries, supplying data professionals with the advanced skills required to handle the future of data engineering and data science. Data lakes currently generated by worldwide industrialized business activities are projected to reach 35 zettabytes (ZB) as the Fourth Industrial Revolution produces an exponential increase of volume, velocity, variety, variability, veracity, visualization, and value. Industrialization of ML evolves from AI and studying pattern recognition against the increasingly unstructured resource stored in data lakes. Industrial Machine Learning supplies advanced, yet practical examples in different industries, including finance, public safety, health care, transportation, manufactory, supply chain, 3D printing, education, research, and data science. The book covers: supervised learning, unsupervised learning, reinforcement learning, evolutionary computing principles, soft robotics disruptors, and hard robotics disruptors.

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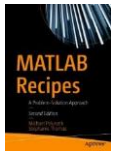
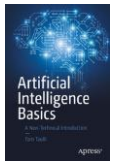
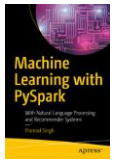
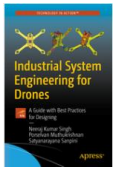
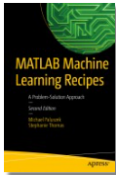
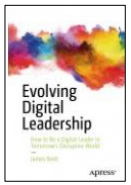
	**MATLAB Recipes**	Michael Paluszek; Stephanie Thomas	Apress	2020	978-1-4842-6124-8	LINK	Learn from state-of-the-art examples in robotics, motors, detection filters, chemical processes, aircraft, and spacecraft. With this book you will review contemporary MATLAB coding including the latest MATLAB language features and use MATLAB as a software development environment including code organization, GUI development, and algorithm design and testing. Features now covered include the new graph and digraph classes for charts and networks; interactive documents that combine text, code, and output; a new development environment for building apps; locally defined functions in scripts; automatic expansion of dimensions; tall arrays for big data; the new string type; new functions to encode/decode JSON; handling non-English languages; the new class architecture; the Mocking framework; an engine API for Java; the cloud-based MATLAB desktop; the memoize function; and heatmap charts. MATLAB Recipes: A Problem-Solution Approach, Second Edition provides practical, hands-on code snippets and guidance for using MATLAB to build a body of code you can turn to time and again for solving technical problems in your work. Develop algorithms, test them, visualize the results, and pass the code along to others to create a functional code base for your firm.
	**Artificial Intelligence Basics**	Taulli, Tom	Apress	2019	978-1-4842-5028-0	LINK	Artificial intelligence touches nearly every part of your day. While you may initially assume that technology such as smart speakers and digital assistants are the extent of it, AI has in fact rapidly become a general-purpose technology, reverberating across industries including transportation, healthcare, financial services, and many more. In our modern era, an understanding of AI and its possibilities for your organization is essential for growth and success. Artificial Intelligence Basics has arrived to equip you with a fundamental, timely grasp of AI and its impact. Author Tom Taulli provides an engaging, non-technical introduction to important concepts such as machine learning, deep learning, natural language processing (NLP), robotics, and more. In addition to guiding you through real-world case studies and practical implementation steps, Taulli uses his expertise to expand on the bigger questions that surround AI. These include societal trends, ethics, and future impact AI will have on world governments, company structures, and daily life. Google, Amazon, Facebook, and similar tech giants are far from the only organizations on which artificial intelligence has had—and will continue to have—an incredibly significant result. AI is the present and the future of your business as well as your home life. Strengthening your prowess on the subject will prove invaluable to your preparation for the future of tech, and Artificial Intelligence Basics is the indispensable guide that you've been seeking.
	**Machine Learning with PySpark**	Singh, Pramod	Apress	2019	978-1-4842-4131-8	LINK	Build machine learning models, natural language processing applications, and recommender systems with PySpark to solve various business challenges. This book starts with the fundamentals of Spark and its evolution and then covers the entire spectrum of traditional machine learning algorithms along with natural language processing and recommender systems using PySpark. Machine Learning with PySpark shows you how to build supervised machine learning models such as linear regression, logistic regression, decision trees, and random forest. You'll also see unsupervised machine learning models such as K-means and hierarchical clustering. A major portion of the book focuses on feature engineering to create useful features with PySpark to train the machine learning models. The natural language processing section covers text processing, text mining, and embedding for classification. After reading this book, you will understand how to use PySpark's machine learning library to build and train various machine learning models. Additionally you'll become comfortable with related PySpark components, such as data ingestion, data processing, and data analysis, that you can use to develop data-driven intelligent applications.
	**Industrial System Engineering for Drones. A Guide with Best Practices for Designing**	Singh, Neeraj Kumar Muthukrishnan, Porselvan Sanpini, Satyanarayana	Apress	2019	978-1-4842-3533-1	LINK	Explore a complex mechanical system where electronics and mechanical engineers work together as a cross-functional team. Using a working example, this book is a practical "how to" guide to designing a drone system. As system design becomes more and more complicated, systematic, and organized, there is an increasingly large gap in how system design happens in the industry versus what is taught in academia. While the system design basics and fundamentals mostly remain the same, the process, flow, considerations, and tools applied in industry are far different than that in academia. Designing Drone Systems takes you through the entire flow from system conception to design to production, bridging the knowledge gap between academia and the industry as you build your own drone systems.
	**MATLAB Machine Learning Recipes. A Problem-Solution Approach**	Paluszek, Michael Thomas, Stephanie	Apress	2019	978-1-4842-3915-5	LINK	Harness the power of MATLAB to resolve a wide range of machine learning challenges. This book provides a series of examples of technologies critical to machine learning. Each example solves a real-world problem. All code in MATLAB Machine Learning Recipes: A Problem-Solution Approach is executable. The toolbox that the code uses provides a complete set of functions needed to implement all aspects of machine learning. Authors Michael Paluszek and Stephanie Thomas show how all of these technologies allow the reader to build sophisticated applications to solve problems with pattern recognition, autonomous driving, expert systems, and much more.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Building Machine Learning and Deep Learning Models on Google Cloud Platform. A Comprehensive Guide for Beginners**	Ekaba Bisong	Apress	2019	978-1-4842-4469-2	LINK	Take a systematic approach to understanding the fundamentals of machine learning and deep learning from the ground up and how they are applied in practice. You will use this comprehensive guide for building and deploying learning models to address complex use cases while leveraging the computational resources of Google Cloud Platform. Author Ekaba Bisong shows you how machine learning tools and techniques are used to predict or classify events based on a set of interactions between variables known as features or attributes in a particular dataset. He teaches you how deep learning extends the machine learning algorithm of neural networks to learn complex tasks that are difficult for computers to perform, such as recognizing faces and understanding languages. And you will know how to leverage cloud computing to accelerate data science and machine learning deployments.
	**Evolving Digital Leadership. How to Be a Digital Leader in Tomorrow's Disruptive World**	James Brett	Apress	2019	978-1-4842-3605-5	LINK	Get ready to be an effective digital leader, influencer, disruptor, and catalyst for change in the digital world! As a leader you need to constantly evolve to achieve sustained success. The world is being transformed by Digital. The pace of change is constantly accelerating and volatility and complexity are the new norms. Digital leaders are at the forefront of these waves of change, creating new markets and transforming traditional ones. This book is a framework and set of tools that will help you develop a deep awareness of yourself, your teams, and your stakeholders. The powerful four-step process (designed to remain relevant over time) ensures that you are embracing adversity, driving disruption, and unlocking your full leadership potential.
	**Disruptive 3D Printing**	Ralf Anderhofstadt, Marcus Disselkamp	Hanser	2023	978-1-56990-918-8	LINK	This book unites the two sides of additive manufacturing: 1) the technical aspect of 3D printing of very different materials and 2) the disruptive consequences for value chains between producers, intermediaries, and customers due to modern business models. This is because 3D printing breaks with many existing business models: companies take over functions from their previous suppliers (following the "do-it-yourself" trend), intermediaries lose their livelihood (so-called "disintermediation"), manufacturers move their production to decentralized locations (e.g., retailers, car dealerships, or hospitals, so-called "decentralized production"), and (end) customers become much more intensive "prosumers" than marketing (as creator of this term) could ever imagine. The business models of many existing companies from very different industries are becoming toxic, i.e., threatening their very existence, as in logistics and warehousing, industry, services, retail, or customer service. Conversely, there are also many opportunities for modern, existence-securing business models, which the book discusses in more detail. In this way, this book not only shows to a broad range of readers the dangers of disruptive 3D printing technology, but also offers solution approaches and procedural models for identifying new economic livelihoods and competitive advantages. Thanks to the collaboration of the two authors, a profound knowledge of already existing references and management models can be drawn upon.
	**THE HANDBOOK OF DATA SCIENCE AND AI**	Stefan Papp, Wolfgang Weidinger, Katherine Munro, Bernhard Ortner, Annalisa Cadonna, Georg Langs, Roxane Licandro, Mario Meir-Huber, Danko Nikolić, Zoltan Toth, Barbora Vesela, Rania Wazir, Günther Zauner	Carl Hanser Verlag	2022	978-1-56990-887-7	LINK	Data Science, Big Data, and Artificial Intelligence are currently some of the most talked-about concepts in industry, government, and society, and yet also the most misunderstood. This book will clarify these concepts and provide you with practical knowledge to apply them. Featuring: - A comprehensive overview of the various fields of application of data science - Case studies from practice to make the described concepts tangible - Practical examples to help you carry out simple data analysis projects - BONUS in print edition: E-Book inside The book approaches the topic of data science from several sides. Crucially, it will show you how to build data platforms and apply data science tools and methods. Along the way, it will help you understand - and explain to various stakeholders - how to generate value from these techniques, such as applying data science to help organizations make faster decisions, reduce costs, and open up new markets. Furthermore, it will bring fundamental concepts related to data science to life, including statistics, mathematics, and legal considerations. Finally, the book outlines practical case studies that illustrate how knowledge generated from data is changing various industries over the long term.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**CLOUD-NATIVE COMPUTING**	Nane Kratzke	Carl Hanser Verlag	2021	978-3-446-47284-6	LINK	Cloud-native Computing - Grundlagen des Cloud Computings (Service-Modelle und Cloud-Ökonomie) - Das Everything-as-Code-Paradigma (DevOps, Deployment Pipelines, IaC) - Den Systembetrieb mit Container-Orchestrierung automatisieren - Microservice- und Serverless-Architekturen verstehen und Cloud-native-Architekturen mit Domain Driven Design entwerfen - Ihr exklusiver Vorteil: E-Book inside beim Kauf des gedruckten Buches Märkte verändern sich immer schneller, Kundenwünsche stehen im Mittelpunkt – viele Unternehmen sehen sich Herausforderungen gegenüber, die nur digital beherrschbar sind. Um diese Anforderungen zu bewältigen, bietet sich der Einsatz von Cloud-native-Technologien an. Dabei reicht es jedoch nicht aus, einen Account bei einem Cloud-Anbieter anzulegen. Es geht auch darum, die unterschiedlichen Faktoren zu verstehen, die den Erfolg von Cloud-native-Projekten beeinflussen. Das Buch beleuchtet den Cloud-native-Wandel aus unterschiedlichen Perspektiven: von der Unternehmenskultur, der Cloud-Ökonomie und der Einbeziehung der Kunden (Co-Creation) über das Projektmanagement (Agilität) und die Softwarearchitektur bis hin zu Qualitätssicherung (Continuous Delivery) und Betrieb (DevOps). Anhand von realen Praxisbeispielen wird gezeigt, was bei der Umsetzung in unterschiedlichen Branchen gut und was schlecht gelaufen ist und welche Best Practices sich daraus ableiten lassen. Dabei wird auch die Migration von Legacy-Code berücksichtigt. IT-Architekten vermittelt dieses Buch zudem das grundlegende Wissen, um Cloud-native-Technologien und die DevOps-Kultur in ihrem Projekt oder im gesamten Unternehmen einzuführen.
	**Quick Start to Programming in Siemens Step 7 (TIA Portal)**	Jon Stenerson David Deeg	CreateSpace Independent Publishing Platform	2015	978-1515230946	LINK	This book Is intended to meet the need for an easy to understand book that can quickly get the reader up and programming with Siemens Step 7. The book includes a link to download a trial version of Siemens Step 7 (TIA Portal) software. There are many practical explanations and examples to illustrate and ease learning. There is a step-by-step appendix on creating a project to ease the learning curve. The coverage of project organization provides the basis for a good understanding of programming and project organization. Linear and modular programming are covered to provide the basis for an understanding of how a Step 7 project is organized and how it functions. The book covers ladder logic and Function Block Diagram (FBD) programming. There is In-depth coverage of ladder logic, timers, counters, math, special instructions, and function blocks. There is also a chapter that features a step-by-step coverage on how to create a working HMI application. There are extensive questions and exercises for each chapter to guide and aide learning. The book includes answers to selected chapter questions and programming exercises.
	**Siemens Step 7 (TIA Portal) Programming, a Practical Approach**	Jon Stenerson David Deeg	CreateSpace Independent Publishing Platform	2015	978-1515220541	LINK	The book includes a link to download a trial version of Siemens Step 7 (TIA Portal) software. There are many practical explanations and examples to illustrate and ease learning. There is also a step-by-step appendix on creating a project to ease the learning curve. The book covers various models of Siemens PLCs including S7-300, S7-1200, S7-400, and S7-1500. The coverage of project organization provides the basis for a good understanding of programming and project organization. The book covers ladder logic and Function Block Diagram (FBD) programming. Linear and modular programming are covered to provide the basis for an understanding of how an S7 project is organized and how it functions. There is In-depth coverage of ladder logic, timers, counters, math, special instructions, function blocks, and technology objects. Wiring and use of of I/O modules for various PLC models is covered. Sinking/sourcing, and the wiring of digital and analog modules are covered. There are also practical examples of the use and application of analog modules and their resolution. There is also a chapter that features step-by-step coverage on how to create a working HMI application. The setup and application of Technology Objects for PID and motion control are also covered. There are extensive questions and exercises for each chapter to guide and aide learning. The book includes answers to selected chapter questions and programming exercises.
	**Industrial Software Applications. A Master's Course for Engineers**	Rainer Geisler	De Gruyter; Oldenbourg	2015	978-3-11-037098-0	LINK	Each day, engineers and technical professionals encounter Information Technology issues, such as implementing IT systems, managing them, and taking part in requirements analysis/vendor selection. Thorough knowledge of these concepts , along with a basic understanding of modern ERP Systems, is indispensable to these professionals. Additionally, engineers are expected to understand and apply the terminology and tools for software management. This book focuses on several vital areas of information systems. First, it explores the types and uses of industrial IT systems and how they are connected to support business processes. Secondly, the concepts behind production planning and enterprise resource planning are explained, using real-world examples from SAP. An overview of IT governance and management concepts enables the reader to actively manage the relationship between technical business departments and IT departments. In the area of software creation, four basic decisions are described: business planning for IT systems, requirements for engineering and specification, vendor selection, and outsourcing considerations. The methods for illustrating processes, use cases and business structures are explained, as well as tools for choosing software with a decision matrix and scoring model. Finally, important aspects of IT project management and IT system testing are discussed. Change management, an essential component of any successful implementation, is explained using theoretical background an practical hints. - Focus on industrial application systems for mechanical engineers - Full 5 ECTS study module for master's-level students and professionals - Close connection between theory and practical application - Relevant examples of SAP, one of the leading ERP systems 150 multiple-choice questions and practical exercises.
	**Manufacturing from Industry 4.0 to Industry 5.0**	Dimitris Mourtzis	Elsevier	2024	9780443139239	LINK	Manufacturing from Industry 4.0 to Industry 5.0: Advances and Applications unfolds establishing three main pillars: (i) it investigates the theoretical background of the current industrial practice within the framework of industry 4.0 by presenting its key definitions and backbone technologies; (ii) it discusses the methods and state-of-the-art developments employed in the ongoing digital transformation of companies worldwide to promote more resilient, sustainable, and human-centric smart manufacturing and production networks; and (iii) it outlines a strategic plan for the transition from industry 4.0 to industry 5.0. Written by an international group of expert scientists, this volume offers an overview of the most recent research in the field and provides actionable insights to benefit audiences in both academia and industry.

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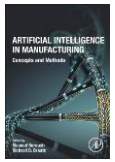
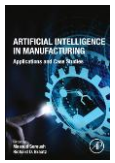
	**Artificial Intelligence in Manufacturing Concepts and Methods**	Masoud Soroush, Richard D Braatz	Elsevier	2024	9780323996723	LINK	Artificial Intelligence in Manufacturing: Concepts and Methods explains the most successful emerging techniques for applying AI to engineering problems. Artificial intelligence is increasingly being applied to all engineering disciplines, producing more insights into how we understand the world and allowing us to create products in new ways. This book unlocks the advantages of this technology for manufacturing by drawing on work by leading researchers who have successfully developed methods that can apply to a range of engineering applications. The book addresses educational challenges needed for widespread implementation of AI and also provides detailed technical instructions for the implementation of AI methods. Drawing on research in computer science, physics and a range of engineering disciplines, this book tackles the interdisciplinary challenges of the subject to introduce new thinking to important manufacturing problems.
	**Artificial Intelligence in Manufacturing**	Masoud Soroush, Richard D Braatz	Elsevier	2024	9780323996716	LINK	Artificial Intelligence in Manufacturing: Applications and Case Studies provides detailed technical descriptions of emerging applications of AI in manufacturing using case studies to explain implementation. Artificial intelligence is increasingly being applied to all engineering disciplines, producing insights into how we understand the world and allowing us to create products in new ways. This book unlocks the advantages of this technology for manufacturing by drawing on work by leading researchers who have successfully used it in a range of applications. Processes including additive manufacturing, pharmaceutical manufacturing, painting, chemical engineering and machinery maintenance are all addressed. Case studies, worked examples, basic introductory material and step-by-step instructions on methods make the work accessible to a large group of interested professionals.
	**Additive Manufacturing Materials and Technology**	Sanjay Mavinkere Rangappa, Vinod Ayyappan, Suchart Siengchin	Elsevier	2024	9780443184635	LINK	Additive Manufacturing Materials and Technology discusses recent developments and future possibilities in additive manufacturing. The book focuses on advanced technologies and materials, with chapters centered on shape memory materials, alloys and metals, polymers, ceramics, thermosets, biomaterials, and composites. Fiber-reinforced materials are covered as well, as are the lifecycle and performance criteria of 3D printed materials. Other chapters look at the various applications of these materials and processing techniques, covering their use in the aerospace and automotive sectors, construction, bioengineering, and the pharmaceutical industry. Various additive manufacturing techniques such as electron beam melting, selective laser melting, laser sintered, fused deposition, and more are also studied.
	**Industrial Network Security**	Eric D. Knapp	Elsevier	2024 (3rd Edition)	9780443137389	LINK	As the sophistication of cyber-attacks increases, understanding how to defend critical infrastructure systems—energy production, water, gas, and other vital systems—becomes more important, and heavily mandated. Industrial Network Security, Third Edition arms you with the knowledge you need to understand the vulnerabilities of these distributed supervisory and control systems. Author Eric Knapp examines the unique protocols and applications that are the foundation of Industrial Control Systems (ICS) and provides clear guidelines for their protection. This comprehensive reference gives you thorough understanding of the challenges facing critical infrastructures, new guidelines and security measures for infrastructure protection, knowledge of new and evolving security tools, and pointers on SCADA protocols and security implementation.
	**Computer and Information Security Handbook (2-Volume Set)**	John Vacca	Elsevier	2024 (4th Edition)	9780443132247	LINK	Computer and Information Security Handbook, Fourth Edition offers deep coverage of an extremely wide range of issues in computer and cybersecurity theory, along with applications and best practices, offering the latest insights into established and emerging technologies and advancements. With new parts devoted to such current topics as Cyber Security for the Smart City and Smart Homes, Cyber Security of Connected and Automated Vehicles, and Future Cyber Security Trends and Directions, the book now has 104 chapters in 2 Volumes written by leading experts in their fields, as well as 8 updated appendices and an expanded glossary. Chapters new to this edition include such timely topics as Threat Landscape and Good Practices for Internet Infrastructure, Cyber Attacks Against the Grid Infrastructure, Threat Landscape and Good Practices for the Smart Grid Infrastructure, Energy Infrastructure Cyber Security, Smart Cities Cyber Security Concerns, Community Preparedness Action Groups for Smart City Cyber Security, Smart City Disaster Preparedness and Resilience, Cyber Security in Smart Homes, Threat Landscape and Good Practices for Smart Homes and Converged Media, Future Trends for Cyber Security for Smart Cities and Smart Homes, Cyber Attacks and Defenses on Intelligent Connected Vehicles, Cyber Security Issues in VANETs, Use of AI in Cyber Security, New Cyber Security Vulnerabilities and Trends Facing Aerospace and Defense Systems, and much more.

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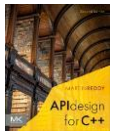	**API Design for C++**	Martin Reddy	Elsevier	2024 (2nd Edition)	9780443222207	LINK	API Design for C++, Second Edition provides a comprehensive discussion of Application Programming Interface (API) development, from initial design through implementation, testing, documentation, release, versioning, maintenance, and deprecation. It is the only book that teaches the strategies of C++ API development, including interface design, versioning, scripting, and plug-in extensibility. Drawing from the author's experience on large scale, collaborative software projects, the text offers practical techniques of API design that produce robust code for the long-term. It presents patterns and practices that provide real value to individual developers as well as organizations. The Second Edition includes all new material fully updated for the latest versions of C++, including a new chapter on concurrency and multithreading, as well as a new chapter discussing how Objective C++ and C++ code can co-exist and how a C++ API can be accessed from Swift programs. In addition, it explores often overlooked issues, both technical and non-technical, contributing to successful design decisions that produce high quality, robust, and long-lived APIs. It focuses on various API styles and patterns that will allow you to produce elegant and durable libraries. A discussion on testing strategies concentrates on automated API testing techniques rather than attempting to include end-user application testing techniques such as GUI testing, system testing, or manual testing.
	**Exploring the Metaverse**	Deepika Koundal, Naveen Kumar	Elsevier	2024	9780443241314	LINK	Exploring the Metaverse: Challenges and Applications explores the various applications and challenges facing the metaverse, from privacy and security concerns to questions about the economy and ethical considerations. Drawing on insights from experts in technology, ethics, and economics, the book's authors provide a comprehensive overview of the metaverse and its potential implications. Through a series of engaging essays and thought-provoking case studies, they examine the complex issues facing the metaverse, such as the role of virtual identity, the impact on social interactions, and the potential for addiction. Finally, they explore potential solutions to these challenges, from technological innovations to policy interventions.
	**Artificial Intelligence in Production Engineering and Management**	Carolina Machado, J. Paulo Davim	Elsevier	2024	9780128196168	LINK	Artificial intelligence (AI) plays a crucial role in production engineering and management, revolutionizing operation optimization, data analysis, forecasting, and task automation. In production engineering, AI contributes to operational efficiency by identifying patterns, predicting failures, and optimizing supply chains. In management, it offers predictive and prescriptive insights, allowing quick adaptations to changes in market conditions. However, it is essential to address ethical challenges, such as data security and workforce impacts, to ensure responsible and sustainable implementation of AI in these contexts. Among the different topics covered in Artificial Intelligence in Production Engineering and Management, the reader can find: living in the age of AI; machine learning and large language models; AI and people management; nudging financial behavior with AI; the European Union narrative on AI; multidimensional transhuman influence; and AI, emotional intelligence, and ethics. This topical book will be of great value for those working and researching in the production engineering and management fields who are seeking to understand and capitalize on the revolutionary shift that artificial intelligence brings to modern engineering and management.
	**Autonomous Mobile Robots**	Rahul Kala	Elsevier	2023	9780443189098	LINK	Autonomous Mobile Robots: Planning, Navigation, and Simulation presents detailed coverage of the domain of robotics in motion planning and associated topics in navigation. This book covers numerous base planning methods from diverse schools of learning, including deliberative planning methods, reactive planning methods, task planning methods, fusion of different methods, and cognitive architectures. It is a good resource for doing initial project work in robotics, providing an overview, methods and simulation software in one resource. For more advanced readers, it presents a variety of planning algorithms to choose from, presenting the tradeoffs between the algorithms to ascertain a good choice. Finally, the book presents fusion mechanisms to design hybrid algorithms.
	**Data Science, Analytics and Machine Learning with R**	Luiz Favero, Patricia Belfiore, Rafael de Freitas Souza	Elsevier	2023	9780323859233	LINK	Data Science, Analytics and Machine Learning with R explains the principles of data mining and machine learning techniques and accentuates the importance of applied and multivariate modeling. The book emphasizes the fundamentals of each technique, with step-by-step codes and real-world examples with data from areas such as medicine and health, biology, engineering, technology and related sciences. Examples use the most recent R language syntax, with recognized robust, widespread and current packages. Code scripts are exhaustively commented, making it clear to readers what happens in each command. For data collection, readers are instructed how to build their own robots from the very beginning. In addition, an entire chapter focuses on the concept of spatial analysis, allowing readers to build their own maps through geo-referenced data (such as in epidemiologic research) and some basic statistical techniques. Other chapters cover ensemble and uplift modeling and GLMM (Generalized Linear Mixed Models) estimations, both linear and nonlinear.

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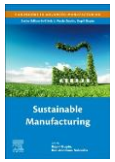
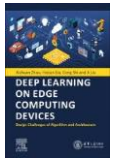
	**Artificial Intelligence Methods for Optimization of the Software Testing Process**	Sahar Tahvili, Leo Hatvani	Elsevier	2022	9780323912822	LINK	Artificial Intelligence Methods for Optimization of the Software Testing Process: With Practical Examples and Exercises presents different AI-based solutions for overcoming the uncertainty found in many initial testing problems. The concept of intelligent decision making is presented as a multi-criteria, multi-objective undertaking. The book provides guidelines on how to manage diverse types of uncertainty with intelligent decision-making that can help subject matter experts in many industries improve various processes in a more efficient way. As the number of required test cases for testing a product can be large (in industry more than 10,000 test cases are usually created). Executing all these test cases without any particular order can impact the results of the test execution, hence this book fills the need for a comprehensive resource on the topics on the how's, what's and whys.
	**Sustainable Manufacturing**	Kapil Gupta, Konstantinos Salonitis	Elsevier	2021	9780128181157	LINK	Sustainable Manufacturing examines the overall sustainability of a wide range of manufacturing processes and industrial systems. With chapters addressing machining, casting, additive and gear manufacturing processes; and hot topics such as remanufacturing, life cycle engineering, and recycling, this book is the most complete guide to this topic available. Drawing on experts in both academia and industry, coverage addresses theoretical developments and practical improvements from research and innovations. This unique book will advise readers on how to achieve sustainable manufacturing processes and systems, and further the clean and safe environment.
	**Advances in Mathematics for Industry 4.0**	Mangey Ram	Elsevier	2020 (1st Edition)	9780128189078	LINK	Advances in Mathematics for Industry 4.0 examines key tools, techniques, strategies, and methods in engineering applications. By covering the latest knowledge in technology for engineering design and manufacture, chapters provide systematic and comprehensive coverage of key drivers in rapid economic development. Written by leading industry experts, chapter authors explore managing big data in processing information and helping in decision-making, including mathematical and optimization techniques for dealing with large amounts of data in short periods.
	**Cloud Computing**	Dan Marinescu	Elsevier	2022 (3rd Edition)	9780323910477	LINK	Cloud Computing: Theory and Practice, Third Edition provides students and IT professionals with an in-depth analysis of the cloud from the ground up. After an introduction to network-centric computing and network-centric content, the book reviews basic concepts of concurrency and parallel and distributed systems, presents critical components of the cloud ecosystem as cloud service providers, cloud access, cloud data storage, and cloud hardware and software, covers cloud applications and cloud security, and presents research topics in cloud computing. Specific topics covered include resource virtualization, resource management and scheduling, and advanced topics like the impact of scale on efficiency, cloud scheduling subject to deadlines, alternative cloud architectures, and vehicular clouds. An included glossary covers terms grouped in several categories, from general to services, virtualization, desirable attributes and security.
	**Deep Learning on Edge Computing Devices**	Xichuan Zhou, Haijun Liu, Cong Shi, Ji Liu	Elsevier	2022 (1st Edition)	9780323909273	LINK	Deep Learning on Edge Computing Devices: Design Challenges of Algorithm and Architecture focuses on hardware architecture and embedded deep learning, including neural networks. The title helps researchers maximize the performance of Edge-deep learning models for mobile computing and other applications by presenting neural network algorithms and hardware design optimization approaches for Edge-deep learning. Applications are introduced in each section, and a comprehensive example, smart surveillance cameras, is presented at the end of the book, integrating innovation in both algorithm and hardware architecture. Structured into three parts, the book covers core concepts, theories and algorithms and architecture optimization.This book provides a solution for researchers looking to maximize the performance of deep learning models on Edge-computing devices through algorithm-hardware co-design.

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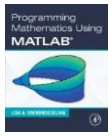
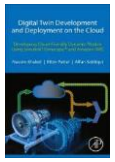
	**Additive Manufacturing A Tool for Industrial Revolution 4.0**	M. Manjaiah, K. Raghavendra, N. Balashanmugam, J. Paulo Davim	Elsevier	2021 (1st Edition)	9780128220573	LINK	Additive Manufacturing: A Tool for Industrial Revolution 4.0 explores the latest developments, underlying mechanisms, challenges and opportunities for 3D printing in a digital manufacturing environment. It uses an international panel of experts to explain how additive manufacturing processes have been successfully integrated with industry 4.0 technologies for increased technical capabilities, efficiency, flexibility and sustainability. The full manufacturing product cycle is addressed, including design, materials, mechanical properties, and measurement. Future directions for this important technological intersection are also explored. This book will interest researchers and industrial professionals in industrial engineering, digital manufacturing, advanced manufacturing, data science applications, and computer engineering.
	**Additive Manufacturing**	Juan Pou, Antonio Riveiro, Paulo Davim	Elsevier	2021 (1st Edition)	9780128184127	LINK	Additive Manufacturing explains the background theory, working principles, technical specifications, and latest developments in a wide range of additive manufacturing techniques. Topics addressed include treatments of manufactured parts, surface characterization, and the effects of surface treatments on mechanical behavior. Many different perspectives are covered, including design aspects, technologies, materials and sustainability. Experts in both academia and industry contribute to this comprehensive guide, combining theoretical developments with practical improvements from R&D. This unique guide allows readers to compare the characteristics of different processes, understand how they work, and provide parameters for their effective implementation. This book is part of a four-volume set entitled Handbooks in Advanced Manufacturing. Other titles in the set include Advanced Machining and Finishing, Advanced Welding and Deformation, and Sustainable Manufacturing Processes.
	**Programming Mathematics Using MATLAB®**	Lisa Oberbroeckling	Elsevier	2020 (1st Edition)	9780128178003	LINK	Providing an alternative to engineering-focused resources in the area, Programming Mathematics Using MATLAB® introduces the basics of programming and of using MATLAB® by highlighting many mathematical examples. Emphasizing mathematical concepts through the visualization of programming throughout the book, this useful resource utilizes examples that may be familiar to math students (such as numerical integration) and others that may be new (such as fractals). Additionally, the text uniquely offers a variety of MATLAB® projects, all of which have been class-tested thoroughly, and which enable students to put MATLAB® programming into practice while expanding their comprehension of concepts such as Taylor polynomials and the Gram–Schmidt process. Programming Mathematics Using MATLAB® is appropriate for readers familiar with sophomore-level mathematics (vectors, matrices, multivariable calculus), and is useful for math courses focused on MATLAB® specifically and those focused on mathematical concepts which seek to utilize MATLAB® in the classroom.
	**Digital Twin Development and Deployment on the Cloud**	Nassim Khaled, Bibin Pattel, Affan Siddiqui	Elsevier	2020 (1st Edition)	9780128216460	LINK	Digital Twin Development and Deployment in the Cloud: Developing Cloud-Friendly Dynamic Models Using Simulink®/SimscapeTM and Amazon AWS promotes a physics-based approach to the field of digital twins. Through the use of multiphysics models running in the cloud, significant improvement to the diagnostics and prognostic of systems can be attained. The book draws a clear definition of digital twins, helping business leaders clearly identify the value it brings. In addition, it outlines the key elements needed for deployment, including the hardware and software tools needed. Special attention is paid to the process of developing and deploying the multi-physics models of the digital twins.
	**Programming for Electrical Engineers**	James Squire, Julie Brown	Elsevier	2020 (1st Edition)	9780128215036	LINK	Programming for Electrical Engineers: MATLAB and Spice introduces beginning engineering students to programming in Matlab and Spice through engaged, problem-based learning and dedicated electrical and computer engineering content. The book draws its problems and examples specifically from electrical and computer engineering, covering such topics as circuit analysis, signal processing, and filter design. It teaches relevant computational techniques in the context of solving common problems in electrical and computer engineering, including mesh and nodal analysis, Fourier transforms, and phasor analysis. Programming for Electrical Engineers: MATLAB and Spice is unique among MATLAB textbooks for its dual focus on introductory-level learning and discipline-specific content in electrical and computer engineering. No other textbook on the market currently targets this audience with the same attention to discipline-specific content and engaged learning practices. Although it is primarily an introduction to programming in MATLAB, the book also has a chapter on circuit simulation using Spice, and it includes materials required by ABET Accreditation reviews, such as information on ethics, professional development, and lifelong learning.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**An Introduction to Parallel Programming**	Peter Pacheco Matthew Malensek	Elsevier	2021 (2nd Edition)	9780128046180	LINK	As the first undergraduate text to directly address compiling and running parallel programs on multi-core and cluster architecture, this second edition carries forward its clear explanations for designing, debugging and evaluating the performance of distributed and shared-memory programs while adding coverage of accelerators via new content on GPU programming and heterogeneous programming. New and improved user-friendly exercises teach students how to compile, run and modify example programs.
	**The Cognitive Approach in Cloud Computing and Internet of Things Technologies for Surveillance Tracking Systems**	Dinesh Peter, Amir Alavi, Bahman Javadi, Steven Fernandes	Elsevier	2020 (1st Edition)	9780128166093	LINK	The Cognitive Approach in Cloud Computing and Internet of Things Technologies for Surveillance Tracking Systems discusses the recent, rapid development of Internet of things (IoT) and its focus on research in smart cities, especially on surveillance tracking systems in which computing devices are widely distributed and huge amounts of dynamic real-time data are collected and processed. Efficient surveillance tracking systems in the Big Data era require the capability of quickly abstracting useful information from the increasing amounts of data. Real-time information fusion is imperative and part of the challenge to mission critical surveillance tasks for various applications. This book presents all of these concepts, with a goal of creating automated IT systems that are capable of resolving problems without demanding human aid.
	**Systems Simulation and Modeling for Cloud Computing and Big Data Applications**	Dinesh Peter, Steven Fernandes	Elsevier	2020 (1st Edition)	9780128197806	LINK	Systems Simulation and Modelling for Cloud Computing and Big Data Applications provides readers with the most current approaches to solving problems through the use of models and simulations, presenting SSM based approaches to performance testing and benchmarking that offer significant advantages. For example, multiple big data and cloud application developers and researchers can perform tests in a controllable and repeatable manner. Inspired by the need to analyze the performance of different big data processing and cloud frameworks, researchers have introduced several benchmarks, including BigDataBench, BigBench, HiBench, PigMix, CloudSuite and GridMix, which are all covered in this book. Despite the substantial progress, the research community still needs a holistic, comprehensive big data SSM to use in almost every scientific and engineering discipline involving multidisciplinary research. SSM develops frameworks that are applicable across disciplines to develop benchmarking tools that are useful in solutions development.
	**Cloud Control Systems**	Magdi Mahmoud, Yuanqing Xia	Elsevier	2020 (1st Edition)	9780128187029	LINK	Cloud Control Systems: Analysis, Design and Estimation introduces readers to the basic definitions and various new developments in the growing field of cloud control systems (CCS). The book begins with an overview of cloud control systems (CCS) fundamentals, which will help beginners to better understand the depth and scope of the field. It then discusses current techniques and developments in CCS, including event-triggered cloud control, predictive cloud control, fault-tolerant and diagnosis cloud control, cloud estimation methods, and secure control/estimation under cyberattacks. This book benefits all researchers including professors, postgraduate students and engineers who are interested in modern control theory, robust control, multi-agents control.
	**A MATLAB® Primer for Technical Programming for Materials Science and Engineering**	Leonid Burstein	Elsevier	2020 (1st Edition)	9780128225561	LINK	A MATLAB® Primer for Technical Programming for Materials Science and Engineering draws on examples from the field, providing the latest information on this programming tool that is targeted towards materials science. The book enables non-programmers to master MATLAB® in order to solve problems in materials science, assuming only a modest mathematical background. In addition, the book introduces programming and technical concepts in a logical manner to help students use MATLAB® for subsequent projects. This title offers materials scientists who are non-programming specialists with a coherent and focused introduction to MATLAB®.

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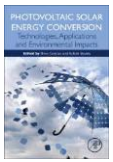
	**Green Sustainable Process for Chemical and Environmental Engineering and Science**	Dr Inamuddin, Rajender Boddula, Mohammed Rahman, Abdullah M. Asiri	Elsevier	2021 (1st Edition)	9780128225561	LINK	Green Sustainable Process for Chemical and Environmental Engineering and Science: Solid State Synthetic Methods cover recent advances made in the field of solid-state materials synthesis and its various applications. The book provides a brief introduction to the topic and the fundamental principles governing the various methods. Sustainable techniques and green processes development in solid-state chemistry are also highlighted. This book also provides a comprehensive literature on the industrial application using solid-state materials and solid-state devices. Overall, this book is intended to explore green solid-state techniques, eco-friendly materials involved in organic synthesis and real-time applications.
	**Computing in Communication Networks**	Frank H.P. Fitzek, Fabrizio Granelli, Patrick Seeling	Elsevier	2020 (1st Edition)	9780128204887	LINK	Computing in Communication Networks: From Theory to Practice provides comprehensive details and practical implementation tactics on the novel concepts and enabling technologies at the core of the paradigm shift from store and forward (dumb) to compute and forward (intelligent) in future communication networks and systems. The book explains how to create virtualized large scale testbeds using well-established open source software, such as Mininet and Docker. It shows how and where to place disruptive techniques, such as machine learning, compressed sensing, or network coding in a newly built testbed. In addition, it presents a comprehensive overview of current standardization activities. Specific chapters explore upcoming communication networks that support verticals in transportation, industry, construction, agriculture, health care and energy grids, underlying concepts, such as network slicing and mobile edge cloud, enabling technologies, such as SDN/NFV/ ICN, disruptive innovations, such as network coding, compressed sensing and machine learning, how to build a virtualized network infrastructure testbed on one's own computer, and more.
	**Photovoltaic Solar Energy Conversion**	Shiva Gorjian Ashish Shukla	Elsevier	2020 (1st Edition)	9780128226414	LINK	Photovoltaic Solar Energy Conversion - Technologies, Applications and Environmental Impacts features comprehensive and up-to-date knowledge on the photovoltaic solar energy conversion technology and describes its different aspects in the context of most recent scientific and technological advances. It also provides an insight into future developments in this field by covering four distinct topics include "PV Cells and Modules", "Applications of PV Systems", "Life Cycle and Environmental Impacts" and "PV Market and Policies".
	**LPWAN Technologies for IoT and M2M Applications**	Bharat Chaudhari, Marco Zennaroi	Elsevier	2020 (1st Edition)	9780128188811	LINK	Low power wide area network (LPWAN) is a promising solution for long range and low power Internet of Things (IoT) and machine to machine (M2M) communication applications. The LPWANs are resource-constrained networks and have critical requirements for long battery life, extended coverage, high scalability, and low device and deployment costs. There are several design and deployment challenges such as media access control, spectrum management, link optimization and adaptability, energy harvesting, duty cycle restrictions, coexistence and interference, interoperability and heterogeneity, security and privacy, and others. LPWAN Technologies for IoT and M2M Applications is intended to provide a one-stop solution for study of LPWAN technologies as it covers a broad range of topics and multidisciplinary aspects of LPWAN and IoT. Primarily, the book focuses on design requirements and constraints, channel access, spectrum management, coexistence and interference issues, energy efficiency, technology candidates, use cases of different applications in smart city, healthcare, and transportation systems, security issues, hardware/software platforms, challenges, and future directions.
	**Simulation of Power Electronics Converters Using PLECS®**	Farzin Asadi Kei Eguchi	Elsevier	2019 (1st Edition)	9780128173657	LINK	Simulation of Power Electronics Converters Using PLECS® is a guide to simulating a power electronics circuit using the latest powerful software for power electronics circuit simulation purposes. This book assists engineers gain an increased understanding of circuit operation so they can, for a given set of specifications, choose a topology, select appropriate circuit component types and values, estimate circuit performance, and complete the design by ensuring that the circuit performance will meet specifications even with the anticipated variations in operating conditions and circuit component values. This book covers the fundamentals of power electronics converter simulation, along with an analysis of power electronics converters using PLECS. It concludes with real-world simulation examples for applied content, making this book useful for all those in the electrical and electronic engineering field.

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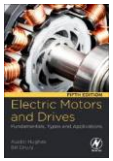
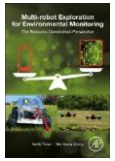
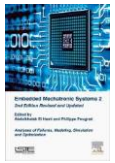
	**Electric Motors and Drives**	Austin Hughes; Bill Drury	Elsevier	2019 (5th Edition)	9780128189252	LINK	Electric Motors and Drives: Fundamentals, Types and Applications, Fifth Edition is intended primarily for non-specialist users or students of electric motors and drives, but many researchers and specialist industrialists have also acknowledged its value in providing a clear understanding of the fundamentals. It bridges the gap between specialist textbooks (too analytical for the average user) and handbooks (full of detail but with little insight) providing an understanding of how each motor and drive system works. The fifth edition has been completely revised, updated and expanded. All of the most important types of motor and drive are covered, including d.c., induction, synchronous (including synchronous reluctance and salient Permanent Magnet), switched reluctance, and stepping. There has been significant innovation in this area since the fourth edition, particularly in the automotive, aircraft and industrial sectors, with novel motor topologies emerging, including hybrid designs that combine permanent magnet and reluctance effects. We now include a physical basis for understanding and quantifying torque production in these machines, and this leads to simple pictures that illuminate the control conditions required to optimise torque. The key converter topologies have been brought together, and the treatment of inverter switching strategies expanded. A new chapter is devoted to the treatment of Field Oriented control, reflecting its increasing importance for all a.c. motor drives. A unique physically-based approach is adopted which builds naturally on the understanding of motor behaviour developed earlier in the book: the largely non-mathematical treatment dispels much of the mystique surrounding what is often regarded as a difficult topic.
	**Multi-robot Exploration for Environmental Monitoring**	Kshitij Tiwari; Nak Young Chong	Elsevier	2019 (1st Edition)	9780128176085	LINK	Multi-robot Exploration for Environmental Monitoring: The Resource Constrained Perspective provides readers with the necessary robotics and mathematical tools required to realize the correct architecture. The architecture discussed in the book is not confined to environment monitoring, but can also be extended to search-and-rescue, border patrolling, crowd management and related applications. Several law enforcement agencies have already started to deploy UAVs, but instead of using teleoperated UAVs this book proposes methods to fully automate surveillance missions. Similarly, several government agencies like the US-EPA can benefit from this book by automating the process. Several challenges when deploying such models in real missions are addressed and solved, thus laying stepping stones towards realizing the architecture proposed. This book will be a great resource for graduate students in Computer Science, Computer Engineering, Robotics, Machine Learning and Mechatronics.
	**Big Data Analytics for Cyber-Physical Systems**	Guido Dartmann; Houbing Song; Anke Schmeink	Elsevier	2019 (1st Edition)	9780128166468	LINK	Big Data Analytics in Cyber-Physical Systems: Machine Learning for the Internet of Things examines sensor signal processing, IoT gateways, optimization and decision-making, intelligent mobility, and implementation of machine learning algorithms in embedded systems. This book focuses on the interaction between IoT technology and the mathematical tools used to evaluate the extracted data of those systems. Each chapter provides the reader with a broad list of data analytics and machine learning methods for multiple IoT applications. Additionally, this volume addresses the educational transfer needed to incorporate these technologies into our society by examining new platforms for IoT in schools, new courses and concepts for universities and adult education on IoT and data science.
	**Emergence of Pharmaceutical Industry Growth with Industrial IoT Approach**	Valentina E. Balas; Vijender Kumar Solanki; Raghvendra Kumar	Elsevier	2019 (1st Edition)	9780128203668	LINK	Emergence of Pharmaceutical Industry Growth with Industrial IoT Approach uses an innovative approach to explore how the Internet of Things (IoT) and big data can improve approaches, create efficiencies and make discoveries. Rapid growth of the IoT has encouraged many companies in the manufacturing sector to make use of this technology to unlock its potential. Pharmaceutical manufacturing companies are no exception to this, as IoT has the potential to revolutionize aspects of the pharmaceutical manufacturing process, from drug discovery to manufacturing. Using clear, concise language and real world case studies, this book discusses systems level from both a human-factors point-of-view and the perspective of networking, databases, privacy and anti-spoofing. The wide variety of topics presented offers readers multiple perspectives on a how to integrate the Internet of Things into pharmaceutical manufacturing.
	**Embedded Mechatronic Systems 2**	Abdelkhalak El Hami; Philippe Pougnet	Elsevier	2020 (2nd Edition)	9780081019566	LINK	Embedded Mechatronic Systems 2: Analysis of Failures, Modeling, Simulation and Optimization presents advances in research within the field of mechatronic systems, which integrates reliability into the design process. Providing many detailed examples, this book develops a characterization methodology for faults in mechatronic systems. It analyzes the multi-physical modeling of faults, revealing weaknesses in design and failure mechanisms. This development of meta-models enables us to simulate effects on the reliability of conditions of use and manufacture.

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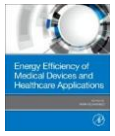
	**Systems Simulation and Modeling for Cloud Computing and Big Data Applications**	Dinesh Peter, Steven Fernandes	Elsevier	2020 (1st Edition)	9780128197806	LINK	Systems Simulation and Modelling for Cloud Computing and Big Data Applications provides readers with the most current approaches to solving problems through the use of models and simulations, presenting SSM based approaches to performance testing and benchmarking that offer significant advantages. For example, multiple big data and cloud application developers and researchers can perform tests in a controllable and repeatable manner. Inspired by the need to analyze the performance of different big data processing and cloud frameworks, researchers have introduced several benchmarks, including BigDataBench, BigBench, HiBench, PigMix, CloudSuite and GridMix, which are all covered in this book. Despite the substantial progress, the research community still needs a holistic, comprehensive big data SSM to use in almost every scientific and engineering discipline involving multidisciplinary research. SSM develops frameworks that are applicable across disciplines to develop benchmarking tools that are useful in solutions development.
	**The Cognitive Approach in Cloud Computing and Internet of Things Technologies for Surveillance Tracking Systems**	Dinesh Peter; Amir Alavi; Bahman Javadi; Steven Fernandes	Elsevier	2020 (1st Edition)	9780128166093	LINK	The Cognitive Approach in Cloud Computing and Internet of Things Technologies for Surveillance Tracking Systems discusses the recent, rapid development of Internet of things (IoT) and its focus on research in smart cities, especially on surveillance tracking systems in which computing devices are widely distributed and huge amounts of dynamic real-time data are collected and processed. Efficient surveillance tracking systems in the Big Data era require the capability of quickly abstracting useful information from the increasing amounts of data. Real-time information fusion is imperative and part of the challenge to mission critical surveillance tasks for various applications. This book presents all of these concepts, with a goal of creating automated IT systems that are capable of resolving problems without demanding human aid.
	**Mechanical Vibrations and Condition Monitoring**	Juan Carlos Jauregui Correa; Alejandro Lozano Guzman	Elsevier	2020 (1st Edition)	9780128203903	LINK	Mechanical Vibrations and Condition Monitoring presents a collection of data and insights on the study of mechanical vibrations for the predictive maintenance of machinery. Seven chapters cover the foundations of mechanical vibrations, spectrum analysis, instruments, causes and effects of vibration, alignment and balancing methods, practical cases, and guidelines for the implementation of a predictive maintenance program. Readers will be able to use the book to make predictive maintenance decisions based on vibration analysis. This title will be useful to senior engineers and technicians looking for practical solutions to predictive maintenance problems. However, the book will also be useful to technicians looking to ground maintenance observations and decisions in the vibratory behavior of machine components.
	**The Safety Critical Systems Handbook**	David J. Smith; Kenneth G.L. Simpson	Elsevier	2020 (5th Edition)	9780128202593	LINK	The Safety Critical Systems Handbook: A Straightforward Guide to Functional Safety: IEC 61508 (2010 Edition), IEC 61511 (2015 Edition) and Related Guidance, Fifth Edition presents the latest guidance on safety-related systems that guard workers and the public against injury and death, also discussing environmental risks. This comprehensive resource has been fully revised, with additional material on risk assessment, cybersecurity, COMAH and HAZID, published guidance documents/standards, quantified risk assessment and new worked examples. The book provides a comprehensive guide to the revised IEC 61508 standard as well as the 2016 IEC 61511. This book will have a wide readership, not only in the chemical and process industries, but in oil and gas, power generation, avionics, automotive, manufacturing and other sectors. It is aimed at most engineers, including those in project, control and instrumentation, design and maintenance disciplines.
	**Energy Efficiency of Medical Devices and Healthcare Applications**	Amr Mohamed	Elsevier	2020 (1st Edition)	9780128190463	LINK	Energy Efficiency of Medical Devices and Healthcare Facilities provides comprehensive coverage of cutting-edge, interdisciplinary research, and commercial solutions in this field. The authors discuss energy-related challenges, such as energy-efficient design, including renewable energy, of different medical devices from a hardware and mechanical perspectives, as well as energy management solutions and techniques in healthcare networks and facilities. They also discuss energy-related trade-offs to maximize the medical devices availability, especially battery-operated ones, while providing immediate response and low latency communication in emergency situations, sustainability and robustness for chronic disease treatment, in addition to high protection against cyber-attacks that may threaten patients' lives. Finally, the book examines technologies and future trends of next generation healthcare from an energy efficiency and management point of view, such as personalized or smart health and the Internet of Medical Things — IoMT, where patients can participate in their own treatment through innovative medical devices and software applications and tools. The books applied approach makes it a useful resource for engineering researchers and practitioners of all levels involved in medical devices development, healthcare systems, and energy management of healthcare facilities. Graduate students in mechanical and electric engineering, and computer science students and professionals also benefit.

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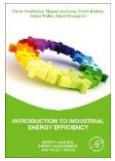	**Introduction to Industrial Energy Efficiency**	Patrik Thollander; Magnus Karlsson; Patrik Rohdin; Johan Wollin; Jakob Rosenqvist	Elsevier	2020 (1st Edition)	9780128172483	LINK	Introduction to Industrial Energy Efficiency: Energy Auditing, Energy Management, and Policy Issues offers a systemic overview of all key-aspects involved in improving industrial energy efficiency in various industry sectors. It is organized in three parts, each dealing with a particular perspective needed to form a complete view of related issues. Sections focus on energy auditing and improved energy efficiency of companies from a predominantly technical perspective, shed light on energy management and factors that hinder or drive the adoption of energy efficiency practices in the manufacturing industry, and explore energy efficiency policy instruments and how they are designed, implemented and evaluated. Practicing engineers in the field of energy efficiency, engineering and energy researchers coming into the field, and graduate students will find this book to be an invaluable reference on the fundamental knowledge they need to get started in this area.
	**Data-Driven and Model-Based Methods for Fault Detection and Diagnosis**	Majdi Mansouri; Mohamed-Faouzi Harkat; Hazem N. Nounou; Mohamed N. Nounou	Elsevier	2020	9780128191651	LINK	Data-Driven and Model-Based Methods for Fault Detection and Diagnosis covers techniques that improve the quality of fault detection and enhance monitoring through chemical and environmental processes. The book provides both the theoretical framework and technical solutions. It starts with a review of relevant literature, proceeds with a detailed description of developed methodologies, and then discusses the results of developed methodologies, and ends with major conclusions reached from the analysis of simulation and experimental studies. The book is an indispensable resource for researchers in academia and industry and practitioners working in chemical and environmental engineering to do their work safely.
	**5G Core Networks**	Stefan Rommer, Peter Hedman, Magnus Olsson, Lars Frid, Shabnam Sultana, Catherine Mulligan	Elsevier	2019 (1st Edition)	9780081030103	LINK	5G Core Networks: Powering Digitalization provides an overview of the 5G Core network architecture, as well as giving descriptions of cloud technologies and the key concepts in the 3GPP rel-15/16 specifications. Written by the authors who are heavily involved in development of the 5G standards and who wrote the successful book on EPC and 4G Packet Networks, this book provides an authoritative reference on the technologies and standards of the 3GPP 5G Core network.
	**Cellular Internet of Things**	Olof Liberg; Mårten Sundberg; Y.-P. Eric Wang; Johan Bergman; Joachim Sachs; Gustav Wikström	Elsevier	2019 (2nd Edition)	9780081029039	LINK	Cellular Internet of Things: From Massive Deployments to Critical 5G Applications, Second Edition, gives insights into the recent and rapid work performed by the 3rd Generation Partnership Project (3GPP) and the Multefire Alliance (MFA) to develop systems for the Cellular IoT. Beyond the technologies, readers will learn what the mMTC and cMTC market segments look like, deployment options and expected performance in terms of system capacity, expected battery lifetime, data throughput, access delay time and device cost, regulations for operation in unlicensed frequency bands, and how they impact system design and performance. This new edition contains updated content on the latest EC-GSM IoT, LTE-M and NB-IoT features in 3GPP Release 15, critical communication, i.e. URLLC, specified in 3GPP Release 15 for both LTE and NR, LTE-M and NB-IoT for unlicensed frequency bands specified in the Multefire Alliance (MFA), and an updated outlook of what the future holds in Industrial IoT and drone communications, amongst other topics.
	**Building Big Data Applications**	Krish Krishnan	Elsevier	2019 (1st Edition)	9780128158043	LINK	Building Big Data Applications helps data managers and their organizations make the most of unstructured data with an existing data warehouse. It provides readers with what they need to know to make sense of how Big Data fits into the world of Data Warehousing. Readers will learn about infrastructure options and integration and come away with a solid understanding on how to leverage various architectures for integration. The book includes a wide range of use cases that will help data managers visualize reference architectures in the context of specific industries (healthcare, big oil, transportation, software, etc.).

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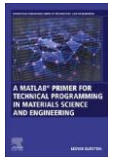
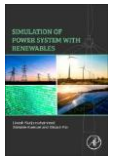
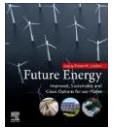
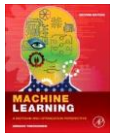
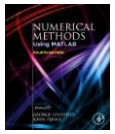
	**A MATLAB® Primer for Technical Programming for Materials Science and Engineering**	Leonid Burstein	Elsevier	2020	9780128191163	LINK	A MATLAB® Primer for Technical Programming for Materials Science and Engineering draws on examples from the field, providing the latest information on this programming tool that is targeted towards materials science. The book enables non-programmers to master MATLAB® in order to solve problems in materials science, assuming only a modest mathematical background. In addition, the book introduces programming and technical concepts in a logical manner to help students use MATLAB® for subsequent projects. This title offers materials scientists who are non-programming specialists with a coherent and focused introduction to MATLAB®.
	**Design for Additive Manufacturing**	Martin Leary	Elsevier	2019 (1st Edition)	9780128168875	LINK	Design for Additive Manufacturing is a complete guide to design tools for the manufacturing requirements of AM and how they can enable the optimization of process and product parameters for the reduction of manufacturing costs and effort. This timely synopsis of state-of-the-art design tools for AM brings the reader right up-to-date on the latest methods from both academia and industry. Tools for both metallic and polymeric AM technologies are presented and critically reviewed, along with their manufacturing attributes. Commercial applications of AM are also explained with case studies from a range of industries, thus demonstrating best-practice in AM design.
	**Work Organization and Methods Engineering for Productivity**	D.R. Kiran;	Elsevier	2020 (1st Edition)	9780128203927	LINK	Work Organization and Methods Engineering for Productivity provides an introduction to, and practical advice on, assessing methods of working to achieve maximum output and efficiency. The main focus of the book is on the 'work study', which helps to increase the productivity of men, machines and materials. We are currently seeing a lot of disruptive advancement in industrial operations caused by technologies, including artificial intelligence and IoT. Against this technological backdrop, and with ever increasing focus on value, the fundamental understanding of how to analyze and organize the workplace for productivity is more important than ever. Case studies and illustrations throughout make this book a much have for managers with responsibility for production and planning in industry.
	**Electric Drives and Electromechanical Systems**	Richard Crowder; Michael Crowder,	Elsevier	2019 (2nd Edition)	9780081028858	LINK	Electric Drives and Electromechanical Devices: Applications and Control, Second Edition, presents a unified approach to the design and application of modern drive system. It explores problems involved in assembling complete, modern electric drive systems involving mechanical, electrical, and electronic elements. This book provides a global overview of design, specification applications, important design information, and methodologies. This new edition has been restructured to present a seamless, logical discussion on a wide range of topical problems relating to the design and specification of the complete motor-drive system. It is organised to establish immediate solutions to specific application problem. Subsidiary issues that have a considerable impact on the overall performance and reliability, including environmental protection and costs, energy efficiency, and cyber security, are also considered.
	**Simulation of Power System with Renewables**	Linash Kunjumuhammed Stefanie Kuenzel Bikash Pal	Elsevier	2019 (1st Edition)	9780128112540	LINK	Simulation of Power System with Renewables provides details on the modelling and efficient implementation of MATLAB, particularly with a renewable energy driven power system. The book presents a step-by-step approach to modelling implementation, including all major components used in current power systems operation, giving the reader the opportunity to learn how to gather models for conventional generators, wind farms, solar plants and FACTS control devices. Users will find this to be a central resource for modelling, building and simulating renewable power systems, including discussions on its limitations, assumptions on the model, and the implementation and analysis of the system.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Handbook of Robotic and Image-Guided Surgery**	Mohammad Hossein; Abedin Nasab	Elsevier	2019 (1st Edition)	9780128142462	LINK	Handbook of Robotic and Image-Guided Surgery provides state-of-the-art systems and methods for robotic and computer-assisted surgeries. In this masterpiece, contributions of 169 researchers from 19 countries have been gathered to provide 38 chapters. This handbook is 744 pages, includes 659 figures and 61 videos. It also provides basic medical knowledge for engineers and basic engineering principles for surgeons. A key strength of this text is the fusion of engineering, radiology, and surgical principles into one book.
	**Emerging Cyber Threats and Cognitive Vulnerabilities**	Vladlena Benson, John McAlaney	Elsevier	2019 (1st Edition)	9780128165942	LINK	Emerging Cyber Threats and Cognitive Vulnerabilities identifies the critical role human behavior plays in cybersecurity and provides insights into how human decision-making can help address rising volumes of cyberthreats. The book examines the role of psychology in cybersecurity by addressing each actor involved in the process: hackers, targets, cybersecurity practitioners and the wider social context in which these groups operate. It applies psychological factors such as motivations, group processes and decision-making heuristics that may lead individuals to underestimate risk. The goal of this understanding is to more quickly identify threat and create early education and prevention strategies. This book covers a variety of topics and addresses different challenges in response to changes in the ways in to study various areas of decision-making, behavior, artificial intelligence, and human interaction in relation to cybersecurity.
	**Future Energy**	Letcher, Trevor M.; Pudasainee, Deepak; Kurian, Vinoj; Gupta, Rajender; de Klerk, Arno; Boak, Jeremy; Kleinberg, Robert; Mastalerz, Maria; Drobniak, Agnieszka; Boswell, Ray; Hancock, Steve	Elsevier	2020 (3rd Edition)	9780081028872	LINK	Future Energy: Improved, Sustainable and Clean Options for Our Planet, Third Edition provides scientists and decision-makers with the knowledge they need to understand the relative importance and magnitude of various energy production methods in order to make the energy decisions necessary for sustaining development and dealing with climate change. The third edition of Future Energy looks at the present energy situation and extrapolates to future scenarios related to global warming and the increase of carbon dioxide and other greenhouse gases in the atmosphere. This thoroughly revised and updated edition contains over 40 chapters on all aspects of future energy, with each chapter updated and expanded by expert scientists and engineers in their respective fields.
	**Cloud Control Systems**	Magdi S. Mahmoud, Yuanqing Xia	Elsevier	2020	9780128187029	LINK	Cloud Control Systems: Analysis, Design and Estimation introduces readers to the basic definitions and various new developments in the growing field of cloud control systems (CCS). The book begins with an overview of cloud control systems (CCS) fundamentals, which will help beginners to better understand the depth and scope of the field. It then discusses current techniques and developments in CCS, including event-triggered cloud control, predictive cloud control, fault-tolerant and diagnosis cloud control, cloud estimation methods, and secure control/estimation under cyberattacks. This book benefits all researchers including professors, postgraduate students and engineers who are interested in modern control theory, robust control, multi-agents control.
	**Machine Learning** **2nd Edition**	Sergios Theodoridis	Elsevier	2020	9780128188040	LINK	Machine Learning: A Bayesian and Optimization Perspective, 2nd edition, gives a unified perspective on machine learning by covering both pillars of supervised learning, namely regression and classification. The book starts with the basics, including mean square, least squares and maximum likelihood methods, ridge regression, Bayesian decision theory classification, logistic regression, and decision trees. It then progresses to more recent techniques, covering sparse modelling methods, learning in reproducing kernel Hilbert spaces and support vector machines, Bayesian inference with a focus on the EM algorithm and its approximate inference variational versions, Monte Carlo methods, probabilistic graphical models focusing on Bayesian networks, hidden Markov models and particle filtering. Dimensionality reduction and latent variables modelling are also considered in depth. This palette of techniques concludes with an extended chapter on neural networks and deep learning architectures. The book also covers the fundamentals of statistical parameter estimation, Wiener and Kalman filtering, convexity and convex optimization, including a chapter on stochastic approximation and the gradient descent family of algorithms, presenting related online learning techniques as well as concepts and algorithmic versions for distributed optimization. Focusing on the physical reasoning behind the mathematics, without sacrificing rigor, all the various methods and techniques are explained in depth, supported by examples and problems, giving an invaluable resource to the student and researcher for understanding and applying machine learning concepts. Most of the chapters include typical case studies and computer exercises, both in MATLAB and Python. The chapters are written to be as self-contained as possible, making the text suitable for different courses: pattern recognition, statistical/adaptive signal processing, statistical/Bayesian learning, as well as courses on sparse modeling, deep learning, and probabilistic graphical models.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Reservoir Engineering Handbook**	Tarek Ahmed	Elsevier	2018 (5th Edition)	9780128136508	LINK	Reservoir Engineering Handbook, Fifth Edition, equips engineers and students with the knowledge required to continue maximizing reservoir assets, especially as more reservoirs become complex, multi-layered, and unconventional in their extraction methods. Building on the solid reputation of the previous edition, this new volume presents critical concepts, such as fluid flow, rock properties, water and gas coning, and relative permeability in a straightforward manner. Water influx calculations, lab tests of reservoir fluids, oil and gas performance calculations, and other essential tools of the trade are also introduced, reflecting on today's operations. New to this edition is an additional chapter devoted to enhanced oil recovery techniques, including WAG. Critical new advances in areas such as well performance, waterflooding, and an analysis of decline and type curves are also addressed, along with more information on the growing extraction from unconventional reservoirs. Practical and critical for new practicing reservoir engineers and petroleum engineering students, this book remains the authoritative handbook on modern reservoir engineering and its theory and practice.
	**Advanced Applications in Manufacturing Engineering**	Mangey Ram, J Paulo Davim	Elsevier	2018 (1st Edition)	9780081024157	LINK	Advanced Applications in Manufacturing Engineering presents the latest research and development in manufacturing engineering across a range of areas, treating manufacturing engineering on an international and transnational scale. It considers various tools, techniques, strategies and methods in manufacturing engineering applications. With the latest knowledge in technology for engineering design and manufacture, this book provides systematic and comprehensive coverage on a topic that is a key driver in rapid economic development, and that can lead to economic benefits and improvements to quality of life on a large-scale.
	**Simulations with NX / Simcenter 3D: Kinematics, FEA, CFD, EM and Data Management**	Reiner Anderl, Peter Binde	Elsevier	2018 (2nd Edition)	978-1-56990-753-5	LINK	Testing and optimizing digital products with Siemens NX and Simcenter 3D In times of Industry 4.0 the digitalization of the value-chain becomes more and more important. The so-called digital twin allows simulations that are very close to reality. This book provides all necessary basics to perform simple as well as complex simulations with NX and Simcenter 3D (former NX CAE). It is aimed at design engineers, CAE engineers and engineering students. The following topics are covered in the book: - Motion Simulation (MBD) - Design Simulation (FEA, Nastran) - Simcenter/Advanced Simulation (FEA, CFD and EM) - Management of Calculation and Simulation Data (Teamcenter for Simulation) Starting off with brief theoretical introductions each chapter contains learning tasks of increasing difficulty. Most of them are based on the CAD model of the legendary Opel RAK2. The presented methods are based on NX 12 and Simcenter 3D, the new 3D CAE solution. Revised topics in this edition are Motion Simulation with the new Simcenter Motion solver and post-processing in Simcenter 3D (FEA). The CAD data and calculation results of all exercises can be found online. The exercises can be completed in NX 11, NX 12 and probably later versions. System requirements for e-book bonus: internet connection and Adobe Acrobat Reader, e-book reader or Adobe Digital Editions
	**Numerical Methods**	George Lindfield, John Penny	Elsevier	2018 (4th Edition)	9780128123706	LINK	The fourth edition of Numerical Methods Using MATLAB® provides a clear and rigorous introduction to a wide range of numerical methods that have practical applications. The authors' approach is to integrate MATLAB® with numerical analysis in a way which adds clarity to the numerical analysis and develops familiarity with MATLAB®. MATLAB® graphics and numerical output are used extensively to clarify complex problems and give a deeper understanding of their nature. The text provides an extensive reference providing numerous useful and important numerical algorithms that are implemented in MATLAB® to help researchers analyze a particular outcome. By using MATLAB® it is possible for the readers to tackle some large and difficult problems and deepen and consolidate their understanding of problem solving using numerical methods. Many worked examples are given together with exercises and solutions to illustrate how numerical methods can be used to study problems that have applications in the biosciences, chaos, optimization and many other fields. The text will be a valuable aid to people working in a wide range of fields, such as engineering, science and economics.

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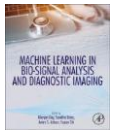
	**Data-Driven Solutions to Transportation Problems**	Yinhai Wang, Ziqiang Zeng	Elsevier	2018 (1st Edition)	9780128170274	LINK	Data-Driven Solutions to Transportation Problems explores the fundamental principle of analyzing different types of transportation-related data using methodologies such as the data fusion model, the big data mining approach, computer vision-enabled traffic sensing data analysis, and machine learning. The book examines the state-of-the-art in data-enabled methodologies, technologies and applications in transportation. Readers will learn how to solve problems relating to energy efficiency under connected vehicle environments, urban travel behavior, trajectory data-based travel pattern identification, public transportation analysis, traffic signal control efficiency, optimizing traffic networks network, and much more.
	**Machine Learning in Bio-Signal Analysis and Diagnostic Imaging**	Nilanjan Dey, Surekha Borra, Amira S. Ashour, Fuqian Shi	Elsevier	2018 (1st Edition)	9780128160879	LINK	Machine Learning in Bio-Signal Analysis and Diagnostic Imaging presents original research on the advanced analysis and classification techniques of biomedical signals and images that cover both supervised and unsupervised machine learning models, standards, algorithms, and their applications, along with the difficulties and challenges faced by healthcare professionals in analyzing biomedical signals and diagnostic images. These intelligent recommender systems are designed based on machine learning, soft computing, computer vision, artificial intelligence and data mining techniques. Classification and clustering techniques, such as PCA, SVM, techniques, Naive Bayes, Neural Network, Decision trees, and Association Rule Mining are among the approaches presented. The design of high accuracy decision support systems assists and eases the job of healthcare practitioners and suits a variety of applications. Integrating Machine Learning (ML) technology with human visual psychometrics helps to meet the demands of radiologists in improving the efficiency and quality of diagnosis in dealing with unique and complex diseases in real time by reducing human errors and allowing fast and rigorous analysis. The book's target audience includes professors and students in biomedical engineering and medical schools, researchers and engineers.
	**Artificial Intelligence in the Age of Neural Networks and Brain Computing**	Robert Kozma, Cesare Alippi, Yoonsuck Choe, Francesco Morabito	Elsevier	2018 (1st Edition)	9780128162507	LINK	Artificial Intelligence in the Age of Neural Networks and Brain Computing demonstrates that existing disruptive implications and applications of AI is a development of the unique attributes of neural networks, mainly machine learning, distributed architectures, massive parallel processing, black-box inference, intrinsic nonlinearity and smart autonomous search engines. The book covers the major basic ideas of brain-like computing behind AI, provides a framework to deep learning, and launches novel and intriguing paradigms as future alternatives. The success of AI-based commercial products proposed by top industry leaders, such as Google, IBM, Microsoft, Intel and Amazon can be interpreted using this book.
	**Artificial Neural Networks for Engineering Applications**	Alma Alanis, Nancy Arana-Daniel, Carlos Lopez-Franco	Elsevier	2019 (1st Edition)	9780128182475	LINK	Artificial Neural Networks for Engineering Applications presents current trends for the solution of complex engineering problems that cannot be solved through conventional methods. The proposed methodologies can be applied to modeling, pattern recognition, classification, forecasting, estimation, and more. Readers will find different methodologies to solve various problems, including complex nonlinear systems, cellular computational networks, waste water treatment, attack detection on cyber-physical systems, control of UAVs, biomechanical and biomedical systems, time series forecasting, biofuels, and more. Besides the real-time implementations, the book contains all the theory required to use the proposed methodologies for different applications.
	**Power Generation Technologies**	Paul Breeze	Elsevier	2019 (3rd Edition)	9780128182550	LINK	This revised third edition of Power Generation Technologies explores even more renewable technologies in detail, from traditional fossil fuels and the more established alternatives such as wind and solar power, to emerging renewables such as biomass and geothermal energy. The book also features new expanded chapters on tidal project proposals, tidal bunds, enhanced geothermal technology, fast-moving areas in marine energy and the development of floating wind turbines. Power Generation Technologies is more than just an account of the technologies – for each method the author explores the economic and environmental costs and risk factors. Each technology is covered using the same basic criteria, so that comparisons between technologies can be made more easily. Those who are involved in planning and delivering energy, including engineers, managers and policy makers, will find a guide through the minefield of maintaining a reliable power supply, meeting targets on greenhouse gas emissions, and addressing economic and social objectives in this book.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Industrial Applications of Nanomaterials**	Sabu Thomas, Yves Grohens, Yasir Beeran Pottathara	Elsevier	2019 (1st Edition)	9780128157503	LINK	Industrial Applications of Nanomaterials explains the industry based applications of nanomaterials, along with their environmental impacts, lifecycle analysis, safety and sustainability. This book brings together the industrial applications of nanomaterials with the incorporation of various technologies and areas, covering new trends and challenges. Significant properties, safety and sustainability and environmental impacts of synthesis routes are also explored, as are major industrial applications, including agriculture, medicine, communication, construction, energy, and in the military. This book is an important information source for those in research and development who want to gain a greater understanding of how nanotechnology is being used to create cheaper, more efficient products.
	**Science and Engineering of Hydrogen-Based Energy Technologies**	Paulo Emilio Miranda	Elsevier	2019 (1st Edition)	9780128142523	LINK	Science and Engineering of Hydrogen-Based Energy Technologies explores the generation of energy using hydrogen and hydrogen-rich fuels in fuel cells from the perspective of its integration into renewable energy systems using the most sound and current scientific knowledge. The book first examines the evolution of energy utilization and the role expected to be played by hydrogen energy technologies in the world's energy mix, not just for energy generation, but also for carbon capture, storage and utilization. It provides a general overview of the most common and promising types of fuel cells, such as PEMFCs, SOFCs and direct alcohol fuel cells. The co-production of chemical and electrolysis cells, as well as the available and future materials for fuel cells production are discussed. It then delves into the production of hydrogen from biomass, including waste materials, and from excess electricity produced by other renewable energy sources, such as solar, wind, hydro and geothermal. The main technological approaches to hydrogen storage are presented, along with several possible hydrogen energy engineering applications. Science and Engineering of Hydrogen-Based Energy Technologies's unique approach to hydrogen energy systems makes it useful for energy engineering researchers, professionals and graduate students in this field. Policy makers, energy planning and management professionals, and energy analysts can also benefit from the comprehensive overview that it provides.
	**Model Engineering for Simulation**	Lin Zhang, Bernard P. Zeigler, Yuanjun LaiLi	Elsevier	2019 (1st Edition)	9780128135440	LINK	Model Engineering for Simulation provides a systematic introduction to the implementation of generic, normalized and quantifiable modeling and simulation using DEVS formalism. It describes key technologies relating to model lifecycle management, including model description languages, complexity analysis, model management, service-oriented model composition, quantitative measurement of model credibility, and model validation and verification. The book clearly demonstrates how to construct computationally efficient, object-oriented simulations of DEVS models on parallel and distributed environments.
	**Machine Component Analysis with MATLAB**	Dan Marghitu, Mihai Dupac	Elsevier	2019 (1st Edition)	9780128042458	LINK	Machine Design Analysis with MATLAB is a highly practical guide to the fundamental principles of machine design which covers the static and dynamic behavior of engineering structures and components. MATLAB has transformed the way calculations are made for engineering problems by computationally generating analytical calculations, as well as providing numerical calculations. Using step-by-step, real world example problems, this book demonstrates how you can use symbolic and numerical MATLAB as a tool to solve problems in machine design. This book provides a thorough, rigorous presentation of machine design, augmented with proven learning techniques which can be used by students and practicing engineers alike.
	**Essential MATLAB for Engineers and Scientists**	Brian Hahn, Daniel Valentine	Elsevier	2019 (7th Edition)	9780081029985	LINK	Essential MATLAB for Engineers and Scientists, Seventh Edition, provides a concise, balanced overview of MATLAB's functionality, covering both fundamentals and applications. The essentials are illustrated throughout, featuring complete coverage of the software's windows and menus. Program design and algorithm development are presented, along with many examples from a wide range of familiar scientific and engineering areas. This edition has been updated to include the latest MATLAB versions through 2018b. This is an ideal book for a first course on MATLAB, but is also ideal for an engineering problem-solving course using MATLAB.

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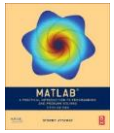	**MATLAB**	Dorothy C. Attaway	Elsevier	2018 (5th Edition)	9780128163450	LINK	MATLAB: A Practical Introduction to Programming and Problem Solving, winner of TAA's 2017 Textbook Excellence Award ("Texty"), guides the reader through both programming and built-in functions to easily exploit MATLAB's extensive capabilities for tackling engineering and scientific problems. Assuming no knowledge of programming, this book starts with programming concepts, such as variables, assignments, and selection statements, moves on to loops, and then solves problems using both the programming concept and the power of MATLAB. The fifth edition has been updated to reflect the functionality of the current version of MATLAB (R2018a), including the addition of local functions in scripts, the new string type, coverage of recently introduced functions to import data from web sites, and updates to the Live Editor and App Designer.
	**Data Science for Business and Decision Making**	Luiz Paulo Favero, Patricia Belfiore	Elsevier	2019 (1st Edition)	9780128112175	LINK	Data Science for Business and Decision Making covers both statistics and operations research while most competing textbooks focus on one or the other. As a result, the book more clearly defines the principles of business analytics for those who want to apply quantitative methods in their work. Its emphasis reflects the importance of regression, optimization and simulation for practitioners of business analytics. Each chapter uses a didactic format that is followed by exercises and answers. Freely-accessible datasets enable students and professionals to work with Excel, Stata Statistical Software®, and IBM SPSS Statistics Software®.
	**Security Controls Evaluation, Testing, and Assessment Handbook**	Leighton Johnson	Elsevier	2019	9780128206249	LINK	Security Controls Evaluation, Testing, and Assessment Handbook, Second Edition, provides a current and well-developed approach to evaluate and test IT security controls to prove they are functioning correctly. This handbook discusses the world of threats and potential breach actions surrounding all industries and systems. Sections cover how to take FISMA, NIST Guidance, and DOD actions, while also providing a detailed, hands-on guide to performing assessment events for information security professionals in US federal agencies. This handbook uses the DOD Knowledge Service and the NIST Families assessment guides as the basis for needs assessment, requirements and evaluation efforts.
	**3D Concrete Printing Technology**	Jay Sanjayan, Ali Nazari, Behzad Nematollahi	Elsevier	2019	9780128154823	LINK	3D Concrete Printing Technology provides valuable insights into the new manufacturing techniques and technologies needed to produce concrete materials. In this book, the editors explain the concrete printing process for mix design and the fresh properties for the high-performance printing of concrete, along with commentary regarding their extrudability, workability and buildability. This is followed by a discussion of three large-scale 3D printings of ultra-high performance concretes, including their processing setup, computational design, printing process and materials characterization. Properties of 3D-printed fiber-reinforced Portland cement paste and its flexural and compressive strength, density and porosity and the 3D-printing of hierarchical materials is also covered.
	**Internet of Things in Biomedical Engineering**	Valentina Emilia Balas, Le Hoang Son, Sudan Jha, Manju Khari, Raghvendra Kumar	Elsevier	2019	9780128173572	LINK	Internet of Things in Biomedical Engineering presents the most current research in Internet of Things (IoT) applications for clinical patient monitoring and treatment. The book takes a systems-level approach for both human-factors and the technical aspects of networking, databases and privacy. Sections delve into the latest advances and cutting-edge technologies, starting with an overview of the Internet of Things and biomedical engineering, as well as a focus on 'daily life.' Contributors from various experts then discuss 'computer assisted anthropology,' CLOUDFALL, and image guided surgery, as well as bio-informatics and data mining. This comprehensive coverage of the industry and technology is a perfect resource for students and researchers interested in the topic.

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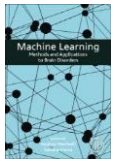
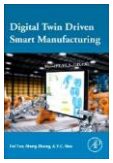
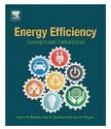
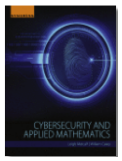
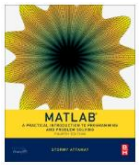
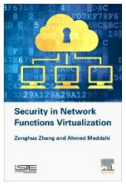
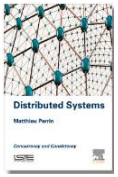
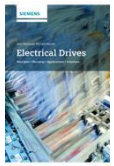
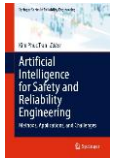
	**Machine Learning**	Andrea Mechelli, Sandra Vieira	Elsevier	2019	9780128157404	LINK	Machine Learning is an area of artificial intelligence involving the development of algorithms to discover trends and patterns in existing data; this information can then be used to make predictions on new data. A growing number of researchers and clinicians are using machine learning methods to develop and validate tools for assisting the diagnosis and treatment of patients with brain disorders. Machine Learning: Methods and Applications to Brain Disorders provides an up-to-date overview of how these methods can be applied to brain disorders, including both psychiatric and neurological disease. This book is written for a non-technical audience, such as neuroscientists, psychologists, psychiatrists, neurologists and health care practitioners.
	**Digital Twin Driven Smart Manufacturing**	Fei Tao, Meng Zhang, A.Y.C. Nee	Elsevier	2019	9780128176313	LINK	Digital Twin Driven Smart Manufacturing examines the background, latest research, and application models for digital twin technology, and shows how it can be central to a smart manufacturing process. The interest in digital twin in manufacturing is driven by a need for excellent product reliability, and an overall trend towards intelligent, and connected manufacturing systems. This book provides an ideal entry point to this subject for readers in industry and academia, as it answers the questions: (a) What is a digital twin? (b) How to construct a digital twin? (c) How to use a digital twin to improve manufacturing efficiency? (d) What are the essential activities in the implementation of a digital twin? (e) What are the most important obstacles to overcome for the successful deployment of a digital twin? (f) What are the relations between digital twin and New Technologies? (g) How to combine digital twin with the New Technologies to achieve high efficiency and smartness in manufacturing? This book focuses on these problems as it aims to help readers make the best use of digital twin technology towards smart manufacturing.
	**Artificial Intelligence for the Internet of Everything**	William Lawless, Ranjeev Mittu, Donald Sofge, Ira S Moskowitz, Stephen Russell	Elsevier	2019	9780128176375	LINK	Artificial Intelligence for the Internet of Everything considers the foundations, metrics and applications of IoE systems. It covers whether devices and IoE systems should speak only to each other, to humans or to both. Further, the book explores how IoE systems affect targeted audiences (researchers, machines, robots, users) and society, as well as future ecosystems. It examines the meaning, value and effect that IoT has had and may have on ordinary life, in business, on the battlefield, and with the rise of intelligent and autonomous systems. Based on an artificial intelligence (AI) perspective, this book addresses how IoE affects sensing, perception, cognition and behavior. Each chapter addresses practical, measurement, theoretical and research questions about how these “things” may affect individuals, teams, society or each other. Of particular focus is what may happen when these “things” begin to reason, communicate and act autonomously on their own, whether independently or interdependently with other “things”.
	**Security Controls Evaluation, Testing, and Assessment Handbook**	Leighton Johnson	Elsevier	2015	9780128023242	LINK	Security Controls Evaluation, Testing, and Assessment Handbook provides a current and well-developed approach to evaluation and testing of security controls to prove they are functioning correctly in today's IT systems. This handbook shows you how to evaluate, examine, and test installed security controls in the world of threats and potential breach actions surrounding all industries and systems. If a system is subject to external or internal threats and vulnerabilities - which most are - then this book will provide a useful handbook for how to evaluate the effectiveness of the security controls that are in place. Security Controls Evaluation, Testing, and Assessment Handbook shows you what your security controls are doing and how they are standing up to various inside and outside threats. This handbook provides guidance and techniques for evaluating and testing various computer security controls in IT systems.
	**Energy Efficiency: Concepts and Calculations**	Daniel M. Martinez, Ben W. Ebenhack, Travis P. Wagner	Elsevier	2019	9780128121115	LINK	Energy Efficiency: Concepts and Calculations is the first book of its kind to provide an applied, systems oriented description of energy intensity and efficiency in modern economies across the entire energy chain. With an emphasis on analysis, specifically energy flow analysis, lifecycle energy accounting, economic analysis, technology evaluation, and policies/strategies for adopting high energy efficiency standards, the book provides a comprehensive understanding of the concepts, tools and methodologies for studying and modeling macro-level energy flows through, and within, key economic sectors (electric power, industrial, commercial, residential and transportation). Providing a technical discussion of the application of common methodologies (e.g. cost-benefit analysis and lifecycle assessment), each chapter contains figures, charts and examples from each sector, including the policies that have been put in place to promote and incentivize the adoption of energy efficient technologies.

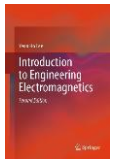
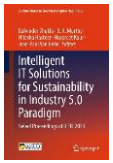
Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Additive Manufacturing: Materials, Processes, Quantifications and Applications** **1st Edition**	Jing Zhang; Yeon-Gil Jung	Elsevier	2018	9780128121559	LINK	Additive Manufacturing: Materials, Processes, Quantifications and Applications is designed to explain the engineering aspects and physical principles of available AM technologies and their most relevant applications. It begins with a review of the recent developments in this technology and then progresses to a discussion of the criteria needed to successfully select an AM technology for the embodiment of a particular design, discussing material compatibility, interfaces issues and strength requirements. The book concludes with a review of the applications in various industries, including bio, energy, aerospace and electronics. This book will be a must read for those interested in a practical, comprehensive introduction to additive manufacturing, an area with tremendous potential for producing high-value, complex, individually customized parts. As 3D printing technology advances, both in hardware and software, together with reduced materials cost and complexity of creating 3D printed items, these applications are quickly expanding into the mass market.
	**PID Control with Intelligent Compensation for Exoskeleton Robots**	Wen Yu	Elsevier	2018	9780128133804	LINK	PID Control with Intelligent Compensation for Exoskeleton Robots explains how to use neural PD and PID controls to reduce integration gain, and provides explicit conditions on how to select linear PID gains using proof of semi-global asymptotic stability and local asymptotic stability with a velocity observer. These conditions are applied in both task and joint spaces, with PID controllers compensated by neural networks. This is a great resource on how to combine traditional PD/PID control techniques with intelligent control. Dr. Wen Yu presents several leading-edge methods for designing neural and fuzzy compensators with high-gain velocity observers for PD control using Lyapunov stability. Proportional-integral-derivative (PID) control is widely used in biomedical and industrial robot manipulators. An integrator in a PID controller reduces the bandwidth of the closed-loop system, leads to less-effective transient performance and may even destroy stability. Many robotic manipulators use proportional-derivative (PD) control with gravity and friction compensations, but improved gravity and friction models are needed. The introduction of intelligent control in these systems has dramatically changed the face of biomedical and industrial control engineering.
	**Building Wireless Sensor Networks**	Smain Femmam	Elsevier	2017	9781785482748	LINK	Building Wireless Sensor Networks: Application to Routing and Data Diffusion discusses challenges involved in securing routing in wireless sensor networks with new hybrid topologies. An analysis of the security of real time data diffusion—a protocol for routing in wireless sensor networks—is provided, along with various possible attacks and possible countermeasures. Different applications are introduced, and new topologies are developed. Topics include audio video bridging (AVB) switched Ethernet, which uses the representation of a network of wireless sensors by a grayscale image to construct routing protocols, thereby minimizing energy consumption and data sharing in vehicular ad-hoc networks. Existing wireless networks aim to provide communication services between vehicles by enabling the vehicular networks to support wide range applications. New topologies are proposed first, based on the graphiton models, then the wireless sensor networks (WSN) based on the IEEE 802.15.4 standard (ZigBee sensors, and finally the Pancake graphs as an alternative to the Hypercube for interconnecting processors in parallel computer networks.
	**Cybersecurity and Applied Mathematics**	William Casey Leigh Metcalf W. Casey	Elsevier	2016	9780128044520	LINK	Cybersecurity and Applied Mathematics explores the mathematical concepts necessary for effective cybersecurity research and practice, taking an applied approach for practitioners and students entering the field. This book covers methods of statistical exploratory data analysis and visualization as a type of model for driving decisions, also discussing key topics, such as graph theory, topological complexes, and persistent homology. Defending the Internet is a complex effort, but applying the right techniques from mathematics can make this task more manageable. This book is essential reading for creating useful and replicable methods for analyzing data.
	**MATLAB**	Dorothy C. Attaway	Elsevier	2016 (4th Edition)	9780128045251	LINK	MATLAB: A Practical Introduction to Programming and Problem Solving, Fourth Edition, winner of a 2017 Textbook Excellence Award (Texty), has been updated to reflect the functionality of the current version of MATLAB, including the new H2 Graphics system. It features new and revised end-of-chapter exercises, more engineering applications to help the reader learn this software tool in context, and a new section on object-oriented programming in MATLAB. MATLAB has become the standard software tool for solving scientific and engineering problems due to its powerful built-in functions and its ability to program. Assuming no knowledge of programming, this book guides the reader through both programming and built-in functions to easily exploit MATLAB's extensive capabilities for tackling engineering problems. The book starts with programming concepts, such as variables, assignments, and selection statements, moves on to loops, and then solves problems using both the programming concept and the power of MATLAB. In-depth coverage is given to input/output, a topic fundamental to many engineering applications.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Cloud Computing**	Dan Marinescu	Elsevier	2018	9780128128107	LINK	Cloud Computing: Theory and Practice, Second Edition, provides students and IT professionals with an in-depth analysis of the cloud from the ground up. After an introduction to network-centric computing and network-centric content in Chapter One, the book is organized into four sections. Section One reviews basic concepts of concurrency and parallel and distributed systems. Section Two presents such critical components of the cloud ecosystem as cloud service providers, cloud access, cloud data storage, and cloud hardware and software. Section Three covers cloud applications and cloud security, while Section Four presents research topics in cloud computing. Specific topics covered include resource virtualization, resource management and scheduling, and advanced topics like the impact of scale on efficiency, cloud scheduling subject to deadlines, alternative cloud architectures, and vehicular clouds. An included glossary covers terms grouped in several categories, from general to services, virtualization, desirable attributes and security.
	**Security in Network Functions Virtualization**	Zhang Zonghua Ahmed Meddahi	Elsevier	2017	9781785482571	LINK	The software and networking industry is experiencing a rapid development and deployment of Network Functions Visualization (NFV) technology, in both enterprise and cloud data center networks. One of the primary reasons for this technological trend is that NFV has the capability to reduce CAPEX and OPEX, whilst increasing networking service efficiency, performance, agility, scalability, and resource utilization. Despite such well-recognized benefits, security remains a major concern of network service providers and seriously impedes the further expansion of NFV. This book is therefore dedicated to investigating and exploring the potential security issues of NFV. It contains three major elements: a thorough overview of the NFV framework and architecture, a comprehensive threat analysis aiming to establish a layer-specific threat taxonomy for NFV enabled networking services, and a series of comparative studies of security best practices in traditional networking scenarios and in NFV, ultimately leading to a set of recommendations on security countermeasures in NFV
	**Distributed Systems**	Matthieu Perrin	Elsevier	2017	978-1-78548-226-7	LINK	Distributed Systems: Concurrency and Consistency explores the gray area of distributed systems and draws a map of weak consistency criteria, identifying several families and demonstrating how these may be implemented into a programming language. Unlike their sequential counterparts, distributed systems are much more difficult to design, and are therefore prone to problems. On a large scale, usability reminiscent of sequential consistency, which would provide the same global view to all users, is very expensive or impossible to achieve. This book investigates the best ways to specify the objects that are still possible to implement in these systems.
	**How to Succeed in the Digital Age. Strategies from 17 Top Managers**	Rupert Stadler Walter Brenner Andreas Herrmann	Frankfurter Allgemeine Buch	2014	978-3-95601-042-2	LINK	It's starting to look as if the whirlwind of the Internet revolution might be petering out to a gentle breeze. The customer's new position of power is now a well-established fact. For the business world, Facebook and Twitter accounts, coupled with an attractive website, now rank high on most checklists for corporate success. But is that really enough? In a world where even the smallest air current can build into a powerful storm, it can obviously prove to be a mistake not to keep a constant watch on the ever-changing digitalization trend - the trend that is generating new data and networking ever more physical products all the time. How fast can an online post by a single disgruntled customer call forth hordes of angry users that can do lasting damage to a company's reputation? Could data be the key to business success in the future? Success in the Digital Age is the first-ever collection of success stories and reports of real-world experiences by 17 CEOs and leading executives from a diverse range of industries as well as leading academics.
	**Internet of Things** **Principles and Paradigms**	Rajkumar Buyya Amir Vahid Dastjerdi	Morgan Kaufmann Publishers In	2016	978-0-12-805395-9	LINK	Internet of Things: Principles and Paradigms captures the state-of-the-art research in Internet of Things, its applications, architectures, and technologies. The book identifies potential future directions and technologies that facilitate insight into numerous scientific, business, and consumer applications. The Internet of Things (IoT) paradigm promises to make any electronic devices part of the Internet environment. This new paradigm opens the doors to new innovations and interactions between people and things that will enhance the quality of life and utilization of scarce resources. To help realize the full potential of IoT, the book addresses its numerous challenges and develops the conceptual and technological solutions for tackling them. These challenges include the development of scalable architecture, moving from closed systems to open systems, designing interaction protocols, autonomic management, and the privacy and ethical issues around data sensing, storage, and processing.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**LN update**	Christiane Blum, Christine Steffens	Lucas-Nülle GmbH	2016		LINK	
	**Programmable Logic Controllers**	W. Bolton	Newnes	2015 (6th edition)	978-0-12-802929-9	LINK	This textbook, now in its sixth edition, continues to be straightforward and easy-to-read, presenting the principles of PLCs while not tying itself to one manufacturer or another. Extensive examples and chapter ending problems utilize several popular PLCs, highlighting understanding of fundamentals that can be used regardless of manufacturer. This book will help you to understand the main design characteristics, internal architecture, and operating principles of PLCs, as well as Identify safety issues and methods for fault diagnosis, testing, and debugging. New to This edition: A new chapter 1 with a comparison of relay-controlled systems, microprocessor-controlled systems, and the programmable logic controller, a discussion of PLC hardware and architecture, examples from various PLC manufacturers, and coverage of security, the IEC programming standard, programming devices and manufacturer's softwareMore detail of programming using Sequential Function ChartsExtended coverage of the sequencerMore Information on fault finding, including testing inputs and outputs with an illustration of how it is done with the PLC manufacturer's softwareNew case studies
	**Process Control Systems Engineering**	Leon Urbas	Oldenburg Industrieverlag	2012	978-3838631984	LINK	Process Control Systems (PCS) are distributed control systems (DCS) that are specialized to meet the requirements of the process industries. Many processes and plants of that domain have high safety and availability requirements, are instrumented with a large number of sensors and actuators and show a rather high degree of automation at least in standard operation regimes.There are remarkable differences and cross-discipline interdependencies between chemical-physical properties of the substances, prodedures, unit operations, equipment, instrumentation and control strategies. This results in the observation that there hardly any two plants that are identical, even if the products are interchangeable. Thus, it is not surprising, that there is an ongoing discussion if each domain of the process industries, namely chemicals, pharma, pulp & paper, oil & gas, food & beverages and water/waste water treatment should have its own specialized automation system. On the contrary, there are some opinions that PCS architectures that address all of the distinct requirements of the process industries, should even be generic enough to render the distinction between PCS and e.g. DCS for power generation and distribution a merely marketing or historical issue, not a technical one.
	**LOGO! 8: A Practical Introduction, with Circuit Solutions and Example Programs**	Stefan Kruse	PUBLICIS	2015	978-3-89578-445-3	LINK	Addressing students and engineers, but also hobby engineers, this practical guide will help to easily and cost-effectively implement technical solutions in home and installation technology, as well as small-scale automation solutions in machine and plant engineering. The book descriptively illustrates how to plan LOGO! 8 projects, develop programs and how to select the hardware. Standard control technology scenarios are demonstrated by building on the fundamentals of modern information technology and with the help of several real-life sample switches. In addition, readers are provided with practice-oriented descriptions of various basic and special LOGO! 8 modules with which specific tasks can be very flexibly implemented. Compared to former generations and competing products, LOGO! 8 comprises an integrated Ethernet interface, easy Internet control, a space-saving design and also more digital and analog outputs. The basic and special functions of the logic module can be used to replace several switching devices. Equipped with an Ethernet interface and a Web server, LOGO 8! devices offer more functionalities for remote access via smartphone or other devices. With the LOGO! Soft Comfort V8 software, program and communication functions for up to 16 network users can be conveniently programmed and simulated.
	**Electrical Drives Principles, Planning, Applications, Solutions**	Jens Weidauer Richard Messer	PUBLICIS	2014	978-3-89578-434-7	LINK	From the point of view of a user this book covers all aspects of modern electrical drives. It is aimed at both users, who wish to understand, design, use, and maintain electrical drives, as well as specialists, technicians, engineers, and students, who wish to gain a comprehensive overview of electrical drives. Jens Weidauer and Richard Messer describe the principles of electrical drives, their design, and application, through to complex automation solutions. In the process, they introduce the entire spectrum of drive solutions available and their main applications. A special aspect is the combination of multiple drives to form a drive system, as well as the integration of drives into automation solutions. In simple and clear language, and supported with many diagrams, complex relationships are described and presented in an easy-to-understand way. The authors deliberately avoid a comprehensive mathematical treatment of their subject and instead focus on a coherent description of the active principles and relationships. As a result, the reader will be in a position to understand electrical drives as a whole and to solve drive-related problems in everyday professional life.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Automating with SIMATIC S7-300 inside TIA Portal Hardware Components, Programming with STEP 7 Basic in LAD and FBD, Visualization with HMI Basic Panels (PRINT and E-BOOK)**	Hans Berger	PUBLICIS	2014 (2nd edition)	978-3-89578-443-9	LINK	SIMATIC S7-300 has been specially designed for innovative system solutions in the manufacturing industry, and with a diverse range of controllers it offers the optimal solution for applications in centralized and distributed configurations. Alongside standard automation safety technology and motion control can also be integrated. The TIA Portal user interface is tuned to intuitive operation and encompasses all the requirements of automation within its range of functions: from configuring the controller, through programming in the different languages, all the way to the program test and simulation. For beginners engineering is easy to learn and for professionals it is fast and efficient. This book describes the configuration of devices and network for the S7-300 components inside the new engineering framework TIA Portal. With STEP 7 Professional V12, configuring and programming of all SIMATIC controllers will be possible in a simple and efficient way; in addition to various technology functions the block library also contains a PID control. As reader of the book you learn how a control program is formulated and tested with the programming languages LAD, FBD, STL and SCL. Descriptions of configuring the distributed I/O with PROFIBUS DP and PROFINET IO using SIMATIC S7-300 and exchanging data via Industrial Ethernet round out the book.
	**Automating with SIMATIC S7-1500**	Hans Berger	PUBLICIS	2014	978-3-89578-404-0	LINK	The SIMATIC S7-1500 controller sets new standards in productivity and efficiency in control technology with its many innovations. The new controller with its outstanding system performance and with PROFINET as standard interface ensures extremely short system response times and the highest control quality with a maximum of flexibility for most demanding automation tasks. A new backplane bus with a high baud rate and efficient transmission protocol ensures this excellent system performance. With PLCopen, the controller provides standardized components for the connection of drives that support PROFIdrive without additional modules. Comprehensive Trace functionalities for all CPU variables allow precise diagnosis of user programs and motion applications as well as fast optimization of drives and controls. The integrated security concept includes authorization levels, component protection and even communication integrity. Thus, it protects your investment and contributes to high plant availability. In the book, the new automation system is presented in detail. You learn how the consistent control concept for controllers, HMI, and drives is implemented inside TIA portal with common data storage and how you to make the most effective use of the advantages of the TIA portal.
	**Automating with SIMATIC S7-1500. Configuring, Programming and Testing with STEP 7 Professional**	Hans Berger	PUBLICIS	2017	978-3-89578-460-6	LINK	The SIMATIC S7-1500 programmable logic controller (PLC) sets standards in productivity and efficiency. By its system performance and with PROFINET as the standard interface, it ensures short system response times and a maximum of flexibility and networkability for demanding automation tasks in the entire production industry and in applications for medium-sized to high-end machines. The engineering software STEP 7 Professional operates inside TIA Portal, a user interface that is designed for intuitive operation. Functionality includes all aspects of automation: from the configuration of the controllers via programming in the IEC languages LAD, FBD, STL, and SCL up to the program test. In the book, the hardware components of the automation system S7-1500 are presented including the description of their configuration and parameterization. A comprehensive introduction into STEP 7 Professional V14 illustrates the basics of programming and troubleshooting. Beginners learn the basics of automation with Simatic S7-1500, users switching from other controllers will receive the relevant knowledge.
	**Automating with SIMATIC S7-1200: Configuring, Programming and Testing with STEP 7**	Hans Berger	PUBLICIS	2018	978-3-89578-470-5	LINK	This book addresses both beginners and users experienced in working with automation systems. It presents the hardware components of S7-1200 and illustrates their configuration and parameterization, as well as the communication via PROFINET, PROFIBUS, AS-Interface und PtP-connections. A profound introduction into STEP 7 Basic illustrates the basics of programming and troubleshooting
	**Intelligent Computing and Big Data Analytics**	Mukesh Patil, Vishwesh Vyawahare, Gajanan Birajdar	Springer	2024 **NEW**	978-3-031-74701-4	LINK	This book constitutes the refereed proceedings of the First International Conference on Intelligent Computing and Big Data Analytics, ICICBDA 2024, held in Navi Mumbai, India, during June 15–16, 2024. The 48 full papers presented were carefully reviewed and selected from 275 submissions. The accepted submissions report original and novel results in various fields like Intelligent Security systems, Big Data Analytics, AI and ML applications, intelligent systems, Deep Learning, Blockchain, and many more.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Programming with Python for Engineers**	Sinan Kalkan , Onur T. Şehitoğlu , Göktürk Üçoluk	Springer	2024 **NEW**	978-3-031-57148-0	LINK	This book introduces computing and programming with undergraduate engineering students in mind. It uses Python (Version 3) as the programming language, chosen for its simplicity, readability, wide applicability and large collection of libraries. After introducing engineering-related Python libraries, such as NumPy, Pandas, Matplotlib, Sci-kit, Programming with Python for Engineers shows how Python can be used to implement methods common in a wide spectrum of engineering-related problems drawn from (for example): design, control, decision-making, scheduling and planning. Important features of the book include the following: The book contains interactive content for illustration of important concepts, where the user can provide input and by clicking buttons, trace through the steps. Each chapter is also accessible as a Jupyter Notebook page and every code piece is executable. This allows the readers to run code examples in chapters immediately, to make changes and gain a better grasp of the concepts presented. The coverage of topics is complemented by illustrative examples and exercises. For instructors adopting the textbook, a solutions manual is provided at https://sites.google.com/springernature.com/extramaterial/lecturer-material.
	**Artificial Intelligence for Safety and Reliability Engineering**	Kim Phuc Tran	Springer	2024 **NEW**	978-3-031-71495-5	LINK	This book is a comprehensive exploration of the latest theoretical research, technological advancements, and real-world applications of artificial intelligence (AI) for safety and reliability engineering. Smart manufacturing relies on predictive maintenance (PdM) to ensure sustainable production systems, and the integration of AI has become increasingly prevalent in this field. This book serves as a valuable resource for researchers, practitioners, and decision-makers in manufacturing. By combining theoretical research, practical applications, and case studies, it equips readers with the necessary knowledge and tools to implement AI for safety and reliability engineering effectively in smart manufacturing contexts.
	**Industry 5.0 and Emerging Technologies**	Aziza Chakir, Rohit Bansal, Mohamed Azzouazi	Springer	2024 **NEW**	978-3-031-70996-8	LINK	The book aims to provide up-to-date research on the emerging technologies and applications in Industry 5.0, challenges and emerging trends in Industry 5.0 and the role of Industry 5.0 in sustainable economy. Industry 5.0 is a new production model where the focus lies in the interaction between humans and machines. Industry 5.0 takes the next step, which involves leveraging the collaboration between increasingly powerful and accurate machinery and the unique creative potential of the human being. Industry 5.0 is characterized by going beyond producing goods and services for profit. It shifts the focus from the shareholder value to stakeholder value and reinforces the role and the contribution of industry to society. Industry 5.0 is the future and already an emerging trend: the interaction and collaboration between man and machine. It places the well being of the worker at the center of the production process and uses new technologies to provide prosperity beyond jobs and growth while respecting the production limits of the planet. It complements the existing "Industry 4.0" approach by specifically putting research and innovation at the service of the transition to a sustainable, human-centric and resilient European industry. Industry 5.0 brings benefits for industry, for workers and for society. But making Industry 5.0 a reality is not just a nice thing to do. Industries must adapt, evolve and embrace the green and digital transitions to continue to be competitive and remain engines of prosperity. Industries must play an active role in providing solutions to challenges in society including the preservation of resources, climate change and social stability.
	**AI-enabled Spectrum Sharing**	Lin Zhang, Ming Xiao, Zicun Wang, Wanbin Tang	Springer	2024 **NEW**	978-981-97-7644-3	LINK	Wireless edge networks aim to provide last-mile wireless connections between access points and diversified wireless end devices. Recent years witness the rapid development of wireless communication ecosystems including fundamental theory breakthroughs, manufacture capability improvements, as well as the explosively increasing wireless end devices and service demands. It is known that spectrum is the irreplaceable resource for wireless transmissions in edge networks. Nevertheless, it is quite challenging and inefficient to allocate dedicated spectrum for each single transmission link due to the severe shortage of spectrum resource. Alternatively, by enabling different links to use the same spectrum, spectrum sharing is envisioned to be a promising paradigm to properly accommodate the conflict between the scarce spectrum resource and substantial spectrum demands. Conventionally, model-driven optimization methods are widely adopted to optimize the spectrum sharing policy in the edge network and achieve friendly coexistence among different transmission links. However, future wireless edge network is predicted to be large-scale and heterogeneous, model-driven optimization methods will be problematic such as imperfect modelling and unacceptable overheads. Different from the existing related books on spectrum sharing or spectrum management for wireless edge networks, our book leverages the artificial intelligence (AI) to achieve smart spectrum sharing for wireless edge networks and elaborates AI-enabled spectrum sharing technique in typical scenarios, which can guide the development of next-generation spectrum sharing standards, as well as provide innovative spectrum sharing methods for related practitioners, including research fellow, lecturers, and students.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Generative AI Security**	Ken Huang, Yang Wang, Ben Goertzel, Yale Li, Sean Wright, Jyoti Ponnapalli	Springer	2024 **NEW**	978-3-031-54252-7	LINK	This book explores the revolutionary intersection of Generative AI (GenAI) and cybersecurity. It presents a comprehensive guide that intertwines theories and practices, aiming to equip cybersecurity professionals, CISOs, AI researchers, developers, architects and college students with an understanding of GenAI's profound impacts on cybersecurity. The scope of the book ranges from the foundations of GenAI, including underlying principles, advanced architectures, and cutting-edge research, to specific aspects of GenAI security such as data security, model security, application-level security, and the emerging fields of LLMOps and DevSecOps. It explores AI regulations around the globe, ethical considerations, the threat landscape, and privacy preservation. Further, it assesses the transformative potential of GenAI in reshaping the cybersecurity landscape, the ethical implications of using advanced models, and the innovative strategies required to secure GenAI applications. Lastly, the book presents an in-depth analysis of the security challenges and potential solutions specific to GenAI, and a forward-looking view of how it can redefine cybersecurity practices. By addressing these topics, it provides answers to questions on how to secure GenAI applications, as well as vital support with understanding and navigating the complex and ever-evolving regulatory environments, and how to build a resilient GenAI security program. The book offers actionable insights and hands-on resources for anyone engaged in the rapidly evolving world of GenAI and cybersecurity.
	**Introduction to Engineering Electromagnetics**	Yeon Ho Lee	Springer	2024 **NEW**	978-3-031-28659-9	LINK	This book provides junior and sophomore college and university students with a thorough understanding of electromagnetic fundamentals through rigorous mathematical procedures and logical reasoning. Electromagnetics is one of the most difficult courses in engineering, because mathematical theorems cannot completely convey the physical concepts underlying electromagnetic principles. This book fills this gap with logical reasoning, such as symmetry considerations and the uniqueness theorem, and clearly distinguishes between mathematical procedures and expressions for physical events. The sign convention is carefully set to distinguish static, phasor, and time-varying quantities, and to be consistent with double-indexed symbols. This book begins with a coverage of vector fields, coordinate systems, and vector calculus, which are customized for the study of electromagnetics. Subsequently, static electric and magnetic fields are discussed. Before discussing time-varying fields and their applications in transmission lines, waveguides, and antennas, the concept of wave motion is explained. Most of the 379 figures are drawn in three dimensions, and the measured data are drawn to scale. A total of 184 examples show rigorous approaches to solving practical problems using the aforementioned concepts, and 301 exercises with answers provide a means of checking whether students correctly understood the concepts. The sections end with 445 review questions, with hints referring to the related equations and figures. This book contains 507 end-of-chapter problems.
	**Advances in Robot Kinematics 2024**	Jadran Lenarčič, Manfred Husty	Springer	2024 **NEW**	978-3-031-64057-5	LINK	This book is aimed at researchers specializing in the kinematics of robot mechanisms as well as at doctoral students in guiding their research work. A spectrum of the latest achievements in kinematics analysis, modelling, simulation, design and control is covered. New theories and methods are applied to serial, parallel and cable-driven mechanisms for use in industrial or service robotics. The systems range from being less than fully mobile to kinematically redundant and over-constrained. Forty-nine papers are included, arranged in seven chapters, as presented at the 19th Symposium on Advances in Robot Kinematics 2024. The symposium, which has been held since 1988, was organized this time in Ljubljana (Slovenia), where it began thirty-six years ago. The papers have been rigorously selected based on peer review and are arranged in chapters randomly, as is the prevailing tradition of these symposia. In doing so, we aim to give equal emphasis to each of these achievements.
	**Learn coding with Python and JavaScript**	Joachim L. Zuckarelli	Springer	2024 **NEW**	978-3-658-42912-6	LINK	Whether on the computer, tablet, mobile phone, in the car or in the coffee machine - computer programs determine our everyday life. Software is becoming increasingly important, hardly anything works without the mysterious power of algorithms. But how do programs work? And how do you develop them? This book teaches you the basics of programming. Using everyday examples, you will first learn the basic concepts of programming, which are similar in all programming languages. Based on these basic ideas, you will then learn two popular and very useful programming languages, Python and JavaScript, in a systematic way and with many practical exercises, which you can use for a wide range of different tasks. The book is aimed at novice programmers of all ages (from students to professionals) who have no previous programming experience.
	**Intelligent IT Solutions for Sustainability in Industry 5.0 Paradigm**	Balvinder Shukla, B. K. Murthy, Nitasha Hasteer, Harpreet Kaur, Jean-Paul Van Belle	Springer	2024 **NEW**	978-981-97-1682-1	LINK	This volume comprises the select proceedings of the 5th International Conference on Entrepreneurship, Innovation, and Leadership (ICEIL 2023). The content focuses on intelligent IT Solutions for sustainability in the Industry 5.0 paradigm with themes highlighting smart grids, intelligent power systems, digital health and automation, IoT and applications in healthcare, agricultural automation, precision agriculture, BI innovation, AI for value creation, security awareness and education, biometric technologies and applications, human-centric solutions, ICT development in higher education, gamification in the classroom, etc. This volume will be of immense interest to those in academia and industry.

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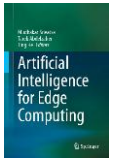	**Artificial Intelligence for Edge Computing**	Mudhakar Srivatsa, Tarek Abdelzaher, Ting He	Springer	2023	978-3-031-40787-1	LINK	It is undeniable that the recent revival of artificial intelligence (AI) has significantly changed the landscape of science in many application domains, ranging from health to defense and from conversational interfaces to autonomous cars. With terms such as “Google Home”, “Alexa”, and “ChatGPT” becoming household names, the pervasive societal impact of AI is clear. Advances in AI promise a revolution in our interaction with the physical world, a domain where computational intelligence has always been envisioned as a transformative force toward a better tomorrow. Depending on the application family, this domain is often referred to as Ubiquitous Computing, Cyber-Physical Computing, or the Internet of Things. The underlying vision is driven by the proliferation of cheap embedded computing hardware that can be integrated easily into myriads of everyday devices from consumer electronics, such as personal wearables and smart household appliances, to city infrastructure and industrial process control systems. One common trait across these applications is that the data that the application operates on come directly (typically via sensors) from the physical world. Thus, from the perspective of communication network infrastructure, the data originate at the network edge. From a performance standpoint, there is an argument to be made that such data should be processed at the point of collection. Hence, a need arises for Edge AI -- a genre of AI where the inference, and sometimes even the training, are performed at the point of need, meaning at the edge where the data originate. The book is broken down into three parts: core problems, distributed problems, and other cross-cutting issues. It explores the challenges arising in Edge AI contexts. Some of these challenges (such as neural network model reduction to fit resource-constrained hardware) are unique to the edge environment. They need a novel category of solutions that do not parallel more typical concerns in mainstream AI. Others are adaptations of mainstream AI challenges to the edge space. An example is overcoming the cost of data labeling. The labeling problem is pervasive, but its solution in the IoT application context is different from other contexts. This book is not a survey of the state of the art. With thousands of publications appearing in AI every year, such a survey is doomed to be incomplete on arrival. It is also not a comprehensive coverage of all the problems in the space of Edge AI. Different applications pose different challenges, and a more comprehensive coverage should be more application specific. Instead, this book covers some of the more endemic challenges across the range of IoT/CPS applications. To offer coverage in some depth, we opt to cover mainly one or a few representative solutions for each of these endemic challenges in sufficient detail, rather that broadly touching on all relevant prior work. The underlying philosophy is one of illustrating by example. The solutions are curated to offer insight into a way of thinking that characterizes Edge AI research and distinguishes its solutions from their more mainstream counterparts.
	**Digital Twin**	Noel Crespi, Adam T. Drobot, Roberto Minerva	Springer	2023	978-3-031-21343-4	LINK	The Digital Twin book is about harnessing the power of technology, business practices, and the digital infrastructure to make revolutionary improvements for the benefit of society. Ninety experts from around the world contributed to summarize four decades of digital advances and successes, and to define the Digital Twin’s potential for the decades ahead. The book describes how Digital Twins will play a key role in specific applications and across important sectors of the global economy, making it a must-read for executives, policymakers, technical leaders, researchers, and students alike. The book consists of thirty-eight chapters that cover Digital Twin concepts, supporting technologies, practices, and specific implementation strategies for various production and service sectors. Digital Twins are about creating faster, less expensive, and error-free manufacturing, products, processes, and services. This includes engineering of systems for energy, communications, construction, transportation, and food processing. It also covers solutions for making human existence better and more enjoyable through the life sciences, smart cities, and artistic creations. The Digital Twin’s functionality addresses the entire lifecycle of products and services. Importantly, the book describes the journey required for businesses and public organizations to embrace Digital Twins as part of their tool kit. The Digital Twin is the ideal starting point for teaching and research in all application domains. Similar content
	**Management Innovation and Big Data**	Zheng Qin , Yan Li , Yinzhou Yang	Springer	2023	978-981-19-9231-5	LINK	Adhering to the combination of theoretical introduction and practical case introduction, this book summarizes the basic concepts and methods in management and big data analysis at home and abroad and introduces a large number of relevant practical cases, especially new cases in the Internet era, to help readers integrate theoretical knowledge into practical applications. The chapters of this book are interrelated and independent of each other, making it easy for the reader to study in pieces or to delve deeper into a particular topic of interest. Covering an array of theories about management and big data at home and abroad, this book lays a solid foundation for being an authentic manager. It is organized into sections on decision-making, organization, leadership, control, innovation, and big data to fully dissect and summarize the basic concepts of these characters in management and to show the basic methods that managers can use to solve problems. Each section contains a large number of examples to demonstrate how entrepreneurs successfully manage their large companies and overcome the difficulties in the business, utilizing the corresponding management functions or big data technology. Further, in order to adapt to the development of the Internet era, this book also absorbs a lot of practice cases of management innovation and big data which have emerged in recent years based on advanced network platform and big data analysis. This book puts great emphasis on the innovative function of management, adding more comprehensive methods and more updated cases related to the Internet.
	**Digital Twin Development**	Frank U. Rückert , Michael Sauer , Tuomo Liimatainen , Dirk Hübner	Springer	2023	978-3-031-25692-9	LINK	Creating a digital twin should be easy and intuitive. This book presents twins from different technical fields and describes in detail how to build them. The book is aimed at students or young engineers who want develop and modify the twins without much prior knowledge. The use of the free software tool Simcenter Amesim is introduced. Simcenter Amesim belongs today to the industry standard for the development of digital twins. This program was chosen because it is easy to learn and does not require deep mathematical knowledge or programming skills. We start by creating a simple calculator, then model, for example, mechanical twins such as falling balls, ventilation and tank systems, pipelines, or a solar collector. The physical background is explained for each simulation example, and each simulation example concludes with suggestions for further work. This enables the reader to perform further investigations and exercises with the digital twins.

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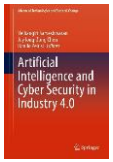	**Artificial Intelligence and Cyber Security in Industry 4.0**	Velliangiri Sarveshwaran, Joy Iong-Zong Chen, Danilo Pelusi	Springer	2023	978-981-99-2115-7	LINK	This book provides theoretical background and state-of-the-art findings in artificial intelligence and cybersecurity for industry 4.0 and helps in implementing AI-based cybersecurity applications. Machine learning-based security approaches are vulnerable to poison datasets which can be caused by a legitimate defender's misclassification or attackers aiming to evade detection by contaminating the training data set. There also exist gaps between the test environment and the real world. Therefore, it is critical to check the potentials and limitations of AI-based security technologies in terms of metrics such as security, performance, cost, time, and consider how to incorporate them into the real world by addressing the gaps appropriately. This book focuses on state-of-the-art findings from both academia and industry in big data security relevant sciences, technologies, and applications.
	**Introduction to Metaverse**	Rajan Gupta , Saibal K. Pal	Springer	2023	978-981-99-7397-2	LINK	This book discusses Metaverse Technology, which is one of the emerging technologies around the world, through its concepts, definitions, architectural layers, economic implications, and presents comparison points with other allied areas like Web 3.0, Digital Twin, Blockchain, Multiverse, Artificial Intelligence, Internet of Everything and Hyperautomation. The book also presents several use-cases and adoption areas of Metaverse technology, along with global outlook of top companies implementing this technology through major platforms and tools. The potential use of this technology for Public Sector is also explored in this book, apart from the suggested business framework for its adoption. Potential misuse and ethical concerns have also been summarised. This introductory book on Metaverse, written with a multidisciplinary approach, will provide readers with a clear understanding of what the Metaverse is, what technologies are involved in its creation, and its current aswell as potential future applications, in a very simple manner.
	**Advanced Guide to Python 3 Programming**	John Hunt	Springer	2023	978-3-031-40336-1	LINK	Advanced Guide to Python 3 Programming 2nd Edition delves deeply into a host of subjects that you need to understand if you are to develop sophisticated real-world programs. Each topic is preceded by an introduction followed by more advanced topics, along with numerous examples, that take you to an advanced level. This second edition has been significantly updated with two new sections on advanced Python language concepts and data analytics and machine learning. The GUI chapters have been rewritten to use the Tkinter UI library and a chapter on performance monitoring and profiling has been added. In total there are 18 new chapters, and all remaining chapters have been updated for the latest version of Python as well as for any of the libraries they use. There are eleven sections within the book covering Python Language Concepts, Computer Graphics (including GUIs), Games, Testing, File Input and Output, Databases Access, Logging, Concurrency andParallelism, Reactive Programming, Networking and Data Analytics. Each section is self-contained and can either be read on its own or as part of the book as a whole. It is aimed at those who have learnt the basics of the Python 3 language but wish to delve deeper into Python's eco system of additional libraries and modules.
	**Artificial Intelligence with Python**	Teik Toe Teoh , Zheng Rong	Springer	2022	978-981-16-8615-3	LINK	Entering the field of artificial intelligence and data science can seem daunting to beginners with little to no prior background, especially those with no programming experience. The concepts used in self-driving cars and virtual assistants like Amazon's Alexa may seem very complex and difficult to grasp. The aim of Artificial Intelligence in Python is to make AI accessible and easy to understand for people with little to no programming experience though practical exercises. Newcomers will gain the necessary knowledge on how to create such systems, which are capable of executing tasks that require some form of human-like intelligence. This book introduces readers to various topics and examples of programming in Python, as well as key concepts in artificial intelligence. Python programming skills will be imparted as we go along. Concepts and code snippets will be covered in a step-by-step manner, to guide and instill confidence in beginners. Complex subjectsin deep learning and machine learning will be broken down into easy-to-digest content and examples. Artificial intelligence implementations will also be shared, allowing beginners to generate their own artificial intelligence algorithms for reinforcement learning, style transfer, chatbots, speech, and natural language processing.
	**The Digital Twin**	Noel Crespi, Adam T. Drobot, Roberto Minerva	Springer	2023	978-3-031-21343-4	LINK	The Digital Twin book is about harnessing the power of technology, business practices, and the digital infrastructure to make revolutionary improvements for the benefit of society. Ninety experts from around the world contributed to summarize four decades of digital advances and successes, and to define the Digital Twin's potential for the decades ahead. The book describes how Digital Twins will play a key role in specific applications and across important sectors of the global economy, making it a must-read for executives, policymakers, technical leaders, researchers, and students alike. The book consists of thirty-eight chapters that cover Digital Twin concepts, supporting technologies, practices, and specific implementation strategies for various production and service sectors. Digital Twins are about creating faster, less expensive, and error-free manufacturing, products, processes, and services. This includes engineering of systems for energy, communications, construction, transportation, and food processing. It also covers solutions for making human existence better and more enjoyable through the life sciences, smart cities, and artistic creations. The Digital Twin's functionality addresses the entire lifecycle of products and services. Importantly, the book describes the journey required for businesses and public organizations to embrace Digital Twins as part of their tool kit. The Digital Twin is the ideal starting point for teaching and research in all application domains.

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	**Mathematical Thinking**	Howard Karloff	Springer	2023	978-3-031-33203-6	LINK	This textbook invites readers to explore mathematical thinking by finding the beauty in the subject. With an accessible tone and stimulating puzzles, the author will convince curious non-mathematicians to continue their studies in the area. It has an expansive scope, covering everything from probability and graph theory to infinities and Newton's method. Many examples of proofs appear as well, offering readers the opportunity to explore these topics with the amount of rigor that suits them. Programming exercises in Python are also included to show how math behaves in action. Mathematical Thinking is an ideal textbook for transition courses aimed at undergraduates moving from lower level to more advanced topics, as well as for math recruitment and invitational courses at the freshman or sophomore level. It may also be of interest in computer science departments and can be used as a supplemental text for courses in discrete mathematics and graph theory.
	**Beyond Reality: Navigating the Power of Metaverse and Its Applications**	Mostafa Al-Emran, Jaber H. Ali, Marco Valeri, Alhamzah Alnoor, Zaid Alaa Hussien	Springer	2023	978-3-031-51716-7	LINK	This book addresses recent research trends concerning the role of the Metaverse in advancing the education and finance sectors from various perspectives. These trends are explored through multiple case studies employing diverse analytical approaches. The chapters aim to aid scholars and postgraduate students in pursuing future research in this domain and identifying potential developments in Metaverse applications.
	**Introduction to Metaverse**	Rajan Gupta , Saibal K. Pal	Springer	2023	978-981-99-7397-2	LINK	This book discusses Metaverse Technology, which is one of the emerging technologies around the world, through its concepts, definitions, architectural layers, economic implications, and presents comparison points with other allied areas like Web 3.0, Digital Twin, Blockchain, Multiverse, Artificial Intelligence, Internet of Everything and Hyperautomation. The book also presents several use-cases and adoption areas of Metaverse technology, along with global outlook of top companies implementing this technology through major platforms and tools. The potential use of this technology for Public Sector is also explored in this book, apart from the suggested business framework for its adoption. Potential misuse and ethical concerns have also been summarised. This introductory book on Metaverse, written with a multidisciplinary approach, will provide readers with a clear understanding of what the Metaverse is, what technologies are involved in its creation, and its current aswell as potential future applications, in a very simple manner.
	**Springer Handbook of Automation**	Shimon Y. Nof	Springer	2023	978-3-030-96729-1	LINK	This thoroughly revised and updated second edition of the bestselling Springer Handbook of Automation provides the most advanced, comprehensive, and balanced coverage of the technical and engineering aspects of automation. Starting with a holistic discussion on the history and societal impacts of automation, the book provides the tools to understand, design and implement automation solutions. This includes: - the scientific foundations, from traditional control theory to the latest developments in artificial intelligence and machine learning; - the technical aspects of automation design, from hardware such as mechatronics and sensors to cyber-physical systems and human-machine interaction, to collaborative automation; - the methods of automation integration in products, processes and services; and finally, - the technical, economic and ethical management of automation. Readers will find the most complete and state-of-the-art overview on the implementation, effects and examples of automation in industrial contexts, as well as infrastructure, service, medical and healthcare, home, office and enterprise automation. The book concludes with up-to-date case studies from industrial forerunners. Edited by an internationally renowned and experienced expert and supported by a distinguished advisory board, this Springer Handbook offers a wealth of information for industry practitioners, aspiring engineers and automation experts alike.
	**Sustainable Environmental Engineering and Sciences**	Sunil Kumar, Makarand M. Ghangrekar, Abhijit Kundu	Springer	2023	978-981-99-0822-6	LINK	This book presents the select proceedings of the International conference of Sustainability in Environmental Engineering and Science (SEES) 2021. It presents the latest developments in civil engineering that cover all aspects and challenges in civil engineering, environmental engineering and environmental science. Various topics covered in this book include construction and structural mechanics, building materials, concrete, steel and timber structures, geotechnical engineering, earthquake engineering, and coastal engineering. The volume will be useful for beginners, researchers, and professionals working in the areas of sustainable civil engineering and related fields.

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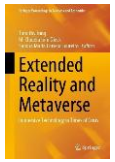	**Extended Reality and Metaverse**	Timothy Jung, M. Claudia tom Dieck, Sandra Maria Correia Loureiro	Springer	2023	978-3-031-25392-8	LINK	This book features the latest research in the area of immersive technologies as presented at the 7th International Extended Reality (XR) Conference, held in Lisbon, Portugal in 2022. Bridging the gap between academia and industry, it showcases the latest advances in augmented reality (AR), virtual reality (VR), extended reality (XR) and metaverse and their applications in various sectors such as business, marketing, retail, education, healthcare, tourism, events, fashion, entertainment, and gaming. The volume gathers selected research papers by prominent AR, VR, XR and metaverse scholars from around the world. Presenting the most significant topics and latest findings in the fields of augmented reality, virtual reality, extended reality and metaverse, it will be a valuable asset for academics and practitioners alike.
	**Advanced Manufacturing and Automation XII**	Yi Wang, Tao Yu, Kesheng Wang	Springer	2023	978-981-19-9338-1	LINK	This book is a compilation of selected papers from the 12th International Workshop of Advanced Manufacturing and Automation (IWAMA 2022), held in Jimei University, Xiamen, China on 01 - 02 November, 2022. Topics focusing on novel techniques for manufacturing and automation in Industry 4.0 are now vital factors for the maintenance and improvement of the economy of a nation and the quality of life. It will help academic researchers and engineering to implement the concept, theory and methods in Industry 4.0 which has been a hot topic. These proceedings will make valuable contributions to academic researchers, engineers in the industry for the challenges in the 4th industry revolution and smart factories.
	**Sustainable Computing**	Shashank Awasthi, Goutam Sanyal, Carlos M. Travieso-Gonzalez, Pramod Kumar Srivastava, Dinesh Kumar Singh, Rama Kant	Springer	2023	978-3-031-13577-4	LINK	This book presents recent advancements in Industry 4.0 and addresses how these can be useful in achieving sustainable solutions in Society 5.0. The book also serves as a reference for developing sustainable engineering solutions to various socio-economic and techno-commercial issues. The book is meticulously structured into two sections: Section I sheds light on fundamentals, nitty-gritties, and principles of technological innovations and advancement in artificial intelligence, cloud computing, industrial Internet of Things (IIOT), and Society 5.0, whereas Section II covers viable engineering solutions developments for revamping Industry 4.0 to Society 5.0. Overall, the authors aim to show how technological advancements can be used to address social issues and improve society.
	**Advances in Intelligent Computing**	Mandal, J. K., Dutta, Paramartha, Mukhopadhyay, Somnath	Springer	2019	978-981-10-8974-9	LINK	This edited volume on computational intelligence algorithms-based applications includes work presented at the International Conference on Computational Intelligence, Communications, and Business Analytics (CICBA 2017). It provides the latest research findings on the significance of computational intelligence and related application areas. It also introduces various computation platforms involving evolutionary algorithms, fuzzy logic, swarm intelligence, artificial neural networks and several other tools for solving real-world problems. It also discusses various tools that are hybrids of more than one solution framework, highlighting the theoretical aspects as well as various real-world applications.
	**Deep Learning and Missing Data in Engineering Systems**	Leke, Collins Achepsah, Marwala, Tshilidzi	Springer	2019	978-3-030-01180-2	LINK	Deep Learning and Missing Data in Engineering Systems uses deep learning and swarm intelligence methods to cover missing data estimation in engineering systems. The missing data estimation processes proposed in the book can be applied in image recognition and reconstruction. To facilitate the imputation of missing data, several artificial intelligence approaches are presented, including: - deep autoencoder neural networks; - deep denoising autoencoder networks; - the bat algorithm; - the cuckoo search algorithm; and - the firefly algorithm. The hybrid models proposed are used to estimate the missing data in high-dimensional data settings more accurately. Swarm intelligence algorithms are applied to address critical questions such as model selection and model parameter estimation. The authors address feature extraction for the purpose of reconstructing the input data from reduced dimensions by the use of deep autoencoder neural networks. They illustrate new models diagrammatically, report their findings in tables, so as to put their methods on a sound statistical basis. The methods proposed speed up the process of data estimation while preserving known features of the data matrix. This book is a valuable source of information for researchers and practitioners in data science. Advanced undergraduate and postgraduate students studying topics in computational intelligence and big data, can also use the book as a reference for identifying and introducing new research thrusts in missing data estimation.

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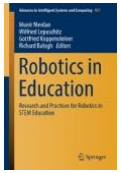
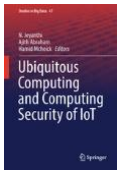
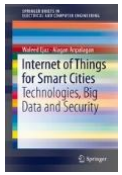
	**Software Engineering Research, Management and Applications**	Lee, Roger	Springer	2020	978-3-030-24344-9	LINK	This edited book presents the scientific outcomes of the 17th International Conference on Software Engineering, Artificial Intelligence Research, Management and Applications (SERA 2019) held on May 29–31, 2019 in Honolulu, Hawaii. The aim of the conference was to bring together researchers and scientists, businessmen and entrepreneurs, teachers, engineers, computer users and students to discuss the numerous fields of computer science and to share their experiences and exchange new ideas and information in a meaningful way. This book includes 13 of the conference's most promising papers featuring recent research in software engineering, management and applications
	**Robotics in Education. Methods and Applications for Teaching and Learning**	M. Merdan, W. Lepuschitz, G. Koppensteiner, R. Balogh	Springer	2017	978-3-319-42975-5	LINK	This proceedings volume showcases the latest achievements in research and development in Educational Robotics presented at the 7th International Conference on Robotics in Education (RiE) held in Vienna, Austria, during April 14-15, 2016. The book offers a range of methodologies for teaching robotics and presents various educational robotics curricula. It includes dedicated chapters for the design and analysis of learning environments as well as evaluation means for measuring the impact of robotics on the students' learning success. Moreover, the book presents interesting programming approaches as well as new applications, the latest tools, systems and components for using robotics. The presented applications cover the whole educative range, from elementary school to high school, college, university and beyond, for continuing education and possibly outreach and workforce development. The book provides a framework involving two complementary kinds of contributions: on the one hand on technical aspects and on the other hand on matters of didactic.
	**Ubiquitous Computing and Computing Security of IoT**	N. Jeyanthi, Ajith Abraham, Hamid Mcheick	Springer	2019	978-3-030-01566-4	LINK	This provides a comprehensive overview of the key principles of security concerns surrounding the upcoming Internet of Things (IoT), and introduces readers to the protocols adopted in the IoT. It also analyses the vulnerabilities, attacks and defense mechanisms, highlighting the security issues in the context of big data. Lastly, trust management approaches and ubiquitous learning applications are examined in detail. As such, the book sets the stage for developing and securing IoT applications both today and in the future.
	**Integrated Intelligent Computing, Communication and Security**	A.N. Krishna, K.C. Srikantaiah, C. Naveena	Springer	2019	978-981-10-8797-4	LINK	This book highlights the emerging field of intelligent computing and developing smart systems. It includes chapters discussing the outcome of challenging research related to distributed computing, smart machines and their security related research, and also covers next-generation communication techniques and the networking technologies that have the potential to build the future communication infrastructure. Bringing together computing, communications and other aspects of intelligent and smart computing, it contributes to developing a roadmap for future research on intelligent systems.
	**Internet of Things for Smart Cities. Technologies, Big Data and Security**	Waleed Ejaz, Alagan Anpalagan	Springer	2019	978-3-319-95037-2	LINK	This book introduces the concept of smart city as the potential solution to the challenges created by urbanization. The Internet of Things (IoT) offers novel features with minimum human intervention in smart cities. This book describes different components of Internet of Things (IoT) for smart cities including sensor technologies, communication technologies, big data analytics and security.

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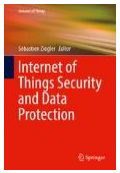
	**IT Management in the Digital Age. A Roadmap for the IT Department of the Future**	Nils Urbach, Frederik Ahlemann	Springer	2019	978-3-319-96187-3	LINK	This book examines the massive changes currently taking place in the business world and commonly known under the label “digitalization.” In addition, it describes the significant impacts of technological innovations on processes, products, services and business models. The digital transformation resulting from these developments leads to disruption for many enterprises and industries. While for many years, IT departments mainly concentrated on fulfilling the requirements of business departments effectively and efficiently by means of high-quality IT services and operations, today’s IT departments are increasingly expected to actively co-design and co-create the enterprise. This book describes how information technology enables innovation for businesses, and how IT departments can proactively and in a timely manner collaborate with the business departments of their corporation to leverage these innovations. It also delineates the implications of digitalization for the structures, processes and people in today’s IT departments. IT leaders and managers who are responsible for corporate IT, as well as practice-oriented researchers, will find valuable inspirations and guidance in this book, the central mission of which is to encourage and enable a more proactive role for IT in the digital transformation processes.
	**Internet of Things Security and Data Protection**	Sébastien Ziegler	Springer	2019	978-3-030-04984-3	LINK	This book provides an overview of the most recent developments in Internet of Things (IoT) security and data protection. It presents the results of several international research projects addressing this topic from complementary angles. It starts by analyzing the main privacy and security threats on IoT, as well as the evolution of data protection norms, such as the European General Data Protection Regulation (GDPR), and their impact on IoT. Through a comprehensive and systematic approach, the contributors present new perspectives on IoT & Cloud Computing security requirements. They discuss the most recent approach to support trusted IoT, including new models of privacy risk assessment, labeling and certification, and contractual tools (such as Privacy PACT). Practical implementations, such as in the European Large Scale Pilots on IoT for Smart Cities (Synchronicity), are presented, explaining how they address security, privacy and data protection. Finally, innovative models to secure IoT systems are presented for the network and end-nodes security, including network threats analysis.
	**Big Data, Cloud Computing, Data Science & Engineering**	Roger Lee	Springer	2019	978-3-319-96803-2	LINK	This book presents the outcomes of the 3rd IEEE/ACIS International Conference on Big Data, Cloud Computing, Data Science & Engineering (BCD 2018), which was held on July 10–12, 2018 in Kanazawa. The aim of the conference was to bring together researchers and scientists, businesspeople and entrepreneurs, teachers, engineers, computer users, and students to discuss the various fields of computer science, to share their experiences, and to exchange new ideas and information in a meaningful way. All aspects (theory, applications and tools) of computer and information science, the practical challenges encountered along the way, and the solutions adopted to solve them are all explored here. The conference organizers selected the best papers from among those accepted for presentation. The papers were chosen on the basis of review scores submitted by members of the program committee and subsequently underwent further rigorous review. Following this second round of review, 13 of the conference’s most promising papers were selected for this Springer (SCI) book. We eagerly await the important contributions that we know these authors will make to the field of computer and information science.
	**Computational Intelligence in Sensor Networks**	Bijan Bihari Mishra, Satchidanand Dehuri, Bijaya Ketan Panigrahi, Ajit Kumar Nayak, Bhabani Shankar Prasad Mishra, Himansu Das	Springer	2019	978-3-662-57277-1	LINK	This book discusses applications of computational intelligence in sensor networks. Consisting of twenty chapters, it addresses topics ranging from small-scale data processing to big data processing realized through sensor nodes with the help of computational approaches. Advances in sensor technology and computer networks have enabled sensor networks to evolve from small systems of large sensors to large nets of miniature sensors, from wired communications to wireless communications, and from static to dynamic network topology. In spite of these technological advances, sensor networks still face the challenges of communicating and processing large amounts of imprecise and partial data in resource-constrained environments. Further, optimal deployment of sensors in an environment is also seen as an intractable problem. On the other hand, computational intelligence techniques like neural networks, evolutionary computation, swarm intelligence, and fuzzy systems are gaining popularity in solving intractable problems in various disciplines including sensor networks. The contributions combine the best attributes of these two distinct fields, offering readers a comprehensive overview of the emerging research areas and presenting first-hand experience of a variety of computational intelligence approaches in sensor networks.
	**Control Engineering**	Keviczky, Laszló; Bars, Ruth; Hetthéssy, Jenö; Banyasz, Csilla	Springer	2019	978-981-10-8297-9	LINK	This book offers fundamental information on the analysis and synthesis of continuous and sampled data control systems. It includes all the required preliminary materials (from mathematics, signals and systems) that are needed in order to understand control theory, so readers do not have to turn to other textbooks. Sampled data systems have recently gained increasing importance, as they provide the basis for the analysis and design of computer-controlled systems. Though the book mainly focuses on linear systems, input/output approaches and state space descriptions are also provided. Control structures such as feedback, feed forward, internal model control, state feedback control, and the Youla parameterization approach are discussed, while a closing section outlines advanced areas of control theory. Though the book also contains selected examples, a related exercise book provides Matlab/Simulink exercises for all topics discussed in the textbook, helping readers to understand the theory and apply it in order to solve control problems. Thanks to this combination, readers will gain a basic grasp of systems and control, and be able to analyze and design continuous and discrete control systems.

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	**Intelligent Methods and Big Data in Industrial Applications**	Bembenik, Robert; Skonieczny, Lukasz; Protaziuk, Grzegorz; Kryszkiewicz, Marzena; Rybinski, Henryk	Springer	2019	978-3-319-77604-0	LINK	The inspiration for this book came from the Industrial Session of the ISMIS 2017 Conference in Warsaw. It covers numerous applications of intelligent technologies in various branches of the industry. Intelligent computational methods and big data foster innovation and enable the industry to overcome technological limitations and explore the new frontiers. Therefore it is necessary for scientists and practitioners to cooperate and inspire each other, and use the latest research findings to create new designs and products. As such, the contributions cover solutions to the problems experienced by practitioners in the areas of artificial intelligence, complex systems, data mining, medical applications and bioinformatics, as well as multimedia- and text processing. Further, the book shows new directions for cooperation between science and industry and facilitates efficient transfer of knowledge in the area of intelligent information systems.
	**Big Data and Smart Digital Environment**	Farhaoui, Yousef; Moussaid, Laila	Springer	2019	978-3-030-12048-1	LINK	This book reviews the state of the art of big data analysis and smart city. It includes issues which pertain to signal processing, probability models, machine learning, data mining, database, data engineering, pattern recognition, visualisation, predictive analytics, data warehousing, data compression, computer programming, smart city, etc. Data is becoming an increasingly decisive resource in modern societies, economies, and governmental organizations. Data science inspires novel techniques and theories drawn from mathematics, statistics, information theory, computer science, and social science. Papers in this book were the outcome of research conducted in this field of study. The latter makes use of applications and techniques related to data analysis in general and big data and smart city in particular. The book appeals to advanced undergraduate and graduate students, postdoctoral researchers, lecturers and industrial researchers, as well as anyone interested in big data analysis and smart city.
	**Cloud Computing and Big Data: Technologies, Applications and Security**	Zbakh, Mostapha; Essaaidi, Mohammed; Manneback, Pierre; Rong, Chunming	Springer	2019	978-3-319-97719-5	LINK	This book addresses topics related to cloud and Big Data technologies, architecture and applications including distributed computing and data centers, cloud infrastructure and security, and end-user services. The majority of the book is devoted to the security aspects of cloud computing and Big Data. Cloud computing, which can be seen as any subscription-based or pay-per-use service that extends the Internet's existing capabilities, has gained considerable attention from both academia and the IT industry as a new infrastructure requiring smaller investments in hardware platforms, staff training, or licensing software tools. It is a new paradigm that has ushered in a revolution in both data storage and computation. In parallel to this progress, Big Data technologies, which rely heavily on cloud computing platforms for both data storage and processing, have been developed and deployed at breathtaking speed. They are among the most frequently used technologies for developing applications and services in many fields, such as the web, health, and energy. Accordingly, cloud computing and Big Data technologies are two of the most central current and future research mainstreams. They involve and impact a host of fields, including business, scientific research, and public and private administration. Gathering extended versions of the best papers presented at the Third International Conference on Cloud Computing Technologies and Applications (CloudTech'17), this book offers a valuable resource for all Information System managers, researchers, students, developers, and policymakers involved in the technological and application aspects of cloud computing and Big Data.
	**Smart Transportation Systems 2019**	Qu, Xiaobo; Zhen, Lu; Howlett, Robert J.; Jain, Lakhmi C.	Springer	2019	978-3-030-03359-0	LINK	The book gathers selected papers presented at the KES International Symposium on Smart Transportation Systems (KES-STS 2019). Modern transportation systems have undergone a rapid transformation in recent years. This has produced a range of vehicle technology innovations such as connected vehicles, self-driving cars, electric vehicles, Hyperloop, and even flying cars, and with them, fundamental changes in transport systems around the world. The book discusses current challenges, innovations and breakthroughs in Smart Transportation Systems, as well as transport infrastructure modeling, safety analysis, freeway operations, intersection analysis, and other related cutting-edge topics.
	**Cloud Computing for Geospatial Big Data Analytics. Intelligent Edge, Fog and Mist Computing**	Das, Himansu; Barik, Rabindra K.; Dubey, Harishchandra; Roy, Diptendu Sinha	Springer	2019	978-3-030-03359-0	LINK	This book introduces the latest research findings in cloud, edge, fog, and mist computing and their applications in various fields using geospatial data. It solves a number of problems of cloud computing and big data, such as scheduling, security issues using different techniques, which researchers from industry and academia have been attempting to solve in virtual environments. Some of these problems are of an intractable nature and so efficient technologies like fog, edge and mist computing play an important role in addressing these issues. By exploring emerging advances in cloud computing and big data analytics and their engineering applications, the book enables researchers to understand the mechanisms needed to implement cloud, edge, fog, and mist computing in their own endeavours, and motivates them to examine their own research findings and developments.

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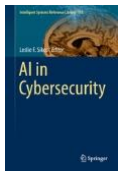
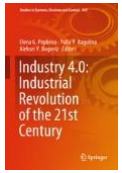
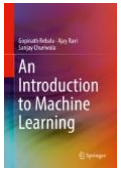
	**AI in Cybersecurity**	Sikos, Leslie F.	Springer	2019	978-3-319-98842-9	LINK	This book presents a collection of state-of-the-art AI approaches to cybersecurity and cyberthreat intelligence, offering strategic defense mechanisms for malware, addressing cybercrime, and assessing vulnerabilities to yield proactive rather than reactive countermeasures. The current variety and scope of cybersecurity threats far exceed the capabilities of even the most skilled security professionals. In addition, analyzing yesterday's security incidents no longer enables experts to predict and prevent tomorrow's attacks, which necessitates approaches that go far beyond identifying known threats. Nevertheless, there are promising avenues: complex behavior matching can isolate threats based on the actions taken, while machine learning can help detect anomalies, prevent malware infections, discover signs of illicit activities, and protect assets from hackers. In turn, knowledge representation enables automated reasoning over network data, helping achieve cybersituational awareness. Bringing together contributions by high-caliber experts, this book suggests new research directions in this critical and rapidly growing field.
	**Internet of Things and Big Data Analytics for Smart Generation**	Balas, V.E., Solanki, V.K., Kumar, R., Khari, M.	Springer	2019	978-3-030-04203-5	LINK	This book discusses emerging technologies in the field of the Internet of Things and big data, an area that will be scaled in next two decades. Written by a team of leading experts, it is the only book focusing on the broad areas of both the Internet of things and big data. The thirteen chapters present real-time experimental methods and theoretical explanations, as well as the implementation of these technologies through various applications. Offering a blend of theory and hands-on practices, the book enables graduate, postgraduate and research students who are involved in real-time project scaling techniques to understand projects and their execution. It is also useful for senior computer students, researchers and industry workers who are involved in experimenting with the Internet of Things and big data technologies, helping them to solve the real-time problem. Moreover, the chapters covering cutting-edge technologies help multidisciplinary researchers who are bridging the gap of two different outset real-time problems.
	**Industry 4.0: Industrial Revolution of the 21st Century**	Popkova, Elena G., Ragulina, Julia V., Bogoviz, Aleksei V.	Springer	2019	978-3-319-94310-7	LINK	This book addresses a wide range of issues relating to the theoretical substantiation of the necessity of Industry 4.0, the development of the methodological tools for its analysis and evaluation, and practical solutions for effectively managing this process. It particularly focuses on solving the problem of optimizing the development of Industry 4.0 in the context of knowledge economy formation. The book presents the authors' approach to studying the process of Industry 4.0 formation in connection with knowledge economy, and approach that allows the process to be studied in connection with the existing socio-economic and technological conditions. As a result, the conclusions and recommendations could be applied to modern economic systems and do not require any further elaboration. The presented research is based on modern economic theory scientific and methodological tools, including the tools of the theory of economic cycles, the theory of games, and the institutional economic theory. Raising awareness of the problem of Industry 4.0 formation, the book is of interest to a wide audience, including not only specialists and experts with a detailed knowledge of the topic, but also scholars, lecturers, and undergraduates of various fields of economics.
	**An Introduction to Machine Learning**	Rebala, Gopinath, Ravi, Ajay, Churiwala, Sanjay	Springer	2019	978-3-030-15729-6	LINK	Just like electricity, Machine Learning will revolutionize our life in many ways – some of which are not even conceivable today. This book provides a thorough conceptual understanding of Machine Learning techniques and algorithms. Many of the mathematical concepts are explained in an intuitive manner. The book starts with an overview of machine learning and the underlying Mathematical and Statistical concepts before moving onto machine learning topics. It gradually builds up the depth, covering many of the present day machine learning algorithms, ending in Deep Learning and Reinforcement Learning algorithms. The book also covers some of the popular Machine Learning applications. The material in this book is agnostic to any specific programming language or hardware so that readers can try these concepts on whichever platforms they are already familiar with.
	**3D Printing and Additive Manufacturing Technologies**	Kumar, L. Jyothish Pandey, Pulak M. Wimpenny, David Ian	Springer	2019	978-981-13-0304-3	LINK	This book presents a selection of papers on advanced technologies for 3D printing and additive manufacturing, and demonstrates how these technologies have changed the face of direct, digital technologies for the rapid production of models, prototypes and patterns. Because of their wide range of applications, 3D printing and additive manufacturing technologies have sparked a powerful new industrial revolution in the field of manufacturing. The evolution of 3D printing and additive manufacturing technologies has changed design, engineering and manufacturing processes across such diverse industries as consumer products, aerospace, medical devices and automotive engineering. This book will help designers, R&D personnel, and practicing engineers grasp the latest developments in the field of 3D Printing and Additive Manufacturing.

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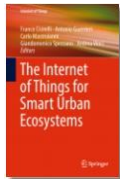
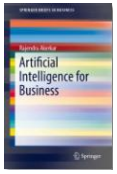
	**The Internet of Things for Smart Urban Ecosystems**	Cicirelli, Franco Guerrieri, Antonio Mastroianni, Carlo Spezzano, Giandomenico Vinci, Andrea	Springer	2019	978-3-319-96549-9	LINK	The main objective of this book is to provide a multidisciplinary overview of methodological approaches, architectures, platforms, and algorithms for the realization of an Internet of Things (IoT)-based Smart Urban Ecosystem (SUE). Moreover, the book details a set of real-world applications and case studies related to specific smart infrastructures and smart cities, including structural health monitoring, smart urban drainage networks, smart grids, power efficiency, healthcare, city security, and emergency management. A Smart Urban Ecosystem (SUE) is a people-centric system of systems that involves smart city environments, applications, and infrastructures. SUEs require the close integration of cyber and physical components for monitoring, understanding and controlling the urban environment. In this context, the Internet of Things (IoT) offers a valuable enabling technology, as it bridges the gap between physical things and software components, and empowers cooperation between distributed, pervasive, and heterogeneous entities.
	**Security and Data Storage Aspect in Cloud Computing**	Deshpande, Prachi S. Sharma, Subhash C. Peddoju, Sateesh K.	Springer	2019	978-981-13-6088-6	LINK	This book analyses the various security threats in cloud computing. A host-based IDS (HIDS) using signature verification is developed and implemented for the concerned security issues. Further, owing to the vulnerability of distributed denial of service (DDoS) attacks in cloud computing, a network based IDS (NIDS) is developed and implemented against such attacks. The performance of these IDS is verified in the Cloud scenario as well against the standard data set. Finally, a simple data storage and security model is developed and implemented for the Cloud computing scenario. The contents of this book will be of interest to researchers and professionals alike.
	**Artificial Intelligence for Business**	Rajendra Akerkar	Springer	2019	978-3-319-97435-4	LINK	This book offers a practical guide to artificial intelligence (AI) techniques that are used in business. The book does not focus on AI models and algorithms, but instead provides an overview of the most popular and frequently used models in business. This allows the book to easily explain AI paradigms and concepts for business students and executives. Artificial Intelligence for Business is divided into six chapters. Chapter 1 begins with a brief introduction to AI and describes its relationship with machine learning, data science and big data analytics. Chapter 2 presents core machine learning workflow and the most effective machine learning techniques. Chapter 3 deals with deep learning, a popular technique for developing AI applications. Chapter 4 introduces recommendation engines for business and covers how to use them to be more competitive. Chapter 5 features natural language processing (NLP) for sentiment analysis focused on emotions. With the help of sentiment analysis, businesses can understand their customers better to improve their experience, which will help the businesses change their market position. Chapter 6 states potential business prospects of AI and the benefits that companies can realize by implementing AI in their processes.
	**Artificial Intelligence in Value Creation**	Andrzej Wodecki	Springer	2019	978-3-319-91596-8	LINK	This book analyses various models of value creation in projects and businesses by applying different forms of Artificial Intelligence in their products and services. First presenting the main concepts and ideas behind AI, Wodecki assesses different models of technology-based value creation based upon the analysis of over 400 case studies. This framework shows how AI may influence both value creation and competitive advantage (efficiency, creativity and flexibility) within a modern organization. Finally, a conceptual model is formulated to evaluate AI-supported in-company projects and new ventures and identify the key managerial and technical competencies required.
	**Edge Computing. From Hype to Reality**	Fadi Al-Turjman	Springer	2019	978-3-319-99060-6	LINK	In this book, contributors provide insights into the latest developments of Edge Computing/Mobile Edge Computing, specifically in terms of communication protocols and related applications and architectures. The book provides help to Edge service providers, Edge service consumers, and Edge service developers interested in getting the latest knowledge in the area. The book includes relevant Edge Computing topics such as applications; architecture; services; inter-operability; data analytics; deployment and service; resource management; simulation and modeling; and security and privacy. Targeted readers include those from varying disciplines who are interested in designing and deploying Edge Computing.

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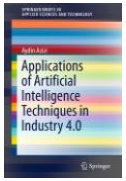	**Applications of Artificial Intelligence Techniques in Industry 4.0**	Aydin Azizi	Springer	2019	978-981-13-2639-4	LINK	This book is to presents and evaluates a way of modelling and optimizing nonlinear RFID Network Planning (RNP) problems using artificial intelligence techniques. It uses Artificial Neural Network models (ANN) to bind together the computational artificial intelligence algorithm with knowledge representation an efficient artificial intelligence paradigm to model and optimize RFID networks. This effort leads to proposing a novel artificial intelligence algorithm which has been named hybrid artificial intelligence optimization technique to perform optimization of RNP as a hard learning problem. This hybrid optimization technique consists of two different optimization phases. First phase is optimizing RNP by Redundant Antenna Elimination (RAE) algorithm and the second phase which completes RNP optimization process is Ring Probabilistic Logic Neural Networks (RPLNN). The hybrid paradigm is explored using a flexible manufacturing system (FMS) and the results are compared with well-known evolutionary optimization technique namely Genetic Algorithm (GA) to demonstrate the feasibility of the proposed architecture successfully.
	**Industry 4.0: Trends in Management of Intelligent Manufacturing Systems**	Lucia Knapcíkova Michal Balog	Springer	2019	978-3-030-14010-6	LINK	This book provides a comprehensive exchange of information on current developments in the management of manufacturing systems and Industry 4.0. The book's contributions establish channels of communication and disseminate knowledge among professionals working in manufacturing and related institutions. It features submissions from experts, researchers, academicians and practitioners in relevant fields, who share their knowledge from the field of management of manufacturing systems. The book's main theme is Management of Manufacturing Systems with support for Industry 4.0, Logistics and Intelligent Manufacturing Systems and Applications, Cooperation management and its effective applications. Topics include Logistics, RFID Applications, Industrial and Smart Logistics, Intelligent Manufacturing Systems and Applications, New Materials and Smart Technologies for Industry 4.0, Enterprise Information Systems, Innovation and Knowledge Management, and Sequencing solutions for Lean Manufacturing.
	**Sensors for Automotive and Aerospace Applications**	Shantanu Bhattacharya Avinash Kumar Agarwal Om Prakash Shailendra Singh	Springer	2019	978-981-13-3289-0	LINK	This volume covers the various sensors related to automotive and aerospace sectors, discussing their properties as well as how they are realized, calibrated and deployed. Written by experts in the field, it provides a ready reference to product developers, researchers and students working on sensor design and fabrication, and provides perspective on both current and future research.
	**Performability in Internet of Things**	Fadi Al-Turjman	Springer	2019	978-3-319-93556-0	LINK	This book discusses the challenges in the convergence of technologies as the Internet of Things (IoT) evolves. These include sensing, computing, information processing, networking, and controlling intelligent technologies. The contributors first provide a survey of various assessment and evaluation approaches available for successful convergence. They then go on to cover several operational ideas to apply. The contributors then discuss the challenges involved bridging gaps in computation and the communication process, hidden networks, intelligent decision making, human-to-machine perception and large-scale IoT environments. The contributors aim to provide the reader an overview of trends in IoT in terms of performability and traffic modeling and efforts that can be spent in assessing the graceful degradation in IoT paradigms.
	**Advances in Manufacturing II. Volume 4 - Mechanical Engineering**	Bartosz Gapinski Marek Szostak Vitalii Ivanov	Springer	2019	978-3-030-16942-8	LINK	This book covers a variety of topics related to machine manufacturing and concerning machine design, product assembly, technological aspects of production, mechatronics and production maintenance. Based on papers presented at the 6th International Scientific-Technical Conference MANUFACTURING 2019, held in Poznan, Poland on May 19-22, 2019, the different chapters reports on cutting-edge issues in constructing machine parts, mechatronic solutions and modern drives. They include new ideas and technologies for machine cutting and precise processing. Chipless technologies, such as founding, plastic forming, non-metal construction materials and composites, and additive techniques alike, are also analyzed and thoroughly discussed. All in all, the book reports on significant scientific contributions in modern manufacturing, offering a timely guide for researchers and professionals developing and/or using mechanical engineering technologies that have become indispensable for modern manufacturing.

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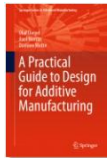
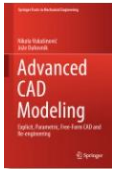
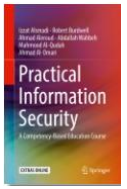
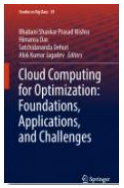
	**Advances in Manufacturing II. Volume 2 - Production Engineering and Management**	Adam Hamrol Agnieszka Kujawinska Manuel Francisco Suarez	Springer	2019	978-3-030-18788-0	LINK	This book covers a variety of topics in manufacturing, with a special emphasis on product design, production planning, and implementation of both resources and production processes. The content is based on papers presented at the 6th International Scientific Technical Conference MANUFACTURING 2019, held in Poznan, Poland on May 19-22, 2019. The main focus is on showing best practices to use tools currently available in the enterprises to effectively improving industrial processes. Knowledge and production flow management, decision-making systems, production leveling, enterprise efficiency, as well as maintenance, modeling and simulation of production processes are just some of the topics discussed in this book, which offers a timely and practice-oriented reference guide for applied researchers, product engineers and product managers.
	**Advances in Manufacturing II. Volume 1 - Solutions for Industry 4.0**	Justyna Trojanowska Olaf Ciszak José Mendes Machado Ivan Pavlenko	Springer	2019	978-3-030-18714-9	LINK	This book covers a variety of topics related to the Industry 4.0 concept, with a special emphasis on the efficiency of production processes and innovative solutions for smart factories. It describes tools supporting this concept in both the mechanical engineering and biomedical engineering field. The content is based on papers presented at the 6th International Scientific-Technical Conference MANUFACTURING 2019, held on 19-22 May 2019, in Poznan, Poland. Virtual reality, simulation of manufacturing systems, additive manufacturing, big data analysis, automation and application of artificial intelligence, as well as economic and social issues related to the integration of those technologies are just some of the topics discussed here. All in all, the book offers a timely and practice-oriented reference guide for researchers and practitioners, and is expected to foster better communication and closer cooperation between universities and their business and industrial partners.
	**A Practical Guide to Design for Additive Manufacturing**	Olaf Diegel Axel Nordin Damien Motte	Springer	2019	978-981-13-8280-2	LINK	This book provides a wealth of practical guidance on how to design parts to gain the maximum benefit from what additive manufacturing (AM) can offer. It begins by describing the main AM technologies and their respective advantages and disadvantages. It then examines strategic considerations in the context of designing for additive manufacturing (DfAM), such as designing to avoid anisotropy, designing to minimize print time, and post-processing, before discussing the economics of AM.
	**Advanced CAD Modeling. Explicit, Parametric, Free-Form CAD and Re-engineering**	Nikola Vukasinovic Joze Duhovnik	Springer	2019	978-3-030-02398-0	LINK	The book discusses the theoretical fundamentals of CAD graphics to enhance readers' understanding of surface modeling and free-form design by demonstrating how to use mathematical equations to define curves and surfaces in CAD modelers. Additionally, it explains and describes the main approaches to creating CAD models out of 3D scans of physical objects. All CAD approaches are demonstrated with guided examples and supported with comprehensive engineering explanations. Furthermore, each approach includes exercises for independent consolidation of advanced CAD skills. This book is intended for engineers and designers who are already familiar with the basics of modern CAD tools, e.g. feature based and solid based modeling in 3D space, and would like to improve and expand their knowledge and experience. It is also an easy-to use guide and excellent teaching and research aid for academics and practitioners alike.
	**Security and Fault Tolerance in Internet of Things**	Rajat Subhra Chakraborty Jimson Mathew Athanasios V. Vasilakos	Springer	2019	978-3-030-02806-0	LINK	This book covers various aspects of security, privacy and reliability in Internet of Things (IoT) and Cyber-Physical System design, analysis and testing. In particular, various established theories and practices both from academia and industry are presented and suitably organized targeting students, engineers and researchers. Fifteen leading academicians and practitioners wrote this book, pointing to the open problems and biggest challenges on which research in the near future will be focused.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Artificial Intelligence in IoT**	Fadi Al-Turjman	Springer	2019	978-3-030-04109-0	LINK	This book provides an insight into IoT intelligence in terms of applications and algorithmic challenges. The book is dedicated to addressing the major challenges in realizing the artificial intelligence in IoT-based applications including challenges that vary from cost and energy efficiency to availability to service quality in multidisciplinary fashion. The aim of this book is hence to focus on both the algorithmic and practical parts of the artificial intelligence approaches in IoT applications that are enabled and supported by wireless sensor networks and cellular networks. Targeted readers are from varying disciplines who are interested in implementing the smart planet/environments vision via intelligent wireless/wired enabling technologies.
	**Diagnostic Techniques in Industrial Engineering**	Mangey Ram J. Paulo Davim	Springer	2018	978-3-319-65496-6	LINK	This book presents the most important tools, techniques, strategy and diagnostic methods used in industrial engineering. The current widely accepted methods of diagnosis and their properties are discussed. Also, the possible fruitful areas for further research in the field are identified.
	**Practical Information Security. A Competency-Based Education Course**	Izzat Alsmadi Robert Burdwell Ahmed Aleroud Abdallah Wahbeh Mahmoud Al-Qudah Ahmad Al-Omari	Springer	2018	978-3-319-72118-7	LINK	This textbook presents a practical introduction to information security using the Competency Based Education (CBE) method of teaching. The content and ancillary assessment methods explicitly measure student progress in the three core categories: Knowledge, Skills, and Experience, giving students a balance between background knowledge, context, and skills they can put to work. Students will learn both the foundations and applications of information systems security; safeguarding from malicious attacks, threats, and vulnerabilities; auditing, testing, and monitoring; risk, response, and recovery; networks and telecommunications security; source code security; information security standards; and compliance laws. The book can be used in introductory courses in security (information, cyber, network or computer security), including classes that don't specifically use the CBE method, as instructors can adjust methods and ancillaries based on their own preferences. The book content is also aligned with the Cybersecurity Competency Model, proposed by department of homeland security. The author is an active member of The National Initiative for Cybersecurity Education (NICE), which is led by the National Institute of Standards and Technology (NIST). NICE is a partnership between government, academia, and the private sector focused on cybersecurity education, training, and workforce development.
	**Cloud Computing for Optimization: Foundations, Applications, and Challenges**	Bhabani Shankar Prasad Mishra Himansu Das Satchidananda Dehuri Alok Kumar Jagadev	Springer	2018	978-3-319-73675-4	LINK	This book discusses harnessing the real power of cloud computing in optimization problems, presenting state-of-the-art computing paradigms, advances in applications, and challenges concerning both the theories and applications of cloud computing in optimization with a focus on diverse fields like the Internet of Things, fog-assisted cloud computing, and big data. In real life, many problems – ranging from social science to engineering sciences – can be identified as complex optimization problems. Very often these are intractable, and as a result researchers from industry as well as the academic community are concentrating their efforts on developing methods of addressing them. Further, the cloud computing paradigm plays a vital role in many areas of interest, like resource allocation, scheduling, energy management, virtualization, and security, and these areas are intertwined with many optimization problems. Using illustrations and figures, this book offers students and researchers a clear overview of the concepts and practices of cloud computing and its use in numerous complex optimization problems.
	**An Economic Analysis on Automated Construction Safety. Internet of Things, Artificial Intelligence and 3D Printing**	Rita Yi Man Li	Springer	2018	978-981-10-5770-0	LINK	This book addresses information technologies recently applied in the field of construction safety. Combining case studies, literature reviews and interviews to study the issue, it presents cutting-edge applications of various information technologies (ITs) in construction in different parts of the world, together with a wealth of figures, tables and examples. Though primarily intended for researchers and experts in the field, the book will also benefit graduate students.

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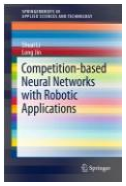
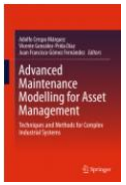
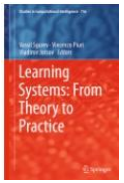
	**Competition-Based Neural Networks with Robotic Applications**	Shuai Li Long Jin	Springer	2018	978-981-10-4946-0	LINK	Focused on solving competition-based problems, this book designs, proposes, develops, analyzes and simulates various neural network models depicted in centralized and distributed manners. Specifically, it defines four different classes of centralized models for investigating the resultant competition in a group of multiple agents. With regard to distributed competition with limited communication among agents, the book presents the first distributed WTA (Winners Take All) protocol, which it subsequently extends to the distributed coordination control of multiple robots. Illustrations, tables, and various simulative examples, as well as a healthy mix of plain and professional language, are used to explain the concepts and complex principles involved. Thus, the book provides readers in neurocomputing and robotics with a deeper understanding of the neural network approach to competition-based problem-solving, offers them an accessible introduction to modeling technology and the distributed coordination control of redundant robots, and equips them to use these technologies and approaches to solve concrete scientific and engineering problems.
	**Neural Networks for Cooperative Control of Multiple Robot Arms**	Shuai Li Yinyan Zhang	Springer	2018	978-981-10-7036-5	LINK	This is the first book to focus on solving cooperative control problems of multiple robot arms using different centralized or distributed neural network models, presenting methods and algorithms together with the corresponding theoretical analysis and simulated examples. It is intended for graduate students and academic and industrial researchers in the field of control, robotics, neural networks, simulation and modelling.
	**Advanced Maintenance Modelling for Asset Management. Techniques and Methods for Complex Industrial Systems**	Adolfo Crespo Marquez Vicente Gonzalez-Prida Díaz Juan Francisco Fernandez Górnez	Springer	2018	978-3-319-58044-9	LINK	This book promotes and describes the application of objective and effective decision making in asset management based on mathematical models and practical techniques that can be easily implemented in organizations. This comprehensive and timely publication will be an essential reference source, building on available literature in the field of asset management while laying the groundwork for further research breakthroughs in this field. The text provides the resources necessary for managers, technology developers, scientists and engineers to adopt and implement better decision making based on models and techniques that contribute to recognizing risks and uncertainties and, in general terms, to the important role of asset management to increase competitiveness in organizations.
	**Learning Systems: From Theory to Practice**	Vassil Sgurev Vincenzo Piuri Vladimir Jotsov	Springer	2018	978-3-319-75180-1	LINK	By presenting the latest advances in fuzzy sets and computing with words from around the globe, this book disseminates recent innovations in advanced intelligent technologies and systems. From intelligent control and intuitionistic fuzzy quantifiers to various data science and industrial applications, it includes a wide range of valuable lessons learned and ideas for future intelligent products and systems.
	**Advances in Big Data and Cloud Computing**	Elijah Blessing Rajsingh Jey Veerasamy Amir H. Alavi J. Dinesh Peter	Springer	2018	978-981-10-7199-7	LINK	This book is a compendium of the proceedings of the International Conference on Big-Data and Cloud Computing. It includes recent advances in the areas of big data analytics, cloud computing, the Internet of nano things, cloud security, data analytics in the cloud, smart cities and grids, etc. Primarily focusing on the application of knowledge that promotes ideas for solving the problems of the society through cutting-edge technologies, it provides novel ideas that further world-class research and development. This concise compilation of articles approved by a panel of expert reviewers is an invaluable resource for researchers in the area of advanced engineering sciences.

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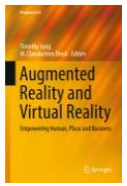
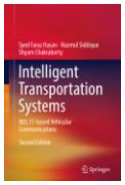
	**Augmented Reality and Virtual Reality. Empowering Human, Place and Bus**	Timothy Jung M. Claudia tom Dieck	Springer	2018	978-3-319-64026-6	LINK	This volume provides the latest outcomes of augmented reality (AR) and virtual reality (VR) research conducted in various industries. It reveals how AR and VR are currently changing the business landscape, and how new innovations provide opportunities for businesses to offer their customers unique services and experiences. Collecting the proceedings of the International AR & VR Conference held in Manchester, UK, in February 2017, the book advances the state of the art in AR and VR technologies and their applications in various industries such as tourism, hospitality, events, fashion, entertainment, retail, education and the gaming industry. The papers presented here cover the most significant topics within the field of AR and VR for both researchers and practitioners, approaching them from a business and management perspective.
	**Mechatronics and Machine Vision in Practice 3**	John Billingsley Peter Brett	Springer	2018	978-3-319-76946-2	LINK	In contrast with previous books on mechatronics and machine vision in practice, a significant number of chapters focus on systems designed for human interaction and deciphering human motion. Examples illustrate assistive actuation of hip joints, the augmentation of touch sense in artificial hand prostheses and helping stroke survivors in repetitive motion therapy. Interactive mechatronics and the experience of developing machine interfaces has enabled an examination of how we use mechatronics in the service of training, and even to consider why computer games perhaps appear to capture attention so much more readily than a human instructor! Mechatronics continues to be an exciting and developing field. It is now an essential part of our world and living experience. This and the previous books in this series illustrate the journey in developing the use of mechatronics so far. We anticipate that you will find the chapters here an equal source of inspiration for new devices to solve the challenges of new applications, and of course as a resource for teaching and inspiring the new generation of mechatronics engineers.
	**Intelligent Transportation Systems. 802.11-based Vehicular Communications**	Syed Faraz Hasan Nazmul Siddique Shyam Chakraborty	Springer	2018	978-3-319-64056-3	LINK	This new edition continues to focus on the nuts and bolts of wireless network access for devices on board vehicles. It has been updated to reflect on the most recent trends in the broad domain of Intelligent Transport Systems. It covers 802.11ac – a recent standard that is very useful in context where a large amount of information is to be sent in a limited time window. The new edition includes a thorough revision of the 'Vehicular Communication: Issues and Standards' chapter, with new citations and a new subsection on security. The new edition also cites numerous fresh research works to give readers an updated overview of the field. An update on the time delay incurred by applications that always run in the background (Skype, etc) is also covered. The 'Future Directions and Research Ideas' chapter is also largely re-written. An entirely new chapter on D2D communication keeping in view the vehicular context has been added in this edition. This volume will be a useful addition to the libraries for both the students of wireless communication and those studying applied probability.
	**Intelligent Systems Technologies and Applications**	Stefano Berretti, Sabu M. Thampi, Soura Dasgupta	Springer	2016	978-3-319-23257-7	LINK	This book contains a selection of refereed and revised papers from three special tracks: Ad-hoc and Wireless Sensor Networks, Intelligent Distributed Computing and, Business Intelligence and Big Data Analytics originally presented at the International Symposium on Intelligent Systems Technologies and Applications (ISTA), August 10-13, 2015, Kochi, India.
	**Intelligent Control Design and MATLAB Simulation**	Jinkun Liu	Springer	2018	978-981-10-5262-0	LINK	This book offers a comprehensive introduction to intelligent control system design, using MATLAB simulation to verify typical intelligent controller designs. It also uses real-world case studies that present the results of intelligent controller implementations to illustrate the successful application of the theory. Addressing the need for systematic design approaches to intelligent control system design using neural network and fuzzy-based techniques, the book introduces the concrete design method and MATLAB simulation of intelligent control strategies; offers a catalog of implementable intelligent control design methods for engineering applications; provides advanced intelligent controller design methods and their stability analysis methods; and presents a sample simulation and Matlab program for each intelligent control algorithm. The main topics addressed are expert control, fuzzy logic control, adaptive fuzzy control, neural network control, adaptive neural control and intelligent optimization algorithms, providing several engineering application examples for each method.

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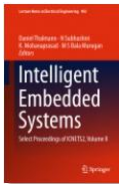
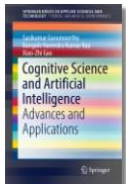
	**Intelligent Embedded Systems. Select Proceedings of ICNETS2, Volume II**	Daniel Thalmann N. Subhashini K. Mohanaprasad M.S.B. Murugan	Springer	2018	978-981-10-8574-1	LINK	This book is a collection of papers from international experts presented at the International Conference on NextGen Electronic Technologies (ICNETS2). ICNETS2 encompassed six symposia covering all aspects of electronics and communications engineering, including relevant nano/micro materials and devices. Highlighting recent research in intelligent embedded systems, the book is a valuable resource for professionals and students working in the core areas of electronics and their applications, especially in signal processing, embedded systems, and networking. The contents of this volume will be of interest to researchers and professionals alike.
	**Cognitive Science and Artificial Intelligence. Advances and Applications**	Sasikumar Gurumoorthy Bangole Narendra Kumar Rao Xiao-Zhi Gao	Springer	2018	978-981-10-6697-9	LINK	This book presents interdisciplinary research on cognition, mind and behavior from an information processing perspective. It includes chapters on Artificial Intelligence, Decision Support Systems, Machine Learning, Data Mining and Support Vector Machines, chiefly with regard to the data obtained and analyzed in Medical Informatics, Bioinformatics and related disciplines. The book reflects the state-of-the-art in Artificial Intelligence and Cognitive Science, and covers theory, algorithms, numerical simulation, error and uncertainty analysis, as well novel applications of new processing techniques in Biomedical Informatics, Computer Science and its applied areas. As such, it offers a valuable resource for students and researchers from the fields of Computer Science and Engineering in Medicine and Biology.
	**Internet of Things - ICIOT 2018. Third International Conference, Held as Part of the Services Conference Federation, SCF 2018, Seattle, WA, USA, June 25-30, 2018, Proceedings**	Dimitrios Georgakopoulos Liang-Jie Zhang	Springer	2018	978-3-319-94369-5	LINK	This book constitutes the proceedings of the International Conference on Internet of Things, ICIOT 2018, held in Seattle, WA, USA, in June 2018. The 13 full papers and 1 short paper presented in this volume was carefully reviewed and selected for inclusion in this book. The contributions are organized in topical sections named: Research Track – Architecture; Research Track – Smart IoT; Application and Industry Track; and Short Paper Track. They deal with research and application innovations in the internet of things services.
	**Cloud Computing - CLOUD 2018. 11th International Conference, Held as Part of the Services Conference Federation, SCF 2018, Seattle, WA, USA, June 25-30, 2018, Proceedings**	Min Luo Liang-Jie Zhang	Springer	2018	978-3-319-94294-0	LINK	This volume constitutes the proceedings of the 11th International Conference on Cloud Computing, CLOUD 2018, held as part of the Services Conference Federation, SCF 2018, in Seattle, WA, USA, in June 2018.The 26 full papers presented together with 3 short papers were carefully reviewed and selected from 108 submissions. They are organized in topical sections such as cloud computing; client-server architectures; distributed systems organizing principles; storage virtualization; virtual machines; cloud based storage; distributed architectures; network services; and computing platforms.
	**Edge Computing - EDGE 2018. Second International Conference, Held as Part of the Services Conference Federation, SCF 2018, Seattle, WA, USA, June 25-30, 2018, Proceedings**	Shijun Liu Bedir Tekinerdogan	Springer	2018	978-3-319-94339-8	LINK	This book constitutes the proceedings of the International Conference on Edge Computing, EDGE 2018, held in Seattle, WA, USA, in June 2018. The 9 full papers and 3 short paper presented in this volume were carefully reviewed and selected from 29 submissions. The contributions are organized in topical sections named: Research Track; Application and Industry Track; and Short Paper Track. They deal with the latest fundamental advances in the state of the art and practice of edge computing.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Cyber Security Cryptography and Machine Learning. Second International Symposium, CSCML 2018, Beer Sheva, Israel, June 21-22, 2018, Proceedings**	Itai Dinur Shlomi Dolev Sachin Lodha	Springer	2018	978-3-319-94146-2	LINK	This book constitutes the refereed proceedings of the Second International Symposium on Cyber Security Cryptography and Machine Learning, CSCML 2018, held in Beer-Sheva, Israel, in June 2018. The 16 full and 6 short papers presented in this volume were carefully reviewed and selected from 44 submissions. They deal with the theory, design, analysis, implementation, or application of cyber security, cryptography and machine learning systems and networks, and conceptually innovative topics in the scope.
	**Cloud Computing and Security. 4th International Conference, ICCCS 2018, Haikou, China, June 8-10, 2018, Revised Selected Papers, Part II**	Xingming Sun Zhaoqing Pan	Springer	2018	978-3-030-00008-0	LINK	This six volume set LNCS 11063 – 11068 constitutes the thoroughly refereed conference proceedings of the 4th International Conference on Cloud Computing and Security, ICCCS 2018, held in Haikou, China, in June 2018. The 386 full papers of these six volumes were carefully reviewed and selected from 1743 submissions. The papers cover ideas and achievements in the theory and practice of all areas of inventive systems which includes control, artificial intelligence, automation systems, computing systems, electrical and informative systems. The six volumes are arranged according to the subject areas as follows: cloud computing, cloud security, encryption, information hiding, IoT security, multimedia forensics.
	**Industry Trends in Cloud Computing. Alternative Business-to-Business Revenue Models**	David Dempsey, Felicity Kelliher	Springer	2018	978-3-319-63993-2	LINK	Exploring the Cloud Computing (CC) commercial landscape as it matures; this book asserts that the key ingredient in sustaining the Software as a Service (SaaS) business model is subscription renewal. Chronicling the evolution and future trajectory of the CC concept, the authors examine the new paradigm it is creating for the distribution of computer software applications among business-to-business (B2B) clients. CC enabled SaaS has been fundamentally changing the revenue expectations and business model for the application software industry, and impacting on how SaaS providers pursue, acquire and retain B2B clients. Securing SaaS subscription renewal is critical to the survival and prosperity of this business as attrition can have a significant impact on the financial viability of SaaS businesses based on this model. Focusing on the B2B client and the SaaS industry dependency on renewal subscriptions delivered through the CC channel, the primary research presented in this book seeks to examine the key drivers behind the B2B SaaS subscription renewal decision and, in doing so, to explore the recurring revenue framework for the Cloud SaaS business.
	**Cloud Infrastructures, Services, and IoT Systems for Smart Cities. Second EAI International Conference, IISSC 2017 and CN4IoT 2017, Brindisi, Italy, April 20-21, 2017, Proceedings**	Antonella Longo Marco Zappatore Massimo Villari Omer Rana Dario Bruneo Rajiv Ranjan Maria Fazio Philippe Massonet	Springer	2018	978-3-319-67635-7	LINK	This book constitutes the proceedings of the Second International Conference on Cloud, Networking for IoT Systems, CN4IoT 2017, and the Second EAI International Conference on ICT Infrastructures and Services for Smart Cities, IISSC 2017, held in Brindisi, Italy, in April 2017. The 26 full papers of both conferences were selected from 39 submissions. CN4IoT presents research activities on the uniform management and operation related to software defined infrastructures, in particular by analyzing limits or advantages in solutions for Cloud Networking and IoT. IISSC papers focus on ICT infrastructures (technologies, models, frameworks) and services in cities and smart communities.
	**Cloud Computing, Security, Privacy in New Computing Environments. 7th International Conference, CloudComp 2016, and First International Conference, SPNCE 2016, Guangzhou, China, November 25-26, and December 15-16, 2016, Proceedings**	Jiafu Wan Kai Lin Delu Zeng Jin Li Yang Xiang Xiaofeng Liao	Springer	2018	978-3-319-69604-1	LINK	This book constitutes the refereed proceedings of the 7th International Conference on Cloud Computing, Security, Privacy in New Computing Environments, CloudComp 2016, and the First EAI International Conference SPNCE 2016, both held in Guangzhou, China, in November and December 2016.The proceedings contain 10 full papers selected from 27 submissions and presented at CloudComp 2016 and 12 full papers selected from 69 submissions and presented at SPNCE 2016. CloudComp 2016 presents recent advances and experiences in clouds, cloud computing and related ecosystems and business support. SPNCE 2016 focuses on security and privacy aspects of new computing environments including mobile computing, big data, cloud computing and other large-scale environments

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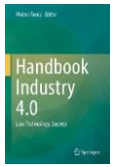
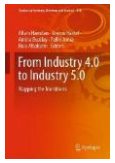
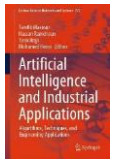
	**Optimized Cloud Based Scheduling**	Rong Kun Jason Tan John A. Leong Amandeep S. Sidhu	Springer	2018	978-3-319-73212-1	LINK	This book presents an improved design for service provisioning and allocation models that are validated through running genome sequence assembly tasks in a hybrid cloud environment. It proposes approaches for addressing scheduling and performance issues in big data analytics and showcases new algorithms for hybrid cloud scheduling.
	**Internet of Things - From Hype to Reality. The Road to Digitization**	Ammar Rayes, Salam Samer	Springer	2017	978-3-319-44858-9	LINK	This book comprehensively describes an end-to-end Internet of Things (IoT) architecture that is comprised of devices, network, compute, storage, platform, applications along with management and security components. It is organized into five main parts, comprising of a total of 11 chapters. Part I presents a generic IoT reference model to establish a common vocabulary for IoT solutions. This includes a detailed description of the Internet protocol layers and the Things (sensors and actuators) as well as the key business drivers to realize the IoT vision. Part II focuses on the IoT requirements that impact networking protocols and provides a layer-by-layer walkthrough of the protocol stack with emphasis on industry progress and key gaps. Part III introduces the concept of Fog computing and describes the drivers for the technology, its constituent elements, and how it relates and differs from Cloud computing. Part IV discusses the IoT services platform, the cornerstone of the solution followed by the Security functions and requirements. Finally, Part V provides a treatment of the topic of connected ecosystems in IoT along with practical applications. It then surveys the latest IoT standards and discusses the pivotal role of open source in IoT.
	**Handbook Industry 4.0**	Walter Frenz	Springer Berlin Heidelberg	2022 (1st edition)	978-3-662-64448-5	LINK	The handbook presents an overview of Industry 4.0 and offers solutions for important practical questions. The law and its current challenges regarding data assignment (who owns the data? / EU guidelines), data security, data protection (General Data Protection Regulation), cyberattacks, competition law (right to access vs. monopolists, permissible and prohibited exchanges of information, possible collaborations) is the point of departure. In turn, the book explores peculiarities in specific areas of Industry 4.0 (Internet of Production, mechanical engineering, artificial intelligence, electromobility, autonomous driving, traffic, medical science, construction, energy industry, etc.). The book's closing section addresses general developments in management, the digital transformation of companies and the world of work, and ethical questions.
	**Industry 4.0 and the Digital Transformation of International Business**	Gurinder Singh, Richa Goel, Vikas Garg	Springer Nature Singapore	2023	978-981-19-7880-7	LINK	The book throws light on the ongoing trends in international business, integration of information technology with global businesses, its role in value co-creation, resource integration, and service for service exchange. While discussing the issues of these areas, chapters of this book also delve into prevalent problematic areas which are closely related like employment, ethical aspects, power creation, and so on. Recognizing the role digitization and new technologies play in enabling global managers to communicate with outside world directly via digital channels irrespective of their location (which is especially true in time of COVID-19), the book takes an emerging economy perspective and throws light on new theories, perceptions, employment opportunities, and innovative ideas through its content. The book not only discusses effects of information technology but also the latest emerging technology in global business like use of artificial intelligence, robotics, machine learning, big data, and their integration with the global business 4.0. Since emergence of these new technologies requires proper infrastructural development, the book also throws light on government initiatives and CSR in this respect. It contains takeaways for both undergraduate and graduate students, researchers and academicians, industry watchers, practitioners, start-ups, and entrepreneurs
	**Artificial Intelligence and Cyber Security in Industry 4.0**	Velliangiri Sarveshwaran, Joy Iong-Zong Chen, Danilo Pelusi	Springer Nature Singapore	2023	978-981-99-2115-7	LINK	This book provides theoretical background and state-of-the-art findings in artificial intelligence and cybersecurity for industry 4.0 and helps in implementing AI-based cybersecurity applications. Machine learning-based security approaches are vulnerable to poison datasets which can be caused by a legitimate defender's misclassification or attackers aiming to evade detection by contaminating the training data set. There also exist gaps between the test environment and the real world. Therefore, it is critical to check the potentials and limitations of AI-based security technologies in terms of metrics such as security, performance, cost, time, and consider how to incorporate them into the real world by addressing the gaps appropriately. This book focuses on state-of-the-art findings from both academia and industry in big data security relevant sciences, technologies, and applications.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Beyond AI**	Ken Huang, Yang Wang, Feng Zhu, Xi Chen, Chunxiao Xing	Springer Nature Switzerland	2023	978-3-031-45282-6	LINK	This book explores the transformative potential of ChatGPT, Web3, and their impact on productivity and various industries. It delves into Generative AI (GenAI) and its representative platform ChatGPT, their synergy with Web3, and how they can revolutionize business operations. It covers the potential impact surpassing prior industrial revolutions. After providing an overview of GenAI, ChatGPT, and Web3, it investigates business applications in various industries and areas, such as product management, finance, real estate, gaming, and government, highlighting value creation and operational revolution through their integration. It also explores their impact on content generation, customer service, personalization, and data analysis and examines how the technologies can enhance content quality, customer experiences, sales, revenue, and resource efficiency. Moreover, it addresses security, privacy, and ethics concerns, emphasizing the responsible implementation of ChatGPT and Web3. Written by experts in this field, this book is aimed at business leaders, entrepreneurs, students, investors, and professionals who are seeking insights into ChatGPT, ChatGPT Plug-in, GPT-based autonomous agents, and the integration of Gen AI and Web3 in business applications.
	**From Industry 4.0 to Industry 5.0**	Allam Hamdan, Arezou Harraf, Amina Buallay, Pallvi Arora, Hala Alsabatin	Springer Nature Switzerland	2023	978-3-031-28314-7	LINK	This book aims at bringing together global researchers to generate thought on how this transition from Industry 4.0 to Industry 5.0 could make a difference to the globe for larger good. The collaboration and interaction between man and machine has given rise to Industry 5.0. With the prime objective of Industry 5.0 to create a benefit for the human beings while tapping on to the advantage of Industry 4.0, in no case, does it replace what has already been achieved. In fact, it brings to light what can be done in order to make life better. While Industry 4.0 offered extraordinary technological advancement, Industry 5.0 reasons out that technology alone is not sufficient to answer everything or provide a solution, but it is an amalgamation of both machine and human interaction to create that difference. In fact, with the impact of widespread digitalization that has led to dehumanization of the industrial makeup, the interest of global researchers has increased toward mapping how the human creativity and brainpower can be reconciled with the intelligent systems that can enhance process efficiency. Industry 5.0 has touched upon some of those key domains which are of much concern and debate globally including resilience (both business and cyber), environment and sustainability, diversity and inclusion, values and ethics, vision and purpose, circular economy, understanding the human–machine collaboration and the 'human-touch' in the production process. This transition that has taken place in moving from Industry 4.0 to Industry 5.0 has essentially created a need to pay cognizance to the role of 'human' in the process which creates an enhanced focus toward the right kind of skills and competencies, identification of training and developmental needs, talent acquisition and management, safety and wellbeing, future of work as well as hybrid working models. Undeniably, the pace with which Industry 4.0 has been accelerating has bypassed the first three industrial revolutions, which is definitely a consequence of the fast introduction of new and cutting-edge technologies. While organizations are already in analyzing the context, mapping this transition and the flow of activities from Industry 4.0 to 5.0 is gaining attention as Industry 4.0 lacked personalization and customization. This co-existence of man and machine creates a pathway for newer prospects and opportunities to emerge and expand possibilities of personalization with the empowerment of 'human' in the production process. This lays the foundation for this book. This book adopts a forward-looking approach by bringing in research and contributions that facilitate in mapping the consereasons, consequences and solutions for 'man+machine' across industries. This book serves as a guide not just to academia but also to the industry to adopt suitable strategies that offer insights into global best practices as well as the innovations in the domain.
	**Artificial Intelligence and Industrial Applications**	Tawfik Masrour, Hassan Ramchoun, Tarik Hajji, Mohamed Hosni	Springer Nature Switzerland	2023	978-3-031-43520-1	LINK	Amid the dynamic growth of artificial intelligence, this book presents a collection of findings and advancements from the second edition of the A2IA-Artificial Intelligence and Industrial Applications conference. The conference, hosted by ENSAM-Meknès at Moulay Ismail University, Morocco, fosters knowledge exchange in AI, focusing primarily on its industrial applications. Covering a wide range of topics, the book highlights the adaptable nature of AI and its increasing impact on industrial sectors. It brings together contributions from an international cohort of researchers, discussing themes such as intelligent manufacturing and maintenance, intelligent supply chain management, various modes of learning including supervised, unsupervised, reinforcement, semi-supervised, and graph-based, as well as neural networks, deep learning, planning, and optimization. A defining feature of this edition is its extensive scope and emphasis on the practical applications of AI, along with its foundational elements. It facilitates an understanding of AI's current state and potential future direction, showcasing recent developments that bridge the gap between theory and practice. Designed for a diverse readership, this book is of interest to AI practitioners, academics, and enthusiasts, as well as to those new to the field. It provides an opportunity to explore AI's critical role in industrial applications, and the practical insights it offers are likely to be beneficial for decision-making within industrial settings.
	**Internet of Things**	Sandeep Saxena, Ashok Kumar Pradhan	Springer Singapore	2022 (1st edition)	978-981-19-1585-7	LINK	This book covers major areas of device and data security and privacy related to the Internet of Things (IoT). It also provides an overview of light-weight protocols and cryptographic mechanisms to achieve security and privacy in IoT applications. Besides, the book also discusses intrusion detection and firewall mechanisms for IoT. The book also covers topics related to embedded security mechanisms and presents suitable malware detection techniques for IoT. The book also contains a unique presentation on heterogeneous device and data management in IoT applications and showcases the major communication-level attacks and defense mechanisms related to IoT.

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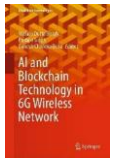	**AI and Blockchain Technology in 6G Wireless Network**	Malaya Dutta Borah, Pushpa Singh, Ganesh Chandra Deka	Springer Singapore	2022 (1st edition)	978-981-19-2868-0	LINK	This book highlights future research directions and latent solutions by integrating AI and Blockchain 6G networks, comprising computation efficiency, algorithms robustness, hardware development and energy management. This book brings together leading researchers in Academia and industry from diverse backgrounds to deliver to the technical community an outline of emerging technologies, advanced architectures, challenges, open issues and future directions of 6G networks. This book is written for researchers, professionals and students to learn about the integration of technologies such as AI and Blockchain into 6G network and communications. This book addresses the topics such as consensus protocol, architecture, intelligent dynamic resource management, security and privacy in 6G to integrate AI and Blockchain and new real-time application with further research opportunities.
	**AI Enabled IoT for Electrification and Connected Transportation**	Naveenkumar Marati, Akash Kumar Bhoi, Victor Hugo C. De Albuquerque, Akhtar Kalam	Springer Singapore	2022 (1st edition)	978-981-19-2184-1	LINK	This book presents an overview of artificial intelligence (AI) in the automotive section, especially in the modern era of green energy-based electrification of vehicles and smart transportation systems. The book also discusses different Internet of Things aspects involved in the automotive domain with AI. The book presents autonomous driving systems, advanced driver assistance systems (ADAS), autonomy, AI involvement, and machine learning techniques with challenges in electrification, prognostics, and diagnostics. AI and IoT are two emerging technologies, and their importance in other modern technology electrification on transportation, connected vehicle segment are discussed thoroughly in this book with different topologies. It also presents AI applications in the charging profile prediction, state of charge, state of health, battery lifetime, and battery temperature detection in dynamic conditions. Different algorithms are also given in the book to discuss the nearest point charging station for electric vehicle users. The book also discusses cybersecurity issues and challenges in the real-time environment for AI implementation, IoT in transportation, and autonomous driving. The other aspects of telematics, smart sensors for the implementation of the IoT, and AI are also discussed, especially in guidance and control aspects. The book will be useful for the researchers, practitioners, and industry people working in AI, IoT in the electrification and transportation segment.
	**Handbook of Image Engineering**	Yu-Jin Zhang	Springer Singapore	2021	978-981-15-5873-3	LINK	Image techniques have been developed and implemented for various purposes, and image engineering (IE) is a rapidly evolving, integrated discipline comprising the study of all the different branches of image techniques, and encompassing mathematics, physics, biology, physiology, psychology, electrical engineering, computer science and automation. Advances in the field are also closely related to the development of telecommunications, biomedical engineering, remote sensing, surveying and mapping, as well as document processing and industrial applications. IE involves three related and partially overlapping groups of image techniques: image processing (IP) (in its narrow sense), image analysis (IA) and image understanding (IU), and the integration of these three groups makes the discipline of image engineering an important part of the modern information era. This is the first handbook on image engineering, and provides a well-structured, comprehensive overview of this new discipline. It also offers detailed information on the various image techniques. It is a valuable reference resource for R&D professional and undergraduate students involved in image-related activities.
	**Artificial Intelligence and International Law**	Jaemin Lee	Springer Singapore	2022 (1st edition)	978-981-19-1496-6	LINK	This book examines the timely issue of artificial intelligence (AI) and law. At this moment, AI is rapidly developing and being utilized in many different sectors. Meanwhile, the rise of AI raises complex questions and poses new challenges—new products and services involving AI will require new regulations and standards to minimize potential negative side-effects and maximize the benefits of this new technology, both within domestic law and international law. Thus, this book focuses on the impact of AI on international law and seeks ways to develop international law frameworks to adequately address the challenges of the AI era. In this context, new forms of inter-state conflicts and emergence of new subjects and objects of international law are discussed along with relevant up-to-date developments in major jurisdictions. Issues arising from the advent of AI relating to state sovereignty, state responsibility, dispute settlements, and north-south divide are also considered.
	**New Trends in Robot Control**	Ghommam Jawhar, Derbel Nabil, Zhu Quanmin	Springer Singapore	2020	978-981-15-1819-5	LINK	This book presents solutions to control problems in a number of robotic systems and provides a wealth of worked-out examples with full analytical and numerical details, graphically illustrated to aid in reader comprehension. It also presents relevant studies on and applications of robotic system control approaches, as well as the latest findings from interdisciplinary theoretical studies. Featuring chapters on advanced control (fuzzy, neural, backstepping, sliding mode, adaptive, predictive, diagnosis, and fault-tolerant control), the book will equip readers to easily tailor the techniques to their own applications. Accordingly, it offers a valuable resource for researchers, engineers, and students in the field of robotic systems.

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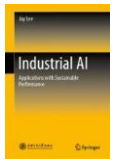
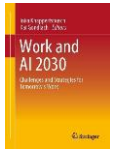
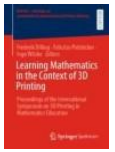
	**Industrial AI** Applications with Sustainable Performance	Lee Jay	Springer Singapore	2020	978-981-15-2144-7	LINK	This book introduces Industrial AI in multiple dimensions. Industrial AI is a systematic discipline which focuses on developing, validating and deploying various machine learning algorithms for industrial applications with sustainable performance. Combined with the state-of-the-art sensing, communication and big data analytics platforms, a systematic Industrial AI methodology will allow integration of physical systems with computational models. The concept of Industrial AI is in infancy stage and may encompass the collective use of technologies such as Internet of Things, Cyber-Physical Systems and Big Data Analytics under the Industry 4.0 initiative where embedded computing devices, smart objects and the physical environment interact with each other to reach intended goals. A broad range of Industries including automotive, aerospace, healthcare, semiconductors, energy, transportation, mining, construction, and industrial automation could harness the power of Industrial AI to gain insights into the invisible relationship of the operation conditions and further use that insight to optimize their uptime, productivity and efficiency of their operations. In terms of predictive maintenance, Industrial AI can detect incipient changes in the system and predict the remains useful life and further to optimize maintenance tasks to avoid disruption to operations.
	**Next Stop Metaverse**	Ralf T. Kreutzer, Sonja Klose	Springer Fachmedien Wiesbaden	2023	978-3-658-41180-0	LINK	This book initiates the conversation about the metaverse in science and practice. What will the metaverse look like? What is it about? Where do we stand? What do we need? Where is the journey going? To begin with: Is the metaverse an idea or a promise? Ralf T. Kreutzer and Sonja Klose try to make the vision tangible and imaginable. As with the Internet, it is difficult at this point to predict which developments and technologies will be created and combined by which individuals and companies and in what way. The authors take you by the hand and recommend: Don't ignore these developments! There is no need to make extensive investments in the metaverse today. But a few hands-on exercises are provided to help you be ready when the bandwagon picks up speed. In addition, it can help you to gain advantages in employer branding if it becomes visible that you are also dealing with exciting future topics.
	**Work and AI 2030**	Inka Knappertsbusch, Kai Gondlach	Springer Fachmedien Wiesbaden	2023	978-3-658-40232-7	LINK	In ten years, we will take working with artificial intelligence (AI) more for granted than using cell phones today. 78 recognized experts from practice and research provide deep insights and outlooks regarding the influence of AI on everyday working life in 2030, explaining with practical tips how you can prepare for this development. The 41 concise articles cover a broad spectrum in the area examined in each case. Thanks to a standardized structure, they include a summary of the status quo, concrete examples, future expectations, an overview of challenges and possible solutions, and practical tips. The volume begins with societal and ethical issues before discussing legal considerations for employers and HR professionals, as well as the administration of justice. The other chapters examine the impact of AI on the world of work in 2030 in the sectors of business, industry, mobility and logistics, medicine and pharmaceuticals, and (further) education.
	**Digitalization and Artificial Intelligence**	Thomas Schneider	Springer Fachmedien Wiesbaden	2023	978-3-658-40383-6	LINK	The possibilities and limits of digitalization in general and artificial intelligence in particular are demonstrated in a practice-oriented manner. Ways to generate and secure competitive advantages are presented. The topic is examined from the perspective of the company, the function of controlling and the personal position in controlling. The aim is rather to accompany the reader in the concrete implementation than to present a uniform guide.
	**Learning Mathematics in the Context of 3D Printing**	Frederik Dilling, Felicitas Pielsticker, Ingo Witzke	Springer Fachmedien Wiesbaden	2022 (1st edition)	978-3-658-38867-6	LINK	The volume presents a collection of articles on the use of 3D printing technology in mathematics education and in mathematics teacher training. It contains both basic research-oriented contributions as well as reflected descriptions of concrete developments for teaching. The authors of this compilation share a positive attitude towards the possibilities that the use of 3D printing technology (understood as an interplay of software and hardware) can unfold for mathematics education, but critically evaluate from a mathematics education research perspective when, where and how an application can enable an added value for the learning of a mathematical content.

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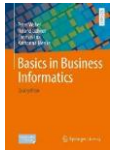
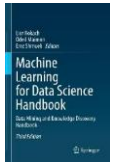
	**Basics in Business Informatics**	Peter Weber, Roland Gabriel, Thomas Lux, Katharina Menke	Springer Fachmedien Wiesbaden	2022 (2nd edition)	978-3-658-35859-4	LINK	This book takes you on a journey into the world of business informatics. It has a modular structure and covers the key aspects of business informatics. Besides the thematic introductions, each chapter includes excursuses, review questions, and practical exercises, for which solutions are provided in a separate chapter. The book concludes with two teaching cases on digital transformation. It is designed for students and lecturers at universities and technical colleges, but also as a resource for IT trainings.
	**Industry 4.0 Technologies for Environmental Sustainability**	Adele Parmentola , Ilaria Tutore	Springer International Publishing	2023	978-3-031-40010-0	LINK	Industry 4.0 technologies are expected to have a positive impact on the global economy by promoting autonomous interoperability, agility, flexibility, decision-making, efficiency or cost reduction, which are also expected to be resource efficient. However, new and emerging technologies can also have potentially harmful social and environmental impacts that must be considered. The goal of this book is to provide a deeper understanding of how Industry 4.0 technologies can benefit or harm the environmental sustainability of companies. To this end, it presents a classification of Industry 4.0 technologies and evaluates for each typology the positive and negative aspects of their implementation. Thus, the book considers Industry 4.0 technology and environmental sustainability from the perspective of management on the one hand and from the perspective of technology users on the other. The book is of interest to researchers from various disciplines who approach Industry 4.0 technologies from a business perspective, and on the other hand to managers and strategic consultants who want to promote sustainable change in their companies.
	**AI, IoT, Big Data and Cloud Computing for Industry 4.0**	Amy Neustein, Parikshit N. Mahalle, Prachi Joshi, Gitanjali Rahul Shinde	Springer International Publishing	2023	978-3-031-29713-7	LINK	This book presents some of the most advanced leading-edge technology for the fourth Industrial Revolution -- known as “Industry 4.0.” The book provides a comprehensive understanding of the interconnections of AI, IoT, big data and cloud computing as integral to the technologies that revolutionize the way companies produce and distribute products and the way local governments deliver their services. The book emphasizes that at every phase of the supply chain, manufactures are found to be interweaving AI, robotics, IoT, big data/machine learning, and cloud computing into their production facilities and throughout their distribution networks. Equally important, the authors show how their research can be applied to computer vision, cyber security, database and compiler theory, natural language processing, healthcare, education and agriculture. - Presents the fundamentals of AI, IoT, and cloud computing and how they can be incorporated in Industry 4.0 applications - Motivates readers to address challenges in the areas of speech communication and signal processing - Provides numerous examples, case studies, technical descriptions, and approaches of AI/ML
	**Machine Learning for Data Science Handbook**	Lior Rokach, Oded Maimon, Erez Shmueli	Springer International Publishing	2023	978-3-031-24628-9	LINK	This book is a major update to the very successful first and second editions (2005 and 2010) of Data Mining and Knowledge Discovery Handbook. Since the last edition, this field has continued to evolve and to gain popularity. Existing methods are constantly being improved and new methods, applications and aspects are introduced. The new title of this handbook and its content reflect these changes thoroughly. Some existing chapters have been brought up to date. In addition to major revision of the existing chapters, the new edition includes totally new topics, such as: deep learning, explainable AI, human factors and social issues and advanced methods for big-data. The significant enhancement to the content reflects the growth in importance of data science. The third edition is also a timely opportunity to incorporate many other changes based on peers and students’ feedback. This comprehensive handbook also presents a coherent and unified repository of data science major concepts, theories, methods, trends, challenges and applications. It covers all the crucial important machine learning methods used in data science. Today's accessibility and abundance of data make data science matters of considerable importance and necessity. Given the field's recent growth, it's not surprising that researchers and practitioners now have a wide range of methods and tools at their disposal. While statistics is fundamental for data science, methods originated from artificial intelligence, particularly machine learning, are also playing a significant role. This handbook aims to serve as the main reference for researchers in the fields of information technology, e-Commerce, information retrieval, data science, machine learning, data mining, databases and statistics as well as advanced level students studying computer science or electrical engineering. Practitioners working within these related fields and data scientists will also want to purchase this handbook as a reference.

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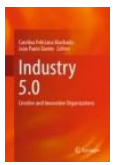
	**Mathematical Methods for Engineering and Science**	Merle C. Potter, Brian F. Feeny	Springer International Publishing	2023	978-3-031-26151-0	LINK	This book introduces undergraduate students of engineering and science to applied mathematics essential to the study of many problems. Topics are differential equations, power series, Laplace transforms, matrices and determinants, vector analysis, partial differential equations, complex variables, and numerical methods. Approximately, 160 examples and 1000 homework problems aid students in their study. This book presents mathematical topics using derivations rather than theorems and proofs. This textbook is uniquely qualified to apply mathematics to physical applications (spring-mass systems, electrical circuits, conduction, diffusion, etc.), in a manner that is efficient and understandable. This book is written to support a mathematics course after differential equations, to permit several topics to be covered in one semester, and to make the material comprehensible to undergraduates. An Instructor Solutions Manual, and also a Student Solutions Manual that provides solutions to select problems, is available.
	**Additive Manufacturing Materials, Functionalities and Applications**	Kun Zhou	Springer International Publishing	2023	978-3-031-04721-3	LINK	This book focuses on the advances of additive manufacturing in the applications of wearable electronics, energy storage, biomedical implants and devices, drug delivery, and technologies for 4D printing, large-scale printing, and ceramics printing. It provides timely insights into the materials, functionalities, and applications of additive manufacturing.
	**Artificial Intelligence, Learning and Computation in Economics and Finance**	Ragupathy Venkatachalam	Springer International Publishing	2023	978-3-031-15294-8	LINK	This book presents frontier research on the use of computational methods to model complex interactions in economics and finance. Artificial Intelligence, Machine Learning and simulations offer effective means of analyzing and learning from large as well as new types of data. These computational tools have permeated various subfields of economics, finance, and also across different schools of economic thought. Through 16 chapters written by pioneers in economics, finance, computer science, psychology, complexity and statistics/econometrics, the book introduces their original research and presents the findings they have yielded. Theoretical and empirical studies featured in this book draw on a variety of approaches such as agent-based modeling, numerical simulations, computable economics, as well as employing tools from artificial intelligence and machine learning algorithms. The use of computational approaches to perform counterfactual thought experiments are also introduced, which help transcend the limits posed by traditional mathematical and statistical tools. The book also includes discussions on methodology, epistemology, history and issues concerning prediction, validation, and inference, all of which have become pertinent with the increasing use of computational approaches in economic analysis.
	**Smart Digital Service Ecosystems**	Youakim Badr	Springer International Publishing	2023	978-3-031-27926-3	LINK	This book provides a holistic overview of the major advances that have been made in the context of Service Science with a focus on IT-enabled services. To address challenges in collaborative, social-centric, ad-hoc, dynamic and open environments, the book studies IT-enabled service systems from two distinct but complementary research perspectives: service engineering and service computing. From a service engineering view, the book shows how to apply a systemic approach to tackle social problems from holistic and multi-disciplinary perspectives by focusing on service systems and developing a service design framework, including socio-technical aspects, the service reference model, data-driven collaboration processes, the incremental design method, requirement propagation, and system adaptability with feedback loops. From a service computing view, the book introduces a service-oriented aided infrastructure to support IT-enabled service systems in ICT-facilitated environments and provide access to tangible and intangible resources in a trustworthy environment. The book offers a valuable companion and comprehensive reference guide for undergraduate and graduate students who want to learn about current concepts for designing and implementing service systems; and for researchers who want to identify future directions in build smart digital service ecosystems, integrating Internet of Things (IoT) and Artificial Intelligence (AI) and cyber-security. The book also appeals to developers who need to implement advanced services and want to capitalize on corresponding business models, customer-driven interaction, and scalable architectures.
	**Industry 5.0**	Carolina Feliciana Machado, João Paulo Davim	Springer International Publishing	2023	978-3-031-26232-6	LINK	This book brings together chapters from leading world experts that signpost the way forward for industry and commerce in the coming decade, as we emerge from the Covid emergency to a new era of challenges and opportunities. It has the following aims, to: - Keep at the forefront of innovative theories and strategies relate with industry 5.0, both on an international and transnational level. - Develop and improve our knowledge about industry 5.0 implications in sustainable and competitive organizations. - Communicate and share knowledge and experience in industry 5.0. The book will be of interest to all those concerned with the development of industry and its relationship to commerce and human development.

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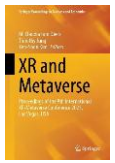
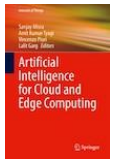
	**The Digital Twin**	Noel Crespi, Adam T. Drobot, Roberto Minerva	Springer International Publishing	2023	978-3-031-21343-4	LINK	The Digital Twin book is about harnessing the power of technology, business practices, and the digital infrastructure to make revolutionary improvements for the benefit of society. Ninety experts from around the world contributed to summarize four decades of digital advances and successes, and to define the Digital Twin's potential for the decades ahead. The book describes how Digital Twins will play a key role in specific applications and across important sectors of the global economy, making it a must-read for executives, policymakers, technical leaders, researchers, and students alike. The book consists of thirty-eight chapters that cover Digital Twin concepts, supporting technologies, practices, and specific implementation strategies for various production and service sectors. Digital Twins are about creating faster, less expensive, and error-free manufacturing, products, processes, and services. This includes engineering of systems for energy, communications, construction, transportation, and food processing. It also covers solutions for making human existence better and more enjoyable through the life sciences, smart cities, and artistic creations. The Digital Twin's functionality addresses the entire lifecycle of products and services. Importantly, the book describes the journey required for businesses and public organizations to embrace Digital Twins as part of their tool kit. The Digital Twin is the ideal starting point for teaching and research in all application domains.
	**XR and Metaverse**	M. Claudia tom Dieck, Timothy Jung, Yen-Soon Kim	Springer International Publishing	2024 **NEW**	978-3-031-50559-1	LINK	This book offers a comprehensive collection of the latest research presented at the 8th International XR-Metaverse Conference, held in Las Vegas, USA in 2023. Its goal is to bridge the gap between academia and industry by advancing the state of the art in metaverse, XR, AI-based AR and VR technologies, and by exploring their applications in various fields such as business, marketing, education, health care, tourism, events, fashion, entertainment, retail, and the gaming industry. Including contributions by prominent XR scholars from around the globe, the book addresses a wide range of significant topics concerning XR and the metaverse. Showcasing cutting-edge research outputs, it will be of interest to both academics and practitioners eager to catch up on the latest developments in this rapidly evolving field.
	**XR-Metaverse Cases**	Timothy Jung, M. Claudia tom Dieck	Springer International Publishing	2023	978-3-031-30566-5	LINK	This book presents a collection of latest case studies on augmented reality (AR) and virtual reality (VR), extended reality (XR) and metaverse applications in various industries. AR, VR, XR and Metaverse are changing the business landscape, providing opportunities for businesses to offer unique services and experiences to their customers. The case studies explore business uses of the technology across multiple industries such as healthcare, tourism, hospitality, events, fashion, entertainment, retail, education and video gaming. The volume includes solutions of different maturities as well as those from startups to large enterprises thereby providing a thorough view of how AR, VR, XR and Metaverse can be used in business.
	**Digital Twins: Basics and Applications**	Zhihan Lv, Elena Fersman	Springer International Publishing	2022 (1st edition)	978-3-031-11401-4	LINK	This book comprehensively introduces readers to Digital Twins, from the basic concepts, core technologies and technical architecture, to application scenarios and other aspects. Readers will gain a profound understanding of the emerging discipline of Digital Twins. Covering the latest and cutting-edge application technologies of Digital Twins in various fields, the book offers practitioners concrete problem-solving strategies. At the same time, it helps those working in Digital Twins-related fields to deepen their understanding of the industry and enhance their professional knowledge and skills. Given its scope, the book can also be used as teaching material or a reference book for teachers and students of product design, industrial design, design management, design marketing and related disciplines at colleges and universities. Covering a variety of groundbreaking Digital Twins technologies, it can also provide new directions for researchers.
	**Blockchain, Artificial Intelligence, and the Internet of Things**	Pethuru Raj, Ashutosh Kumar Dubey, Abhishek Kumar, Pramod Singh Rathore	Springer International Publishing	2022 (1st edition)	978-3-030-77637-4	LINK	This book provides basic concepts and deep knowledge about various security mechanisms that can be implemented in IoT through Blockchain technology. This book aids readers in gaining insight and knowledge about providing security and solutions to different challenges in IoT using Blockchain technology. This book primarily focuses on challenges to addressing the integration of the IoT with Blockchain with respect to potential benefits for IoT. This book gives descriptive analysis of Blockchain integrated with IoT applications and platforms for the development of IoT solutions along with possible topologies to that integration. Several application examples are included in a variety of industries.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Artificial Intelligence for Cloud and Edge Computing**	Sanjay Misra, Amit Kumar Tyagi, Vincenzo Piuri, Lalit Garg	Springer International Publishing	2022 (1st edition)	978-3-030-80821-1	LINK	This book discusses the future possibilities of AI with cloud computing and edge computing. The main goal of this book is to conduct analyses, implementation and discussion of many tools (of artificial intelligence, machine learning and deep learning and cloud computing, fog computing, and edge computing including concepts of cyber security) for understanding integration of these technologies. With this book, readers can quickly get an overview of these emerging topics and get many ideas of the future of AI with cloud, edge, and in many other areas. Topics include machine and deep learning techniques for Internet of Things based cloud systems; security, privacy and trust issues in AI based cloud and IoT based cloud systems; AI for smart data storage in cloud-based IoT; blockchain based solutions for AI based cloud and IoT based cloud systems.This book is relevent to researchers, academics, students, and professionals.
	**Machine Intelligence and Big Data Analytics for Cybersecurity Applications**	Yassine Maleh, Mohammad Shojafar, Mamoun Alazab, Youssef Baddi	Springer International Publishing	2021 (1st edition)	978-3-030-57024-8	LINK	This book presents the latest advances in machine intelligence and big data analytics to improve early warning of cyber-attacks, for cybersecurity intrusion detection and monitoring, and malware analysis. Cyber-attacks have posed real and wide-ranging threats for the information society. Detecting cyber-attacks becomes a challenge, not only because of the sophistication of attacks but also because of the large scale and complex nature of today's IT infrastructures. It discusses novel trends and achievements in machine intelligence and their role in the development of secure systems and identifies open and future research issues related to the application of machine intelligence in the cybersecurity field. Bridging an important gap between machine intelligence, big data, and cybersecurity communities, it aspires to provide a relevant reference for students, researchers, engineers, and professionals working in this area or those interested in grasping its diverse facets and exploringthe latest advances on machine intelligence and big data analytics for cybersecurity applications.
	**Additive Manufacturing of Mechatronic Integrated Devices**	Friedrich Wilhelm Proes	Springer International Publishing	2022 (1st edition)	978-3-031-16221-3	LINK	In this dissertation a new process chain for the Additive Manufacturing of Mechatronic Integrated Devices (AMMID) is described, which provides a new way to manufacture 3-dimensional electronic devices based on the selective laser sintering (SLS) process using laser direct structuring (LDS) and metallization. The AMMID process chain meets the rising demand for highly functionalized parts, increasing individualization and shortening development cycles for electronic products. The development for this process chain is based on an extensive literature review that indicates that an SLS-based process chain has great potential to produce 3-dimensional electronic devices with properties and with the future perspective of being suitable for an individualized mass production. The biggest, initial, technical hurdle is an unstable SLS process using a conventional LDS additive. The compound of SLS material and LDS additive was analyzed with DSC, which shows that the additive changes the melting behavior of the polymer by reducing the sintering window. A fine metal powder as an alternative additive affects the sintering window less and enables a stable process. To choose a suitable particle size and content for the metal powder an analytical material model is provided, that predicts the additive particle distribution within the material. This material model deepens the understanding of the activation mechanism during laser activation, provides hands-on information for powder preparation and it is applied for the design of the experiment for the development of the process chain with the new material. Preliminary experiments are conducted along with the insights of the material model, which prove that redeposition is the main activation mechanism during laser activation with fine metal powders. Based on this, the process chain is developed, starting with a determination of a suitable additive content. A suitable material composition of a PA12 powder containing 2 wt.% of a copper powder with a mean particle diameter of 3.5 µm was identified. With regard to the laser activation, working laser parameters are developed (working parameter set feasible for all used post-process treatments: PRF = 1 kHz, dh = 25 µm, vs = 25 mm/s, tl = 20ns and P = 1.07 W). In this parameter development it is shown, that only closely located laser spots, enabling interaction of the laser pulses, are capable of activating the surface, while single laser pulses under applied conditions are not. By adding a post-process treatment as additional process step into the process chain, the quality of metallization and the size of design features could be improved. Chemical smoothing resulted in a complete reduction of unwanted metallization on non-activated surfaces. Conductor tracks with the minimal width of 300 µm could be realized. The process chain could be applied to demonstrator parts such as a drone housing and a PSU panel of an aircraft. Thus, this dissertation has raised the technology readiness level (TRL) from TRL2 to TRL6.
	**Artificial Intelligence for Data Science in Theory and Practice**	Mohamed Alloghani, Christopher Thron, Saad Subair	Springer International Publishing	2022 (1st edition)	978-3-030-92245-0	LINK	This book provides valuable information on effective, state-of-the-art techniques and approaches for governments, students, researchers, practitioners, entrepreneurs and teachers in the field of artificial intelligence (AI). The book explains the data and AI, types and properties of data, the relation between AI algorithms and data, what makes data AI ready, steps of data pre-processing, data quality, data storage and data platforms. Therefore, this book will be interested by AI practitioners, academics, researchers, and lecturers in computer science, artificial intelligence, machine learning and data sciences.

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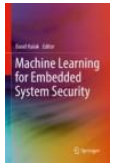
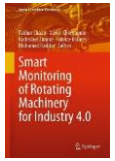
	**Machine Learning for Embedded System Security**	Basel Halak	Springer International Publishing	2022 (1st edition)	978-3-030-94178-9	LINK	This book comprehensively covers the state-of-the-art security applications of machine learning techniques. The first part explains the emerging solutions for anti-tamper design, IC Counterfeits detection and hardware Trojan identification. It also explains the latest development of deep-learning-based modeling attacks on physically unclonable functions and outlines the design principles of more resilient PUF architectures. The second discusses the use of machine learning to mitigate the risks of security attacks on cyber-physical systems, with a particular focus on power plants. The third part provides an in-depth insight into the principles of malware analysis in embedded systems and describes how the usage of supervised learning techniques provides an effective approach to tackle software vulnerabilities.
	**Machine Learning for Computer Scientists and Data Analysts**	Setareh Rafatirad , Houman Homayoun, Zhiqian Chen , Sai Manoj Pudukotai Dinakarrao	Springer International Publishing	2022 (1st edition)	978-3-030-96756-7	LINK	This textbook introduces readers to the theoretical aspects of machine learning (ML) algorithms, starting from simple neuron basics, through complex neural networks, including generative adversarial neural networks and graph convolution networks. Most importantly, this book helps readers to understand the concepts of ML algorithms and enables them to develop the skills necessary to choose an apt ML algorithm for a problem they wish to solve. In addition, this book includes numerous case studies, ranging from simple time-series forecasting to object recognition and recommender systems using massive databases. Lastly, this book also provides practical implementation examples and assignments for the readers to practice and improve their programming capabilities for the ML applications.
	**Cloud Computing, Big Data & Emerging Topics**	Enzo Rucci, Marcelo Naiouf, Franco Chichizola, Laura De Giusti, Armando De Giusti	Springer International Publishing	2022 (1st edition)	978-3-031-14599-5	LINK	This book constitutes the revised selected papers of the 10th International Conference on Cloud Computing, Big Data & Emerging Topics, JCC-BD&ET 2022, held in La Plata, Argentina*, in June-July 2022. The 9 full papers were carefully reviewed and selected from a total of 23 submissions. The papers are organized in topical sections on: Parallel and Distributed Computing; Machine and Deep Learning; Cloud and High-Performance Computing, Machine and Deep Learning, and Virtual Reality.
	**Smart Monitoring of Rotating Machinery for Industry 4.0**	Fakher Chaari, Xavier Chiementin, Radoslaw Zimroz, Fabrice Bolaers, Mohamed Haddar	Springer International Publishing	2022 (1st edition)	978-3-030-79519-1	LINK	This book offers an overview of current methods for the intelligent monitoring of rotating machines. It describes the foundations of smart monitoring, guiding readers to develop appropriate machine learning and statistical models for answering important challenges, such as the management and analysis of a large volume of data. It also discusses real-world case studies, highlighting some practical issues and proposing solutions to them. The book offers extensive information on research trends, and innovative strategies to solve emerging, practical issues. It addresses both academics and professionals dealing with condition monitoring, and mechanical and production engineering issues, in the era of industry 4.0.
	**Digital Twin - Fundamental Concepts to Applications in Advanced Manufacturing**	Surjya Kanta Pal, Debasish Mishra, Arpan Pal, Samik Dutta, Debashish Chakravarty, Srikanta Pal	Springer International Publishing	2022 (1st edition)	978-3-030-81815-9	LINK	This book provides readers with a guide to the use of Digital Twin in manufacturing. It presents a collection of fundamental ideas about sensor electronics and data acquisition, signal and image processing techniques, seamless data communications, artificial intelligence and machine learning for decision making, and explains their necessity for the practical application of Digital Twin in Industry. Providing case studies relevant to the manufacturing processes, systems, and sub-systems, this book is beneficial for both academics and industry professionals within the field of Industry 4.0 and digital manufacturing.

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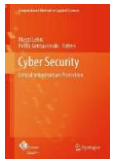
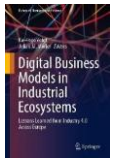
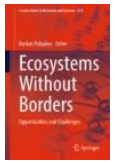
	**Digital Twins in Manufacturing**	Vytautas Ostaševičius	Springer International Publishing	2022 (1st edition)	978-3-030-98275-1	LINK	This book presents a guide to digital twin technologies and their applications within manufacturing. It examines key technological advances in the area of Industry 4.0, including numerical and experimental models and the Internet of Things (IoT), and explores their potential technical benefits through real-world application examples. This book presents digital models of advanced manufacturing processes dynamics that enable to control the cutting processes including experimental and simulation studies for brittle-ductile transition of ultra-precision machining materials assuring product quality. Innovative electrical power harvesting solutions from tool vibrations and wireless data transmission from confined and heavily cooled environment are also included. It explains the benefits of virtual and physical twins adapted to real systems, including the ability to shorten the product's path to the market, and enabling the transition to higher value-added manufacturing processes. Including numerous illustrations and clear solved problems, this book will be of interest to researchers and industry professionals in the fields of mechatronics, manufacturing engineering, computational mechanics.
	**Cyber Security**	Martti Lehto, Pekka Neittaanmäki	Springer International Publishing	2022 (1st edition)	978-3-030-91293-2	LINK	This book focus on critical infrastructure protection. The chapters present detailed analysis of the issues and challenges in cyberspace and provide novel solutions in various aspects. The first part of the book focus on digital society, addressing critical infrastructure and different forms of the digitalization, strategic focus on cyber security, legal aspects on cyber security, citizen in digital society, and cyber security training. The second part focus on the critical infrastructure protection in different areas of the critical infrastructure. The chapters cover the cybersecurity situation awareness, aviation and air traffic control, cyber security in smart societies and cities, cyber security in smart buildings, maritime cyber security, cyber security in energy systems, and cyber security in healthcare. The third part presents the impact of new technologies upon cyber capability building as well as new challenges brought about by new technologies. These new technologies are among others are quantum technology, firmware and wireless technologies, malware analysis, virtualization.
	**Explainable Artificial Intelligence for Cyber Security**	Mohiuddin Ahmed, Sheikh Rabiul Islam, Adnan Anwar, Nour Moustafa, Al-Sakib Khan Pathan	Springer International Publishing	2022 (1st edition)	978-3-030-96630-0	LINK	This book presents that explainable artificial intelligence (XAI) is going to replace the traditional artificial, machine learning, deep learning algorithms which work as a black box as of today. To understand the algorithms better and interpret the complex networks of these algorithms, XAI plays a vital role. In last few decades, we have embraced AI in our daily life to solve a plethora of problems, one of the notable problems is cyber security. In coming years, the traditional AI algorithms are not able to address the zero-day cyber attacks, and hence, to capitalize on the AI algorithms, it is absolutely important to focus more on XAI. Hence, this book serves as an excellent reference for those who are working in cyber security and artificial intelligence.
	**Digital Twins for Digital Transformation: Innovation in Industry**	Aboul Ella Hassanien, Ashraf Darwish, Vaclav Snasel	Springer International Publishing	2022 (1st edition)	978-3-030-96802-1	LINK	This book aims to present dominant applications and use cases of the fast-evolving DT and determines vital Industry 4.0 technologies for building DT that can provide solutions for fighting local and globalmedical emergencies during pandemics. Moreover, it discusses a new framework integrating DT and blockchain technology to provide a more efficient and effective preventive conservation in different applications.
	**Digital Transformation in Industry**	Vikas Kumar, Jiewu Leng, Victoria Akberdina, Evgeny Kuzmin	Springer International Publishing	2022 (1st edition)	978-3-030-94617-3	LINK	This book offers a selection of the best papers presented at the annual international scientific conference “Digital Transformation in Industry: Trends, Management, Strategies (DTI2021),” held by the Institute of Economics, Ural Branch of the Russian Academy of Sciences, in Ekaterinburg (Russia) on October 29, 2021. The book focuses on the idea of introduction mechanisms for digitization processes and on highlighting successful digital transformation strategies in all sectors of industry. Key topics include the development of a cyber-physical production system for Industry 4.0; digital design technologies for enhancing the competitiveness of products and companies; digital twin-driven product manufacturing and services; and the effects of the industrial digital transformation on society and the environment. With regard to implementing IT and other technological innovations, lessons learned in developed and developing economies, as well as small and large enterprises, are included. Given its scope, the book offers a valuable asset for researchers and managers of industrial organizations alike.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Big Data Analytics and Computational Intelligence for Cybersecurity**	Mariya Ouaissa, Zakaria Boulouard, Mariyam Ouaissa, Inam Ullah Khan, Mohammed Kaosar	Springer International Publishing	2022 (1st edition)	978-3-031-05752-6	LINK	This book presents a collection of state-of-the-art artificial intelligence and big data analytics approaches to cybersecurity intelligence. It illustrates the latest trends in AI/ML-based strategic defense mechanisms against malware, vulnerabilities, cyber threats, as well as proactive countermeasures. It also introduces other trending technologies, such as blockchain, SDN, and IoT, and discusses their possible impact on improving security. The book discusses the convergence of AI/ML and big data in cybersecurity by providing an overview of theoretical, practical, and simulation concepts of computational intelligence and big data analytics used in different approaches of security. It also displays solutions that will help analyze complex patterns in user data and ultimately improve productivity. This book can be a source for researchers, students, and practitioners interested in the fields of artificial intelligence, cybersecurity, data analytics, and recent trends of networks.
	**Digital Business Models for Industry 4.0**	Carlo Bagnoli , Andrea Albarelli , Stefano Biazzo , Gianluca Biotto , Giuseppe Roberto Marseglia , Maurizio Massaro , Matilde Messina , Antonella Muraro , Luca Troiano	Springer International Publishing	2022 (1st edition)	978-3-030-97284-4	LINK	Technological advancements are contributing to shape future business models and the industrial scenario. Companies face the challenge of having to adapt to the frequently shifting technology landscape. Therefore, organizations must exploit technological advances to thrive in the digital revolution. This book presents and discusses emerging digital business models in the Industry 4.0. These models are illustrated with real case studies and include data-driven, platform, smart factory and servitization among others. The book introduces a detailed classification to help organizations to redesign their current business models and discusses how to gain unique competitive advantages. The book includes not only theoretical concepts to understand the context of digital transformation but also an assessment framework to enable and support innovation in organizations and create new revenue streams. The book will be of interest to students and professionals alike who want to understand the core of the Industry 4.0.
	**Digital Business Models in Industrial Ecosystems**	Kai-Ingo Voigt, Julian M. Müller	Springer International Publishing	2021 (1st edition)	978-3-030-82003-9	LINK	In recent years, digital business models have frequently been the subject of academic and practical discourse. The increasing interconnectivity across the entire supply chain, which is subsumed under the term Industry 4.0, can unlock even farther-reaching potentials for digital business models, affecting entire supply chains and ecosystems. This book examines the specific challenges and obstacles that supply chain and ecosystem management poses with regard to the development of digital business models. The top-quality contributions gathered here focus on the successful implementation of Industry 4.0 in digital business models for industrial organizations in a European context, making the book a valuable asset for researchers and practitioners alike.
	**Machine Learning for Cybersecurity**	Marwan Omar	Springer International Publishing	2022 (1st edition)	978-3-031-15893-3	LINK	This SpringerBrief presents the underlying principles of machine learning and how to deploy various deep learning tools and techniques to tackle and solve certain challenges facing the cybersecurity industry. By implementing innovative deep learning solutions, cybersecurity researchers, students and practitioners can analyze patterns and learn how to prevent cyber-attacks and respond to changing malware behavior. The knowledge and tools introduced in this brief can also assist cybersecurity teams to become more proactive in preventing threats and responding to active attacks in real time. It can reduce the amount of time spent on routine tasks and enable organizations to use their resources more strategically. In short, the knowledge and techniques provided in this brief can help make cybersecurity simpler, more proactive, less expensive and far more effective Advanced-level students in computer science studying machine learning with a cybersecurity focus will find this SpringerBrief useful as a study guide. Researchers and cybersecurity professionals focusing on the application of machine learning tools and techniques to the cybersecurity domain will also want to purchase this SpringerBrief.
	**Ecosystems Without Borders**	Ruslan Polyakov	Springer International Publishing	2022 (1st edition)	978-3-031-05778-6	LINK	This book presents selected papers from the II International Conference "Ecosystems without Borders 2021", held at Kaliningrad State Technical University in Kaliningrad, Russia on October 5–7, 2021. Materials of the book "Ecosystems without Borders - Opportunities and Challenges" include theoretical and spatial aspects of ecosystems, features of the formation of a creative class in these conditions, as well as studies reflecting transformation of ecosystems, both in terms of innovations and in science, technology and business. This book will be of interest to a wide range of readers, such as practicing economists, students, graduate students and researchers, as well as government employees and company managers.

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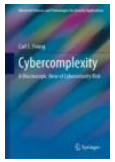
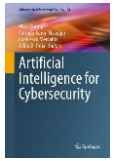
	**IoT System Design**	Alice James, Avishkar Seth, Subhas Chandra Mukhopadhyay	Springer International Publishing	2022 (1st edition)	978-3-030-85863-6	LINK	This book presents a step by step design approach to develop and implement an IoT system starting from sensor, interfacing to embedded processor, wireless communication, uploading measured data to cloud including data visualization along with machine learnings and artificial intelligence. The book will be extremely useful towards a hands-on approach of designing and fabricating an IoT system especially for upper undergraduate, master and PhD students, researchers, engineers and practitioners.
	**Cybercomplexity**	Carl S. Young	Springer International Publishing	2022 (1st edition)	978-3-031-06994-9	LINK	This book tackles the problem of complexity within IT environments, i.e., "Cybercomplexity," which is generally recognized as a principal source of cybersecurity risk. The book first defines complexity and simplifies its analysis by assuming a probabilistic approach to security risk management. It then proposes a simple model of cybercomplexity that is based on Shannon entropy, a basic concept in information theory. The key drivers of cybercomplexity emerge from this model, where these drivers reveal the scale-dependence of cybersecurity risk and explain why macroscopic security controls are required to address cybersecurity risk on an enterprise scale. The significant operational implications of cybercomplexity are also discussed, thereby providing both a theoretical framework and a practical guide to addressing this longstanding problem in cybersecurity risk management.
	**Artificial Intelligence for Cybersecurity**	Mark Stamp, Corrado Aaron Visaggio, Francesco Mercaldo, Fabio Di Troia	Springer International Publishing	2022 (1st edition)	978-3-030-97087-1	LINK	This book explores new and novel applications of machine learning, deep learning, and artificial intelligence that are related to major challenges in the field of cybersecurity. The provided research goes beyond simply applying AI techniques to datasets and instead delves into deeper issues that arise at the interface between deep learning and cybersecurity. This book also provides insight into the difficult "how" and "why" questions that arise in AI within the security domain. For example, this book includes chapters covering "explainable AI", "adversarial learning", "resilient AI", and a wide variety of related topics. It's not limited to any specific cybersecurity subtopics and the chapters touch upon a wide range of cybersecurity domains, ranging from malware to biometrics and more. Researchers and advanced level students working and studying in the fields of cybersecurity (equivalently, information security) or artificial intelligence (including deep learning, machine learning, big data, and related fields) will want to purchase this book as a reference. Practitioners working within these fields will also be interested in purchasing this book.
	**IoT as a Service**	Bo Li, Changle Li, Mao Yang, Zhongjiang Yan, Jie Zheng	Springer International Publishing	2020	978-3-030-67514-1	LINK	This book constitutes the refereed post-conference proceedings of the 6st International Conference on IoT as a Service, IoTaaS 2020, which took place in Xi'an, China, in November 2020. Due to COVID-19 pandemic the conference was held virtually. The 69 revised full papers were carefully reviewed and selected from 136 submissions. The papers present two technical tracks and three workshops: The Second Workshop on Edge Intelligence and Computing for Iot Communications and Applications, the Workshop on Satellite Communication Networks for Internet of Things, the Workshop on Satellite Communications
	**Industry 4.0 Fighting Climate Change in the Economy of the Future**	Elena B. Zavyalova, Elena G. Popkova	Springer International Publishing	2022 (1st edition)	978-3-030-79496-5	LINK	This book presents a scientific view of fighting climate change in the economy of the future, the foundations of which are being set around the world. The authors substantiate the potential of Industry 4.0 in stimulating sustainable development in environmental protection and preservation of natural resources. This book considers the modern experience of fighting climate change based on possibilities of Industry 4.0 at the national scale in view of developed and developing countries with a special focus on Russia and at the corporate scale by the example of transnational corporations. It determines the future contribution of Industry 4.0 into development of responsible production and consumption, and compiles the "outlines" of "green" economy in Industry 4.0. It offers recommendations for control of climate change in Industry 4.0, and presents the authors' vision of ecological responsibility in Industry 4.0 for implementing the sustainable development goals. This book will be of interest to academics and practitioners interested in climate change and development of Industry 4.0, as well contributing to a national economic policy for fighting climate change and corporate strategies of sustainable development in Industry 4.0.

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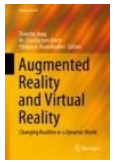
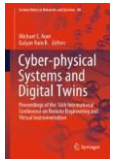
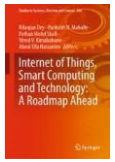
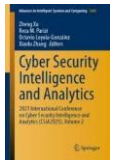
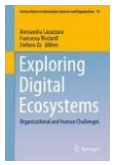
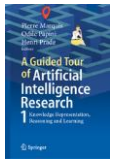
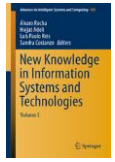
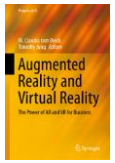
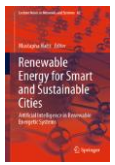
	**DigiTwin: An Approach for Production Process Optimization in a Built Environment**	Josip Stjepandić, Markus Sommer, Berend Denkena	Springer International Publishing	2022 (1st edition)	978-3-030-77539-1	LINK	The focus of this book is an application of Digital Twin as a concept and an approach, based on the most accurate view on a physical production system and its digital representation of complex engineering products and systems. It describes a methodology to create and use Digital Twin in a built environment for the improvement and optimization of factory processes such as factory planning, investment planning, bottleneck analysis, and in-house material transport. The book provides a practical response based on achievements of engineering informatics in solving challenges related to the optimization of factory layout and corresponding processes. This book introduces the topic, providing a foundation of knowledge on process planning, before discussing the acquisition of objects in a factory and the methods for object recognition. It presents process simulation techniques, explores challenges in process planning, and concludes by looking at future areas of progression. By providing a holistic, trans-disciplinary perspective, this book will showcase Digital Twin technology as state-of-the-art both in research and practice.
	**Digital Transformation in Industry**	Vikas Kumar, Jiewu Leng, Victoria Akberdina, Evgeny Kuzmin	Springer International Publishing	2022	978-3-030-94617-3	LINK	This book offers a selection of the best papers presented at the annual international scientific conference “Digital Transformation in Industry: Trends, Management, Strategies (DTI2021),” held by the Institute of Economics, Ural Branch of the Russian Academy of Sciences, in Ekaterinburg (Russia) on October 29, 2021. The book focuses on the idea of introduction mechanisms for digitization processes and on highlighting successful digital transformation strategies in all sectors of industry. Key topics include the development of a cyber-physical production system for Industry 4.0; digital design technologies for enhancing the competitiveness of products and companies; digital twin-driven product manufacturing and services; and the effects of the industrial digital transformation on society and the environment. With regard to implementing IT and other technological innovations, lessons learned in developed and developing economies, as well as small and large enterprises, are included. Given its scope, the book offers a valuable asset for researchers and managers of industrial organizations alike.
	**Augmented Reality and Virtual Reality**	Timothy Jung, M. Claudia tom Dieck, Philipp A. Rauschnabel	Springer International Publishing	2020	978-3-030-37869-1	LINK	This book features the latest research in the area of immersive technologies, presented at the 5th International Augmented and Virtual Reality Conference, held in Munich, Germany in 2019. Bridging the gap between academia and industry, it presents the state of the art in augmented reality (AR) and virtual reality (VR) technologies and their applications in various industries such as marketing, education, healthcare, tourism, events, fashion, entertainment, retail and the gaming industry. The volume is a collection of research papers by prominent AR and VR scholars from around the globe. Covering the most significant topics in the field of augmented and virtual reality and providing the latest findings, it is of interest to academics and practitioners alike.
	**Internet of Things and Its Applications**	Sachi Nandan Mohanty, Jyotir Moy Chatterjee, Suneeta Satpathy	Springer International Publishing	2022	978-3-030-77528-5	LINK	This book offers a holistic approach to the Internet of Things (IoT) model, covering both the technologies and their applications, focusing on uniquely identifiable objects and their virtual representations in an Internet-like structure. The authors add to the rapid growth in research on IoT communications and networks, confirming the scalability and broad reach of the core concepts. The book is filled with examples of innovative applications and real-world case studies. The authors also address the business, social, and legal aspects of the Internet of Things and explore the critical topics of security and privacy and their challenges for both individuals and organizations. The contributions are from international experts in academia, industry, and research. Discusses recent developments and emerging trends in the field of Internet of Things; Includes examples and case studies of innovative applications in business, social, and legal aspects of the Internet of Things; Contains contributions from an international group of experts in academia, industry, and research.
	**Knowledge, People, and Digital Transformation**	Matos F., Vairinhos V., Salavisa I., Edvinsson L., Massaro M. (Eds.)	Springer International Publishing	2020	978-3-030-40390-4	LINK	The impacts of the digital transformation on society in general, and particularly on people’s lives, are the subject of increasing debate among policymakers, researchers and industry. This book explores the challenges of this new revolution, identifies solutions, and demonstrates how knowledge management can enable the transition process associated with the digital transformation, guided by the principles of sustainability. Featuring contributions by experts from diverse areas of science and business – on topics ranging from the digital transformation of knowledge management in the public sector, to the creation of sustainable smart cities, regions and countries, and from using AI for business models to food security – it provides a comprehensive discourse on the digital transformation’s impacts on employment, education, governance, social life, sustainability, values, the economy and democracy.

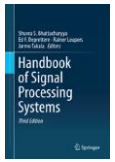
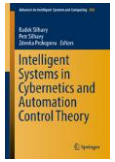
Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Smart Electromechanical Systems**	Andrey E. Gorodetskiy, Irina L. Tarasova	Springer International Publishing	2019	978-3-319-99759-9	LINK	This book presents the latest achievements in the theory and practice of SEMS Group interaction by scientists from the Russian Academy of Sciences. It also discusses the development of methods for the design and simulation of SEMS Group interaction based on the principles of safety, flexibility and adaptability in behavior and intelligence and parallelism in information processing, computation and control. Recently, the task has been to ensure the functioning of robots within the framework of collective collaboration, so that they function efficiently, reliably and safely in real time. The topics covered include, but are not limited to, the following: - the planning behavior of the SEMS group; - methods and principles of designing of automatic control systems; - mathematical and computer modeling group interaction; - safety, flexibility and adaptability of the SEMS Group; - information-measuring soft- and hardware. This book is intended for students, scientists and engineers specializing in the field of smart electromechanical systems and robotics.
	**Industry 4.0 for SMEs Challenges, Opportunities and Requirements**	Matt Dominik T. Modrák Vladimír, Zsifkovits Helmut	Springer International Publishing	2020	978-3-030-25425-4	LINK	This open access book explores the concept of Industry 4.0, which presents a considerable challenge for the production and service sectors. While digitization initiatives are usually integrated into the central corporate strategy of larger companies, smaller firms often have problems putting Industry 4.0 paradigms into practice. Small and medium-sized enterprises (SMEs) possess neither the human nor financial resources to systematically investigate the potential and risks of introducing Industry 4.0. Addressing this obstacle, the international team of authors focuses on the development of smart manufacturing concepts, logistics solutions and managerial models specifically for SMEs. Aiming to provide methodological frameworks and pilot solutions for SMEs during their digital transformation, this innovative and timely book will be of great use to scholars researching technology management, digitization and small business, as well as practitioners within manufacturing companies.
	**Agile Enterprise Engineering: Smart Application of Human Factors**	Zykov Sergey V., Singh Amitoj	Springer International Publishing	2020	978-3-030-40989-0	LINK	This concise book provides a survival toolkit for efficient, large-scale software development. Discussing a multi-contextual research framework that aims to harness human-related factors in order to improve flexibility, it includes a carefully selected blend of models, methods, practices, and case studies. To investigate mission-critical communication aspects in system engineering, it also examines diverse, i.e. cross-cultural and multinational, environments. This book helps students better organize their knowledge bases, and presents conceptual frameworks, handy practices and case-based examples of agile development in diverse environments. Together with the authors' previous books, "Crisis Management for Software Development and Knowledge Transfer" (2016) and "Managing Software Crisis: A Smart Way to Enterprise Agility" (2018), it constitutes a comprehensive reference resource adds value to this book.
	**Cyber-physical Systems and Digital Twins**	Auer Michael E., Bhimavaram Kalyan Ram	Springer International Publishing	2020	978-3-030-23162-0	LINK	This book constitutes the proceedings of the 16th International Conference on Remote Engineering and Virtual Instrumentation (REV), held at the BMS College of Engineering, Bangalore, India on 3–6 February 2019. Today, online technologies are at the core of most fields of engineering, as well as of society as a whole, and are inseparably connected with -Internet of Things, -cyber-physical systems, -collaborative networks and grids, -cyber cloud technologies, -service architectures, to name but a few. Since it was first held in, 2004, the REV conference has focused on the increasing use of the Internet for engineering tasks and the problems surrounding it. The 2019 conference demonstrated and discussed the fundamentals, applications and experiences in the field of online engineering and virtual instrumentation. It also presented guidelines for university-level courses on these topics, in view of the increasing globalization of education and the demand for teleworking, remote services and collaborative working environments.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Robotics: Industry 4.0 Issues & New Intelligent Control Paradigms**	Kravets, Alla G.	Springer International Publishing	2020	978-3-030-37841-7	LINK	This book focuses on open issues of new intelligent control paradigms and their usage. Industry 4.0 requires new approaches in the context of secure connection, control, and maintenance of robotic systems, as well as enhancing their interaction with humans. The book presents recent advances in industrial robotics, and robotic design and modeling for various domains, and discusses the methodological foundations of the collaborative robotics concept as a breakthrough in modern industrial technologies. It also describes the implementation of multi-agent models, programs and methods that could be used in future processes for control, condition assessment, diagnostics, prognostication, and proactive maintenance. Further, the book addresses the issue of ensuring the space robotics systems and proposes reliable novel solutions. The authors also illustrate the integration of deep-learning methods and mathematical modeling based on examples of successful robotic systems in various countries, and analyze the connections between robotic modeling and design from the positions of new industrial challenges. The book is intended for practitioners and enterprise representatives, as well as scientists and Ph.D. and Master's students pursuing research in the area of cyber-physical system development and implementation in various domains.
	**Internet of Things, Smart Computing and Technology: A Roadmap Ahead**	Dey N., Mahalle P.N., Shafi P.M., Kimabahune V.V., Hassanien A.E.	Springer International Publishing	2020	978-3-030-39047-1	LINK	This book addresses a broad range of topics concerning machine learning, big data, the Internet of things (IoT), and security in the IoT. Its goal is to bring together several innovative studies on these areas, in order to help researchers, engineers, and designers in several interdisciplinary domains pursue related applications. It presents an overview of the various algorithms used, focusing on the advantages and disadvantages of each in the fields of machine learning and big data. It also covers next-generation computing paradigms that are expected to support wireless networking with high data transfer rates and autonomous decision-making capabilities. In turn, the book discusses IoT applications (e.g. healthcare applications) that generate a huge amount of sensor data and imaging data that must be handled correctly for further processing. In the traditional IoT ecosystem, cloud computing offers a solution for the efficient management of huge amounts of data, thanks to its ability to access shared resources and provide a common infrastructure in a ubiquitous manner. Though these new technologies are invaluable, they also reveal serious IoT security challenges. IoT applications are vulnerable to various types of attack such as eavesdropping, spoofing and false data injection, the man-in-the-middle attack, replay attack, denial-of-service attack, jamming attack, flooding attack, etc. These and other security issues in the Internet of things are explored in detail. In addition to highlighting outstanding research and recent advances from around the globe, the book reports on current challenges and future directions in the IoT. Accordingly, it offers engineers, professionals, researchers, and designers an applied-oriented resource to support them in a broad range of interdisciplinary areas.
	**Big Data, Cloud Computing, and Data Science Engineering**	Lee, Roger	Springer International Publishing	2020	978-3-030-24405-7	LINK	This edited book presents the scientific outcomes of the 4th IEEE/ACIS International Conference on Big Data, Cloud Computing, Data Science & Engineering (BCD 2019) which was held on May 29–31, 2019 in Honolulu, Hawaii. The aim of the conference was to bring together researchers and scientists, businessmen and entrepreneurs, teachers, engineers, computer users and students to discuss the numerous fields of computer science and to share their experiences and exchange new ideas and information in a meaningful way. Presenting 15 of the conference's most promising papers, the book discusses all aspects (theory, applications and tools) of computer and information science, the practical challenges encountered along the way, and the solutions adopted to solve them.
	**Cyber Security Intelligence and Analytics**	Zheng Xu, Reza M. Parizi, Octavio Loyola-González, Xiaolu Zhang	Springer International Publishing	2021	978-3-030-69999-4	LINK	This book presents the outcomes of the 2021 International Conference on Cyber Security Intelligence and Analytics (CSIA 2021), an international conference dedicated to promoting novel theoretical and applied research advances in the interdisciplinary field of cyber security, particularly focusing on threat intelligence, analytics, and countering cybercrime. The conference provides a forum for presenting and discussing innovative ideas, cutting-edge research findings and novel techniques, methods and applications on all aspects of cyber security intelligence and analytics. Due to COVID-19, Authors, Keynote Speakers and PC committees will attend the conference online.
	**A Digital Framework for Industry 4.0** Managing Strategy	Landeta Echeberria, Ana	Springer International Publishing	2020	978-3-030-60049-5	LINK	This book examines the impact of industry 4.0, and constructs a strategic digital transformation operational framework to prepare for it. It begins by examining the background of industry 4.0, exploring the industrial internet, new business models and disruptive technologies, as well as the challenges that this revolution brings for industries and manager. The research enhances our understanding of strategic digital transformation framework within industry 4.0. It will be valuable reading for academics working in the field of industry 4.0 and strategy, as well as practitioners interested in enhancing their firms' readiness for industry 4.0.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Exploring Digital Ecosystems** Organizational and Human Challenges	Lazazzara Alessandra, Ricciardi Francesca, Za Stefano	Springer International Publishing	2020	978-3-030-23665-6	LINK	The recent surge of interest in digital ecosystems is not only transforming the business landscape, but also poses several human and organizational challenges. Due to the pervasive effects of the transformation on firms and societies alike, both scholars and practitioners are interested in understanding the key mechanisms behind digital ecosystems, their emergence and evolution. In order to disentangle such factors, this book presents a collection of research papers focusing on the relationship between technologies (e.g. digital platforms, AI, infrastructure) and behaviours (e.g. digital learning, knowledge sharing, decision-making). Moreover, it provides critical insights into how digital ecosystems can shape value creation and benefit various stakeholders. The plurality of perspectives offered makes the book particularly relevant for users, companies, scientists and governments. The content is based on a selection of the best papers – original double-blind peer-reviewed contributions – presented at the annual conference of the Italian chapter of the AIS, which took place in Pavia, Italy in October 2018.
	**A Guided Tour of Artificial Intelligence Research**	Marquis Pierre, Papini Odile, Prade Henri	Springer International Publishing	2020	978-3-030-06164-7	LINK	The purpose of this book is to provide an overview of AI research, ranging from basic work to interfaces and applications, with as much emphasis on results as on current issues. It is aimed at an audience of master students and Ph.D. students, and can be of interest as well for researchers and engineers who want to know more about AI. The book is split into three volumes: - the first volume brings together twenty-three chapters dealing with the foundations of knowledge representation and the formalization of reasoning and learning (Volume 1. Knowledge representation, reasoning and learning) - the second volume offers a view of AI, in fourteen chapters, from the side of the algorithms (Volume 2. AI Algorithms) - the third volume, composed of sixteen chapters, describes the main interfaces and applications of AI (Volume 3. Interfaces and applications of AI).
	**Reinventing Mechatronics**	Yan X.T., Bradley D., Russell D., Moore P.	Springer International Publishing	2020	978-3-030-29131-0	LINK	This book presents the latest research on mechatronic systems engineering. By bringing together the most important papers from the 2018 Mechatronics Forum Conference 'Reinventing Mechatronics,' it outlines key trends in research and applications that will define mechatronics for the next 50 years. Mechatronics was established as an engineering discipline over 50 years ago, as the integration of electronics and information technology with mechanical design. Given major technological advances and the growth of systems-level concepts such as Cyber-Physical Systems and the Internet of Things, along with Cloud Technologies and Big Data, it's now high time to reconsider the role of mechatronics, particularly within engineering design. Past and ongoing technological changes are impacting how systems are designed and configured in ways that could never have been envisaged when the field of mechatronics was first introduced.
	**Internet of Things and Big Data Applications**	Balas Valentina E., Solanki Vijender Kumar, Kumar Raghvendra	Springer International Publishing	2020	978-3-030-39119-5	LINK	This book provides essential future directions for IoT and Big Data research. Thanks to rapid advances in sensors and wireless technology, Internet of Things (IoT)-related applications are attracting more and more attention. As more devices are connected, they become potential components for smart applications. Thus, there is a new global interest in these applications in various domains such as health, agriculture, energy, security and retail. The main objective of this book is to reflect the multifaceted nature of IoT and Big Data in a single source. Accordingly, each chapter addresses a specific domain that is now being significantly impacted by the spread of soft computing
	**Managing 3D Printing**	Eyers Daniel	Springer International Publishing	2020	978-3-030-23323-5	LINK	This edited book serves to unify the current state of knowledge for 3D printing / Additive Manufacturing and its impact on manufacturing operations. Bringing together leading experts from across the operations and supply chain disciplines the contributions offer a concise, accessible, and focused text for researchers and practitioners alike. Showing how 3DP can be implemented in a multitude of business models, the book explores how to manage 3DP both in the production environment and wider supply chain.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Simulation for Industry 4.0**	Gunal, Murat	Springer International Publishing	2019	978-3-030-04137-3	LINK	The book shows how simulation's long history and close ties to industry since the third industrial revolution have led to its growing importance in Industry 4.0. The book emphasises the role of simulation in the new industrial revolution, and its application as a key aspect of making Industry 4.0 a reality – and thus achieving the complete digitisation of manufacturing and business. It presents various perspectives on simulation and demonstrates its applications, from augmented or virtual reality to process engineering, and from quantum computing to intelligent management. Simulation for Industry 4.0 is a guide and milestone for the simulation community, as well as those readers working to achieve the goals of Industry 4.0. The connections between simulation and Industry 4.0 drawn here will be of interest not only to beginners, but also to practitioners and researchers as a point of departure in the subject, and as a guide for new lines of study.
	**Artificial Cognitive Architecture with Self-Learning and Self-Optimization Capabilities**	Beruvides, Gerardo	Springer International Publishing	2019	978-3-030-03949-3	LINK	This book introduces three key issues: (i) development of a gradient-free method to enable multi-objective self-optimization; (ii) development of a reinforcement learning strategy to carry out self-learning and finally, (iii) experimental evaluation and validation in two micromachining processes (i.e., micro-milling and micro-drilling). The computational architecture (modular, network and reconfigurable for real-time monitoring and control) takes into account the analysis of different types of sensors, processing strategies and methodologies for extracting behavior patterns from representative process' signals. The reconfiguration capability and portability of this architecture are supported by two major levels: the cognitive level (core) and the executive level (direct data exchange with the process). At the same time, the architecture includes different operating modes that interact with the process to be monitored and/or controlled. The cognitive level includes three fundamental modes such as modeling, optimization and learning, which are necessary for decision-making (in the form of control signals) and for the real-time experimental characterization of complex processes. In the specific case of the micromachining processes, a series of models based on linear regression, nonlinear regression and artificial intelligence techniques were obtained. On the other hand, the executive level has a constant interaction with the process to be monitored and/or controlled. This level receives the configuration and parameterization from the cognitive level to perform the desired monitoring and control tasks.
	**Distributed Computing and Artificial Intelligence, Special Sessions, 15th International Conference**	Rodríguez, S., Prieto, J., Faria, P., Kłos, S., Fernández, A., Mazuelas, S., Jiménez-López, M.D., Moreno, M.N., Navarro, E.	Springer International Publishing	2019	978-3-319-99608-0	LINK	This book presents the outcomes of the 15th International Conference on Distributed Computing and Artificial Intelligence, held in Toledo (Spain) from 20th to 22nd June 2018 and hosted by the UCLM, and which brought together researchers and developers from industry, education and the academic world to report on the latest scientific research, technical advances and methodologies. Highlighting multi-disciplinary and transversal aspects, the book focuses on the conferences Special Sessions, including Advances in Demand Response and Renewable Energy Sources in Smart Grids (ADRESS); AI- Driven Methods for Multimodal Networks and Processes Modeling (AIMPM); Social Modelling of Ambient Intelligence in Large Facilities (SMAILF); Communications, Electronics and Signal Processing (CESP); Complexity in Natural and Formal Languages (CNFL); and Web and Social Media Mining (WASMM).
	**New Knowledge in Information Systems and Technologies Volume 3**	Rocha, A., Adeli, H., Reis, L.P., Costanzo, S.	Springer International Publishing	2019	978-3-030-16187-3	LINK	This book includes a selection of articles from The 2019 World Conference on Information Systems and Technologies (WorldCIST'19), held from April 16 to 19, at La Toja, Spain. WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences and challenges in modern information systems and technologies research, together with their technological development and applications. The book covers a number of topics, including A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human–Computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; and N) Technologies for Biomedical Applications.
	**New Knowledge in Information Systems and Technologies Volume 2**	Rocha, A., Adeli, H., Reis, L.P., Costanzo, S.	Springer International Publishing	2019	978-3-030-16184-2	LINK	This book includes a selection of articles from The 2019 World Conference on Information Systems and Technologies (WorldCIST'19), held from April 16 to 19, at La Toja, Spain. WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences and challenges in modern information systems and technologies research, together with their technological development and applications. The book covers a number of topics, including A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human–Computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; and N) Technologies for Biomedical Applications.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Navigating New Cyber Risks**	Pogrebna, Ganna, Skilton, Mark	Springer International Publishing	2019	978-3-030-13527-0	LINK	This book is a means to diagnose, anticipate and address new cyber risks and vulnerabilities while building a secure digital environment inside and around businesses. It empowers decision makers to apply a human-centred vision and a behavioral approach to cyber security problems in order to detect risks and effectively communicate them. The authors bring together leading experts in the field to build a step-by-step toolkit on how to embed human values into the design of safe human-cyber spaces in the new digital economy. They artfully translate cutting-edge behavioral science and artificial intelligence research into practical insights for business. As well as providing executives, risk assessment analysts and practitioners with practical guidance on navigating cyber risks within their organizations, this book will help policy makers better understand the complexity of business decision-making in the digital age. Step by step, Pogrebna and Skilton show you how to anticipate and diagnose new threats to your business from advanced and AI-driven cyber-attacks.
	**Digitalization Cases**	Urbach, Nils, Röglinger, Maximilian	Springer International Publishing	2019	978-3-319-95273-4	LINK	This book presents a rich compilation of real-world cases on digitalization, the goal being to share first-hand insights from respected organizations and to make digitalization more tangible. As virtually every economic and societal sector is now being challenged by emerging technologies, the digital economy is a highly volatile, uncertain, complex and ambiguous place – and one that holds substantial challenges and opportunities for established organizations. Against this backdrop, this book reports on best practices and lessons learned from organizations that have succeeded in overcoming the challenges and seizing the opportunities of the digital economy. It illustrates how twenty-one organizations have leveraged their capabilities to create disruptive innovations, to develop digital business models, and to digitally transform themselves. These cases stem from various industries (e.g. automotive, insurance, consulting, and public services) and countries, reflecting the many facets of digitalization. As all case descriptions follow a uniform schema, they are easily accessible, and provide insightful examples for practitioners as well as interesting cases for researchers, teachers and students.
	**Augmented Reality and Virtual Reality**	Tom Dieck, M. Claudia, Jung, Timothy	Springer International Publishing	2019	978-3-030-06246-0	LINK	This book presents a collection of the latest research in the area of immersive technologies, presented at the International Augmented and Virtual Reality Conference 2018 in Manchester, UK, and showcases how augmented reality (AR) and virtual reality (VR) are transforming the business landscape. Innovations in this field are seen as providing opportunities for businesses to offer their customers unique services and experiences. The papers gathered here advance the state of the art in AR/VR technologies and their applications in various industries such as healthcare, tourism, hospitality, events, fashion, entertainment, retail, education and gaming. The volume collects contributions by prominent computer and social sciences experts from around the globe. Addressing the most significant topics in the field of augmented and virtual reality and sharing the latest findings, it will be of interest to academics and practitioners alike.
	**Ubiquitous Computing and the Internet of Things: Prerequisites for the Development of ICT**	Popkova, Elena G.	Springer International Publishing	2019	978-3-030-13397-9	LINK	This book gathers the outcomes of several scientific events that were organized and conducted by the Institute of Scientific Communications (Volgograd, Russia) and the leading universities of the Volgograd region. The contributing authors include more than 700 scholars from various cities and regions of Russia. 124 works were selected out of 3,000 papers on the preconditions of formation, transformation, and legal provision of social institutes, topics that are in high demand in connection with a core aspect of digital modernization – the Internet of Things. The book is intended for a broad target audience, including scholars of various generations and various disciplines. These include young researchers (undergraduates and postgraduates) and recognized scholars (professors and lecturers) who study the socio-economic and legal consequences of the emergence and dissemination of digital technologies, including the Internet of Things. In addition, the book will benefit all those who are interested in the development of the information society, information and telecommunication, and digital technologies. The content is divided into three logical parts, the first of which is devoted to the essence of the process of institutionalization and legal regulation of the information society. In the second part, the digital economy is analyzed in view of the spheres of the national economy. In the third, the authors study the peculiarities of state and corporate regulation, infrastructural provision and support for the security of entrepreneurship, which are currently developing on the basis of the Internet of Things.
	**Renewable Energy for Smart and Sustainable Cities**	Hatti, Mustapha	Springer International Publishing	2019	978-3-030-04789-4	LINK	This book features cutting-edge research presented at the second international conference on Artificial Intelligence in Renewable Energetic Systems, IC-AIRES2018, held on 24–26 November 2018, at the High School of Commerce, ESC-Koléa in Tipaza, Algeria. Today, the fundamental challenge of integrating renewable energies into the design of smart cities is more relevant than ever. While based on the advent of big data and the use of information and communication technologies, smart cities must now respond to cross-cutting issues involving urban development, energy and environmental constraints; further, these cities must also explore how they can integrate more sustainable energies. Sustainable energies are a major determinant of smart cities' longevity. From an environmental and technological standpoint, these energies offer an optimal power supply to the electric network while creating significantly less pollution. This requires flexibility, i.e., the availability of supply and demand. The end goal of any smart city is to improve the quality of life for all citizens (both in the city and in the countryside) in a way that is sustainable and respectful of the environment. This book encourages the reader to engage in the preservation of our environment, every moment, every day, so as to help build a clean and healthy future, and to think of the future generations who will one day inherit our planet. Further, it equips those whose work involves energy systems and those engaged in modelling artificial intelligence to combine their expertise for the benefit of the scientific community and humanity as a whole.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Handbook of Signal Processing Systems**	Bhattacharyya, S.S., Deprettere, E.F., Leupers, R., Takala, J.	Springer International Publishing	2019	978-3-319-91734-4	LINK	In this new edition of the Handbook of Signal Processing Systems, many of the chapters from the previous editions have been updated, and several new chapters have been added. The new contributions include chapters on signal processing methods for light field displays, throughput analysis of dataflow graphs, modeling for reconfigurable signal processing systems, fast Fourier transform architectures, deep neural networks, programmable architectures for histogram of oriented gradients processing, high dynamic range video coding, system-on-chip architectures for data analytics, analysis of finite word-length effects in fixed-point systems, and models of architecture. There are more than 700 tables and illustrations; in this edition over 300 are in color. This new edition of the handbook is organized in three parts. Part I motivates representative applications that drive and apply state-of-the art methods for design and implementation of signal processing systems; Part II discusses architectures for implementing these applications; and Part III focuses on compilers, as well as models of computation and their associated design tools and methodologies.
	**The IoT Physical Layer**	Elfadel, Ibrahim (Abe) M., Ismail, Mohammed	Springer International Publishing	2019	978-3-319-93100-5	LINK	This book documents some of the most recent advances on the physical layer of the Internet of Things (IoT), including sensors, circuits, and systems. The application area selected for illustrating these advances is that of autonomous, wearable systems for real-time medical diagnosis. The book is unique in that it adopts a holistic view of such systems and includes not only the sensor and processing subsystems, but also the power, communication, and security subsystems. Particular attention is paid to the integration of these IoT subsystems as well as the prototyping platforms needed for achieving such integration. Other unique features include the discussion of energy-harvesting subsystems to achieve full energy autonomy and the consideration of hardware security as a requirement for the integrity of the IoT physical layer. One unifying thread of the various designs considered in this book is that they have all been fabricated and tested in an advanced, low-power CMOS process, namely GLOBALFOUNDRIES 65nm CMOS LPe.
	**Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing**	Lee, Roger	Springer International Publishing	2019	978-3-319-98367-7	LINK	This edited book presents the scientific outcomes of the 19th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD 2018), which was held in Busan, Korea on June 27–29, 2018. The aim of this conference was to bring together researchers and scientists, businessmen and entrepreneurs, teachers, engineers, computer users and students to discuss the numerous fields of computer science and to share their experiences and exchange new ideas and information in a meaningful way. The book includes research findings on all aspects (theory, applications and tools) of computer and information science and discusses the practical challenges encountered along the way and the solutions adopted to respond to them. The book includes 13 of the conference's most promising papers.
	**Intelligent Systems in Cybernetics and Automation Control Theory**	Silhavy, Radek, Silhavy, Petr, Prokopova, Zdenka	Springer International Publishing	2019	978-3-030-00184-1	LINK	This book presents real-world problems and pioneering research that reflect novel approaches to cybernetics, algorithms and software engineering in the context of intelligent systems. It gathers the peer-reviewed proceedings of the 2nd Computational Methods in Systems and Software 2018 (CoMeSySo 2018), a conference that broke down traditional barriers by being held online. The goal of the event was to provide an international forum for discussing the latest high-quality research results.
	**The Era of Internet of Things**	Mohamed, Khaled Salah	Springer International Publishing	2019	978-3-030-18133-8	LINK	This book introduces readers to all the necessary components and knowledge to start being a vital part of the IoT revolution. The author discusses how to create smart-IoT solutions to help solve a variety of real problems. Coverage includes the most important aspects of IoT architecture, the various applications of IoT, and the enabling technologies for IoT. This book presents key IoT concepts and abstractions, while showcasing real case studies. The discussion also includes an analysis of IoT strengths, weaknesses, opportunities and threats. Readers will benefit from the in-depth introduction to internet of things concepts, along with discussion of IoT algorithms and architectures tradeoffs. Case studies include smart homes, smart agriculture, and smart automotive.

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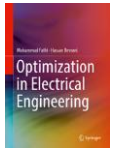
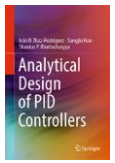
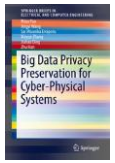
	**Optimization in Electrical Engineering**	Fathi, Mohammad, Bevrani, Hassan	Springer International Publishing	2019	978-3-030-05309-3	LINK	This textbook provides students, researchers, and engineers in the area of electrical engineering with advanced mathematical optimization methods. Presented in a readable format, this book highlights fundamental concepts of advanced optimization used in electrical engineering. Chapters provide a collection that ranges from simple yet important concepts such as unconstrained optimization to highly advanced topics such as linear matrix inequalities and artificial intelligence-based optimization methodologies. The reader is motivated to engage with the content via numerous application examples of optimization in the area of electrical engineering. The book begins with an extended review of linear algebra that is a prerequisite to mathematical optimization. It then precedes with unconstrained optimization, convex programming, duality, linear matrix inequality, and intelligent optimization methods. This book can be used as the main text in courses such as Engineering Optimization, Convex Engineering Optimization, Advanced Engineering Mathematics and Robust Optimization and will be useful for practicing design engineers in electrical engineering fields. Author provided cases studies and worked examples are included for student and instructor use.
	**Analytical Design of PID Controllers**	Diaz-Rodriguez, Ivan D, Han, Sangjin, Bhattacharyya, Shankar P.	Springer International Publishing	2019	978-3-030-18228-1	LINK	This monograph presents a new analytical approach to the design of proportional-integral-derivative (PID) controllers for linear time-invariant plants. The authors develop a computer-aided procedure, to synthesize PID controllers that satisfy multiple design specifications. A geometric approach, which can be used to determine such designs methodically using 2- and 3-D computer graphics is the result. The text expands on the computation of the complete stabilizing set previously developed by the authors and presented here. This set is then systematically exploited to achieve multiple design specifications simultaneously. These specifications include classical gain and phase margins, time-delay tolerance, settling time and H-infinity norm bounds. The results are developed for continuous- and discrete-time systems. An extension to multivariable systems is also included. Analytical Design of PID Controllers provides a novel method of designing PID controllers, which makes it ideal for both researchers and professionals working in traditional industries as well as those connected with unmanned aerial vehicles, driverless cars and autonomous robots.
	**Big Data Privacy Preservation for Cyber-Physical Systems**	Pan, M., Wang, J., Errapotu, S.M., Zhang, X., Ding, J., Han, Z.	Springer International Publishing	2019	978-3-030-13370-2	LINK	This SpringerBrief mainly focuses on effective big data analytics for CPS, and addresses the privacy issues that arise on various CPS applications. The authors develop a series of privacy preserving data analytic and processing methodologies through data driven optimization based on applied cryptographic techniques and differential privacy in this brief. This brief also focuses on effectively integrating the data analysis and data privacy preservation techniques to provide the most desirable solutions for the state-of-the-art CPS with various application-specific requirements. Cyber-physical systems (CPS) are the “next generation of engineered systems,” that integrate computation and networking capabilities to monitor and control entities in the physical world. Multiple domains of CPS typically collect huge amounts of data and rely on it for decision making, where the data may include individual or sensitive information, for e.g., smart metering, intelligent transportation, healthcare, sensor/data aggregation, crowd sensing etc. This brief assists users working in these areas and contributes to the literature by addressing data privacy concerns during collection, computation or big data analysis in these large scale systems. Data breaches result in undesirable loss of privacy for the participants and for the entire system, therefore identifying the vulnerabilities and developing tools to mitigate such concerns is crucial to build high confidence CPS. This Springerbrief targets professors, professionals and research scientists working in Wireless Communications, Networking, Cyber-Physical Systems and Data Science. Undergraduate and graduate-level students interested in Privacy Preservation of state-of-the-art Wireless Networks and Cyber-Physical Systems will use this Springerbrief as a study guide.
	**Advances in Motion Sensing and Control for Robotic Applications**	Janabi-Sharifi, Farrokh, Melek, William	Springer International Publishing	2019	978-3-030-17369-2	LINK	This book reports on advances in sensing, modeling and control methods for different robotic platforms such as multi-degree of freedom robotic arms, unmanned aerial vehicles and autonomous mobile platforms. Based on 2018 Symposium on Mechatronics, Robotics, and Control (SMTRC’18), held as part of the 2018 CSME International Congress, in York University, Toronto, Canada, the book covers a variety of topics, from filtering and state estimation to adaptive control of reconfigurable robots and more. Next-generation systems with advanced control, planning, perception and interaction capabilities will achieve functionalities far beyond today’s technology. Two key challenges remaining for advanced robot technologies are related to sensing and control in robotic systems. Advanced perception is needed to navigate changing environments. Adaptive and intelligent control systems must be developed to enable operation in unstructured and dynamic environments. The selected chapters in this book focus on both of the aforementioned areas and highlight the main trends and challenges in robot sensing and control. The first part of the book introduces chapters which focus on advanced perception and sensing for robotics applications. They include sensor filtering and state estimation for bipedal robots and motion capture systems analysis. The second part focuses on different modeling and control methods for robotic systems including flight control for UAVs, multi-variable robust control for modular and reconfigurable robotics and control for precision micromanipulation.
	**Intelligent Computing & Optimization**	Vasant, Pandian, Zelinka, Ivan, Weber, Gerhard-Wilhelm	Springer International Publishing	2019	978-3-030-00979-3	LINK	This book includes innovative research work presented at ICO’2018, the 1st International Conference on Intelligent Computing and Optimization, held in Pattaya, Thailand on October 4–5, 2018. The conference presented topics ranging from power quality, reliability, security assurance, cloud computing, smart cities, renewable energy, agro-engineering, smart vehicles, deep learning, block chain, power systems, AI, machine learning, manufacturing systems, and big-data analytics. This volume focuses on subjects related to innovative computing, uncertainty management and optimization approaches to real-world problems in big-data, smart cities, sustainability, meta-heuristics, cyber-security, IoTs, economics and finance, renewable energy, energy and electricity systems, and block chain. Presenting cutting-edge methodologies with real-world application problems and their solutions, the book is useful for researchers, managers, executives, students, academicians, practicing scientists, and decision makers from all around the globe. It offers the academic and the applied communities a compendium and a research resource with significant insights and inspiration for innovative scientific education, investigation and collaboration, to overcome “hard problems” among the emerging challenges today and in the future.

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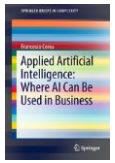
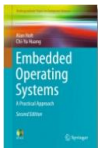
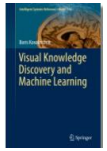
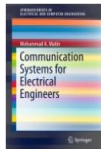
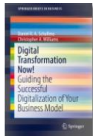
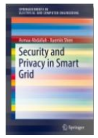
	**Applied Artificial Intelligence: Where AI Can Be Used In Business**	Corea, Francesco	Springer International Publishing	2019	978-3-319-77252-3	LINK	This book deals with artificial intelligence (AI) and its several applications. It is not an organic text that should be read from the first page onwards, but rather a collection of articles that can be read at will (or at need). The idea of this work is indeed to provide some food for thoughts on how AI is impacting few verticals (insurance and financial services), affecting horizontal and technical applications (speech recognition and blockchain), and changing organizational structures (introducing new figures or dealing with ethical issues). The structure of the chapter is very similar, so I hope the reader won't find difficulties in establishing comparisons or understanding the differences between specific problems AI is being used for. The first chapter of the book is indeed showing the potential and the achievements of new AI techniques in the speech recognition domain, touching upon the topics of bots and conversational interfaces. The second and thirds chapter tackle instead verticals that are historically data-intensive but not data-driven, i.e., the financial sector and the insurance one. The following part of the book is the more technical one (and probably the most innovative), because looks at AI and its intersection with another exponential technology, namely the blockchain. Finally, the last chapters are instead more operative, because they concern new figures to be hired regardless of the organization or the sector, and ethical and moral issues related to the creation and implementation of new type of algorithms.
	**Eco-Factories of the Future**	Thiede, Sebastian, Herrmann, Christoph	Springer International Publishing	2019	978-3-319-93730-4	LINK	This edited monograph presents a selection of research contributions on eco-factories of the future. The topical focus lies on cutting-edge solutions from academia and industry that enable and support companies in their efforts towards sustainable manufacturing. The authors provide an overview over recent developments, aiming at a comprehensive understanding of eco- and cost-efficient manufacturing from machine to factory level. The solutions contributed by leading research institutions and companies have been mostly implemented and evaluated in industrial pilot projects across Europe. The methodological approaches cover topics such as factory planning, manufacturing simulation, energy management as well as life cycle evaluation. The target audience comprises industry experts and decision makers as well as researchers in the field of sustainable manufacturing.
	**Advances in Soft and Hard Computing**	Pejaś, J., El Fray, I., Hyla, T., Kacprzyk, J. (Eds.)	Springer International Publishing	2019	978-3-030-03314-9	LINK	The book presents a collection of carefully selected, peer-reviewed papers from the 21st International Multi-Conference on Advanced Computer Systems 2018 (ACS 2018), which was held in Międzyzdroje, Poland on September 24th-26th, 2018. The goal of the ACS 2018 was to bring artificial intelligence, software technologies, biometrics, IT security and distance learning researchers in contact with the ACS community, and to give ACS attendees the opportunity to exchange notes on the latest advances in these areas of interest. The primary focus of the book is on high-quality, original and unpublished research, case studies, and implementation experiences. All of the respective papers are of practical relevance to the construction, evaluation, application or operation of advanced systems. The topics addressed are divided into five major groups: artificial intelligence, software technologies, information technology security, multimedia systems, and information system design.
	**Motion Control of Underactuated Mechanical Systems**	Javier Moreno-Valenzuela Carlos Aguilar-Avelar	Springer Gabler	2018	978-3-319-58318-1	LINK	This volume is the first to present a unified perspective on the control of underactuated mechanical systems. Based on real-time implementation of parameter identification, this book provides a variety of algorithms for the Furuta pendulum and the inertia wheel pendulum, which are two-degrees-of-freedom mechanical systems. Specifically, this work addresses and solves the problem of motion control via trajectory tracking in one joint coordinate while another joint is regulated. Besides, discussions on extensions to higher degrees-of-freedom systems are given. The book, aimed at control engineers as well as graduate students, ranges from the problem of parameter identification of the studied systems to the practical implementation of sophisticated motion control algorithms. Offering real-world solutions to manage the control of underactuated systems, this book provides a concise tutorial on recent breakthroughs in the field, original procedures to achieve bounding of the error trajectories, convergence and gain tuning guidelines.
	**Computer and Information Science**	Roger Lee	Springer Gabler	2015	978-3-319-10508-6	LINK	This edited book presents scientific results of the 13th IEEE/ACIS International Conference on Computer and Information Science (ICIS 2014) which was held on June 4-6, 2014 in Taiyuan, China. The aim of this conference was to bring together researchers and scientists, businessmen and entrepreneurs, teachers, engineers, computer users, and students to discuss the numerous fields of computer science and to share their experiences and exchange new ideas and information in a meaningful way. Research results about all aspects (theory, applications and tools) of computer and information science, and to discuss the practical challenges encountered along the way and the solutions adopted to solve them. The conference organizers selected the best papers from those papers accepted for presentation at the conference. The papers were chosen based on review scores submitted by members of the program committee, and underwent further rigorous rounds of review. This publication captures 14 of the conference's most promising papers, and we impatiently await the important contributions that we know these authors will bring to the field of computer and information science.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Software Engineering Research, Management and Applications**	Roger Lee	Springer Gabler	2020	978-3-030-24343-2	LINK	This edited book presents the scientific outcomes of the 17th International Conference on Software Engineering, Artificial Intelligence Research, Management and Applications (SERA 2019) held on May 29–31, 2019 in Honolulu, Hawaii. The aim of the conference was to bring together researchers and scientists, businessmen and entrepreneurs, teachers, engineers, computer users and students to discuss the numerous fields of computer science and to share their experiences and exchange new ideas and information in a meaningful way. This book includes 13 of the conference's most promising papers featuring recent research in software engineering, management and applications
	**Advances in Soft Computing and Machine Learning in Image Processing**	Aboul Ella Hassanien Diego Alberto Oliva	Springer Gabler	2018	978-3-319-63753-2	LINK	This book is a collection of the latest applications of methods from soft computing and machine learning in image processing. It explores different areas ranging from image segmentation to the object recognition using complex approaches, and includes the theory of the methodologies used to provide an overview of the application of these tools in image processing. The material has been compiled from a scientific perspective, and the book is primarily intended for undergraduate and postgraduate science, engineering, and computational mathematics students. It can also be used for courses on artificial intelligence, advanced image processing, and computational intelligence, and is a valuable resource for researchers in the evolutionary computation, artificial intelligence and image processing communities.
	**Automation 2018. Advances in Automation, Robotics and Measurement Techniques**	Roman Szewczyk Cezary Zielinski Malgorzata Kaliczynska	Springer Gabler	2018	978-3-319-77178-6	LINK	This book consists of papers presented at Automation 2018, an international conference held in Warsaw from March 21 to 23, 2018. It discusses the radical technological changes occurring due to the INDUSTRY 4.0, with a focus on offering a better understanding of the Fourth Industrial Revolution
	**Industrial Automation and Information Technology**	Michael Weyrich	Springer Vieweg	2024 **NEW**	978-3-662-69243-1	LINK	The textbook provides knowledge of automation systems, their components and structures. Aspects of communication and real-time processing as well as the reliability and quality of software and hardware play an important role. Numerous application examples support the learning success.
	**Big Data in Engineering Applications**	Sanjiban Sekhar Roy Pijush Samui Ravinesh Deo Stavros Ntalampiras	Springer Vieweg	2018	978-981-10-8475-1	LINK	This book presents the current trends, technologies, and challenges in Big Data in the diversified field of engineering and sciences. It covers the applications of Big Data ranging from conventional fields of mechanical engineering, civil engineering to electronics, electrical, and computer science to areas in pharmaceutical and biological sciences. This book consists of contributions from various authors from all sectors of academia and industries, demonstrating the imperative application of Big Data for the decision-making process in sectors where the volume, variety, and velocity of information keep increasing. The book is a useful reference for graduate students, researchers and scientists interested in exploring the potential of Big Data in the application of engineering areas.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Plug-and-Play Monitoring and Performance Optimization for Industrial Automation Processes**	Hao Luo	Springer Vieweg	2017	978-3-658-15927-6	LINK	Dr.-Ing. Hao Luo demonstrates the developments of advanced plug-and-play (PnP) process monitoring and control systems for industrial automation processes. With aid of the so-called Youla parameterization, a novel PnP process monitoring and control architecture (PnP-PMCA) with modularized components is proposed. To validate the developments, a case study on an industrial rolling mill benchmark is performed, and the real-time implementation on a laboratory brushless DC motor is presented.
	**Data Science Landscape. Towards Research Standards and Protocols**	Usha Mujoo Munshi Neeta Verma	Springer Vieweg	2018	978-981-10-7514-8	LINK	The edited volume deals with different contours of data science with special reference to data management for the research innovation landscape. The data is becoming pervasive in all spheres of human, economic and development activity. In this context, it is important to take stock of what is being done in the data management area and begin to prioritize, consider and formulate adoption of a formal data management system including citation protocols for use by research communities in different disciplines and also address various technical research issues. The volume, thus, focuses on some of these issues drawing typical examples from various domains. The idea of this work germinated from the two day workshop on “Big and Open Data – Evolving Data Science Standards and Citation Attribution Practices”, an international workshop, led by the ICSU-CODATA and attended by over 300 domain experts. The Workshop focused on two priority areas (i) Big and Open Data: Prioritizing, Addressing and Establishing Standards and Good Practices and (ii) Big and Open Data: Data Attribution and Citation Practices. This important international event was part of a worldwide initiative led by ICSU, and the CODATA-Data Citation Task Group. In all, there are 21 chapters (with 21st Chapter addressing four different core aspects) written by eminent researchers in the field which deal with key issues of S&T, institutional, financial, sustainability, legal, IPR, data protocols, community norms and others, that need attention related to data management practices and protocols, coordinate area activities, and promote common practices and standards of the research community globally. In addition to the aspects touched above, the national / international perspectives of data and its various contours have also been portrayed through case studies in this volume.
	**Knowledge Management in Digital Change. New Findings and Practical Cases**	Klaus North Ronald Maier Oliver Haas	Springer Vieweg	2018	978-3-319-73545-0	LINK	This book features both cutting-edge contributions on managing knowledge in transformational contexts and a selection of real-world case studies. It analyzes how the disruptive power of digitization is becoming a major challenge for knowledge-based value creation worldwide, and subsequently examines the changes in how we manage information and knowledge, communicate, collaborate, learn and decide within and across organizations. The book highlights the opportunities provided by disruptive renewal, while also stressing the need for knowledge workers and organizations to transform governance, leadership and work organization. Emerging new business models and digitally enabled co-creation are presented as drivers that can help establish new ways of managing knowledge. In turn, a number of carefully selected and interpreted case studies provide a link to practice in organizations.
	**Mobile Big Data. A Roadmap from Models to Technologies**	Georgis Skourletopoulos George Mastorakis Constandinos Mavromoustakis Dobre Ciprian Evangelos Pallis	Springer Vieweg	2018	978-3-319-67924-2	LINK	This book reports on the latest advances in mobile technologies for collecting, storing and processing mobile big data in connection with wireless communications. It presents novel approaches and applications in which mobile big data is being applied from an engineering standpoint and addresses future theoretical and practical challenges related to the big data field from a mobility perspective. Further, it provides an overview of new methodologies designed to take mobile big data to the Cloud, enable the processing of real-time streaming events on-the-move and enhance the integration of resource availability through the ‘Anywhere, Anything, Anytime’ paradigm. By providing both academia and industry researchers and professionals with a timely snapshot of emerging mobile big data-centric systems and highlighting related pitfalls, as well as potential solutions, the book fills an important gap in the literature and fosters the further development in the area of mobile technologies for exploiting mobile big data.
	**Embedded Operating Systems. A Practical Approach**	Alan Holt Chi-Yu Huang	Springer Vieweg	2018	978-3-319-72976-3	LINK	This easy-to- follow textbook/reference guides the reader through the creation of a fully functional embedded operating system, from its source code, in order to develop a deeper understanding of each component and how they work together. The text describes in detail the procedure for building the bootloader, kernel, filesystem, shared libraries, start-up scripts, configuration files and system utilities, to produce a GNU/Linux operating system. This fully updated second edition also includes new material on virtual machine technologies such as VirtualBox, Vagrant and the Linux container system Docker. Topics and features: presents an overview of the GNU/Linux system, introducing the components of the system, and covering aspects of process management, input/output and environment; discusses containers and the underlying kernel technology upon which they are based; provides a detailed examination of the GNU/Linux filesystem; explains how to build an embedded system under a virtual machine, and how to build an embedded system to run natively on an actual processor;introduces the concept of the compiler toolchain, and reviews the platforms BeagleBone and Raspberry Pi; describes how to build firmware images for devices running the Openwrt operating system. The hands-on nature and clearly structured approach of this textbook will appeal strongly to practically minded undergraduate and graduate level students, as well as to industry professionals involved in this area.

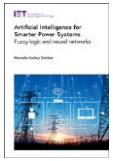
Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Industry 4.0: Managing The Digital Transformation**	Alp Ustundag Emre Cevikcan	Springer Vieweg	2018	978-3-319-57869-9	LINK	This book provides a comprehensive guide to Industry 4.0 applications, not only introducing implementation aspects but also proposing a conceptual framework with respect to the design principles. In addition, it discusses the effects of Industry 4.0, which are reflected in new business models and workforce transformation. The book then examines the key technological advances that form the pillars of Industry 4.0 and explores their potential technical and economic benefits using examples of real-world applications. The changing dynamics of global production, such as more complex and automated processes, high-level competitiveness and emerging technologies, have paved the way for a new generation of goods, products and services. Moreover, manufacturers are increasingly realizing the value of the data that their processes and products generate. Such trends are transforming manufacturing industry to the next generation, namely Industry 4.0, which is based on the integration of information and communication technologies and industrial technology. The book provides a conceptual framework and roadmap for decision-makers for this transformation
	**Internet of Things - From Hype to Reality. The Road to Digitization**	Ammar Rayes, Samer Salam	Springer Vieweg	2017	978-3-319-44858-9	LINK	This book comprehensively describes an end-to-end Internet of Things (IoT) architecture that is comprised of devices, network, compute, storage, platform, applications along with management and security components. It is organized into five main parts, comprising of a total of 11 chapters. Part I presents a generic IoT reference model to establish a common vocabulary for IoT solutions. This includes a detailed description of the Internet protocol layers and the Things (sensors and actuators) as well as the key business drivers to realize the IoT vision. Part II focuses on the IoT requirements that impact networking protocols and provides a layer-by-layer walkthrough of the protocol stack with emphasis on industry progress and key gaps. Part III introduces the concept of Fog computing and describes the drivers for the technology, its constituent elements, and how it relates and differs from Cloud computing. Part IV discusses the IoT services platform, the cornerstone of the solutionfollowed by the Security functions and requirements. Finally, Part V provides a treatment of the topic of connected ecosystems in IoT along with practical applications. It then surveys the latest IoT standards and discusses the pivotal role of open source in IoT. “Faculty will find well-crafted questions and answers at the end of each chapter, suitable for review and in classroom discussion topics. In addition, the material in the book can be used by engineers and technical leaders looking to gain a deep technical understanding of IoT, as well as by managers and business leaders looking to gain a competitive edge and understand innovation opportunities for the future.”
	**Cloud Computing. Concepts and Practices**	Naresh Kumar Sehgal Pramod Chandra P. Bhatt	Springer Vieweg	2018	978-3-319-77838-9	LINK	This book provides readers with an overview of Cloud Computing, starting with historical background on mainframe computers and early networking protocols, leading to current concerns such as hardware and systems security, performance, emerging areas of IoT, Edge Computing etc. Readers will benefit from the in-depth discussion of cloud computing usage and the underlying architecture, with focus on best practices for using a dynamic cloud infrastructure, cloud operations management and cloud security. The authors explain carefully the “why’s and how’s” of Cloud Computing, so engineers will find this book and invaluable introduction to the topic.
	**Visual Knowledge Discovery and Machine Learning**	Boris Kovalerchuk	Springer Vieweg	2018	978-3-319-73039-4	LINK	This book combines the advantages of high-dimensional data visualization and machine learning in the context of identifying complex n-D data patterns. It vastly expands the class of reversible lossless 2-D and 3-D visualization methods, which preserve the n-D information. This class of visual representations, called the General Lines Coordinates (GLCs), is accompanied by a set of algorithms for n-D data classification, clustering, dimension reduction, and Pareto optimization. The mathematical and theoretical analyses and methodology of GLC are included, and the usefulness of this new approach is demonstrated in multiple case studies. These include the Challenger disaster, world hunger data, health monitoring, image processing, text classification, market forecasts for a currency exchange rate, computer-aided medical diagnostics, and others. As such, the book offers a unique resource for students, researchers, and practitioners in the emerging field of Data Science.
	**Smart Universities. Concepts, Systems, and Technologies**	Vladimir Uskov Jeffrey Bakken Robert Howlett Lakhmi Jain	Springer Vieweg	2018	978-3-319-59453-8	LINK	This book presents peer-reviewed contributions on smart universities by various international research, design and development teams. Smart university is an emerging and rapidly evolving area that creatively integrates innovative concepts; smart software and hardware systems; smart classrooms with state-of-the-art technologies and technical platforms; smart pedagogy based on modern teaching and learning strategies; smart learning and academic analytics; as well as various branches of computer science and computer engineering. The contributions are grouped into several parts: Part 1—Smart Universities: Literature Review and Creative Analysis, Part 2—Smart Universities: Concepts, Systems and Technologies, Part 3—Smart Education: Approaches and Best Practices, and Part 4—Smart Universities: Smart Long Life Learning. The book is a valuable source of research data and findings, design and development outcomes, and best practices for faculty, scholars, Ph.D students, administrators,practitioners and anyone interested in the rapidly growing areas of smart university and smart education.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Internet of Things, Smart Spaces, and Next Generation Networks and Systems. 18th International Conference, NEW2AN 2018, and 11th Conference, ruSMART 2018, St. Petersburg, Russia, August 27-29, 2018, Proceedings**	Olga Galinina Sergey Andreev Sergey Balandin Yevgeni Koucheryavy	Springer Vieweg	2018	978-3-030-01167-3	LINK	This book constitutes the joint refereed proceedings of the 18th International Conference on Next Generation Wired/Wireless Advanced Networks and Systems, NEW2AN 2018, the 11th Conference on Internet of Things and Smart Spaces, ruSMART 2018. The 64 revised full papers presented were carefully reviewed and selected from 186 submissions. The papers of NEW2AN focus on advanced wireless networking and applications; lower-layer communication enablers; novel and innovative approaches to performance and efficiency analysis of ad-hoc and machine-type systems; employed game-theoretical formulations, Markov chain models, and advanced queuing theory; grapheme and other emerging material, photonics and optics; generation and processing of signals; and business aspects. The ruSMART papers deal with fully-customized applications and services.
	**Communication Systems for Electrical Engineers**	Mohammad Matin	Springer Vieweg	2018	978-3-319-70128-8	LINK	This book is written as a very concise introduction for students taking a first course in communication systems. It provides the reader with fundamentals of digital communication systems and disseminates the essentials needed for the understanding of wire and wireless communication systems for Electrical Engineers. It covers important topics right from the beginning of the subject which communication engineers must understand. Example problems in each chapter will help them in understanding the materials well. The study of data networking will include multiple access, reliable packet transmission, routing and protocols of the internet. The concepts taught in class will be discussed in the context of aerospace communication systems: aircraft communications, satellite communications.
	**Digital Transformation Now!. Guiding the Successful Digitalization of Your Business Model**	Daniel Schallmo Christopher Williams	Springer Vieweg	2018	978-3-319-72843-8	LINK	Is digitalization a value-added approach? Global leaders believe so, and this book reveals how to digitally transform your business model and compete in today's economy. It presents a roadmap consisting of five phases; Digital Reality, Digital Ambition, Digital Potential, Digital Fit, and Digital Implementation, each with step-by-step instructions as well as innovative activities and tools. This is a timely book offering professionals a concise, tried-and-trusted guide to the digital transformation of business models.
	**Models of Computation for Big Data**	Rajendra Akerkar	Springer Vieweg	2018	978-3-319-91850-1	LINK	The big data tsunami changes the perspective of industrial and academic research in how they address both foundational questions and practical applications. This calls for a paradigm shift in algorithms and the underlying mathematical techniques. There is a need to understand foundational strengths and address the state of the art challenges in big data that could lead to practical impact. The main goal of this book is to introduce algorithmic techniques for dealing with big data sets. Traditional algorithms work successfully when the input data fits well within memory. In many recent application situations, however, the size of the input data is too large to fit within memory. Models of Computation for Big Data, covers mathematical models for developing such algorithms, which has its roots in the study of big data that occur often in various applications. Most techniques discussed come from research in the last decade. The book will be structured as a sequence of algorithmic ideas, theoretical underpinning, and practical use of that algorithmic idea. Intended for both graduate students and advanced undergraduate students, there are no formal prerequisites, but the reader should be familiar with the fundamentals of algorithm design and analysis, discrete mathematics, probability and have general mathematical maturity.
	**Security and Privacy in Smart Grid**	Asmaa Abdallah Xuemin Shen	Springer Vieweg	2018	978-3-319-93676-5	LINK	This SpringerBrief addresses the main security concerns for smart grid, e.g., the privacy of electricity consumers, the exchanged messages integrity and confidentiality, the authenticity of participated parties, and the false data injection attacks. Moreover, the authors demonstrate in detail the various proposed techniques to secure the smart grid's different communication networks and preserve the privacy of the involved. Over many years, power grid has generated electricity from central generators and distributed it in one direction from the generation stations to end-users; also, information is one directional so that the grid's control center doesn't get enough information about customers' requirements and consequently can't prevent electricity losses. So, the electricity grid is merged with information and communication technology to form smart grid. The main target of this incorporation is to connect different parties of power grid to exchange information aboutgrid conditions and customers' requirements, and consequently, improve the reliability and efficiency of electricity generation and distribution. That upgrade of the power grid exposes it to the cyber security threats that the communication networks suffer from, such as malicious attacks to forge the electricity consumption readings or price, extract personal information for residential consumers, such as daily habits and life style, or attack some grid's resources and equipment availability using denial-of-service attacks. Also, novel threats are introduced in smart grid due to the power grid nature, such as false data injection attack, in which the adversary compromises several measurement units and injects false information about the grid conditions that mislead the grid's control center to make wrong decisions for the grid and consequently impact on its stability and efficiency.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Programmable Logic Controller (PLC) Tutorial, Siemens SIMATIC S7-1200**	Stephen P. Tubbs	Stephen Philip Tubbs	2016	978-0981975368	LINK	This book teaches and demonstrates the basics of the Siemens S7-1200 family of programmable logic controllers. Information is provided to help the reader get and operate an inexpensive CPU 1212C programmable logic controller, associated hardware, and STEP 7 Basic software. Examples with circuit diagrams are provided to demonstrate CPU 1212C ladder logic program capabilities. Information is also provided to relate the CPU 1212C to other programmable logic controllers. The person completing the examples will be able to write useful ladder logic programs for the entire S7-1200 family of programmable logic controllers.
	**Securing the Internet of Things**	Shancang Li Lida Xu	Syngress	2017	978-0-12-804458-2	LINK	Securing the Internet of Things provides network and cybersecurity researchers and practitioners with both the theoretical and practical knowledge they need to know regarding security in the Internet of Things (IoT). This booming field, moving from strictly research to the marketplace, is advancing rapidly, yet security issues abound. This book explains the fundamental concepts of IoT security, describing practical solutions that account for resource limitations at IoT end-node, hybrid network architecture, communication protocols, and application characteristics. Highlighting the most important potential IoT security risks and threats, the book covers both the general theory and practical implications for people working in security in the Internet of Things.
	**Industry 5.0** **Design, standards, techniques and applications for manufacturing**	Wai Yie Leong	The Institution of Engineering and Technology	2024 **NEW**	978-1-83724-009-8	LINK	We are on the brink of another industrial transformation - one that builds upon the digital foundations of Industry 4.0 and reaches new heights with the emergence of Industry 5.0. Unlike its predecessor, which focused heavily on automation, cyber-physical systems, and the Internet of Things, Industry 5.0 shifts the paradigm toward human-centered solutions, blending the power of cutting-edge technologies with human creativity, expertise, and ethical considerations. This evolution is not merely technological; it is social and economic, reshaping how we live, work, and interact with our environment. The convergence of advanced artificial intelligence, robotics, 3D printing, and the Internet of Things is now being augmented with a renewed focus on collaboration between humans and machines. This human-machine synergy unlocks new potential in industries ranging from manufacturing to healthcare, from energy to education, as intelligent systems learn to complement, rather than replace, human ingenuity. The aim of Industry 5.0 is not only to enhance productivity but to create a more sustainable, ethical, and personalized approach to industrial processes. Industry 5.0: Design, standards, techniques and applications for manufacturing provides a comprehensive exploration of the key components that define this new industrial era. It is designed to serve as a foundational guide for engineers, designers, researchers, and policymakers who seek to understand and contribute to the future of Industry 5.0. Through an examination of its applications, innovative designs, emerging standards, and the latest techniques, this work offers a critical resource for those striving to navigate the complex yet exciting landscape of this revolution.
	**Engineering the Metaverse** **Enabling technologies, platforms and use cases**	Pethuru Raj, Prasanna Kumar, D.P. Sharma, Kavita Saini, B. Narendra Kumar Rao, Harshavardhan Kosuri, Nagendra Panini Challa, R. Ranjana	The Institution of Engineering and Technology	2024 **NEW**	978-1-83953-880-3	LINK	The metaverse offers a new way of interacting with the world via immersive and interactive technologies. It has the potential to change the way we learn, work and play. 3D modelling, artificial intelligence, virtual, augmented, extended and mixed reality (VR/AR/XR/MR), the Internet of Things (IoT), Web 3.0, 5G and 6G communication, digital twins and simulation technologies, edge and cloud computing, blockchain and cybersecurity are seen as the key enabling and supporting technologies and tools for establishing the next generation metaverse environments. Industrial verticals are keen to embrace the flexible paradigm of the metaverse to be more resilient and relevant to their customers and consumers. This book focuses on the contributing and enabling technologies and use cases for the metaverse including engineering techniques, deployment environments and integrated platforms for designing and developing metaverse applications. Engineering the Metaverse: Enabling technologies, platforms and use cases is aimed at industry and academic researchers, scientists, engineers, architects and programmers working in the fields of information and communication technologies, 5G and 6G communication, AI, data science, IoT, edge and cloud computing, cybersecurity and automation with a focus on immersive technologies. It will also be a useful reference for lecturers and advanced students, and product and project managers as well as developers in the field of the metaverse.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Advanced Metaverse Wireless Communication Systems**	Agbotiname Lucky Imoize, Webert Montlouis, Houbing Herbert Song	The Institution of Engineering and Technology	2024 **NEW**	978-1-83953-907-7	LINK	Billions of wireless applications are proliferating in the global space. The novel wireless systems to support these applications need to satisfy several user-defined metrics to ensure quality of physical experience, quality of service, low latency and ultra-high reliability. Enabling technologies are being developed in order to meet these rate-hungry requirements. Managing these complex wireless and computing resources requires a proactive analysis of the core wireless systems, especially in the metaverse, which is a virtual model of the physical world systems. The metaverse concept is intended to be self-sustainable and facilitates the seamless operation of wireless systems at minimal operational costs for the efficient management of wireless system resources. It is gaining widespread popularity using technologies such as advanced optimization theory, digital twins, virtual reality, machine learning, and blockchain. This book presents a comprehensive overview of advanced metaverse wireless communication systems. The authors highlight the technology enablers and critical design aspects, emphasize how the metaverse can support wireless systems but also show how wireless systems can empower the metaverse. They address critical concerns covering theoretical analysis, novel system architecture design and new implementation methodologies, emerging application scenarios, experimental frameworks, and reliability, security, privacy, technical, and ethical considerations, viable solutions, as well as open challenges, the social impacts of the metaverse concept and future perspectives. Offering a range of international perspectives from researchers in the field, this book is intended for researchers from academia and industry, and scientists, engineers, lecturers and advanced students in the fields of wireless and mobile communications, networking, computing, data science, AI/ML/DL, multimedia, haptics, sensing, CPS and immersive technologies.
	**Managing Internet of Things Applications across Edge and Cloud Data Centres**	Rajiv Ranjan, Karan Mitra, Prem Prakash Jayaraman, Albert Y. Zomaya	The Institution of Engineering and Technology	2024 **NEW**	978-1-78561-779-9	LINK	Cloud computing has been a game changer for internet-based applications such as content delivery networks, social networking and multi-tier enterprise applications. However, the requirements for low-latency data access, security, bandwidth, mobility, and cost have challenged centralized data center-based cloud computing models, which is driving the need for the novel computing paradigms of edge and fog computing. The internet of things (IoT) focuses on discovery, aggregation, management, and acting on data originating from internet-connected devices via programmable sensors, actuators, mobile phones, surveillance cameras, routers, gateways and switches. But the aggregation of this data is expensive and can be time consuming. Traditional cloud-centric resource management models need to move towards more distributed and decentralized models so that they can cope with the challenges posed by the evolution of IoT smart devices and network solutions. However, supporting IoT data processing across cloud and edge data centers is not a trivial challenge. IoT sensing devices must be configured as a collection of data-analytics driven workflows where each node in the process can essentially run on multiple heterogeneous cloud and edge data centers. This book presents state-of-the-art interdisciplinary computing research in the application lifecycle management for internet of things in edge and cloud computing. The book addresses challenges from a distributed system perspective that includes both cyber and physical aspects. The authors aim to bring together the four paradigms of cloud and edge computing, cyber physical systems, internet of things and big data for future ICT systems. Written and edited by an international team of experts in the field, this book offers key insights to researchers, engineers, IT professionals, advanced students, postgraduate students and lecturers working in the fields of parallel and distributed computing, data mining, information retrieval, cloud, edge and fog computing, and the IoT.
	**AI for Power Electronics and Renewable Energy Systems**	Weihao Hu, Guozhou Zhang, Zhenyuan Zhang, Sayed Abulanwar, Frede Blaabjerg	The Institution of Engineering and Technology	2024 **NEW**	978-1-83953-774-5	LINK	Rising shares of renewable energy are needed to stave off catastrophic climate change, but also bring about the challenge of intermittency, jeopardizing power quality. Instead of large central generation units, many distributed generators and loads need to be managed in order to integrate renewable energy with power systems. Artificial intelligence (AI) can meet this challenge with adaptive control and demand side management. When managing distributed and changing network components, AI can give control computers human-level performance, helping to solve key issues with intermittency, power quality and distributed generation and loads including EV. Use of AI for power systems has therefore become a research hotspot. This reference book systematically treats the applications of AI in power electronics and renewable energy systems. The book begins with an introduction to AI in power systems, then subsequent chapters cover the use of AI for electric machine fault diagnosis, for power electronic reliability, design, and control, in dual-active-bridge converters; AI for distribution network voltage control, signal stability control, and energy management of hybrid systems as well as for renewable energy systems with AI. The book ends with conclusions and an outlook for AI in power systems. Numerous worked examples throughout the text help readers understand the operating and controlling guidelines. Written by a team of well-known scientists and power system experts, AI for Power Electronics and Renewable Energy Systems is a valuable resource for researchers and PhD students, as well as experts in industry and utilities involved with electric power systems.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Power Electronic Converters and Systems**	Marcelo Godoy Simões, Tiago Davi Curi Busarello	The Institution of Engineering and Technology	2024 **NEW**	978-1-83953-769-1	LINK	Power electronics is a field in constant evolution. Power grids require further developments, and the overall society electrification requires enhanced power electronics and motor drives. New semiconductor wide bandgap devices and modern implementation hardware software play a key role, power converters for the direct current and alternating current electrical conversion, for changing voltage or frequency have become integrated with layers of communication, control, and information processing. This expanded 2nd edition of Power Electronic Converters and Systems offers an update in two volumes, with a systematic revision of all chapters plus all-new chapters. An overview of modern power electronic converters and systems is provided, and their applications explored. Devices covered include semiconductor switches, various converters, switching power supplies, and smart power electronic modules. Applications approach unique motors and induction motor drives, renewable energy, distribution and microgrids, automotive and shipboard power systems and wireless power transfer, as well as advanced control. In volume one, chapters cover semiconductor power devices, multilevel and multi-input converters, modular multilevel cascade and matrix converters, soft-switching, source power, and DC/DC converters, smart power electronics, motor drives, switched reluctance machines, reliability in power electronics and hardware-in-the-loop. In volume two, chapters cover wind and PV energy principles, charging and battery management, DC-DC switched capacitor converters, batteries, shipboard power systems, advanced control and power filter control, more electric aircraft, fault ride through strategies for grid-connected PV, support functions and grid-forming control. Both volumes offer key insights and up-to-date information for researchers and practicing engineers working in power electronics, converters and machine drives, electric vehicles, ship propulsion, battery storage, wind and photovoltaics solar energy and power conversion.
	**Digital Twins for 6G**	Hamed Ahmadi, Trung Q. Duong, Avishek Nag, Vishal Sharma, Berk Canberk, Octavia A. Dobre	The Institution of Engineering and Technology	2024 **NEW**	978-1-83953-745-5	LINK	Digital twin (DT) technology is a real-time evolving digital duplicate of a physical object or process that contains all its history. It is enabled by massive real-time multi-source data collection and analysis. While 6G is considered as an enabler of digital twins, DT can also be a facilitator for integrating AI and 6G towards reliable, pervasive and efficient intelligent technologies. While the DT concept is familiar among aerospace and industrial engineers, it is a relatively new topic among electronic, electrical, computer, communications and networking engineers. For future massive-scale industrial internet-of-things (IoT) applications facilitated by DTs, a 6G network will be much more advantageous than its 5G counterpart. Digital Twins for 6G: Fundamental theory, technology and applications aims to bring together knowledge from industrial practitioners and researchers, and to introduce novel concepts that can help address the challenges associated with this interdisciplinary topic. The authors will cover fundamentals, enabling technologies, standards and advanced topics of DT and 6G to demystify the DT concept and its networking requirements and benefits, support a broader understanding of DT and its relationship with 6G to a larger audience, support learning and understanding for researchers and professionals working on 5G and 6G, and create a foundation on DT and 6G for the international research community. This book is intended to be both a tutorial of the important topics around digital twin and advanced wireless communications technologies, including 6G, as well as an advanced overview for technical professionals in the communications industry, technical managers, and researchers in both academia and industry.
	**Artificial Intelligence for Biometrics and Cybersecurity**	Ahmed A. Abd El-Latif, Mohammed Adel Hammad, Yassine Maleh, Brij B. Gupta, Wojciech Mazurczyk	The Institution of Engineering and Technology	2023	978-1-83953-547-5	LINK	The integration of new technologies is resulting in an increased demand for security and authentication in all types of data communications. Cybersecurity is the protection of networks and systems from theft. Biometric technologies use unique traits of particular parts of the body such facial recognition, iris, fingerprints and voice to identify individuals' physical and behavioural characteristics. Although there are many challenges associated with extracting, storing and processing such data, biometric and cybersecurity technologies along with artificial intelligence (AI) are offering new approaches to verification procedures and mitigating security risks. This book presents cutting-edge research on the use of AI for biometrics and cybersecurity including machine and deep learning architectures, emerging applications and ethical and legal concerns. Topics include federated learning for enhanced cybersecurity; artificial intelligence-based biometric authentication using ECG signal; deep learning for email phishing detection methods; biometrics for secured IoT systems; intelligent authentication using graphical one-time-passwords; and AI in social cybersecurity.
	**Sensory Systems for Robotic Applications**	Ravinder Dahiya; Oliver Ozioko; Gordon Cheng	The Institution of Engineering and Technology	2022	978-1-84919-948-3	LINK	Robots have come a long way thanks to advances in sensing and computer vision technologies and can be found today in healthcare, medicine and industry. Researchers have been looking at providing them with senses such as the ability to see, smell, hear and perceive touch in order to mimic and interact with humans and their surrounding environments. Topics covered in this edited book include various types of sensors used in robotics, sensing schemes (e-skin, tactile skin, e-nose, neuromorphic vision and touch), sensing technologies and their applications including healthcare, prosthetics, robotics and wearables. This book will appeal to researchers, scientists, engineers, and graduate and advanced students working in robotics, sensor technologies and electronics, and their applications in robotics, haptics, prosthetics, wearable and interactive systems, cognitive engineering, neuro-engineering, computational neuroscience, medicine and healthcare technologies.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Human Machine Collaboration and Interaction for Smart Manufacturing**	Wai Yie Leong	The Institution of Engineering and Technology	2022	978-1-83953-414-0	LINK	Advanced technologies such as robotics, 5G mobile communications, IoT, cloud computing and wireless sensor networks have had a huge impact and influence on manufacturing, with an increased collaboration between humans and smart systems. As the manufacturing process becomes more automated using real-time data, communication systems, Artificial Intelligence (AI) techniques and robotics feed data back into the manufacturing process. This enables the design of products that are more customized and personal, and leads to a more competitive, efficient and value-added production process by reacting more quickly to technical or human errors to avoid product and system damage while increasing workplace safety, and reducing waste, pollution, and associated costs. This edited book covers challenges, concepts, systems, architectures, technologies, and design characteristics of human-machine cooperation and interaction systems in smart manufacturing environments using state of the art technologies including AI, 5G, IoTs, Blockchains, CPS, sensing, automation and robotics. The book is aimed at researchers and engineers working on the applications of robotics and automation, HMI, HCI, CPS, sensing, information and communications technology, data science, ML/DL/AI, AR/VR, cybersecurity and electronics. It is also a useful reference for advanced students and lecturers in these fields, and will appeal to manufacturers and automation system developers.
	**Edge Computing**	Javid Taheri, Shuiguang Deng	The Institution of Engineering and Technology	2020	978-1-78561-940-3	LINK	Cloud computing has evolved as a cost-effective, easy-to-use, elastic and scalable computing paradigm to transform today's business models. 5G, Industrial IoT, Industry 4.0 and China-2050 frameworks and technologies are introducing new challenges that cannot be solved efficiently using current cloud architectures. To handle the collected information from such a vast number of devices and actuators, and address these issues, novel concepts have been proposed to bring cloud-like resources closer to end users at the edge of the network, a technology called edge computing. From architectures to models, technologies and applications, this book focuses on the Edge Computing paradigm due to its unique characteristics where heterogeneous devices can be equipped with decision making processes and automation procedures to carry out applications across widely geographically distributed areas. This book provides valuable insights for ICTs engineers, scientists, researchers, developers and practitioners who are involved in developing and implementing edge and cloud-based solutions ranging from sensors and actuators to cloud-based back-end systems.
	**Multidimensional Radar Imaging**	Marco Martorella	The Institution of Engineering and Technology	2019	978-1785618079	LINK	Synthetic aperture radar and inverse synthetic aperture radar (SAR/ISAR) images have been largely used for monitoring small to large areas and more specifically for target recognition/identification. However, the technology has limitations due to the use of classical monostatic, single channel, single frequency and single polarization systems. To overcome these limitations, solutions have been proposed that show the benefit of using multiple frequencies, spatial channels, polarisations and perspective, in one word multi-dimensional radar imaging systems when dealing with non-cooperative targets. Multidimensional Radar Imaging introduces a new framework within which to address the problem of radar imaging and target recognition as it jointly looks at optimising the use of multiple channels to significantly outperform classical radar imaging systems. It has been used in the military within NATO for the last few years and the technology is now declassified. Topics covered include three-dimensional ISAR; STAP-ISAR; wide-band multi-look passive ISAR; radar tomography; multistatic PCL-SAR; fusion of multistatic ISAR images with large angular separation; rotor blade parameter estimation with multichannel passive radar; multistatic 3D ISAR imaging of maritime targets; challenges of semi-cooperative bi/multistatic SAR using Cosmo SkyMEd as an illuminator; and lessons learnt from the NATO SET-196 RTG on multi-channel/multi-static radar imaging of non-cooperative targets.
	**Artificial Intelligence for Smarter Power Systems: Fuzzy logic and neural networks**	Simoes, Marcelo Godoy	The Institution of Engineering and Technology	2021	9781839530012	LINK	The urgent need to reduce carbon emissions is leading to growing use of renewable electricity, particularly from wind and photovoltaics. However, the intermittent nature of these power sources presents challenges to power systems, which need to ensure high and consistent power quality. Going forward, power systems also need to be able to respond to changes in loads, for example from EV charging. Neither production nor load changes can be predicted precisely, and so there is a degree of uncertainty or fuzziness. One way to meet these challenges is to use a kind of artificial intelligence - fuzzy logic. Fuzzy logic uses variables that may be any real number between 0 and 1, rather than either 0 or 1. It has obvious advantages when used for optimization of alternative and renewable energy systems. The parametric fuzzy algorithm is inherently adaptive because the coefficients can be altered to accommodate requirements and data availability. This book focuses on the use of fuzzy logic and neural networks to control power grids and adapt them to changing requirements. Chapters cover fuzzy inference, fuzzy logic-based control, feedback and feedforward neural networks, competitive and associate neural networks, and applications of fuzzy logic, deep learning and big data in power electronics and systems.
	**Lightning-Induced Effects in Electrical and Telecommunication Systems**	Yoshihiro Baba, Vladimir A. Rakov	The Institution of Engineering and Technology	2020	9781785613548	LINK	Power and telecommunications systems are growing increasingly complex. This increases their vulnerability to lightning-related effects. Due to the high requirements for the reliability of power and telecommunications systems and the associated sensitive equipment, protection against lightning is of paramount importance. Lightning-induced effects are to be quantified in order to assess the risks and design adequate protection. This can be done with the traditional approach, which is based on the transmission-line theory and an electromagnetic-field-to-conductor coupling model, as well as with the advanced numerical techniques, such as the finite difference time-domain (FDTD) method. Interest in the FDTD method is steadily growing because of the availability of software and increased computer capabilities. This book provides an introduction to the FDTD method and its applications to studies of lightning-induced effects in power and telecommunication systems. It also contains background information on lightning, lightning models, and lightning electromagnetics. This book is essential reading for electrical engineers and researchers, who are interested in lightning surge protection studies, as well as for senior undergraduate and graduate students specializing in electrical engineering.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**AI for Emerging Verticals** Human-robot computing, sensing and networking	Muhammad Zeeshan Shakir; Naeem Ramzan	The Institution of Engineering and Technology	2020	9781785619830	LINK	By specializing in a vertical market, companies can better understand their customers and bring more insight to clients in order to become an integral part of their businesses. This approach requires dedicated tools, which is where artificial intelligence (AI) and machine learning (ML) will play a major role. By adopting AI software and services, businesses can create predictive strategies, enhance their capabilities, better interact with customers, and streamline their business processes. This edited book explores novel concepts and cutting-edge research and developments towards designing these fully automated advanced digital systems. Fostered by technological advances in artificial intelligence and machine learning, such systems potentially have a wide range of applications in robotics, human computing, sensing and networking. The chapters focus on models and theoretical approaches to guarantee automation in large multi-scale implementations of AI and ML systems; protocol designs to ensure AI systems meet key requirements for future services such as latency; and optimisation algorithms to leverage the trusted distributed and efficient complex architectures. The book is of interest to researchers, scientists, and engineers working in the fields of ICTs, networking, AI, ML, signal processing, HCI, robotics and sensing. It could also be used as supplementary material for courses on AI, machine and deep learning, ICTs, networking signal processing, robotics and sensing.
	**The Nine Pillars of Technologies for Industry 4.0**	Wai Yie Leong; Joon Huang Chuah; Boon Tuan Tee	The Institution of Engineering and Technology	2020	9781839530067	LINK	Industry 4.0 refers to automation and data exchange in manufacturing technologies. From innovative research, challenges, solutions and strategies to real-world case studies, the aim of this edited book is to focus on the nine pillars of technology that are supporting the transition to Industry 4.0 and smart manufacturing. The nine pillars include the internet of things, cloud computing, autonomous and robotics systems, big data analytics, augmented reality, cyber security, simulation, system integration, and additive manufacturing. A key role is played by the industrial IoTs and state-of-the-art technologies such as fog and edge computing, advanced data analytics, innovative data exchange models, artificial intelligence, machine learning, mobile and network technologies, robotics and sensors. This book is a useful resource for an audience of academic and industry researchers and engineers, as well as advanced students in the fields of information and communication technologies, robotics and automation, big data analytics and data mining, machine learning, artificial intelligence, AR/VR/ER, cybersecurity, cyber physical systems, sensing and robotics with a focus on Industry 4.0, and smart manufacturing.
	**Edge Computing** **Models, technologies and applications**	Javid Taheri; Shuiguang Deng	The Institution of Engineering and Technology	2020	9781785619403	LINK	Cloud computing has evolved as a cost-effective, easy-to-use, elastic and scalable computing paradigm to transform today's business models. 5G, Industrial IoT, Industry 4.0 and China-2050 frameworks and technologies are introducing new challenges that cannot be solved efficiently using current cloud architectures. To handle the collected information from such a vast number of devices and actuators, and address these issues, novel concepts have been proposed to bring cloud-like resources closer to end users at the edge of the network, a technology called edge computing. From architectures to models, technologies and applications, this book focuses on the Edge Computing paradigm due to its unique characteristics where heterogeneous devices can be equipped with decision making processes and automation procedures to carry out applications across widely geographically distributed areas. This book provides valuable insights for ICTs engineers, scientists, researchers, developers and practitioners who are involved in developing and implementing edge and cloud-based solutions ranging from sensors and actuators to cloud-based back-end systems.
	**Sensors, Actuators, and Their Interfaces. A multidisciplinary introduction**	Ida, Nathan	The Institution of Engineering and Technology	2020	9781785618369	LINK	Sensors and actuators are used daily in countless applications to ensure more accurate and reliable workflows and safer environments. Many students and young engineers with engineering and science backgrounds often come prepared with circuits and programming skills but have little knowledge of sensors and sensing strategies and their interfacing. In this fully revised and expanded second edition, the author looks at sensors and actuators based on a broad area of detection methods. He takes a general and applications-oriented approach to the topic and makes it discipline-independent to cater for a broad audience. Important coverage is given to interfacing (the processes and mechanisms between the sensors and actuators) that makes systems work reliably and accurately. Topics covered include different type of sensors and actuators (temperature, thermal, optical, electric, magnetic, mechanical, acoustic, chemical, radiation, and smart sensors) and their interfaces. The book contains numerous examples and problem sets as well as useful appendices.
	**Big Data-Enabled Internet of Things**	Muhammad Usman Shahid Khan, Samee U. Khan, Albert Y. Zomaya	The Institution of Engineering and Technology	2019	ISBN: 978-1-78561-636-5	LINK	The fields of Big Data and the Internet of Things (IoT) have seen tremendous advances, developments, and growth in recent years. The IoT is the inter-networking of connected smart devices, buildings, vehicles and other items which are embedded with electronics, software, sensors and actuators, and network connectivity that enable these objects to collect and exchange data. The IoT produces a lot of data. Big data describes very large and complex data sets that traditional data processing application software is inadequate to deal with, and the use of analytical methods to extract value from data. This edited book covers analytical techniques for handling the huge amount of data generated by the Internet of Things, from architectures and platforms to security and privacy issues, applications, and challenges as well as future directions.

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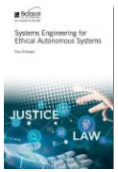
	**Sensors in the Age of the Internet of Things. Technologies and applications**	Octavian Adrian Postolache Edward Sazonov Subhas Chandra Mukhopadhyay	The Institution of Engineering and Technology	2019	978-1785616341	LINK	The IoT is the inter-networking of connected and smart devices, buildings, vehicles and other items which are embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data. A sensor is a detection device that measures, records, or responds to a physical property. Sensors represent the front end of information processing. Progress in communication technologies is part of the multi-factorial advances in electronics, sensors, embedded computing, signal processing and machine learning methods that has led to the development of new capabilities in the IoT. This edited book focuses on the technologies constituting the IoT from a sensor perspective, for an audience of researchers, scientists, engineers and graduate students with an interest in the field. Applications covered include connected sensors for smart cities, energy infrastructure, emergency management, and smart ports.
	**Security and Privacy for Big Data, Cloud Computing and Applications**	Wei Ren Lizhe Wang Kim-Kwang Raymond Choo Fatos Xhafa	The Institution of Engineering and Technology	2019	978-1-78561-747-8	LINK	As big data becomes increasingly pervasive and cloud computing utilization becomes the norm, the security and privacy of our systems and data becomes more critical with emerging security and privacy threats and challenges. This book presents a comprehensive view on how to advance security and privacy in big data, cloud computing, and their applications. Topics include cryptographic tools, SDN security, big data security in IoT, privacy preserving in big data, security architecture based on cyber kill chain, privacy-aware digital forensics, trustworthy computing, privacy verification based on machine learning, and chaos-based communication systems. This book is an essential reading for networking, computing, and communications professionals, researchers, students and engineers, working with big data and cloud computing.
	**Applications of Machine Learning in Wireless Communications**	Ruisi He Zhiguo Ding	The Institution of Engineering and Technology	2019	978-1-78561-657-0	LINK	Machine learning explores the study and development of algorithms that can learn from and make predictions and decisions based on data. Applications of machine learning in wireless communications have been receiving a lot of attention, especially in the era of big data and IoT, where data mining and data analysis technologies are effective approaches to solving wireless system evaluation and design issues. This edited book presents current and future developments and trends in wireless communication technologies based on contributions from machine learning and other fields of artificial intelligence, including channel modelling, signal estimation and detection, energy efficiency, cognitive radios, wireless sensor networks, vehicular communications, and wireless multimedia communications. The book is aimed at a readership of researchers, engineers and students working on wireless communications and machine learning, especially those working with big data and artificial intelligence multi-disciplinary fields related to wireless communication technologies.
	**Nature-Inspired Cyber Security and Resiliency. Fundamentals, techniques and applications**	El-Sayed M. El-Alfy Mohamed Eltoweissy Errin W. Fulp	The Institution of Engineering and Technology	2019	9781785616389	LINK	With the rapid evolution of cyberspace, computing, communications and sensing technologies, organizations and individuals rely more and more on new applications such as fog and cloud computing, smart cities, Internet of Things (IoT), collaborative computing, and virtual and mixed reality environments. Maintaining their security, trustworthiness and resilience to cyber-attacks has become crucial which requires innovative and creative cyber security and resiliency solutions. Computing algorithms have been developed to mimic the operation of natural processes, phenomena and organisms such as artificial neural networks, swarm intelligence, deep learning systems, biomimicry, and more. The amazing characteristics of these systems offer a plethora of novel methodologies and opportunities to cope with emerging cyber challenges. This edited book presents a timely review of the fundamentals, latest developments and diverse applications of nature-inspired algorithms in cyber security and resiliency. Topics include bio-inspired collaboration and cyber security; immune-based defense and resiliency; bio-inspired security and resiliency of network traffic; nature inspired machine learning approach for cyber security; nature-inspired algorithms in A.I. for malicious activity detection; DNA-inspired characterization and detection of novel social Twitter spambots; nature-inspired approaches for social network security; bio-inspired cyber-security for smart grid; natureinspired cryptography and cryptanalysis, and more.
	**Systems Engineering for Ethical Autonomous Systems**	Tony Gillespie	The Institution of Engineering and Technology	2019	978-1785613722	LINK	The transfer of responsibility for decisions and actions from humans to machines presents difficult problems for all those concerned with new concepts, their development and use. This book gives practical help by discussing the issues in the context of product design, and gives a methodology to solve them. The design cycle for autonomous systems is described, set in the context of human decision-making and the evolving ethical and legal environment. These are explained in separate chapters that will be invaluable to engineers and all the professions associated with autonomous systems. Systems engineering methods, used for weapon systems, are described. These are developed for both military and civil applications. A detailed worked example demonstrates the legal limits imposed on Lethal Autonomous Weapon Systems (LAWS) by current international law.

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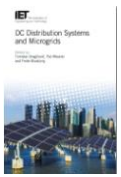
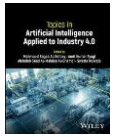
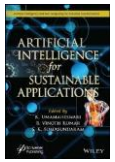
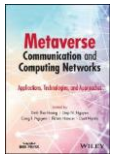
	**DC Distribution Systems and Microgrids**	Tomislav Dragicevic Pat Wheeler Frede Blaabjerg	The Institution of Engineering and Technology	2018	978-1785613821	LINK	DC electric power distribution systems have higher efficiency, better current carrying capacity and faster response when compared to conventional AC systems. They also provide a more natural interface with many types of renewable energy sources. Furthermore, there are fewer issues with reactive power flow, power quality and frequency regulation, resulting in a notably less complex control system. All these facts lead to increased applications of DC systems in modern power systems. Still, design and operation of these systems imposes a number of specific challenges, mostly related to lack of mature protection technology and operational experience, as well as very early development stage of standards regarding DC based power infrastructure. This book provides an up-to-date overview of recent research activities in the control, protection and architectural design of a number of different types of DC distribution systems and microgrids. Practical requirements and implementation details of several types of DC distribution systems used in the real world industrial applications are also presented. Several types of coordinated control design concepts are shown, with concepts of stabilization being explained in detail. The book reviews the shortcomings and future developments concerning the practical DC system integration issues.
	**Big Data and Software Defined Networks**	Javid Taheri	The Institution of Engineering and Technology	2018	978-1-78561-304-3	LINK	Big Data Analytics and Software Defined Networking (SDN) are helping to drive the management of data and usage of the extraordinary increase of computer processing power provided by Cloud Data Centres (CDCs). SDN helps CDCs run their services more efficiently by enabling managers to configure, manage, secure, and optimize the network resources very quickly. Big-Data Analytics in turn has entered CDCs to harvest the massive computing powers and deduct information that was never reachable by conventional methods.Big Data and Software Defined Networks investigates areas where Big-Data and SDN can help each other in delivering more efficient services. SDN can help Big-Data applications overcome one of their major challenges: message passing among cooperative nodes. Through proper bandwidth allocation and prioritization, critical surges of Big-Data flows can be better handled to effectively reduce their impacts on CDCs. Big-Data, in turn, can help SDN controllers better analyze collected network information and make more efficient decisions about the allocation of resources to different network flows.
	**Guideline Industrial Security IEC 62443 is easy**	Pierre Kobes	The Institution of Engineering and Technology	2021	978-3-8007-5306-2	LINK	Insufficient security is careless, too much security is inefficient. Recent surveys point out that the fear of cyber attacks is one of the three biggest business risks. Cloud, privacy protection, mobility or the internet of things are important drivers for pushing changes in the field of IT Security in industrial environments. Without IT Security the Industrial Internet of Things will not be accepted. The importance of protection concepts is growing with increasing external attacks. Operators of critical infrastructure have to maintain minimum standards of IT Security and to protect their installations against cyber-attacks. Effective protection concepts can only be implemented with a range of organizational and technical measures. Product suppliers, system integrators, and operators have to work together to deploy holistic protection solutions. The series of standards IEC 62443 is focused on the support of holistic solutions for the protection of industrial systems and addresses all involved stakeholders. Correspondingly IEC 62443 is perceived as complex. This guideline has the aim to simplify the approach to the deployment of protection concepts by giving an overview about IEC 62443, summarizing the ideas and concepts, and illustrating practical solutions.
	**Digital Twin Technology: Fundamentals and Applications**	Manisha Vohra	The Institution of Engineering and Technology	2024 **NEW**	978-1-119-84229-3	LINK	Digital twin basically means a replicated model of any object or product in digital form. A digital twin has many advantages as it remains connected with the original object or product it is replicating and receives real-time data. Therefore, the obstacles and issues that could be encountered in a product or object can be known before their actual happening which helps to prevent errors and major losses which otherwise might have been incurred. The various capabilities of digital twin technology make it a powerful tool that can be used to effectively boost various sectors of the healthcare, automotive, and construction industries, among others. Although this technology has been making its way into various sectors, it has not yet received the kind of exposure necessary to increase awareness of its potential in these industries. Therefore, it is critical that a better understanding of digital twin technology is acquired to facilitate growth and to have it implemented in the various sectors so that transformation can be ushered in. Therefore, this book was designed to be a useful resource for those who want to become well acquainted with digital twin technology. Audience Engineers, researchers, and advanced students in information technology, computer science, and electronics, as well as IT specialists and professionals in various industries such as healthcare, automotive, and transportation.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Professional C++, 6th Edition**	Marc Gregoire	The Institution of Engineering and Technology	2024 **NEW**	978-1-394-19318-9	LINK	Expand your C++ knowledge quickly and efficiently with this advanced resource In the newly revised sixth edition of Professional C++, veteran software engineer and developer Marc Gregoire delivers yet another volume that raises the bar for advanced programming manuals. Covering almost all features of the new C++ standard codenamed C++23, the book offers case studies with working code that's been tested on Windows and Linux. As the leading resource for dedicated and knowledgeable professionals seeking to advance their C++ skills, this book provides resources that help readers: - Master new features of the latest standard, C++23 - Maximize C++ capabilities with effective design solutions - Discover little-known elements and learn about pitfalls and what practices to avoid - Grasp testing and debugging best practices - Learn about tips and tricks for efficiency and performance C++ is a complex language. Professional C++, 6th Edition, allows dedicated practitioners to remain current and abreast of the latest developments and advances.
	**Topics in Artificial Intelligence Applied to Industry 4.0**	Mahmoud Ragab AL-Refaey, Amit Kumar Tyagi, Abdullah Saad AL-Malaise AL-Ghamdi, Swetta Kukreja	The Institution of Engineering and Technology	2024 **NEW**	978-1-394-21613-0	LINK	Topics in Artificial Intelligence Applied to Industry 4.0 discusses the design principles, technologies, and applications of emerging AI and IoT solutions on Industry 4.0, explaining how to make improvements in infrastructure through emerging technologies. Providing a clear connection with different technologies such as IoT, Big Data, AR and VR, and Blockchain, this book presents security, privacy, trust, and other issues whilst delving into real-world problems and case studies. The text takes a highly practical approach, with a clear insight on how readers can increase productivity by drastically shortening the time period between the development of a new product and its delivery to customers in the market by 50%. This book also discusses how to save energy across systems to ensure competitiveness in a global market, and become more responsive in how they produce products and services for their consumers, such as by investing in flexible production lines. Written by highly qualified authors, Topics in Artificial Intelligence Applied to Industry 4.0 explores sample topics such as: - Quantum machine learning, neural network implementation, and cloud and data analytics for effective analysis of industrial data - Computer vision, emerging networking technologies, industrial data spaces, and an industry vision for 2030 in both developing and developed nations - Novel or improved nature-inspired optimization algorithms in enhancing Industry 5.0 and the connectivity of any components for smart environment - Future professions in agriculture, medicine, education, fitness, R&D, and transport and communication as a result of new technologies Aimed at researchers and students in the interdisciplinary fields of Smart Manufacturing and Smart Applications, Topics in Artificial Intelligence Applied to Industry 4.0 provides the perfect overview of technology from the perspective of modern society and operational environment.
	**Artificial Intelligence for Sustainable Applications**	K. Umamaheswari, B. Vinoth Kumar, S. K. Somasundaram	The Institution of Engineering and Technology	2023	978-1-394-17523-9	LINK	With the advent of recent technologies, the demand for Information and Communication Technology (ICT)-based applications such as artificial intelligence (AI), machine learning (ML), Internet of Things (IoT), health care, data analytics, augmented reality/virtual reality, cyber-physical systems, and future generation networks, has increased drastically. In recent years, artificial intelligence has played a more significant role in everyday activities. While AI creates opportunities, it also presents greater challenges in the sustainable development of engineering applications. Therefore, the association between AI and sustainable applications is an essential field of research. Moreover, the applications of sustainable products have come a long way in the past few decades, driven by social and environmental awareness, and abundant modernization in the pertinent field. New research efforts are inevitable in the ongoing design of sustainable applications, which makes the study of communication between them a promising field to explore. This book highlights the recent advances in AI and its allied technologies with a special focus on sustainable applications. It covers theoretical background, a hands-on approach, and real-time use cases with experimental and analytical results.
	**Metaverse Communication and Computing Networks: Applications, Technologies, and Approaches**	Dinh Thai Hoang, Diep N. Nguyen, Cong T. Nguyen, Ekram Hossain, Dusit Niyato	The Institution of Engineering and Technology	2023	978-1-394-16000-6	LINK	"Metaverse" is the term for applications that allow users to assume digital avatars to interact with other humans and software functions in a three-dimensional virtual space. These applications and the spaces they create constitute an exciting and challenging new frontier in digital communication. Surmounting the technological and conceptual barriers to creating the Metaverse will require researchers and engineers familiar with its underlying theories and a wide range of technologies and techniques. Metaverse Communication and Computing Networks provides a comprehensive treatment of Metaverse theory and the technologies that can be brought to bear on this new pursuit. It begins by describing the Metaverse's underlying architecture and infrastructure, physical and digital, before addressing how existing technologies are being adapted to its use. It concludes with an overview of the challenges facing the Metaverse. The result is a thorough introduction to a subject that may define the future of the internet.

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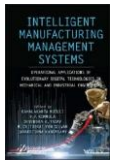
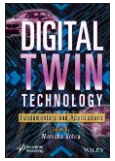
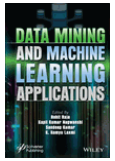
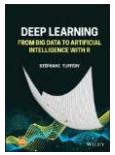
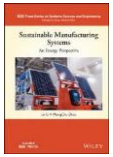
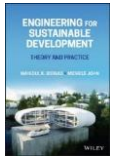
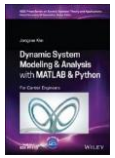
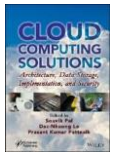
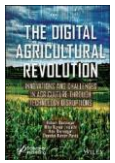
	**Intelligent Manufacturing Management Systems: Operational Applications of Evolutionary Digital Technologies in Mechanical and Industrial Engineering**	Kamalakanta Muduli, V. P. Kommula, Devendra K. Yadav, M. Chithirai Pon Selvan, Jayakrishna Kandasamy	The Institution of Engineering and Technology	2023	978-1-119-83676-6	LINK	The concepts that pertain to the application of digital evolutionary technologies in the sphere of industrial engineering and manufacturing are presented in this book. A few chapters demonstrate stepwise discussion, case studies, structured literature review, rigorous experimentation results, and applications. Further chapters address the challenges encountered by industries in integrating these digital technologies into their operational activities, as well as the opportunities for this integration. In addition, a few chapters detail the opportunities for this integration.
	**Digital Twin Technology Fundamentals and Applications**	Manisha Vohra	The Institution of Engineering and Technology	2022	978-1-119-84229-3	LINK	Digital twin basically means a replicated model of any object or product in digital form. A digital twin has many advantages as it remains connected with the original object or product it is replicating and receives real-time data. Therefore, the obstacles and issues that could be encountered in a product or object can be known before their actual happening which helps to prevent errors and major losses which otherwise might have been incurred. The various capabilities of digital twin technology make it a powerful tool that can be used to effectively boost various sectors of the healthcare, automotive, and construction industries, among others. Although this technology has been making its way into various sectors, it has not yet received the kind of exposure necessary to increase awareness of its potential in these industries. Therefore, it is critical that a better understanding of digital twin technology is acquired to facilitate growth and to have it implemented in the various sectors so that transformation can be ushered in. Therefore, this book was designed to be a useful resource for those who want to become well acquainted with digital twin technology.
	**Data Mining and Machine Learning Applications**	Rohit Raja, Kapil Kumar Nagwanshi, Sandeep Kumar, K. Ramya Laxmi	The Institution of Engineering and Technology	2022	978-1-119-79250-5	LINK	The book elaborates in detail on the current needs of data mining and machine learning and promotes mutual understanding among research in different disciplines, thus facilitating research development and collaboration. Data, the latest currency of today's world, is the new gold. In this new form of gold, the most beautiful jewels are data analytics and machine learning. Data mining and machine learning are considered interdisciplinary fields. Data mining is a subset of data analytics and machine learning involves the use of algorithms that automatically improve through experience based on data. Massive datasets can be classified and clustered to obtain accurate results. The most common technologies used include classification and clustering methods. Accuracy and error rates are calculated for regression and classification and clustering to find actual results through algorithms like support vector machines and neural networks with forward and backward propagation. Applications include fraud detection, image processing, medical diagnosis, weather prediction, e-commerce and so forth.
	**Cybersecurity in Intelligent Networking Systems**	Shengjie Xu, Yi Qian, Rose Qingyang Hu	The Institution of Engineering and Technology	2022	978-1-119-78412-8	LINK	Help protect your network system with this important reference work on cybersecurity Cybersecurity and privacy are critical to modern network systems. As various malicious threats have been launched that target critical online services—such as e-commerce, e-health, social networks, and other major cyber applications—it has become more critical to protect important information from being accessed. Data-driven network intelligence is a crucial development in protecting the security of modern network systems and ensuring information privacy. Cybersecurity in Intelligent Networking Systems provides a background introduction to data-driven cybersecurity, privacy preservation, and adversarial machine learning. It offers a comprehensive introduction to exploring technologies, applications, and issues in data-driven cyber infrastructure. It describes a proposed novel, data-driven network intelligence system that helps provide robust and trustworthy safeguards with edge-enabled cyber infrastructure, edge-enabled artificial intelligence (AI) engines, and threat intelligence. Focusing on encryption-based security protocol, this book also highlights the capability of a network intelligence system in helping target and identify unauthorized access, malicious interactions, and the destruction of critical information and communication technology. Cybersecurity in Intelligent Networking Systems readers will also find: - Fundamentals in AI for cybersecurity, including artificial intelligence, machine learning, and security threats - Latest technologies in data-driven privacy preservation, including differential privacy, federated learning, and homomorphic encryption - Key areas in adversarial machine learning, from both offense and defense perspectives - Descriptions of network anomalies and cyber threats - Background information on data-driven network intelligence for cybersecurity - Robust and secure edge intelligence for network anomaly detection against cyber intrusions - Detailed descriptions of the design of privacy-preserving security protocols Cybersecurity in Intelligent Networking Systems is an essential reference for all professional computer engineers and researchers in cybersecurity and artificial intelligence, as well as graduate students in these fields.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**3D Scanning for Advanced Manufacturing, Design, and Construction**	Gary C. Confalone, John Smits, Thomas Kinnare	The Institution of Engineering and Technology	2023	978-1-119-75856-3	LINK	3D Scanning for Advanced Manufacturing, Design, and Construction Learn how 3D scanning technology drives advanced manufacturing and modern construction 3D scanning technology allows non-contact scanning of objects for unprecedented data collection, analysis, and modeling. 3D models created this way are valuable at every stage of the design and build process and they have become a staple in additive manufacturing or 3D printing. As 3D printing transforms global industry at every scale, there has never been a better time for engineers and industrial professionals to be competitive in the area of 3D scanning, a multibillion-dollar market that continues to grow. 3D Scanning Technology for Advanced Manufacturing, Design, and Construction provides a comprehensive introduction to 3D scanning and its applications in both the AEC and manufacturing industries. After establishing the history and basic principles of 3D scanning, it includes discussions of the various scanner types and software interfaces, the use of 3D point clouds for analysis and reverse engineering, and much more. It covers the full range of technology and processes that engineers, architects, and manufacturing professionals use to increase accuracy and quality while reducing project timelines. Readers of 3D Scanning Technology for Advanced Manufacturing, Design, and Construction will also find: Case studies that highlight techniques useful for specific real-world applications Comparisons of various scanning devices and software that aid in choosing the proper technologies for a specific project Resources and references for online learning, organizations, and certifications Perfect for engineers, technicians, students, and industry professionals new to laser scanning, 3D Scanning Technology for Advanced Manufacturing, Design, and Construction will earn its place in libraries of technical, vocational, and continuing education audiences seeking to improve their knowledge of 3D scanning.
	**Deep Learning: From Big Data to Artificial Intelligence with R**	Stephane Tuffery	The Institution of Engineering and Technology	2022	978-1-119-84503-4	LINK	In Deep Learning: From Big Data to Artificial Intelligence with R, expert researcher Dr. Stéphane Tufféry delivers an insightful discussion of the applications of deep learning and big data that focuses on practical instructions on various software tools and deep learning methods relying on three major libraries: MXNet, PyTorch, and Keras-TensorFlow. In the book, numerous, up-to-date examples are combined with key topics relevant to modern data scientists, including processing optimization, neural network applications, natural language processing, and image recognition. This is a thoroughly revised and updated edition of a book originally released in French, with new examples and methods included throughout. Classroom-tested and intuitively organized, Deep Learning: From Big Data to Artificial Intelligence with R offers complimentary access to a companion website that provides R and Python source code for the examples offered in the book. Readers will also find: - A thorough introduction to practical deep learning techniques with explanations and examples for various programming libraries - Comprehensive explorations of a variety of applications for deep learning, including image recognition and natural language processing - Discussions of the theory of deep learning, neural networks, and artificial intelligence linked to concrete techniques and strategies commonly used to solve real-world problems Perfect for graduate students studying data science, big data, deep learning, and artificial intelligence, Deep Learning: From Big Data to Artificial Intelligence with R will also earn a place in the libraries of data science researchers and practicing data scientists.
	**Sustainable Manufacturing Systems: An Energy Perspective**	Lin Li, MengChu Zhou	The Institution of Engineering and Technology	2022	978-1-119-57832-1	LINK	Sustainable Manufacturing Systems: An Energy Perspective delivers a comprehensive analysis of energy efficiency in sustainable manufacturing. The book presents manufacturing modeling methods and energy efficiency evaluation and improvement methods for different manufacturing systems. It allows industry professionals to understand the methodologies and techniques being embraced around the world that lead to advanced energy management. The book offers readers a comprehensive and systematic theoretical foundation for novel manufacturing system modeling, analysis, and control. It concludes with a summary of the insights and applications contained within and a discussion of future research issues that have yet to be grappled with.
	**4D Printing, Volume 1: Between Disruptive Research and Industrial Applications**	Frederic Demoly, Jean-Claude Andre	The Institution of Engineering and Technology	2022	978-1-786-30731-6	LINK	Any time objects and their (self-)organization are to be put into use, their models and methods of thinking as well as their designing and manufacturing need to be reinvented. 4D printing is a future technology that is capable of bringing 3D objects to life. This ability, which gives objects the power to change shape or properties over time through energy stimulation from active materials and additive manufacturing, makes it possible to envisage technological breakthroughs while challenging the relationship between people and objects. 4D Printing 1 presents the different facets of this technology, providing an objective, critical and even disruptive viewpoint to enable its existence and development, and to stimulate the creative drive that industry, society and humanity need in the perpetual quest for evolution and transformation.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Engineering for Sustainable Development**	Wahidul K. Biswas, Michele John	The Institution of Engineering and Technology	2022	978-1-119-72100-0	LINK	In Engineering for Sustainable Development: Theory and Practice, a team of distinguished academics deliver a comprehensive, education-focused discussion on sustainable engineering, bridging the gap between theory and practice by drawing upon illuminating case studies and the latest cutting-edge research. In the book, readers will find an introduction to the sustainable development agenda and sustainable technology development, as well as practical methods and tools for the development and implementation of sustainable engineering solutions. The book highlights the critical role of engineers and the engineering profession in providing sustainability leadership as well as important future-focused solutions to support engineering global sustainable development. The book offers a wide range of civil, mechanical, electrical, and chemical engineering industry applications. Readers will also benefit from: -A thorough introduction to contemporary sustainability challenges in the engineering discipline -Comprehensive discussions of sustainability assessment tools, including triple bottom line assessment (TBL) and the environmental life cycle assessment (LCA) -In-depth examinations of sustainable engineering strategies, including cleaner production and eco-efficiency methods and environmental management systems -Detailed review of green engineering principles and industrial symbiosis in engineering application. -A link between product stewardship and the design for the environment
	**Dynamic System Modeling and Analysis with MATLAB and Python: For Control Engineers**	Jongrae Kim	The Institution of Engineering and Technology	2022	978-1-119-80164-1	LINK	In Dynamic System Modeling & Analysis with MATLAB & Python: For Control Engineers, accomplished control engineer Dr. Jongrae Kim delivers an insightful and concise introduction to the advanced programming skills required by control engineers. The book discusses dynamic systems used by satellites, aircraft, autonomous robots, and biomolecular networks. Throughout the text, MATLAB and Python are used to consider various dynamic modeling theories and examples. The author covers a range of control topics, including attitude dynamics, attitude kinematics, autonomous vehicles, systems biology, optimal estimation, robustness analysis, and stochastic system. An accompanying website includes a solutions manual as well as MATLAB and Python example code. Dynamic System Modeling & Analysis with MATLAB & Python: For Control Engineers provides readers with a sound starting point to learning programming in the engineering or biology domains. It also offers: -A thorough introduction to attitude estimation and control, including attitude kinematics and sensors and extended Kalman filters for attitude estimation -Practical discussions of autonomous vehicles mission planning, including unmanned aerial vehicle path planning and moving target tracking -Comprehensive explorations of biological network modeling, including bio-molecular networks and stochastic modeling In-depth examinations of control algorithms using biomolecular networks, including implementation
	**Cloud Computing Solutions**	Souvik Pal, Dac-Nhuong Le, Prasant Kumar Pattnaik	The Institution of Engineering and Technology	2022	978-1-119-68202-8	LINK	The main purpose of this book is to include all the cloud-related technologies in a single platform, so that researchers, academicians, postgraduate students, and those in the industry can easily understand the cloud-based ecosystems. This book discusses the evolution of cloud computing through grid computing and cluster computing. It will help researchers and practitioners to understand grid and distributed computing cloud infrastructure, virtual machines, virtualization, live migration, scheduling techniques, auditing concept, security and privacy, business models, and case studies through the state-of-the-art cloud computing countermeasures. This book covers the spectrum of cloud computing-related technologies and the wide-ranging contents will differentiate this book from others. The topics treated in the book include: -The evolution of cloud computing from grid computing, cluster computing, and distributed systems; -Covers cloud computing and virtualization environments; -Discusses live migration, database, auditing, and applications as part of the materials related to cloud computing; -Provides concepts of cloud storage, cloud strategy planning, and management, cloud security, and privacy issues; -Explains complex concepts clearly and covers information for advanced users and beginners.
	**The Digital Agricultural Revolution**	Roheet Bhatnagar, Nitin Kumar Tripathi, Nitu Bhatnagar , Chandan Kumar Panda	The Institution of Engineering and Technology	2022	978-1-119-82344-5	LINK	The book integrates computational intelligence, applied artificial intelligence, and modern agricultural practices and will appeal to scientists, agriculturists, and those in plant and crop science management. There is a need for synergy between the application of modern scientific innovation in the area of artificial intelligence and agriculture, considering the major challenges from climate change consequences viz. rising temperatures, erratic rainfall patterns, the emergence of new crop pests, drought, flood, etc. This volume reports on high-quality research (theory and practice including prototype & conceptualization of ideas, frameworks, real-world applications, policy, standards, psychological concerns, case studies, and critical surveys) on recent advances toward the realization of the digital agriculture revolution as a result of the convergence of different disruptive technologies. The book touches upon the following topics which have contributed to revolutionizing agricultural practices.

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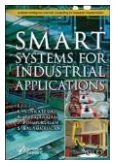
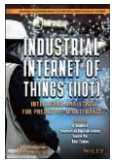
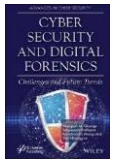
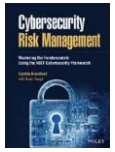
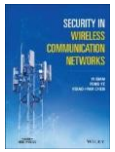
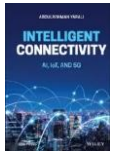
	**Smart Systems for Industrial Applications**	C. Venkatesh, N. Rengarajan, P. Ponmurugan, S. Balamurugan	The Institution of Engineering and Technology	2022	978-1-119-76204-1	LINK	The prime objective of this book is to provide an insight into the role and advancements of artificial intelligence in electrical systems and future challenges. The book covers a broad range of topics about AI from a multidisciplinary point of view, starting with its history and continuing on to theories about artificial vs. human intelligence, concepts, and regulations concerning AI, human-machine distribution of power and control, delegation of decisions, the social and economic impact of AI, etc. The prominent role that AI plays in society by connecting people through technologies is highlighted in this book. It also covers key aspects of various AI applications in electrical systems in order to enable growth in electrical engineering. The impact that AI has on social and economic factors is also examined from various perspectives. Moreover, many intriguing aspects of AI techniques in different domains are covered such as e-learning, healthcare, smart grid, virtual assistance, etc.
	**Industrial Internet of Things (IIoT): Intelligent Analytics for Predictive Maintenance**	R. Anandan, Suseendran Gopalakrishnan, Souvik Pal, Noor Zaman	The Institution of Engineering and Technology	2022	978-1-119-76900-2	LINK	This book discusses how the industrial internet will be augmented through increased network agility, integrated artificial intelligence (AI) and the capacity to deploy, automate, orchestrate, and secure diverse user cases at hyperscale. Since the internet of things (IoT) dominates all sectors of technology, from home to industry, automation through IoT devices is changing the processes of our daily lives. For example, more and more businesses are adopting and accepting industrial automation on a large scale, with the market for industrial robots expected to reach $73.5 billion in 2023. The primary reason for adopting IoT industrial automation in businesses is the benefits it provides, including enhanced efficiency, high accuracy, cost-effectiveness, quick process completion, low power consumption, fewer errors, and ease of control. The 15 chapters in the book showcase industrial automation through the IoT by including case studies in the areas of the IIoT, robotic and intelligent systems, and web-based applications which will be of interest to working professionals and those in education and research involved in a broad cross-section of technical disciplines. The volume will help industry leaders by -Advancing hands-on experience working with industrial architecture -Demonstrating the potential of cloud-based Industrial IoT platforms, analytics, and protocols -Putting forward business models revitalizing the workforce with Industry 4.0.
	**Cyber Security and Digital Forensics: Challenges and Future Trends**	Mangesh M. Ghonge, Sabyasachi Pramanik, Ramchandra Mangrulkar, Dac-Nhuong Le	The Institution of Engineering and Technology	2022	978-1-119-79564-3	LINK	Cyber security is an incredibly important issue that is constantly changing, with new methods, processes, and technologies coming online all the time. Books like this are invaluable to professionals working in this area, to stay abreast of all of these changes. Current cyber threats are getting more complicated and advanced with the rapid evolution of adversarial techniques. Networked computing and portable electronic devices have broadened the role of digital forensics beyond traditional investigations into computer crime. The overall increase in the use of computers as a way of storing and retrieving high-security information requires appropriate security measures to protect the entire computing and communication scenario worldwide. Further, with the introduction of the internet and its underlying technology, facets of information security are becoming a primary concern to protect networks and cyber infrastructures from various threats. This groundbreaking new volume, written and edited by a wide range of professionals in this area, covers broad technical and socio-economic perspectives for the utilization of information and communication technologies and the development of practical solutions in cyber security and digital forensics. Not just for the professional working in the field, but also for the student or academic on the university level, this is a must-have for any library.
	**Cybersecurity Risk Management: Mastering the Fundamentals Using the NIST Cybersecurity Framework**	Cynthia Brumfield, Brian Haugli	The Institution of Engineering and Technology	2021	978-1-119-81630-0	LINK	In Cybersecurity Risk Management: Mastering the Fundamentals Using the NIST Cybersecurity Framework, veteran technology analyst Cynthia Brumfield, with contributions from cybersecurity expert Brian Haugli, delivers a straightforward and up-to-date exploration of the fundamentals of cybersecurity risk planning and management. The book offers readers easy-to-understand overviews of cybersecurity risk management principles, user, and network infrastructure planning, as well as the tools and techniques for detecting cyberattacks. The book also provides a roadmap to the development of a continuity of operations plan in the event of a cyberattack. With incisive insights into the Framework for Improving Cybersecurity of Critical Infrastructure produced by the United States National Institute of Standards and Technology (NIST), Cybersecurity Risk Management presents the gold standard in practical guidance for the implementation of risk management best practices. Filled with clear and easy-to-follow advice, this book also offers readers: - A concise introduction to the principles of cybersecurity risk management and the steps necessary to manage digital risk to systems, assets, data, and capabilities - A valuable exploration of modern tools that can improve an organization's network infrastructure protection - A practical discussion of the challenges involved in detecting and responding to a cyberattack and the importance of continuous security monitoring - A helpful examination of the recovery from cybersecurity incidents Perfect for undergraduate and graduate students studying cybersecurity, Cybersecurity Risk Management is also an ideal resource for IT professionals working in private sector and government organizations worldwide who are considering implementing, or who may be required to implement, the NIST Framework at their organization.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**IoT Security: Advances in Authentication**	Madhusanka Liyanage, An Braeken, Pardeep Kumar, Mika Ylianttila	The Institution of Engineering and Technology	2019	978-1-119-52794-7	LINK	An up-to-date guide to an overview of authentication in the Internet of Things (IoT) The Internet of things (IoT) is the network of the countless physical devices that have the possibility to connect and exchange data. Among the various security requirements, authentication to the IoT is the first step to prevent the impact of attackers. IoT Security offers an important guide into the development of the many authentication mechanisms that provide IoT authentication at various levels such as user level, device level and network level. The book covers a wide range of topics including an overview of IoT and addresses in detail the security challenges at every layer by considering both the technologies and the architecture used. The authors—noted experts on the topic—provide solutions for remediation of compromised security, as well as methods for risk mitigation, and offer suggestions for prevention and improvement. In addition, IoT Security offers a variety of illustrative use cases. This important book: - Offers an authoritative reference designed for use by all IoT stakeholders - Includes information for securing devices at the user, device, and network levels - Contains a classification of existing vulnerabilities - Written by an international group of experts on the topic - Provides a guide to the most current information available on IoT security Written for network operators, cloud operators, IoT device manufacturers, IoT device users, wireless users, IoT standardization organizations, and security solution developers, IoT Security is an essential guide that contains information on security features, including underlying networks, architectures, and security requirements.
	**Cloud Technologies: An Overview of Cloud Computing Technologies for Managers**	Roger McHaney	The Institution of Engineering and Technology	2021	978-1-119-76950-7	LINK	Contains a variety of cloud computing technologies and explores how the cloud can enhance business operations Cloud Technologies offers an accessible guide to cloud-based systems and clearly explains how these technologies have changed the way organizations approach and implement their computing infrastructure. The author includes an overview of cloud computing and addresses business-related considerations such as service level agreements, elasticity, security, audits, and practical implementation issues. In addition, the book covers important topics such as automation, infrastructure as code, DevOps, orchestration, and edge computing. Cloud computing fundamentally changes the way organizations think about and implement IT infrastructure. Any manager without a firm grasp of basic cloud concepts is at a huge disadvantage in the modern world. Written for all levels of managers working in IT and other areas, the book explores cost savings and enhanced capabilities, as well as identifies different models for implementing cloud technologies and tackling cloud business concerns. This important book: - Demonstrates a variety of cloud computing technologies and ways the cloud can enhance business operations - Addresses data security concerns in cloud computing relevant to corporate data owners - Shows ways the cloud can save money for a business - Offers a companion website hosting PowerPoint slides Written for managers in the fields of business, IT and cloud computing, Cloud Technologies describes cloud computing concepts and related strategies and operations in accessible language.
	**Security in Wireless Communication Networks**	Yi Qian, Feng Ye, Hsiao-Hwa Chen	The Institution of Engineering and Technology	2021	978-1-119-24439-4	LINK	Security in Wireless Communication Networks delivers a thorough grounding in wireless communication security. The distinguished authors pay particular attention to wireless specific issues, like authentication protocols for various wireless communication networks, encryption algorithms and integrity schemes on radio channels, lessons learned from designing secure wireless systems and standardization for security in wireless systems. The book addresses how engineers, administrators, and others involved in the design and maintenance of wireless networks can achieve security while retaining the broadcast nature of the system, with all of its inherent harshness and interference. Readers will learn: - A comprehensive introduction to the background of wireless communication network security, including a broad overview of wireless communication networks, security services, the mathematics crucial to the subject, and cryptographic techniques - An exploration of wireless local area network security, including Bluetooth security, Wi-Fi security, and body area network security - An examination of wide area wireless network security, including treatments of 2G, 3G, and 4G - Discussions of future development in wireless security, including 5G, and vehicular ad-hoc network security Perfect for undergraduate and graduate students in programs related to wireless communication, Security in Wireless Communication Networks will also earn a place in the libraries of professors, researchers, scientists, engineers, industry managers, consultants, and members of government security agencies who seek to improve their understanding of wireless security protocols and practices.
	**Intelligent Connectivity: AI, IoT, and 5G**	Abdulrahman Yarali	The Institution of Engineering and Technology	2021	978-1-119-68521-0	LINK	Intelligent Connectivity: AI, IoT, and 5G delivers a comprehensive technological and economic analysis of intelligent connectivity and the integration of artificial intelligence, Internet of Things (IoT), and 5G. It covers a broad range of topics, including Machine-to-Machine (M2M) architectures, edge computing, cybersecurity, privacy, risk management, IoT architectures, and more. The book offers readers robust statistical data in the form of tables, schematic diagrams, and figures that provide a clear understanding of the topic, along with real-world examples of applications and services of intelligent connectivity in different sectors of the economy. Intelligent Connectivity describes key aspects of the digital transformation coming with the 4th industrial revolution that will touch on industries as disparate as transportation, education, healthcare, logistics, entertainment, security, and manufacturing.

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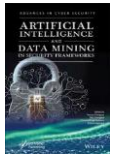
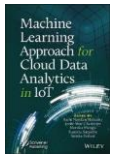
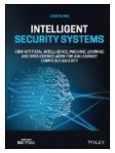
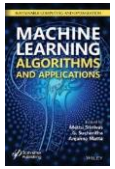
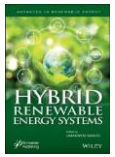
	**Artificial Intelligence and Data Mining Approaches in Security Frameworks**	Neeraj Bhargava, Ritu Bhargava, Pramod Singh Rathore, Rashmi Agrawal	The Institution of Engineering and Technology	2021	978-1-119-76043-6	LINK	Written and edited by a team of experts in the field, this outstanding new volume offers solutions to the problems of security, outlining the concepts behind allowing computers to learn from experience and understand the world in terms of a hierarchy of concepts, with each concept defined through its relation to simpler concepts. Artificial intelligence (AI) and data mining is the fastest growing field in computer science. AI and data mining algorithms and techniques are found to be useful in different areas like pattern recognition, automatic threat detection, automatic problem solving, visual recognition, fraud detection, detecting developmental delay in children, and many other applications. However, applying AI and data mining techniques or algorithms successfully in these areas needs a concerted effort, fostering integrative research between experts ranging from diverse disciplines from data science to artificial intelligence. Successful application of security frameworks to enable meaningful, cost effective, personalized security service is a primary aim of engineers and researchers today. However realizing this goal requires effective understanding, application and amalgamation of AI and data mining and several other computing technologies to deploy such a system in an effective manner. This book provides state of the art approaches of artificial intelligence and data mining in these areas. It includes areas of detection, prediction, as well as future framework identification, development, building service systems and analytical aspects. In all these topics, applications of AI and data mining, such as artificial neural networks, fuzzy logic, genetic algorithm and hybrid mechanisms, are explained and explored. This book is aimed at the modeling and performance prediction of efficient security framework systems, bringing to light a new dimension in the theory and practice. This groundbreaking new volume presents these topics and trends, bridging the research gap on AI and data mining to enable wide-scale implementation. Whether for the veteran engineer or the student, this is a must-have for any library.
	**Machine Learning Approach for Cloud Data Analytics in IoT**	Sachi Nandan Mohanty, Jyotir Moy Chatterjee, Monika Mangla, Suneeta Satpathy, Sirisha Potluri	The Institution of Engineering and Technology	2021	978-1-119-78585-9	LINK	The book covers the multidimensional perspective of machine learning through the perspective of cloud computing and Internet of Things ranging from fundamentals to advanced applications Sustainable computing paradigms like cloud and fog are capable of handling issues related to performance, storage and processing, maintenance, security, efficiency, integration, cost, energy and latency in an expeditious manner. In order to expedite decision-making involved in the complex computation and processing of collected data, IoT devices are connected to the cloud or fog environment. Since machine learning as a service provides the best support in business intelligence, organizations have been making significant investments in this technology. Machine Learning Approach for Cloud Data Analytics in IoT elucidates some of the best practices and their respective outcomes in cloud and fog computing environments. It focuses on all the various research issues related to big data storage and analysis, large-scale data processing, knowledge discovery and knowledge management, computational intelligence, data security and privacy, data representation and visualization, and data analytics. The featured technologies presented in the book optimizes various industry processes using business intelligence in engineering and technology. Light is also shed on cloud-based embedded software development practices to integrate complex machines so as to increase productivity and reduce operational costs. The various practices of data science and analytics which are used in all sectors to understand big data and analyze massive data patterns are also detailed in the book.
	**From AI to Autonomous and Connected Vehicles: Advanced Driver-Assistance Systems (ADAS)**	Abdelaziz Bensrhair, Thierry Bapin	The Institution of Engineering and Technology	2021	978-1-119-85548-4	LINK	The main topic of this book is the recent development of on-board advanced driver-assistance systems (ADAS), which we can already tell will eventually contribute to the autonomous and connected vehicles of tomorrow. With the development of automated mobility, it becomes necessary to design a series of modules which, from the data produced by on-board or remote information sources, will enable the construction of a completely automated driving system. These modules are perception, decision and action. State-of-the-art AI techniques and their potential applications in the field of autonomous vehicles are described. Perception systems, focusing on visual sensors, the decision module and the prototyping, testing and evaluation of ADAS systems are all presented for effective implementation on autonomous and connected vehicles. This book also addresses cooperative systems, such as pedestrian detection, as well as the legal issues in the use of autonomous vehicles in open environments.
	**Intelligent Security Systems**	Leon Reznik	The Institution of Engineering and Technology	2021	978-1-119-77156-2	LINK	In Intelligent Security Systems, distinguished professor and computer scientist Dr. Leon Reznik delivers an expert synthesis of artificial intelligence, machine learning and data science techniques, applied to computer security to assist readers in hardening their computer systems against threats. Emphasizing practical and actionable strategies that can be immediately implemented by industry professionals and computer device's owners, the author explains how to install and harden firewalls, intrusion detection systems, attack recognition tools, and malware protection systems. He also explains how to recognize and counter common hacking activities. This book bridges the gap between cybersecurity education and new data science programs, discussing how cutting-edge artificial intelligence and machine learning techniques can work for and against cybersecurity efforts.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Machine Learning Algorithms and Applications**	Mettu Srinivas, G. Sucharitha, Anjanna Matta	The Institution of Engineering and Technology	2021	978-1-119-76924-8	LINK	Machine Learning Algorithms is for current and ambitious machine learning specialists looking to implement solutions to real-world machine learning problems. It talks entirely about the various applications of machine and deep learning techniques, with each chapter dealing with a novel approach of machine learning architecture for a specific application, and then compares the results with previous algorithms. The book discusses many methods based in different fields, including statistics, pattern recognition, neural networks, artificial intelligence, sentiment analysis, control, and data mining, in order to present a unified treatment of machine learning problems and solutions. All learning algorithms are explained so that the user can easily move from the equations in the book to a computer program.
	**Security and its Challenges in the 21st Century**	Claudine Guerrier	The Institution of Engineering and Technology	2021	978-1-119-85482-1	LINK	By the year 2000, a balance was sought between security requirements and a respect for privacy, as well as for individual and collective freedoms. As we progress further into the 21st century, however, security is taking precedence within an increasingly controlled society. This shift is due to advances in innovative technologies and the investments made by commercial companies to drive constant technological progress. Despite the implementation of the General Data Protection Regulation (GDPR) within the EU in 2018 or 2020's California Consumer Privacy Act (CCPA), regulatory bodies do not have the ability to fully manage the consequences presented by emerging technologies. Security and Its Challenges in the 21st Century provides students and researchers with an international legal and geopolitical analysis; it is also intended for those interested in societal development, artificial intelligence, smart cities and quantum cryptology.
	**SQL for Data Scientists: A Beginner's Guide for Building Datasets for Analysis**	Renee M. P. Teate	The Institution of Engineering and Technology	2021	978-1-119-66939-5	LINK	TSQL for Data Scientists: A Beginner's Guide for Building Datasets for Analysis is a resource that's dedicated to the Structured Query Language (SQL) and dataset design skills that data scientists use most. Aspiring data scientists will learn how to how to construct datasets for exploration, analysis, and machine learning. You can also discover how to approach query design and develop SQL code to extract data insights while avoiding common pitfalls. You may be one of many people who are entering the field of Data Science from a range of professions and educational backgrounds, such as business analytics, social science, physics, economics, and computer science. Like many of them, you may have conducted analyses using spreadsheets as data sources, but never retrieved and engineered datasets from a relational database using SQL, which is a programming language designed for managing databases and extracting data. This guide for data scientists differs from other instructional guides on the subject. It doesn't cover SQL broadly. Instead, you'll learn the subset of SQL skills that data analysts and data scientists use frequently. You'll also gain practical advice and direction on "how to think about constructing your dataset." Gain an understanding of relational database structure, query design, and SQL syntax Develop queries to construct datasets for use in applications like interactive reports and machine learning algorithms Review strategies and approaches so you can design analytical datasets Practice your techniques with the provided database and SQL code In this book, author Renee Teate shares knowledge gained during a 15-year career working with data, in roles ranging from database developer to data analyst to data scientist. She guides you through SQL code and dataset design concepts from an industry practitioner's perspective, moving your data scientist career forward!
	**Hybrid Renewable Energy Systems**	Umakanta Sahoo	The Institution of Engineering and Technology	2021	978-1-119-55561-2	LINK	The energy scene in the world is a complex picture of a variety of energy sources being used to meet the world's growing energy needs. There is, however, a gap in the demand and supply. It is recognized that decentralized power generation based on the various renewable energy technologies can, to some extent, help in meeting the growing energy needs. The renewable energy landscape has witnessed tremendous changes in the policy framework with accelerated and ambitious plans to increase the contribution of renewable energy such as solar, wind, bio-power, and others. Hybrid renewable energy systems are important for continuous operation and supplements each form of energy seasonally, offering several benefits over a stand-alone system. It can enhance capacity and lead to greater security of continuous electricity supply, among other applications. This book provides a platform for researchers, academics, industry professionals, consultants and designers to discover state-of-the-art developments and challenges in the field of hybrid renewable energy. Written by a team of experts and edited by one of the top researchers in hybrid renewable systems, this volume is a must-have for any engineer, scientist, or student working in this field, providing a valuable reference and guide in a quickly emerging field.

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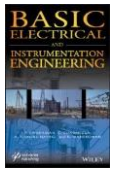
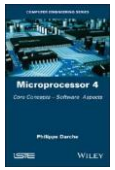
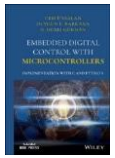
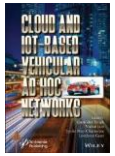
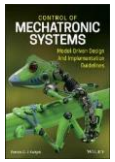
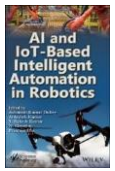
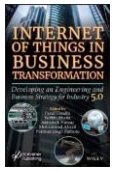
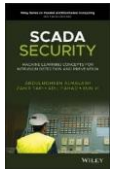
	**Basic Electrical and Instrumentation Engineering**	P. Sivaraman, C. Sharmeela, A. Thaiyal Nayagi, R. Mahendran	The Institution of Engineering and Technology	2020	978-1-119-76512-7	LINK	Electrical and instrumentation engineering is changing rapidly, and it is important for the veteran engineer in the field not only to have a valuable and reliable reference work which he or she can consult for basic concepts, but also to be up to date on any changes to basic equipment or processes that might have occurred in the field. Covering all of the basic concepts, from three-phase power supply and its various types of connection and conversion, to power equation and discussions of the protection of power system, to transformers, voltage regulation, and many other concepts, this volume is the one-stop, "go to" for all of the engineer's questions on basic electrical and instrumentation engineering. There are chapters covering the construction and working principle of the DC machine, all varieties of motors, fundamental concepts and operating principles of measuring, and instrumentation, both from a "high end" point of view and the point of view of developing countries, emphasizing low-cost methods. A valuable reference for engineers, scientists, chemists, and students, this volume is applicable to many different fields, across many different industries, at all levels. It is a must-have for any library.
	**Microprocessor 4: Core Concepts - Software Aspects**	Philippe Darche	The Institution of Engineering and Technology	2020	978-1-119-80196-2	LINK	Since its commercialization in 1971, the microprocessor, a modern and integrated form of the central processing unit, has continuously broken records in terms of its integrated functions, computing power, low costs and energy saving status. Today, it is present in almost all electronic devices. Sound knowledge of its internal mechanisms and programming is essential for electronics and computer engineers to understand and master computer operations and advanced programming concepts. This book in five volumes focuses more particularly on the first two generations of microprocessors, those that handle 4- and 8- bit integers. Microprocessor 4 – the fourth of five volumes – addresses the software aspects of this component. Coding of an instruction, addressing modes and the main features of the Instruction Set Architecture (ISA) of a generic component are presented. Futhermore, two approaches are discussed for altering the flow of execution using mechanisms of subprogram and interrupt. A comprehensive approach is used, with examples drawn from current and past technologies that illustrate theoretical concepts, making them accessible.
	**Embedded Digital Control with Microcontrollers: Implementation with C and Pytho**	Cem Unsalan, Duygun E. Barkana, H. Deniz Gurhan	The Institution of Engineering and Technology	2021	978-1-119-57655-6	LINK	Explore a concise and practical introduction to implementation methods and the theory of digital control systems on microcontrollers Embedded Digital Control with Microcontrollers delivers expert instruction in digital control system implementation techniques on the widely used ARM Cortex-M microcontroller. The accomplished authors present the included information in three phases. First, they describe how to implement prototype digital control systems via the Python programming language in order to help the reader better understand theoretical digital control concepts. Second, the book offers readers direction on using the C programming language to implement digital control systems on actual microcontrollers. This will allow readers to solve real-life problems involving digital control, robotics, and mechatronics. Finally, readers will learn how to merge the theoretical and practical issues discussed in the book by implementing digital control systems in real-life applications. Throughout the book, the application of digital control systems using the Python programming language ensures the reader can apply the theory contained within. Readers will also benefit from the inclusion of: - A thorough introduction to the hardware used in the book, including STM32 Nucleo Development Boards and motor drive expansion boards - An exploration of the software used in the book, including Python, MicroPython, and Mbed - Practical discussions of digital control basics, including discrete-time signals, discrete-time systems, linear and time-invariant systems, and constant coefficient difference equations - An examination of how to represent a continuous-time system in digital form, including analog-to-digital conversion and digital-to-analog conversion Perfect for undergraduate students in electrical engineering, Embedded Digital Control with Microcontrollers will also earn a place in the libraries of professional engineers and hobbyists working on digital control and robotics systems seeking a one-stop reference for digital control systems on microcontrollers.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**High Performance Control of AC Drives with Matlab/Simulink, 2nd Edition**	Haitham Abu-Rub, Atif Iqbal, Jaroslaw Guzinski	The Institution of Engineering and Technology	2021 (2nd Edition)	978-1-119-59132-0	LINK	The Second Edition of High Performance Control of AC Drives with Matlab®/Simulink delivers an updated and thorough overview of topics central to the understanding of AC motor drive systems. The book includes new material on medium voltage drives, covering state-of-the-art technologies and challenges in the industrial drive system, as well as their components, and control, current source inverter-based drives, PWM techniques for multilevel inverters, and low switching frequency modulation for voltage source inverters. This book covers three-phase and multiphase (more than three-phase) motor drives including their control and practical problems faced in the field (e.g., adding LC filters in the output of a feeding converter), are considered. The new edition contains links to Matlab®/Simulink models and PowerPoint slides ideal for teaching and understanding the material contained within the book. Readers will also benefit from the inclusion of: - A thorough introduction to high performance drives, including the challenges and requirements for electric drives and medium voltage industrial applications - An exploration of mathematical and simulation models of AC machines, including DC motors and squirrel cage induction motors - A treatment of pulse width modulation of power electronic DC-AC converter, including the classification of PWM schemes for voltage source and current source inverters - Examinations of harmonic injection PWM and field-oriented control of AC machines - Voltage source and current source inverter-fed drives and their control - Modelling and control of multiphase motor drive system - Supported with a companion website hosting online resources. Perfect for senior undergraduate, MSc and PhD students in power electronics and electric drives, High Performance Control of AC Drives with Matlab®/Simulink will also earn a place in the libraries of researchers working in the field of AC motor drives and power electronics engineers in industry.
	**Cloud and IoT-Based Vehicular Ad Hoc Networks**	Gurinder Singh, Vishal Jain, Jyotir Moy Chatterjee, Loveleen Gaur	The Institution of Engineering and Technology	2021	978-1-119-76182-2	LINK	As technology continues to weave itself more tightly into everyday life, socioeconomic development has become intricately tied to ever-evolving innovations. An example of this is the technology being developed to address the massive increase in the number of vehicles on the road, which has resulted in more traffic congestion and road accidents. This challenge is being addressed by developing new technologies to optimize traffic management operations. This book describes the state-of-the-art of the recent developments of Internet of Things (IoT) and cloud computing-based concepts that have been introduced to improve Vehicular Ad-Hoc Networks (VANET) with advanced cellular networks such as 5G networks and vehicular cloud concepts. 5G cellular networks provide consistent, faster and more reliable connections within the vehicular mobile nodes. By 2030, 5G networks will deliver the virtual reality content in VANET which will support vehicle navigation with real time communications capabilities, improving road safety and enhanced passenger comfort.
	**Control of Mechatronic Systems: Model-Driven Design and Implementation Guidelines**	Patrick O. J. Kaltjob	The Institution of Engineering and Technology	2020	978-1-119-50575-4	LINK	Implementing digital control within mechanical-electronic (mechatronic) systems is essential to respond to the growing demand for high-efficiency machines and processes. In practice, the most efficient digital control often integrates time-driven and event-driven characteristics within a single control scheme. However, most of the current engineering literature on the design of digital control systems presents discrete-time systems and discrete-event systems separately. Control Of Mechatronic Systems: Model-Driven Design And Implementation Guidelines unites the two systems, revisiting the concept of automated control by presenting a unique practical methodology for whole-system integration. With its innovative hybrid approach to the modeling, analysis, and design of control systems, this text provides material for mechatronic engineering and process automation courses, as well as for self-study across engineering disciplines. Real-life design problems and automation case studies help readers transfer theory to practice, whether they are building single machines or large-scale industrial systems.
	**AI and IoT-Based Intelligent Automation in Robotics**	Ashutosh Kumar Dubey, Abhishek Kumar, S. Rakesh Kumar, N. Gayathri, Prasenjit Das	The Institution of Engineering and Technology	2021	978-1-119-71122-3	LINK	The 24 chapters in this book provides a deep overview of robotics and the application of AI and IoT in robotics. It contains the exploration of AI and IoT based intelligent automation in robotics. The various algorithms and frameworks for robotics based on AI and IoT are presented, analyzed, and discussed. This book also provides insights on application of robotics in education, healthcare, defense and many other fields which utilize IoT and AI. It also introduces the idea of smart cities using robotics.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**The Controller's Toolkit**	Christine H. Doxey	The Institution of Engineering and Technology	2021	978-1-119-70065-4	LINK	The Controller's Toolkit delivers a one-of-a-kind collection of templates, checklists, review sheets, internal controls, policies, and procedures that will form a solid foundation for any new or established financial controller. You'll get the tools and information you need to master areas like business ethics, corporate governance, regulatory compliance, risk management, security, IT processes, and financial operations. All of the tools contained in this indispensable book were recommended by corporate and business unit controllers from small to medium-sized companies and large, multinational firms. You will benefit from master-level guidance in areas like: -Ethics, Codes of Conduct, and the "Tone at the Top" to support ethical behavior -The operational and financial aspects of corporate governance -The importance of the Committee of Sponsoring Organizations of the Treadway Commission Framework -The requirement for entity-level controls -The importance of linking the business plan with the budget process The Controller's Toolkit also belongs on the bookshelves of finance and accounting students, executives, and managers who wish to know more about the often-complex world of financial controls.
	**Internet of Things in Business Transformation: Developing an Engineering and Business Strategy for Industry 5.0**	Parul Gandhi, Surbhi Bhatia, Abhishek Kumar, Mohammad Ali Alojail, Pramod Singh Rathore	The Institution of Engineering and Technology	2020	978-1-119-71113-1	LINK	The objective of this book is to teach what IoT is, how it works, and how it can be successfully utilized in business. This book helps to develop and implement a powerful IoT strategy for business transformation as well as project execution. Digital change, business creation/change and upgrades in the ways and manners in which we work, live, and engage with our clients and customers, are all enveloped by the Internet of Things which is now named "Industry 5.0" or "Industrial Internet of Things." The sheer number of IoT(a billion+), demonstrates the advent of an advanced business society led by sustainable robotics and business intelligence. This book will be an indispensable asset in helping businesses to understand the new technology and thrive.
	**Cloud Technologies: An Overview of Cloud Computing Technologies for Managers**	Roger McHaney	The Institution of Engineering and Technology	2021	978-1-119-76950-7	LINK	Cloud Technologies offers an accessible guide to cloud-based systems and clearly explains how these technologies have changed the way organizations approach and implement their computing infrastructure. The author includes an overview of cloud computing and addresses business-related considerations such as service level agreements, elasticity, security, audits, and practical implementation issues. In addition, the book covers important topics such as automation, infrastructure as code, DevOps, orchestration, and edge computing.
	**SCADA Security: Machine Learning Concepts for Intrusion Detection and Prevention**	Abdulmohsen Almalawi, Zahir Tari, Adil Fahad, Xun Yi	The Institution of Engineering and Technology	2020	978-1-119-60635-2	LINK	Examines the design and use of Intrusion Detection Systems (IDS) to secure Supervisory Control and Data Acquisition (SCADA) systems Cyber-attacks on SCADA systems—the control system architecture that uses computers, networked data communications, and graphical user interfaces for high-level process supervisory management—can lead to costly financial consequences or even result in loss of life. Minimizing potential risks and responding to malicious actions requires innovative approaches for monitoring SCADA systems and protecting them from targeted attacks. SCADA Security: Machine Learning Concepts for Intrusion Detection and Prevention is designed to help security and networking professionals develop and deploy accurate and effective Intrusion Detection Systems (IDS) for SCADA systems that leverage autonomous machine learning. Providing expert insights, practical advice, and up-to-date coverage of developments in SCADA security, this authoritative guide presents a new approach for efficient unsupervised IDS driven by SCADA-specific data. Organized into eight in-depth chapters, the text first discusses how traditional IT attacks can also be possible against SCADA, and describes essential SCADA concepts, systems, architectures, and main components. Following chapters introduce various SCADA security frameworks and approaches, including evaluating security with virtualization-based SCADAVT, using SDAD to extract proximity-based detection, finding a global and efficient anomaly threshold with GATUD, and more. This important book: - Provides diverse perspectives on establishing an efficient IDS approach that can be implemented in SCADA systems - Describes the relationship between main components and three generations of SCADA systems - Explains the classification of a SCADA IDS based on its architecture and implementation - Surveys the current literature in the field and suggests possible directions for future research SCADA Security: Machine Learning Concepts for Intrusion Detection and Prevention is a must-read for all SCADA security and networking researchers, engineers, system architects, developers, managers, lecturers, and other SCADA security industry practitioners.

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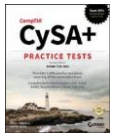
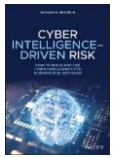
	**Machine Learning for Time Series Forecasting with Python**	Francesca Lazzeri	The Institution of Engineering and Technology	2020	978-1-119-68238-7	LINK	Learn how to apply the principles of machine learning to time series modeling with this indispensable resource Machine Learning for Time Series Forecasting with Python is an incisive and straightforward examination of one of the most crucial elements of decision-making in finance, marketing, education, and healthcare: time series modeling. Despite the centrality of time series forecasting, few business analysts are familiar with the power or utility of applying machine learning to time series modeling. Author Francesca Lazzeri, a distinguished machine learning scientist and economist, corrects that deficiency by providing readers with comprehensive and approachable explanation and treatment of the application of machine learning to time series forecasting. Written for readers who have little to no experience in time series forecasting or machine learning, the book comprehensively covers all the topics necessary to: - Understand time series forecasting concepts, such as stationarity, horizon, trend, and seasonality - Prepare time series data for modeling - Evaluate time series forecasting models' performance and accuracy - Understand when to use neural networks instead of traditional time series models in time series forecasting Machine Learning for Time Series Forecasting with Python is full real-world examples, resources and concrete strategies to help readers explore and transform data and develop usable, practical time series forecasts. Perfect for entry-level data scientists, business analysts, developers, and researchers, this book is an invaluable and indispensable guide to the fundamental and advanced concepts of machine learning applied to time series modeling.
	**CompTIA CySA+ Practice Tests: Exam CS0-002, 2nd Edition**	Mike Chapple, David Seidl	The Institution of Engineering and Technology	2020	978-1-119-68404-6	LINK	Efficiently prepare yourself for the demanding CompTIA CySA+ exam CompTIA CySA+ Practice Tests: Exam CS0-002, 2nd Edition offers readers the fastest and best way to prepare for the CompTIA Cybersecurity Analyst exam. With five unique chapter tests and two additional practice exams for a total of 1000 practice questions, this book covers topics including: - Threat and Vulnerability Management - Software and Systems Security - Security Operations and Monitoring - Incident Response - Compliance and Assessment The new edition of CompTIA CySA+ Practice Tests is designed to equip the reader to tackle the qualification test for one of the most sought-after and in-demand certifications in the information technology field today. The authors are seasoned cybersecurity professionals and leaders who guide readers through the broad spectrum of security concepts and technologies they will be required to master before they can achieve success on the CompTIA CySA exam. The book also tests and develops the critical thinking skills and judgment the reader will need to demonstrate on the exam.
	**Cyber Intelligence-Driven Risk: How to Build and Use Cyber Intelligence for Business Risk Decisions**	Richard O. Moore III	The Institution of Engineering and Technology	2020	978-1-119-67689-8	LINK	Turn cyber intelligence into meaningful business decisions and reduce losses from cyber events Cyber Intelligence-Driven Risk provides a solution to one of the most pressing issues that executives and risk managers face: How can we weave information security into our business decisions to minimize overall business risk? In today's complex digital landscape, business decisions and cyber event responses have implications for information security that high-level actors may be unable to foresee. What we need is a cybersecurity command center capable of delivering, not just data, but concise, meaningful interpretations that allow us to make informed decisions. Building, buying, or outsourcing a CI-DR™ program is the answer. In his work with executives at leading financial organizations and with the U.S. military, author Richard O. Moore III has tested and proven this next-level approach to Intelligence and Risk. This book is a guide to: - Building, buying, or outsourcing a cyber intelligence–driven risk program - Understanding the functional capabilities needed to sustain the program - Using cyber intelligence to support Enterprise Risk Management - Reducing loss from cyber events by building new organizational capacities - Supporting mergers and acquisitions with predictive analytics Each function of a well-designed cyber intelligence-driven risk program can support informed business decisions in the era of increased complexity and emergent cyber threats.

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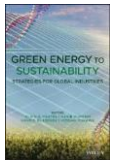
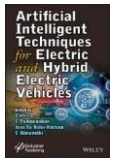
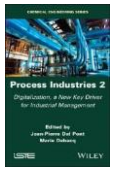
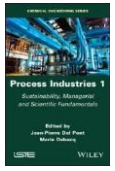
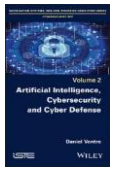
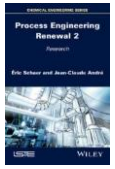
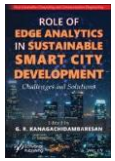
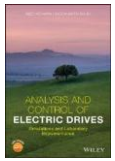
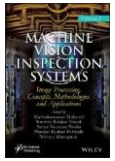
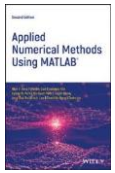
	**Green Energy to Sustainability: Strategies for Global Industries**	Alain A. Vertes, Nasib Qureshi, Hans P. Blaschek, Hideaki Yukawa	The Institution of Engineering and Technology	2020	978-1-119-15204-0	LINK	Reviews the latest advances in biofuel manufacturing technologies and discusses the deployment of other renewable energy for transportation Aimed at providing an interface useful to business and scientific managers, this book focuses on the key challenges that still impede the realization of the billion-ton renewable fuels vision. It places great emphasis on a global view of the topic, reviewing deployment and green energy technology in different countries across Africa, Asia, South America, the EU, and the USA. It also integrates scientific, technological, and business development perspectives to highlight the key developments that are necessary for the global replacement of fossil fuels with green energy solutions. Green Energy to Sustainability: Strategies for Global Industries examines the most recent developments in biofuel manufacturing technologies in light of business, financial, value chain, and supply chain concerns. It also covers the use of other renewable energy sources like solar energy for transportation and proposes a view of the challenges over the next two to five decades, and how these will deeply modify the industrial world in the third millennium. The coming of age of electric vehicles is also looked at, as is the impact of their deployment on the biomass to biofuels value chain.
	**Introduction to Programming with C++ for Engineers**	Boguslaw Cyganek	The Institution of Engineering and Technology	2020	978-1-119-43113-8	LINK	A complete textbook and reference for engineers to learn the fundamentals of computer programming with modern C++ Introduction to Programming with C++ for Engineers is an original presentation teaching the fundamentals of computer programming and modern C++ to engineers and engineering students. Professor Cyganek, a highly regarded expert in his field, walks users through basics of data structures and algorithms with the help of a core subset of C++ and the Standard Library, progressing to the object-oriented domain and advanced C++ features, computer arithmetic, memory management and essentials of parallel programming, showing with real world examples how to complete tasks. He also guides users through the software development process, good programming practices, not shunning from explaining low-level features and the programming tools. Being a textbook, with the summarizing tables and diagrams the book becomes a highly useful reference for C++ programmers at all levels.
	**Security Engineering: A Guide to Building Dependable Distributed Systems**	Ross Anderson	The Institution of Engineering and Technology	2020	978-1-119-64281-7	LINK	Now that there's software in everything, how can you make anything secure? Understand how to engineer dependable systems with this newly updated classic In Security Engineering: A Guide to Building Dependable Distributed Systems, Third Edition Cambridge University professor Ross Anderson updates his classic textbook and teaches readers how to design, implement, and test systems to withstand both error and attack. This book became a best-seller in 2001 and helped establish the discipline of security engineering. By the second edition in 2008, underground dark markets had let the bad guys specialize and scale up; attacks were increasingly on users rather than on technology. The book repeated its success by showing how security engineers can focus on usability. Now the third edition brings it up to date for 2020. As people now go online from phones more than laptops, most servers are in the cloud, online advertising drives the Internet and social networks have taken over much human interaction, many patterns of crime and abuse are the same, but the methods have evolved. Ross Anderson explores what security engineering means in 2020, including: How the basic elements of cryptography, protocols, and access control translate to the new world of phones, cloud services, social media and the Internet of Things Who the attackers are – from nation states and business competitors through criminal gangs to stalkers and playground bullies What they do – from phishing and carding through SIM swapping and software exploits to DDoS and fake news Security psychology, from privacy through ease-of-use to deception The economics of security and dependability – why companies build vulnerable systems and governments look the other way How dozens of industries went online – well or badly How to manage security and safety engineering in a world of agile development – from reliability engineering to DevSecOps The third edition of Security Engineering ends with a grand challenge: sustainable security. As we build ever more software and connectivity into safety-critical durable goods like cars and medical devices, how do we design systems we can maintain and defend for decades? Or will everything in the world need monthly software upgrades, and become unsafe once they stop?
	**Artificial Intelligent Techniques for Electric and Hybrid Electric Vehicles**	Chitra A., S. Padmanaban, Jens Bo Holm-Nielsen, S. Himavathi	The Institution of Engineering and Technology	2020	978-1-119-68190-8	LINK	Electric vehicles are changing transportation dramatically and this unique book merges the many disciplines that contribute research to make EV possible, so the reader is informed about all the underlying science and technologies driving the change. An emission-free mobility system is the only way to save the world from the greenhouse effect and other ecological issues. This belief has led to a tremendous growth in the demand for electric vehicles (EV) and hybrid electric vehicles (HEV), which are predicted to have a promising future based on the goals fixed by the European Commission's Horizon 2020 program. This book brings together the research that has been carried out in the EV/HEV sector and the leading role of advanced optimization techniques with artificial intelligence (AI). This is achieved by compiling the findings of various studies in the electrical, electronics, computer, and mechanical domains for the EV/HEV system. In addition to acting as a hub for information on these research findings, the book also addresses the challenges in the EV/HEV sector and provides proven solutions that involve the most promising AI techniques. Since the commercialization of EVs/HEVs still remains a challenge in industries in terms of performance and cost, these are the two tradeoffs which need to be researched in order to arrive at an optimal solution. Therefore, this book focuses on the convergence of various technologies involved in EVs/HEVs. Since all countries will gradually shift from conventional internal combustion (IC) engine-based vehicles to EVs/HEVs in the near future, it also serves as a useful reliable resource for multidisciplinary researchers and industry teams.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Big Data Meets Survey Science: A Collection of Innovative Methods**	Craig A. Hill, Paul P. Biemer, Trent D. Buskirk, Lilli Japec, Antje Kirchner, Stas Kolenikoy, Lars E. Lyberg	The Institution of Engineering and Technology	2020	978-1-786-30562-6	LINK	This book presents a collection of snapshots from two sides of the Big Data perspective. It assembles an array of tangible tools, methods, and approaches that illustrate how Big Data sources and methods are being used in the survey and social sciences to improve official statistics and estimates for human populations. It also provides examples of how survey data are being used to evaluate and improve the quality of insights derived from Big Data. Big Data Meets Survey Science: A Collection of Innovative Methods shows how survey data and Big Data are used together for the benefit of one or more sources of data, with numerous chapters providing consistent illustrations and examples of survey data enriching the evaluation of Big Data sources. Examples of how machine learning, data mining, and other data science techniques are inserted into virtually every stage of the survey lifecycle are presented. Topics covered include: Total Error Frameworks for Found Data; Performance and Sensitivities of Home Detection on Mobile Phone Data; Assessing Community Wellbeing Using Google Street View and Satellite Imagery; Using Surveys to Build and Assess RBS Religious Flag; and more.
	**Process Industries 2: Digitalization, a New Key Driver for Industrial Management**	Jean-Pierre Dal Pont, Marie Debacq	The Institution of Engineering and Technology	2020	978-1-786-30562-6	LINK	As a result of knowledge exchange between the academic and industrial worlds, this book analyzes the process industries impacted by the digital revolution that accompanies the ongoing energy and environmental transitions. Process Industries 2 first discusses bio-industries and analyzes the development of products of microbial origin. It then studies all the stages of industrialization that facilitate the progress from research to the production of a finished product, as well as industrial management techniques. Using concrete examples, this book presents the instruments of the digital revolution (artificial intelligence, virtual reality, augmented reality, the Internet of Things, digital twins), while analyzing their impact on the supply chain and operators. Boxes within the book, written by recognized specialists, invite both students and professionals, who are faced with a changing world, to reflect on the industry and the world of tomorrow.
	**Process Industries 1: Sustainability, Managerial and Scientific Fundamentals**	Jean-Pierre Dal Pont, Marie Debacq	The Institution of Engineering and Technology	2020	978-1-786-30442-1	LINK	Of crucial economic and societal importance, process industries transform matter by chemical, physical or biological means. They cover broad fields such as chemistry, oil, pharmacy, metallurgy and agri-food, to name a few. As a result of knowledge exchange between the academic and industrial worlds, Process Industries 1 decrypts the operations and technical management of these industries in order to formulate and manufacture products with use-value, in a sustainable way. Using concrete examples, this book presents the fundamentals for defining the reaction and purification conditions that form the basis of chemical engineering. The unit operations – the technological building blocks of the production units – are the subject of scientific and technical descriptions supplemented by numerous videos. Frameworks, written by well-known specialists, provide a deep understanding of topics related to these themes. Process Industries 1 is intended for students, teachers, professionals and decision-makers interested in learning more about these industries.
	**Artificial Intelligence, Cybersecurity and Cyber Defence**	Daniel Ventre	The Institution of Engineering and Technology	2020	978-1-786-30467-4	LINK	The aim of the book is to analyse and understand the impacts of artificial intelligence in the fields of national security and defense; to identify the political, geopolitical, strategic issues of AI; to analyse its place in conflicts and cyberconflicts, and more generally in the various forms of violence; to explain the appropriation of artificial intelligence by military organizations, but also law enforcement agencies and the police; to discuss the questions that the development of artificial intelligence and its use raise in armies, police, intelligence agencies, at the tactical, operational and strategic levels.
	**Systems and Network Infrastructure Integration: Design, Implementation, Safety and Supervision**	Saida Helali	The Institution of Engineering and Technology	2020	978-1-786-30526-8	LINK	IT infrastructures are now essential in all areas and sectors of human activity; they are the cornerstone of any information system. Thus, it is clear that the greatest of care must be given to their design, implementation, security and supervision in order to ensure optimum functionality and better performance. Within this context, Systems and Network Infrastructure Integration presents the methodological and theoretical principles necessary to successfully carry out an integration project for network and systems infrastructures. This book is aimed at anyone interested in the field of networks in general. In particular, it is intended for students of fields relating to networks and computer systems who are called upon to integrate their knowledge and skills, gained throughout their academic study, into a comprehensive project to set up a complete infrastructure, while respecting the necessary specifications.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Big Data: An Art of Decision Making**	Eglantine Schmitt	The Institution of Engineering and Technology	2020	978-1-119-77699-4	LINK	Manipulating and processing masses of digital data is never a purely technical activity. It requires an interpretative and exploratory outlook already well known in the social sciences and the humanities to convey intelligible results from data analysis algorithms and create new knowledge. Big Data is based on an inquiry of several years within Proxem, a software publisher specializing in big data processing. The book examines how data scientists explore, interpret and visualize our digital traces to make sense of them, and to produce new knowledge. Grounded in epistemology and science and technology studies, Big Data offers a reflection on data in general, and on how they help us to better understand reality and decide on our daily actions.
	**The Big R-Book: From Data Science to Learning Machines and Big Data**	Philippe J. S. De Brouwer	The Institution of Engineering and Technology	2020	978-1-119-63272-6	LINK	Written by and for practitioners, this book provides an overall introduction to R, focusing on tools and methods commonly used in data science, and placing emphasis on practice and business use. It covers a wide range of topics in a single volume, including big data, databases, statistical machine learning, data wrangling, data visualization, and the reporting of results. The topics covered are all important for someone with a science/math background that is looking to quickly learn several practical technologies to enter or transition to the growing field of data science. The Big R-Book for Professionals: From Data Science to Learning Machines and Reporting with R includes nine parts, starting with an introduction to the subject and followed by an overview of R and elements of statistics. The third part revolves around data, while the fourth focuses on data wrangling. Part 5 teaches readers about exploring data. In Part 6 we learn to build models, Part 7 introduces the reader to the reality in companies, Part 8 covers reports and interactive applications and finally Part 9 introduces the reader to big data and performance computing. It also includes some helpful appendices.
	**Process Engineering Renewal 3: Prospects**	Eric Schaer, Jean-Claude Andre	The Institution of Engineering and Technology	2020	978-1-119-75125-0	LINK	Process engineering emerged at the beginning of the 20th Century and has become an essential scientific discipline for the matter and energy processing industries. Its success is incontrovertible, with the exponential increase in techniques and innovations. Rapid advances in new technologies such as artificial intelligence, as well as current societal needs -sustainable development, climate change, renewable energy, the environment -are developments that must be taken into account in industrial renewal. Process Engineering Renewal 3 presents a prospective analysis that demonstrates the significant disruptions linked to sustainable development, global warming, etc. These constraints may trigger changes in the social regulation system, which in turn applies pressure on actors of process engineering to evolve and adapt to these developments.
	**Process Engineering Renewal 2: Research**	Eric Schaer, Jean-Claude Andre	The Institution of Engineering and Technology	2020	978-1-119-75121-2	LINK	Process engineering emerged at the beginning of the 20th Century and has become an essential scientific discipline for the matter and energy processing industries. Its success is incontrovertible, with the exponential increase in techniques and innovations. Rapid advances in new technologies such as artificial intelligence, as well as current societal needs -sustainable development, climate change, renewable energy, the environment -are developments that must be taken into account in industrial renewal. Process Engineering Renewal 2 focuses on research in process engineering, which is partly overshadowed by the sciences that contribute to its development. The external constraints of this interface science must be seen in relation to conservation, sustainable development, global warming, etc., which are linked to current success and the difficulty of taking risks in research.
	**System Architecture and Complexity: Contribution of Systems of Systems to Systems Thinking**	Jacques Printz, Daniel Krob	The Institution of Engineering and Technology	2020	978-1-119-75150-2	LINK	The emergence of a true systemic science - the systemic one - capable of rigorously addressing the many problems posed by the design and management of the evolution of modern complex systems is therefore urgently needed if wants to be able to provide satisfactory answers to the many profoundly systemic challenges that humanity will have to face at the dawn of the third millennium. This emergence is of course not easy because one can easily understand that the development of the systemic is mechanically confronted with all the classical disciplines which can all pretend to bring part of the explanations necessary to the understanding of a system and which do not naturally see a good eye a new discipline claim to encompass them in a holistic approach ... The book of Jacques Printz is therefore an extremely important contribution to this new emerging scientific and technical discipline: it is indeed first of all one of the very few "serious" works published in French and offering a good introduction to the systemic. It gives an extremely broad vision of this field, taking a thread given by the architecture of systems, in other words by the part of the systemic that is interested in the structure of systems and their design processes, which allows everyone to fully understand the issues and issues of the systemic. We can only encourage the reader to draw all the quintessence of the masterful work of Jacques Printz which mixes historical reminders explaining how the systemic emerged, introduction to key concepts of the systemic and practical examples to understand the nature and the scope of the ideas introduced.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Machine Learning for Asset Management: New Developments and Financial Applications**	Emmanuel Jurczenko	The Institution of Engineering and Technology	2020	978-1-119-75117-5	LINK	This new edited volume consists of a collection of original articles written by leading financial economists and industry experts in the area of machine learning for asset management. The chapters introduce the reader to some of the latest research developments in the area of equity, multi-asset and factor investing. Each chapter deals with new methods for return and risk forecasting, stock selection, portfolio construction, performance attribution and transaction costs modeling. This volume will be of great help to portfolio managers, asset owners and consultants, as well as academics and students who want to improve their knowledge of machine learning in asset management.
	**Role of Edge Analytics in Sustainable Smart City Development: Challenges and Solutions**	G. R. Kanagachidambaresan	The Institution of Engineering and Technology	2020	978-1-119-68130-4	LINK	Efficient Single Board Computers (SBCs) and advanced VLSI systems have resulted in edge analytics and faster decision making. The QoS parameters like energy, delay, reliability, security, and throughput should be improved on seeking better intelligent expert systems. The resource constraints in the Edge devices, challenges the researchers to meet the required QoS. Since these devices and components work in a remote unattended environment, an optimum methodology to improve its lifetime has become mandatory. Continuous monitoring of events is mandatory to avoid tragic situations; it can only be enabled by providing high QoS. The applications of IoT in digital twin development, health care, traffic analysis, home surveillance, intelligent agriculture monitoring, defense and all common day to day activities have resulted in pioneering embedded devices, which can offer high computational facility without much latency and delay. The book address industrial problems in designing expert system and IoT applications. It provides novel survey and case study report on recent industrial approach towards Smart City development.
	**Analysis and Control of Electric Drives: Simulations and Laboratory Implementation**	Ned Mohan, Siddharth Raju	The Institution of Engineering and Technology	2020	978-1-119-58455-1	LINK	Analysis and Control of Electric Drives is a practical and comprehensive text that offers a clear understanding of electric drives and their industrial applications in the real-world including electric vehicles and wind turbines. The authors—noted experts on the topic—review the basic knowledge needed to understand electric drives and include the pertinent material that examines DC and AC machines in steady state using a unique physics-based approach. The book also analyzes electric machine operation under dynamic conditions, assisted by Space Vectors.
	**Machine Learning and Cognitive Computing for Mobile Communications and Wireless Networks**	Krishna Kant Singh, Akansha Singh, Korhan Cengiz, Dac-Nhuong Le	The Institution of Engineering and Technology	2020	978-1-119-64057-8	LINK	Communication and network technology has witnessed recent rapid development and numerous information services and applications have been developed globally. These technologies have high impact on society and the way people are leading their lives. The advancement in technology has undoubtedly improved the quality of service and user experience yet a lot needs to be still done. Some areas that still need improvement include seamless wide-area coverage, high-capacity hot-spots, low-power massive-connections, low-latency and high-reliability and so on. Thus, it is highly desirable to develop smart technologies for communication to improve the overall services and management of wireless communication. Machine learning and cognitive computing have converged to give some groundbreaking solutions for smart machines. With these two technologies coming together, the machines can acquire the ability to reason similar to the human brain. The research area of machine learning and cognitive computing cover many fields like psychology, biology, signal processing, physics, information theory, mathematics, and statistics that can be used effectively for topology management. Therefore, the utilization of machine learning techniques like data analytics and cognitive power will lead to better performance of communication and wireless systems.
	**Cryptocurrencies and Blockchain Technology Applications**	Gulshan Shrivastava, Dac-Nhuong Le, Kavita Sharma	The Institution of Engineering and Technology	2020	978-1-119-62115-7	LINK	As we enter the Industrial Revolution 4.0, demands for an increasing degree of trust and privacy protection continue to be voiced. The development of blockchain technology is very important because it can help frictionless and transparent financial transactions and improve the business experience, which in turn has far-reaching effects for economic, psychological, educational and organizational improvements in the way we work, teach, learn and care for ourselves and each other. Blockchain is an eccentric technology, but at the same time, the least understood and most disruptive technology of the day. This book covers the latest technologies of cryptocurrencies and blockchain technology and their applications. This book discusses the blockchain and cryptocurrencies related issues and also explains how to provide the security differently through an algorithm, framework, approaches, techniques and mechanisms. A comprehensive understanding of what blockchain is and how it works, as well as insights into how it will affect the future of your organization and industry as a whole and how to integrate blockchain technology into your business strategy. In addition, the book explores the blockchain and its with other technologies like Internet of Things, big data and artificial intelligence, etc.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Modeling and Design of Secure Internet of Things**	Charles A. Kamhoua, Laurent L. Njilla, Alexander Kott, Sachin Shetty	The Institution of Engineering and Technology	2020	978-1-119-59339-3	LINK	An essential guide to the modeling and design techniques for securing systems that utilize the Internet of Things Modeling and Design of Secure Internet of Things offers a guide to the underlying foundations of modeling secure Internet of Things' (IoT) techniques. The contributors—noted experts on the topic—also include information on practical design issues that are relevant for application in the commercial and military domains. They also present several attack surfaces in IoT and secure solutions that need to be developed to reach their full potential. The book offers material on security analysis to help with in understanding and quantifying the impact of the new attack surfaces introduced by IoT deployments. The authors explore a wide range of themes including: modeling techniques to secure IoT, game theoretic models, cyber deception models, moving target defense models, adversarial machine learning models in military and commercial domains, and empirical validation of IoT platforms. This important book: Presents information on game-theory analysis of cyber deception Includes cutting-edge research finding such as IoT in the battlefield, advanced persistent threats, and intelligent and rapid honeynet generation Contains contributions from an international panel of experts Addresses design issues in developing secure IoT including secure SDN-based network orchestration, networked device identity management, multi-domain battlefield settings, and smart cities Written for researchers and experts in computer science and engineering, Modeling and Design of Secure Internet of Things contains expert contributions to provide the most recent modeling and design techniques for securing systems that utilize Internet of Things.
	**Computer Network Security**	Ali Sadiqui	The Institution of Engineering and Technology	2020	978-1-119-70672-4	LINK	Developed in collaboration with a training and certification team from Cisco, Computer Network Security is an exploration of the state-of-the-art and good practices in setting up a secure computer system. Concrete examples are offered in each chapter, to help the reader to master the concept and apply the security configuration. This book is intended for students preparing for the CCNA Security Exam (210-260 IINS) ? whether at professional training centers, technical faculties, or training centers associated with the 'Cisco Academy"program. It is also relevant to anyone interested in computer security, be they professionals in this field or users who want to identify the threats and vulnerabilities of a network to ensure better security.
	**Tribe of Hackers Security Leaders. Tribal Knowledge from the best in Cybersecurity Leadership**	Marcus J. Carey, Jennifer Jin	The Institution of Engineering and Technology	2020	978-1-119-64376-0	LINK	Tribal Knowledge from the Best in Cybersecurity Leadership The Tribe of Hackers series continues, sharing what CISSPs, CISOs, and other security leaders need to know to build solid cybersecurity teams and keep organizations secure. Dozens of experts and influential security specialists reveal their best strategies for building, leading, and managing information security within organizations. Tribe of Hackers Security Leaders follows the same bestselling format as the original Tribe of Hackers, but with a detailed focus on how information security leaders impact organizational security. Information security is becoming more important and more valuable all the time. Security breaches can be costly, even shutting businessesand governments down, so security leadership is a high-stakes game. Leading teams of hackers is not always easy, but the future of your organization may depend on it. In this book, the world's top security experts answer the questions that Chief Information Security Officers and other security leaders are asking, including: What's the most important decision you've made or action you've taken to enable a business risk? How do you lead your team to execute and get results? Do you have a workforce philosophy or unique approach to talent acquisition? Have you created a cohesive strategy for your information security program or business unit? Anyone in or aspiring to an information security leadership role, whether at a team level or organization-wide, needs to read this book. Tribe of Hackers Security Leaders has the real-world advice and practical guidance you need to advance your cybersecurity leadership career.
	**Machine Vision Inspection Systems. Image Processing, Concepts, Methodologies and Applications**	Muthukumaran Malarvel, Soumya Ranjan Nayak, Surya Narayan Panda, Prasant Kumar Pattnaik, Nittaya Muangnak	The Institution of Engineering and Technology	2020	978-1-119-68209-7	LINK	This edited book brings together leading researchers, academic scientists and research scholars to put forward and share their experiences and research results on all aspects of an inspection system for detection analysis for various machine vision applications. It also provides a premier interdisciplinary platform to present and discuss the most recent innovations, trends, methodology, applications, and concerns as well as practical challenges encountered and solutions adopted in the inspection system in terms of image processing and analytics of machine vision for real and industrial application. Machine vision inspection systems (MVIS) utilized all industrial and non-industrial applications where the execution of their utilities based on the acquisition and processing of images. MVIS can be applicable in industry, governmental, defense, aerospace, remote sensing, medical, and academic/education applications but constraints are different. MVIS entails acceptable accuracy, high reliability, high robustness, and low cost. Image processing is a well-defined transformation between human vision and image digitization, and their techniques are the foremost way to experiment in the MVIS. The digital image technique furnishes improved pictorial information by processing the image data through machine vision perception. Digital image pro-cessing has widely been used in MVIS applications and it can be employed to a wide diversity of problems particularly in Non-Destructive testing (NDT), presence/absence detection, defect/fault detection (weld, textile, tiles, wood, etc.,), automated vision test & measurement, pattern matching, optical character recognition & verification (OCR/OCV), barcode reading and traceability, medical diagnosis, weather forecasting, face recognition, defence and space research, etc. This edited book is designed to address various aspects of recent methodologies, concepts and research plan out to the readers for giving more depth insights for perusing research on machine vision using image processing techniques.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Cyber Breach Response That Actually Works: Organizational Approach to Managing Residual Risk**	Andrew Gorecki	The Institution of Engineering and Technology	2020	978-1-119-67931-8	LINK	You will be breached—the only question is whether you'll be ready A cyber breach could cost your organization millions of dollars—in 2019, the average cost of a cyber breach for companies was $3.9M, a figure that is increasing 20-30% annually. But effective planning can lessen the impact and duration of an inevitable cyberattack. Cyber Breach Response That Actually Works provides a business-focused methodology that will allow you to address the aftermath of a cyber breach and reduce its impact to your enterprise. This book goes beyond step-by-step instructions for technical staff, focusing on big-picture planning and strategy that makes the most business impact. Inside, you'll learn what drives cyber incident response and how to build effective incident response capabilities. Expert author Andrew Gorecki delivers a vendor-agnostic approach based on his experience with Fortune 500 organizations.
	**SQL Server Database Programming with Visual Basic.NET: Concepts, Designs and Implementations**	Ying Bai	The Institution of Engineering and Technology	2020	978-1-119-60860-8	LINK	A guide to the practical issues and applications in database programming with updated Visual Basic.NET SQL Server Database Programming with Visual Basic.NET offers a guide to the fundamental knowledge and practical techniques for the design and creation of professional database programs that can be used for real-world commercial and industrial applications. The author—a noted expert on the topic—uses the most current version of Visual Basic.NET, Visual Basic.NET 2017 with Visual Studio.NET 2017. In addition, he introduces the updated SQL Server database and Microsoft SQL Server 2017 Express. All sample program projects can be run in the most updated version, Visual Basic.NET 2019 with Visual Studio.NET 2019. Written in an accessible, down-to-earth style, the author explains how to build a sample database using the SQL Server management system and Microsoft SQL Server Management Studio 2018. The latest version of ASP.NET, ASP.NET 4.7, is also discussed to provide the most up-to-date Web database programming technologies. This important book: Offers illustrative practical examples and detailed descriptions to aid in comprehension of the material presented Includes both fundamental and advanced database programming techniques Integrates images into associated database tables using a DevExpress UI tools -WindowsUI Written for graduate and senior undergraduate students studying database implementations and programming courses, SQL Server Database Programming with Visual Basic.NET shows how to develop professional and practical database programs in Visual Basic.NET 2017/Visual Basic.NET 2019.
	**Applied Numerical Methods Using MATLAB**	Won Y. Yang, Wenwu Cao, Jaekwon Kim, Kyung W. Park, Ho-Hyun Park, Jingon Joung, Jong-Suk Ro, Han L. Lee, Cheol-Ho Hong, Taeho Im	The Institution of Engineering and Technology	2020 (2nd Edition)	978-1-119-62682-4	LINK	This new edition provides an updated approach for students, engineers, and researchers to apply numerical methods for solving problems using MATLAB® This accessible book makes use of MATLAB® software to teach the fundamental concepts for applying numerical methods to solve practical engineering and/or science problems. It presents programs in a complete form so that readers can run them instantly with no programming skill, allowing them to focus on understanding the mathematical manipulation process and making interpretations of the results. Applied Numerical Methods Using MATLAB®, Second Edition begins with an introduction to MATLAB usage and computational errors, covering everything from input/output of data, to various kinds of computing errors, and on to parameter sharing and passing, and more. The system of linear equations is covered next, followed by a chapter on the interpolation by Lagrange polynomial. The next sections look at interpolation and curve fitting, nonlinear equations, numerical differentiation/integration, ordinary differential equations, and optimization. Numerous methods such as the Simpson, Euler, Heun, Runge-kutta, Golden Search, Nelder-Mead, and more are all covered in those chapters. The eighth chapter provides readers with matrices and Eigenvalues and Eigenvectors. The book finishes with a complete overview of differential equations. Provides examples and problems of solving electronic circuits and neural networks Includes new sections on adaptive filters, recursive least-squares estimation, Bairstow's method for a polynomial equation, and more Explains Mixed Integer Linear Programing (MILP) and DOA (Direction of Arrival) estimation with eigenvectors Aimed at students who do not like and/or do not have time to derive and prove mathematical results Applied Numerical Methods Using MATLAB®, Second Edition is an excellent text for students who wish to develop their problem-solving capability without being involved in details about the MATLAB codes. It will also be useful to those who want to delve deeper into understanding underlying algorithms and equations.

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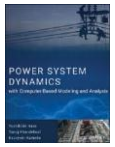
	**Systems Engineering Principles and Practice**	Alexander Kossiakoff, Steven M. Biemer, Samuel J. Seymour, David A. Flanigan	The Institution of Engineering and Technology	2020 (3rd Edition)	978-1-119-51670-5	LINK	A comprehensive and interdisciplinary guide to systems engineering Systems Engineering: Principles and Practice, 3rd Edition is the leading interdisciplinary reference for systems engineers. The up-to-date third edition provides readers with discussions of model-based systems engineering, requirements analysis, engineering design, and software design. Freshly updated governmental and commercial standards, architectures, and processes are covered in-depth. The book includes newly updated topics on: - Risk - Prototyping - Modeling and simulation - Software/computer systems engineering Examples and exercises appear throughout the text, allowing the reader to gauge their level of retention and learning. Systems Engineering: Principles and Practice was and remains the standard textbook used worldwide for the study of traditional systems engineering. The material is organized in a manner that allows for quick absorption of industry best practices and methods. Throughout the book, best practices and relevant alternatives are discussed and compared, encouraging the reader to think through various methods like a practicing systems engineer.
	**The Master Guide to Controllers' Best Practices**	Elaine Stattler; Joyce Anne Grabel	The Institution of Engineering and Technology	2020 (2nd Edition)	978-1-119-72333-2	LINK	The essential guide for today's savvy controllers Today's controllers are in leadership roles that put them in the unique position to see across all aspects of the operations they support. The Master Guide to Controllers' Best Practices, Second Edition has been revised and updated to provide controllers with the information they need to successfully monitor their organizations' internal control environments and offer direction and consultation on internal control issues. In addition, the authors include guidance to help controllers carryout their responsibilities to ensure that all financial accounts are reviewed for reasonableness and are reconciled to supporting transactions, as well as performing asset verification. Comprehensive in scope the book contains the best practices for controllers and: Reveals how to set the right tone within an organization and foster an ethical climate Includes information on risk management, internal controls, and fraud prevention Highlights the IT security controls with the key components of successful governance Examines the crucial role of the controller in corporate compliance and much more The Master Guide to Controllers' Best Practices should be on the bookshelf of every controller who wants to ensure the well-being of their organization. In addition to their traditional financial role, today's controllers (no matter how large or small their organization) are increasingly occupying top leadership positions. The revised and updated Second Edition of The Master Guide to Controllers' Best Practices provides an essential resource for becoming better skilled in such areas as strategic planning, budgeting, risk management, and business intelligence. Drawing on the most recent research on the topic, informative case studies, and tips from finance professionals, the book highlights the most important challenges controllers will face. Written for both new and seasoned controllers, the Guide offers a wide range of effective tools that can be used to improve the skills of strategic planning, budgeting, forecasting, and risk management. The book also contains a resource for selecting the right employees who have the technical knowledge, analytical expertise, and strong people skills that will support the controller's role within an organization. To advance overall corporate performance, the authors reveal how to successfully align strategy, risk management, and performance management. In addition, the Guide explains what it takes to stay ahead of emerging issues such as healthcare regulations, revenue recognition, globalization, and workforce mobility. As controllers adapt to their new leadership roles and assume more complex responsibilities, The Master Guide to Controllers' Best Practices offers an authoritative guide to the tools, practices, and ideas controllers need to excel in their profession.
	**Power System Dynamics with Computer-Based Modeling and Analysis**	Yoshihide Hase, Tanuj Khandelwal, Kazuyuki Kameda	The Institution of Engineering and Technology	2020	978-1-119-48744-9	LINK	A unique combination of theoretical knowledge and practical analysis experience Derived from Yoshihide Hase's Handbook of Power Systems Engineering, 2nd Edition, this book provides readers with everything they need to know about power system dynamics. Presented in three parts, it covers power system theories, computation theories, and how prevailed engineering platforms can be utilized for various engineering works. It features many illustrations based on ETAP to help explain the knowledge within as much as possible. Recompiling all the chapters from the previous book, Power System Dynamics with Computer Based Modeling and Analysis offers nineteen new and improved content with updated information and all new topics, including two new chapters on circuit analysis which help engineers with non-electrical engineering backgrounds. Topics covered include: Essentials of Electromagnetism; Complex Number Notation (Symbolic Method) and Laplace-transform; Fault Analysis Based on Symmetrical Components; Synchronous Generators; Induction-motor; Transformer; Breaker; Arrester; Overhead-line; Power cable; Steady-State/Transient/Dynamic Stability; Control governor; AVR; Directional Distance Relay and R-X Diagram; Lightning and Switching Surge Phenomena; Insulation Coordination; Harmonics; Power Electronics Applications (Devices, PE-circuit and Control) and more. Combines computer modeling of power systems, including analysis techniques, from an engineering consultant's perspective Uses practical analytical software to help teach how to obtain the relevant data, formulate 'what-if' cases, and convert data analysis into meaningful information Includes mathematical details of power system analysis and power system dynamics Power System Dynamics with Computer-Based Modeling and Analysis will appeal to all power system engineers as well as engineering and electrical engineering students.

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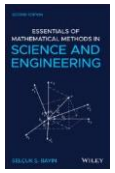
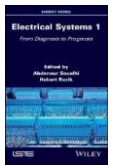
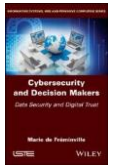
	**Essentials of Mathematical Methods in Science and Engineering**	Selcuk S. Bayin	The Institution of Engineering and Technology	2019 (2nd Edition)	978-1-119-58028-7	LINK	A comprehensive introduction to the multidisciplinary applications of mathematical methods, revised and updated The second edition of Essentials of Mathematical Methods in Science and Engineering offers an introduction to the key mathematical concepts of advanced calculus, differential equations, complex analysis, and introductory mathematical physics for students in engineering and physics research. The book's approachable style is designed in a modular format with each chapter covering a subject thoroughly and thus can be read independently. This updated second edition includes two new and extensive chapters that cover practical linear algebra and applications of linear algebra as well as a computer file that includes Matlab codes. To enhance understanding of the material presented, the text contains a collection of exercises at the end of each chapter. The author offers a coherent treatment of the topics with a style that makes the essential mathematical skills easily accessible to a multidisciplinary audience. This important text: • Includes derivations with sufficient detail so that the reader can follow them without searching for results in other parts of the book • Puts the emphasis on the analytic techniques • Contains two new chapters that explore linear algebra and its applications • Includes Matlab codes that the readers can use to practice with the methods introduced in the book Written for students in science and engineering, this new edition of Essentials of Mathematical Methods in Science and Engineering maintains all the successful features of the first edition and includes new information.
	**Electrical Systems 1: From Diagnosis to Prognosis**	Abdenour Soualhi, Hubert Razik	The Institution of Engineering and Technology	2020	978-1-119-72030-0	LINK	Methods of diagnosis and prognosis play a key role in the reliability and safety of industrial systems. Failure diagnosis requires the use of suitable sensors, which provide signals that are processed to monitor features (health indicators) for defects. These features are required to distinguish between operating states, in order to inform the operator of the severity level, or even the type, of a failure. Prognosis is defined as the estimation of a system's lifespan, including how long remains and how long has passed. It also encompasses the prediction of impending failures. This is a challenge that many researchers are currently trying to address. Electrical Systems, a book in two volumes, informs readers of the theoretical solutions to this problem, and the results obtained in several laboratories in France, Spain and further afield. To this end, many researchers from the scientific community have contributed to this book to share their research results.
	**Modern Big Data Architectures. A Multi-Agent Systems Perspective**	Ryzko, Dominik	The Institution of Engineering and Technology	2020	978-1-119-59793-3	LINK	The term Big Data refers to the cases, where data sets are too large or too complex for traditional data-processing software. With the spread of new concepts such as Edge Computing or the Internet of Things, production, processing and consumption of this data becomes more and more distributed. As a result, applications increasingly require multiple agents that can work together. A multi-agent system (MAS) is a self-organized computer system that comprises multiple intelligent agents interacting to solve problems that are beyond the capacities of individual agents. Modern Big Data Architectures examines modern concepts and architecture for Big Data processing and analytics.
	**Smarter Data Science. Succeeding with Enterprise-Grade Data and AI Projects**	Fishman, Neal; Stryker, Cole	The Institution of Engineering and Technology	2020	978-1-119-69342-0	LINK	Enterprise data and AI projects are often scattershot, underbaked, siloed, and not adaptable to predictable business changes. As a result, the vast majority fail. These expensive quagmires can be avoided, and this book explains precisely how. Data science is emerging as a hands-on tool for not just data scientists, but business professionals as well. Managers, directors, IT leaders, and analysts must expand their use of data science capabilities for the organization to stay competitive. Smarter Data Science helps them achieve their enterprise-grade data projects and AI goals. It serves as a guide to building a robust and comprehensive information architecture program that enables sustainable and scalable AI deployments. When an organization manages its data effectively, its data science program becomes a fully scalable function that's both prescriptive and repeatable. With an understanding of data science principles, practitioners are also empowered to lead their organizations in establishing and deploying viable AI. They employ the tools of machine learning, deep learning, and AI to extract greater value from data for the benefit of the enterprise.
	**Cybersecurity and Decision Makers. Data Security and Digital Trust**	de Fréminville, Marie	The Institution of Engineering and Technology	2020	978-1-119-72037-9	LINK	Cyber security is a key issue affecting the confidence of Internet users and the sustainability of businesses. It is also a national issue with regards to economic development and resilience. As a concern, cyber risks are not only in the hands of IT security managers, but of everyone, and non-executive directors and managing directors may be held to account in relation to shareholders, customers, suppliers, employees, banks and public authorities. The implementation of a cybersecurity system, including processes, devices and training, is essential to protect a company against theft of strategic and personal data, sabotage and fraud. Cybersecurity and Decision Makers presents a comprehensive overview of cybercrime and best practice to confidently adapt to the digital world; covering areas such as risk mapping, compliance with the General Data Protection Regulation, cyber culture, ethics and crisis management. It is intended for anyone concerned about the protection of their data, as well as decision makers in any organization.

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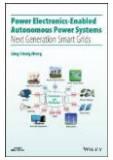
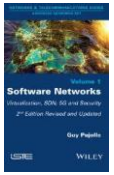
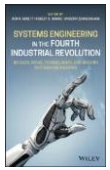
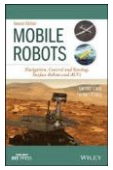
	**Power Electronics-Enabled Autonomous Power Systems: Next Generation Smart Grids**	Zhong, Qing-Chang	The Institution of Engineering and Technology	2020	978-1-118-80350-9	LINK	Power systems worldwide are going through a paradigm shift from centralized generation to distributed generation. This book presents the SYNDEM (i.e., synchronized and democratized) grid architecture and its technical routes to harmonize the integration of renewable energy sources, electric vehicles, storage systems, and flexible loads, with the synchronization mechanism of synchronous machines, to enable autonomous operation of power systems, and to promote energy freedom. This is a game changer for the grid. It is the sort of breakthrough — like the touch screen in smart phones — that helps to push an industry from one era to the next, as reported by Keith Schneider, a New York Times correspondent since 1982. This book contains an introductory chapter and additional 24 chapters in five parts: Theoretical Framework, First-Generation VSM (virtual synchronous machines), Second-Generation VSM, Third-Generation VSM, and Case Studies. Most of the chapters include experimental results.
	**Software Networks: Virtualization, SDN, 5G, and Security, 2nd Edition**	Guy Pujolle	The Institution of Engineering and Technology	2020	978-1-119-69472-4	LINK	Software Networks describe new concepts for the Internet's next generation. This architecture is based on virtual networking using Cloud and datacenter facilities. The main problems to be dealt with are the placement of virtual resources for opening a new network on the fly, and the urbanization of virtual resources implemented on physical network equipment. The digital architecture also deals with mechanisms capable of automatically controlling the placement of all virtual resources within the physical network. This book describes how to create and delete virtual networks on the fly. Indeed, the system is able to create any new network with any kind of virtual resource (e.g. switches, routers, LSRs, optical paths, firewalls, SIP-based servers, devices, servers, access points, etc.). Software Networks shows how this architecture is compatible with new advances in SDN (Software Defined Networking), new high-speed transport protocols such as TRILL (Transparent Interconnection of Lots of Links) and LISP (Locator/Identifier Separation Protocol), NGN, IMS, new generation Wi-Fi, and 4G/5G networks. Finally, the author introduces Clouds of security and the virtualization of secure elements (smartcards) that could certainly transform how to secure the Internet. For this second edition, the author addresses in five new chapters the importance of open source software for networks, mobile edge computing, fog networking, tactile internet -a network environment allowing remote access, and security -the use of Cloud of security, secure elements and the emergence of the blockchain.
	**Systems Engineering in the Fourth Industrial Revolution: Big Data, Novel Technologies, and Modern Systems Engineering**	Ron S. Kenett, Robert S. Swarz, Avigdor Zonnenshain	The Institution of Engineering and Technology	2020	978-1-119-51392-6	LINK	Systems Engineering in the Fourth Industrial Revolution: Big Data, Novel Technologies, and Modern Systems Engineering offers a guide to the recent changes in systems engineering prompted by the current challenging and innovative industrial environment called the Fourth Industrial Revolution—INDUSTRY 4.0. This book contains advanced models, innovative practices, and state-of-the-art research findings on systems engineering. The contributors, an international panel of experts on the topic, explore the key elements in systems engineering that have shifted towards data collection and analytics, available and used in the design and development of systems and also in the later life-cycle stages of use and retirement.
	**Mobile Robots. Navigation, Control and Sensing, Surface Robots and AUVs**	Cook, Gerald; Zhang, Feitian	The Institution of Engineering and Technology	2020	978-1-119-53482-2	LINK	This fully updated edition examines the use of mobile robots for sensing objects of interest, and focus primarily on control, navigation, and remote sensing. It also includes an entirely new section on modeling and control of autonomous underwater vehicles (AUVs), which exhibits unique complex three-dimensional dynamics. Mobile Robots: Navigation, Control and Sensing, Surface Robots and AUVs, Second Edition starts with a chapter on kinematic models for mobile robots. It then offers a detailed chapter on robot control, examining several different configurations of mobile robots. Following sections look at robot attitude and navigation. The application of Kalman Filtering is covered. Readers are also provided with a section on remote sensing and sensors. Other chapters discuss: target tracking, including multiple targets with multiple sensors; obstacle mapping and its application to robot navigation; operating a robotic manipulator; and remote sensing via UAVs.
	**Data Analysis and Applications 4: Financial Data Analysis and Methods**	Andreas Makrides, Alex Karagrigoriou, Christos H. Skiadas	The Institution of Engineering and Technology	2020	978-1-119-72158-1	LINK	Data analysis as an area of importance has grown exponentially, especially during the past couple of decades. This can be attributed to a rapidly growing computer industry and the wide applicability of computational techniques, in conjunction with new advances of analytic tools. This being the case, the need for literature that addresses this is self-evident. New publications are appearing, covering the need for information from all fields of science and engineering, thanks to the universal relevance of data analysis and statistics packages. This book is a collective work by a number of leading scientists, analysts, engineers, mathematicians and statisticians who have been working at the forefront of data analysis. The chapters included in this volume represent a cross-section of current concerns and research interests in these scientific areas. The material is divided into three parts: Financial Data Analysis and Methods, Statistics and Stochastic Data Analysis and Methods, and Demographic Methods and Data Analysis- providing the reader with both theoretical and applied information on data analysis methods, models and techniques and appropriate applications.

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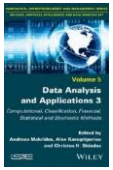
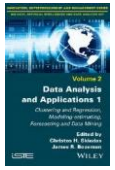
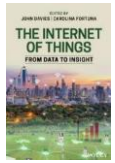
	**Data Analysis and Applications 3: Computational, Classification, Financial, Statistical and Stochastic Methods**	Andreas Makrides, Alex Karagrigoriou, Christos H. Skiadas	The Institution of Engineering and Technology	2020	978-1-119-72186-4	LINK	Data analysis as an area of importance has grown exponentially, especially during the past couple of decades. This can be attributed to a rapidly growing computer industry and the wide applicability of computational techniques, in conjunction with new advances of analytic tools. This being the case, the need for literature that addresses this is self-evident. New publications are appearing, covering the need for information from all fields of science and engineering, thanks to the universal relevance of data analysis and statistics packages. This book is a collective work by a number of leading scientists, analysts, engineers, mathematicians and statisticians who have been working at the forefront of data analysis. The chapters included in this volume represent a cross-section of current concerns and research interests in these scientific areas. The material is divided into two parts: Computational Data Analysis, and Classification Data Analysis, with methods for both - providing the reader with both theoretical and applied information on data analysis methods, models and techniques and appropriate applications.
	**Data Analysis and Applications 1: Clustering and Regression, Modeling-estimating, Forecasting and Data Mining**	Christos H. Skiadas, James R. Bozeman	The Institution of Engineering and Technology	2019	978-1-119-59768-1	LINK	This series of books collects a diverse array of work that provides the reader with theoretical and applied information on data analysis methods, models, and techniques, along with appropriate applications. Volume 1 begins with an introductory chapter by Gilbert Saporta, a leading expert in the field, who summarizes the developments in data analysis over the last 50 years. The book is then divided into three parts: Part 1 presents clustering and regression cases; Part 2 examines grouping and decomposition, GARCH and threshold models, structural equations, and SME modeling; and Part 3 presents symbolic data analysis, time series and multiple choice models, modeling in demography, and data mining.
	**Security Designs for the Cloud, IoT, and Social Networking**	Dac-Nhuong Le, Chintan Bhatt, Mani Madhukar	The Institution of Engineering and Technology	2019	978-1-119-59318-8	LINK	Security concerns around the rapid growth and variety of devices that are controlled and managed over the Internet is an immediate potential threat to all who own or use them. This book examines the issues surrounding these problems, vulnerabilities, what can be done to solve the problems, investigating the roots of the problems and how programming and attention to good security practice can combat the threats today that are a result of lax security processes on the Internet of Things, cloud computing and social media.
	**The Internet of Things: From Data to Insight**	John Davies; Carolina Fortuna	The Institution of Engineering and Technology	2020	978-1-119-54526-2	LINK	Written by experts in the field, this book addresses the IoT technology stack, from connectivity through data platforms to end-user case studies, and considers the tradeoffs between business needs and data security and privacy throughout. There is a particular emphasis on data processing technologies that enable the extraction of actionable insights from data to inform improved decision making. These include artificial intelligence techniques such as stream processing, deep learning and knowledge graphs, as well as data interoperability and the key aspects of privacy, security and trust. Additional aspects covered include: creating and supporting IoT ecosystems; edge computing; data mining of sensor datasets; and crowd-sourcing, amongst others. The book also presents several sections featuring use cases across a range of application areas such as smart energy, transportation, smart factories, and more. The book concludes with a chapter on key considerations when deploying IoT technologies in the enterprise, followed by a brief review of future research directions and challenges.
	**IoT Security: Advances in Authentication**	Madhusanka Liyanage; An Braeken; Pardeep Kumar; Mika Ylianttila	The Institution of Engineering and Technology	2020	978-1-119-52792-3	LINK	The Internet of things (IoT) is the network of the countless physical devices that have the possibility to connect and exchange data. Among the various security requirements, authentication to the IoT is the first step to prevent the impact of attackers. IoT Security offers an important guide into the development of the many authentication mechanisms that provide IoT authentication at various levels such as user level, device level and network level. The book covers a wide range of topics including an overview of IoT and addresses in detail the security challenges at every layer by considering both the technologies and the architecture used. The authors—noted experts on the topic—provide solutions for remediation of compromised security, as well as methods for risk mitigation, and offer suggestions for prevention and improvement. In addition, IoT Security offers a variety of illustrative use cases. This important book: - Offers an authoritative reference designed for use by all IoT stakeholders - Includes information for securing devices at the user, device, and network levels - Contains a classification of existing vulnerabilities - Written by an international group of experts on the topic - Provides a guide to the most current information available on IoT security Written for network operators, cloud operators, IoT device manufacturers, IoT device users, wireless users, IoT standardization organizations, and security solution developers, IoT Security is an essential guide that contains information on security features, including underlying networks, architectures, and security requirements.

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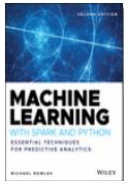
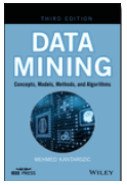
	**Machine Learning for Future Wireless Communications**	Fa-Long Luo	The Institution of Engineering and Technology	2019	978-1-119-56225-2	LINK	A comprehensive review to the theory, application and research of machine learning for future wireless communications In one single volume, Machine Learning for Future Wireless Communications provides a comprehensive and highly accessible treatment to the theory, applications and current research developments to the technology aspects related to machine learning for wireless communications and networks. The technology development of machine learning for wireless communications has grown explosively and is one of the biggest trends in related academic, research and industry communities.
	**Machine Learning with Spark TM and Python®. Essential Techniques for Predictive Analytics**	Michael Bowles	The Institution of Engineering and Technology	2019	978-1-119-56193-4	LINK	Machine Learning with Spark and Python Essential Techniques for Predictive Analytics, Second Edition simplifies ML for practical uses by focusing on two key algorithms. This new second edition improves with the addition of Spark—a ML framework from the Apache foundation. By implementing Spark, machine learning students can easily process much large data sets and call the spark algorithms using ordinary Python code. Machine Learning with Spark and Python focuses on two algorithm families (linear methods and ensemble methods) that effectively predict outcomes. This type of problem covers many use cases such as what ad to place on a web page, predicting prices in securities markets, or detecting credit card fraud. The focus on two families gives enough room for full descriptions of the mechanisms at work in the algorithms. Then the code examples serve to illustrate the workings of the machinery with specific hackable code.
	**Data Mining. Concepts, Models, Methods, and Algorithms**	Mehmed Kantardzic	The Institution of Engineering and Technology	2019	978-1-119-51607-1	LINK	Presents the latest techniques for analyzing and extracting information from large amounts of data in high-dimensional data spaces The revised and updated third edition of Data Mining contains in one volume an introduction to a systematic approach to the analysis of large data sets that integrates results from disciplines such as statistics, artificial intelligence, data bases, pattern recognition, and computer visualization. Advances in deep learning technology have opened an entire new spectrum of applications. The author—a noted expert on the topic—explains the basic concepts, models, and methodologies that have been developed in recent years. This new edition introduces and expands on many topics, as well as providing revised sections on software tools and data mining applications. Additional changes include an updated list of references for further study, and an extended list of problems and questions that relate to each chapter.This third edition presents new and expanded information that: • Explores big data and cloud computing • Examines deep learning • Includes information on convolutional neural networks (CNN) • Offers reinforcement learning • Contains semi-supervised learning and S3VM • Reviews model evaluation for unbalanced data Written for graduate students in computer science, computer engineers, and computer information systems professionals, the updated third edition of Data Mining continues to provide an essential guide to the basic principles of the technology and the most recent developments in the field.
	**Cybersecurity Law**	Jeff Kosseff	The Institution of Engineering and Technology	2019	978-1-119-51720-7	LINK	The revised and updated second edition of Cybersecurity Law offers an authoritative guide to the key statutes, regulations, and court rulings that pertain to cybersecurity. Written by an experienced cybersecurity lawyer and law professor, the second edition includes new and expanded information that reflects the latest changes in laws and regulations. The book includes material on recent FTC data security consent decrees and data breach litigation. Topics covered reflect new laws, regulations, and court decisions that address financial sector cybersecurity, the law of war as applied to cyberspace, and recently updated guidance for public companies' disclosure of cybersecurity risks. Written for students and professionals of cybersecurity, cyber operations, management-oriented information technology (IT), and computer science, Cybersecurity Law, Second Edition is the up-to-date guide that covers the basic principles and the most recent information on cybersecurity laws and regulations.

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	**Modern Manufacturing Processes**	Muammer Koç, Tugrul Özel	The Institution of Engineering and Technology	2019	978-1118071922	LINK	Provides an in-depth understanding of the fundamentals of a wide range of state-of-the-art materials manufacturing processes Modern manufacturing is at the core of industrial production from base materials to semi-finished goods and final products. Over the last decade, a variety of innovative methods have been developed that allow for manufacturing processes that are more versatile, less energy-consuming, and more environmentally friendly. This book provides readers with everything they need to know about the many manufacturing processes of today. Presented in three parts, Modern Manufacturing Processes starts by covering advanced manufacturing forming processes such as sheet forming, powder forming, and injection molding. The second part deals with thermal and energy-assisted manufacturing processes, including warm and hot hydrostamping. It also covers high speed forming (electromagnetic, electrohydraulic, and explosive forming). The third part reviews advanced material removal process like advanced grinding, electro-discharge machining, micro milling, and laser machining. It also looks at high speed and hard machining and examines advances in material modeling for manufacturing analysis and simulation. Offers a comprehensive overview of advanced materials manufacturing processes Provides practice-oriented information to help readers find the right manufacturing methods for the intended applications Highly relevant for material scientists and engineers in industry Modern Manufacturing Processes is an ideal book for practitioners and researchers in materials and mechanical engineering.
	**Mobile Robotics**	Luc Jaulin	The Institution of Engineering and Technology	2019	978-1-786-30523-7	LINK	Mobile Robotics presents the different tools and methods that enable the design of mobile robots; a discipline booming with the emergence of flying drones, underwater mine-detector robots, robot sailboats and vacuum cleaners. Illustrated with simulations, exercises and examples, this book describes the fundamentals of modeling robots, developing the concepts of actuators, sensors, control and guidance. Three-dimensional simulation tools are also explored, as well as the theoretical basis for the reliable localization of robots within their environment. This revised and updated edition contains additional exercises and a completely new chapter on the Bayes filter, an observer that enhances our understanding of the Kalman filter and facilitates certain proofs.
	**CompTIA Cloud+ Study Guide Exam CV0-002 2e**	Todd Montgomery Stephen Olson	The Institution of Engineering and Technology	2018	978-1-119-44296-7	LINK	If you're looking to earn the challenging, but rewarding CompTIA Cloud+ certification—and a career in cloud services, then this book is the ideal resource for you. CompTIA Cloud+ Study Guide Exam CV0-002, 2nd Edition will not only help you prepare for taking the new CompTIA Coud+ Exam CV0-002, it will provide you with thorough coverage of the important topics that every cloud computing professional needs to be familiar with, including: configuration and deployment; security; maintenance; management; and troubleshooting. This comprehensive resource covers all aspects of cloud computing infrastructure and administration, with a practical focus on real-world skills. It provides you with a year of FREE access to Sybex's superior online interactive learning environment and test bank, including chapter tests, practice exams, electronic flashcards, and a glossary of key terms.
	**CCNA® Cloud Complete Study Guide. Exam 210-451 and Exam 210-455**	Todd Montgomery Stephen Olson	The Institution of Engineering and Technology	2018	978-1-119-40503-0	LINK	The Cisco Cloud certification validates the skill set of individuals on industry-leading cloud solutions and best practices, as well as offering job role-based curricula for all levels of an IT staff. CCNA Cloud Complete Study Guide prepares you to take two required exams: 210-451, Understanding Cisco Cloud Fundamentals, and 210-455, Introducing Cisco Cloud Administration. It covers everything you can expect to encounter on the exams and also gives you a year of FREE access to Sybex's superior online interactive learning environment and test bank, including chapter tests, practice exams, a glossary of key terms, and electronic flashcards. Cisco's CCNA Cloud certification covers cloud characteristics and models, cloud deployment, and basic knowledge of cloud compute, cloud networking, and cloud storage. It also covers cloud infrastructure administration and reporting, chargeback and billing reports, cloud provisioning, cloud systems management and monitoring, and cloud remediation. With thorough coverage, practical instruction, and expert insight, this book provides an ideal resource for Exam 210-451 and Exam 210-455 preparation.
	**CCSP Official (ISC)2 Practice Tests**	Ben Malisow	The Institution of Engineering and Technology	2018	978-1-119-44922-5	LINK	With over 1,000 practice questions, this book gives you the opportunity to test your level of understanding and gauge your readiness for the Certified Cloud Security Professional (CCSP) exam long before the big day. These questions cover 100% of the CCSP exam domains, and include answers with full explanations to help you understand the reasoning and approach for each. Logical organization by domain allows you to practice only the areas you need to bring you up to par, without wasting precious time on topics you've already mastered. As the only official practice test product for the CCSP exam endorsed by (ISC)², this essential resource is your best bet for gaining a thorough understanding of the topic. It also illustrates the relative importance of each domain, helping you plan your remaining study time so you can go into the exam fully confident in your knowledge. When you're ready, two practice exams allow you to simulate the exam day experience and apply your own test-taking strategies with domains given in proportion to the real thing. The online learning environment and practice exams are the perfect way to prepare, and make your progress easy to track.

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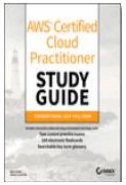	**AWS Certified Cloud Practitioner Study Guide. CLF-C01 Exam**	Ben Piper David Clinton	The Institution of Engineering and Technology	2019	978-1-119-49070-8	LINK	Take the next step in your career by expanding and validating your skills on the Amazon Web Services (AWS) Cloud. The AWS Certified Cloud Practitioner Study Guide: Exam CLF-C01 provides a solid introduction to this industry-leading technology, relied upon by thousands of businesses across the globe, as well as the resources you need to prove your knowledge in the AWS Certification Exam. This guide offers complete and thorough treatment of all topics included in the exam, beginning with a discussion of what the AWS cloud is and its basic global infrastructure and architectural principles. Other chapters dive into the technical, exploring core characteristics of deploying and operating in the AWS Cloud Platform, as well as basic security and compliance aspects and the shared security model. In addition, the text identifies sources of documentation or technical assistance, such as white papers or support tickets. To complete their coverage, the authors discuss the AWS Cloud value proposition and define billing, account management, and pricing models. This includes describing the key services AWS can provide and their common use cases (e.g., compute, analytics, etc.).
	**Optimization for Engineering Problems**	Kaushik Kumar, J. Paulo Davim	The Institution of Engineering and Technology	2019	978-1-786-30474-2	LINK	Optimization is central to any problem involving decision-making in engineering. Optimization theory and methods deal with selecting the best option regarding the given objective function or performance index. New algorithmic and theoretical techniques have been developed for this purpose, and have rapidly diffused into other disciplines. As a result, our knowledge of all aspects of the field has grown even more profound. In Optimization for Engineering Problems, eminent researchers in the field present the latest knowledge and techniques on the subject of optimization in engineering. Whereas the majority of work in this area focuses on other applications, this book applies advanced and algorithm-based optimization techniques specifically to problems in engineering.
	**Industry 4.0. Paradoxes and Conflicts**	Jean-Claude André	The Institution of Engineering and Technology	2019	978-1-786-30482-7	LINK	Digital technology opens up extraordinary fields for applications that will deeply change the nature of jobs and trade, the very concept of work and the expectations of user–producers. The “masters of algorithms” have disrupted production and services, and this trend will continue for as long as electric energy and the elements of Industry 4.0 are in continued development. Beyond data control, a power struggle is working its way through the links in the value chain: intermediation, control of resources and command over human and physical networks, as well as partnerships, creativity and the political system. Industry 4.0: Paradoxes and Conflicts examines the need for a serious and technological review, as well as for research and training regarding citizenship and politics. This is a new situation in terms of relationships of competence and authority, which must be the subject of scientific as well as political reflections for the whole social body, which needs to be educated about choices.
	**Cybersecurity of Industrial Systems**	Jean-Marie Flaus	The Institution of Engineering and Technology	2019	978-1-786-30421-6	LINK	How to manage the cybersecurity of industrial systems is a crucial question. To implement relevant solutions, the industrial manager must have a clear understanding of IT systems, of communication networks and of control-command systems. They must also have some knowledge of the methods used by attackers, of the standards and regulations involved and of the available security solutions. Cybersecurity of Industrial Systems presents these different subjects in order to give an in-depth overview and to help the reader manage the cybersecurity of their installation. The book addresses these issues for both classic SCADA architecture systems and Industrial Internet of Things (IIoT) systems.
	**Applied Mechanical Design**	Ammar Grous	The Institution of Engineering and Technology	2018	978-1-848-21822-2	LINK	This book is the result of lessons, tutorials and other laboratories dealing with applied mechanical design in the universities and colleges. In the classical literature of the mechanical design, there are quite a few books that deal directly and theory and case studies, with their solutions. All schools, engineering colleges (technical) industrial and research laboratories and design offices serve design works. However, the books on the market remain tight in the sense that they are often works of mechanical constructions. This is certainly beneficial to the ordinary user, but the organizational part of the functional specification items is also indispensable.

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	**(ISC)2 CISSP® Certified Information Systems Security Professional. Official Study Guide**	Mike Chapple James Michael Stewart Darril Gibson	The Institution of Engineering and Technology	2018	978-1-119-47593-4	LINK	CISSP (ISC)2 Certified Information Systems Security Professional Official Study Guide, 8th Edition has been completely updated for the latest 2018 CISSP Body of Knowledge. This bestselling Sybex study guide covers 100% of all exam objectives. You'll prepare for the exam smarter and faster with Sybex thanks to expert content, real-world examples, advice on passing each section of the exam, access to the Sybex online interactive learning environment, and much more. Reinforce what you've learned with key topic exam essentials and chapter review questions.
	**Systems Engineering of Software-Enabled Systems**	Richard E. Fairley	The Institution of Engineering and Technology	2019	978-1-119-53501-0	LINK	Systems Engineering of Software-Enabled Systems offers an authoritative review of the most current methods and techniques that can improve the links between systems engineering and software engineering. The author—a noted expert on the topic—offers an introduction to systems engineering and software engineering and presents the issues caused by the differences between the two during development process. The book reviews the traditional approaches used by systems engineers and software engineers and explores how they differ.
	**Security, Privacy, and Digital Forensics in the Cloud**	Hassan Takabi Mohammad GhasemiGol Lei Chen Nhien-An Le-Khac Sebastian Schlepphorst Lanchaun Xu Barry Cartwright George Weir Richard Frank James Plunkett M-Tahar Kechadi	The Institution of Engineering and Technology	2019	978-1-119-05328-6	LINK	Cloud computing is an emerging yet revolutionary technology that has been changing the way people live and work. However, with the continuous growth of cloud computing and related services, security and privacy has become a critical issue. Written by some of the top experts in the field, this book specifically discusses security and privacy of the cloud, as well as the digital forensics of cloud data, applications, and services. The first half of the book enables readers to have a comprehensive understanding and background of cloud security, which will help them through the digital investigation guidance and recommendations found in the second half of the book.
	**Cyber-Vigilance and Digital Trust. Cyber Security in the Era of Cloud Computing and IoT**	Wiem Tounsi	The Institution of Engineering and Technology	2019	978-1-786-30448-3	LINK	Cyber threats are ever increasing. Adversaries are getting more sophisticated and cyber criminals are infiltrating companies in a variety of sectors. In today's landscape, organizations need to acquire and develop effective security tools and mechanisms – not only to keep up with cyber criminals, but also to stay one step ahead. Cyber-Vigilance and Digital Trust develops cyber security disciplines that serve this double objective, dealing with cyber security threats in a unique way. Specifically, the book reviews recent advances in cyber threat intelligence, trust management and risk analysis, and gives a formal and technical approach based on a data tainting mechanism to avoid data leakage in Android systems
	**Boolean Functions. Topics in Asynchronicity**	Serban E. Vlad	The Institution of Engineering and Technology	2019	978-1-119-51747-4	LINK	Boolean Functions: Topics in Asynchronicity contains the most current research in several issues of asynchronous Boolean systems. In this framework, asynchronicity means that the functions which model the digital circuits from electronics iterate their coordinates independently on each other and the author—a noted expert in the field—includes a formal mathematical description of these systems. Filled with helpful definitions and illustrative examples, the book covers a range of topics such as morphisms, antimorphisms, invariant sets, path connected sets, attractors. Further, it studies race freedom, called here the technical condition of proper operation, together with some of its generalized and strengthened versions, and also time reversal, borrowed from physics and also from dynamical systems, together with the symmetry that it generates.

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	**Cyber Smart. Five habits to protect your family, money, and identity from cyber criminals**	Bart McDonough	The Institution of Engineering and Technology	2019	978-1-119-55961-0	LINK	An easy-to-read guide to protecting your digital life and your family online The rise of new technologies in our lives, which has taken us from powerful mobile phones to fitness trackers and smart appliances in under a decade, has also raised the need for everyone who uses these to protect themselves from cyber scams and hackers. Every new device and online service you use that improves your life also opens new doors for attackers looking to discover your passwords, banking accounts, personal photos, and anything else you want to keep secret. In Cyber Smart, author Bart McDonough uses his extensive cybersecurity experience speaking at conferences for the FBI, major financial institutions, and other clients to answer the most common question he hears: “How can I protect myself at home, on a personal level, away from the office?” McDonough knows cybersecurity and online privacy are daunting to the average person so Cyber Smart simplifies online good hygiene with five simple “Brilliance in the Basics” habits anyone can learn. With those habits and his careful debunking of common cybersecurity myths you’ll be able to protect yourself and your family from: Identify theft Compromising your children Lost money Lost access to email and social media accounts Digital security is one of the most important, and least understood, aspects of our daily lives. But it doesn’t have to be. Thanks to its clear instruction, friendly tone, and practical strategies, Cyber Smart will help you rest more easily, knowing you and your family are protected from digital attack.
	**Cybersecurity Program Development for Business. The Essential Planning Guide**	Chris Moschovitis	The Institution of Engineering and Technology	2018	978-1-119-42951-7	LINK	"This is the book executives have been waiting for. It is clear: With deep expertise but in nontechnical language, it describes what cybersecurity risks are and the decisions executives need to make to address them. It is crisp: Quick and to the point, it doesn't waste words and won't waste your time. It is candid: There is no sure cybersecurity defense, and Chris Moschovitis doesn't pretend there is; instead, he tells you how to understand your company's risk and make smart business decisions about what you can mitigate and what you cannot. It is also, in all likelihood, the only book ever written (or ever to be written) about cybersecurity defense that is fun to read."
	**Cybersecurity. Essentials**	Charles J Brooks Christopher Grow Philip Craig Donald Short	The Institution of Engineering and Technology	2018	978-1-119-36239-5	LINK	Cybersecurity Essentials provides a comprehensive introduction to the field, with expert coverage of essential topics required for entry-level cybersecurity certifications. An effective defense consists of four distinct challenges: securing the infrastructure, securing devices, securing local networks, and securing the perimeter. Overcoming these challenges requires a detailed understanding of the concepts and practices within each realm. This book covers each challenge individually for greater depth of information, with real-world scenarios that show what vulnerabilities look like in everyday computing scenarios. Each part concludes with a summary of key concepts, review questions, and hands-on exercises, allowing you to test your understanding while exercising your new critical skills.
	**Smart Grid Communication Infrastructures. Big Data, Cloud Computing, and Security**	Feng Ye Yi Qian Rose Qingyang Hu	The Institution of Engineering and Technology	2018	978-1-119-24016-7	LINK	Grid operations in smart grid have proven to be more efficient and more secure because of the communication infrastructures and modern control. Smart Grid Communication Infrastructures examines and summarizes the recent advances in smart grid communications, big data analytics and network security. The authors – noted experts in the field – review the technologies, applications and issues in smart grid communication infrastructure. This important resource: •Offers a comprehensive review of all areas of smart grid communication infrastructures •Includes an ICT framework for smart grid •Contains a review of self-sustaining wireless neighborhood that are network designed •Presents design and analysis of a wireless monitoring network for transmission lines in smart grid Written for graduate students, professors, researchers, scientists, practitioners and engineers, Smart Grid Communication Infrastructures is the comprehensive resource that explores all aspects of the topic.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Internet of Things. Architectures, Protocols and Standards**	Simone Cirani Gianluigi Ferrari Marco Picone Luca Veltri	The Institution of Engineering and Technology	2018	978-1-119-35967-8	LINK	This book addresses researchers and graduate students at the forefront of study/research on the Internet of Things (IoT) by presenting state-of-the-art research together with the current and future challenges in building new smart applications (e.g., Smart Cities, Smart Buildings, and Industrial IoT) in an efficient, scalable, and sustainable way. It covers the main pillars of the IoT world (Connectivity, Interoperability, Discoverability, and Security/Privacy), providing a comprehensive look at the current technologies, procedures, and architectures.
	**Artificial Intelligence and Big Data. The Birth of a New Intelligence**	Fernando Iafrate	The Institution of Engineering and Technology	2018	978-1-786-30083-6	LINK	With the idea of “deep learning” having now become the key to this new generation of solutions, major technological players in the business intelligence sector have taken an interest in the application of Big Data. In this book, the author explores the recent technological advances associated with digitized data flows, which have recently opened up new horizons for AI. The reader will gain insight into some of the areas of application of Big Data in AI, including robotics, home automation, health, security, image recognition and natural language processing.
	**The Wireless Internet of Things. A Guide to the Lower Layers**	Daniel Chew	The Institution of Engineering and Technology	2018	978-1-119-26057-8	LINK	The Wireless Internet of Things: A Guide to the Lower Layers presents a practitioner’s perspective toward the Internet of Things (IoT) focusing on over-the-air interfaces used by applications such as home automation, sensor networks, smart grid, and healthcare. The author—a noted expert in the field—examines IoT as a protocol-stack detailing the physical layer of the wireless links, as both a radio and a modem, and the media access control (MAC) that enables communication in congested bands. Focusing on low-power wireless personal area networks (WPANs) the text outlines the physical and MAC layer standards used by ZigBee, Bluetooth LE, Z-Wave, and Thread. The text deconstructs these standards and provides background including relevant communication theory, modulation schemes, and access methods.
	**Big Data and Machine Learning in Quantitative Investment**	Tony Guida	The Institution of Engineering and Technology	2018	978-1-119-52219-5	LINK	Big Data and Machine Learning in Quantitative Investment is not just about demonstrating the maths or the coding. Instead, it’s a book by practitioners for practitioners, covering the questions of why and how of applying machine learning and big data to quantitative finance. The book is split into 13 chapters, each of which is written by a different author on a specific case. The chapters are ordered according to the level of complexity; beginning with the big picture and taxonomy, moving onto practical applications of machine learning and finally finishing with innovative approaches using deep learning.
	**Data Analytics and Big Data**	Soraya Sedkaoui	The Institution of Engineering and Technology	2018	978-1-119-52805-0	LINK	The main purpose of this book is to investigate, explore and describe approaches and methods to facilitate data understanding through analytics solutions based on its principles, concepts and applications. But analyzing data is also about involving the use of software. For this, and in order to cover some aspect of data analytics, this book uses software (Excel, SPSS, Python, etc) which can help readers to better understand the analytics process in simple terms and supporting useful methods in its application.

Book	Title	Author	Publisher	Edition	Ordering	Links	Summary
	**Advanced Techniques and Technology of Computer-Aided Feedback Control**	Jean Mbihi	The Institution of Engineering and Technology	2018	978-1-786-30249-6	LINK	This book covers various modern theoretical, technical, practical and technological aspects of computerized numerical control and control systems of deterministic and stochastic dynamical processes.
	**Internet of Things A to Z. Technologies and Applications**	Qusay F. Hassan	The Institution of Engineering and Technology	2018	978-1-119-45674-2	LINK	A comprehensive overview of the Internet of Things' core concepts, technologies, and applications Internet of Things A to Z offers a holistic approach to the Internet of Things (IoT) model. The Internet of Things refers to uniquely identifiable objects and their virtual representations in an Internet-like structure. Recently, there has been a rapid growth in research on IoT communications and networks, that confirms the scalability and broad reach of the core concepts. With contributions from a panel of international experts, the text offers insight into the ideas, technologies, and applications of this subject. The authors discuss recent developments in the field and the most current and emerging trends in IoT. In addition, the text is filled with examples of innovative applications and real-world case studies. Internet of Things A to Z fills the need for an up-to-date volume on the topic. This important book: Covers in great detail the core concepts, enabling technologies, and implications of the Internet of Things Addresses the business, social, and legal aspects of the Internet of Things Explores the critical topic of security and privacy challenges for both individuals and organizations Includes a discussion of advanced topics such as the need for standards and interoperability Contains contributions from an international group of experts in academia, industry, and research Written for ICT researchers, industry professionals, and lifetime IT learners as well as academics and students, Internet of Things A to Z provides a much-needed and comprehensive resource to this burgeoning field.
	**Building the Internet of Things**	Maciej Kranz	The Institution of Engineering and Technology	2016	978-1-119-28566-3	LINK	Building Internet of Things provides front-line business decision makers with a practical handbook for capitalizing on this latest transformation. Focusing on the business implications of Internet of Things (IoT), this book describes the sheer impact, spread, and opportunities arising every day, and how business leaders can implement IoT today to realize tangible business advantages. The discussion delves into IoT from a business, strategy and organizational standpoint, and includes use-cases that illustrate the ripple effect that this latest disruption brings; you'll learn how to fashion a viable IoT plan that works with your organization's strategy and direction, and how to implement that strategy successfully by integrating IoT into your organization tomorrow.
	**Internet of Things and Data Analytics Handbook**	Hwaiyu Geng	The Institution of Engineering and Technology	2016	978-1-119-17362-5	LINK	This book examines the Internet of Things (IoT) and Data Analytics from a technical, application, and business point of view. It describes essential technical knowledge, building blocks, processes, design principles, implementation, and marketing for IoT projects. It provides readers with knowledge in planning, designing, and implementing IoT projects. The book is written by experts on the subject matter, including international experts from nine countries in the consumer and enterprise fields of IoT. The text starts with an overview and anatomy of IoT, ecosystem of IoT, communication protocols, networking, and available hardware, both present and future applications and transformations, and business models. The text also addresses big data analytics, machine learning, cloud computing, and consideration of sustainability that are essential to be both socially responsible and successful. Design and implementation processes are illustrated with best practices and case studies in action. -- In addition, the book: Examines cloud computing, data analytics, and sustainability and how they relate to IoT // Covers the scope of consumer, government, and enterprise applications // Includes best practices, business model, and real-world case studies.
	**Functional Safety**	Börcsök, Josef	VDE Verlag	2025 **NEW**	978-3-8007-3337-8	LINK	Functional Safety is the part of the overall system safety which depends on the correct functioning of safety-related systems for risk reduction. The intended functions of these systems, i.e. the safety functions, must be executed under defined fault conditions with a defined high probability. For the first time, a standard, the relevant generic standard IEC 61508, demands a quantitative proof for the residual risk! The standards IEC 61511 (Process Industry), IEC 61513 (Nuclear Power Plants) or IEC 62061 (Machinery) specify the requirements for various applications. Modern technical systems operating and controlling safety-critical processes are more and more complex because the requirements are increasingly multifaceted. This book discusses the monitoring or controlling of vehicles, railways and aircraft, machinery, power stations or chemical plants as well as medical equipment or systems in other safety-critical areas. Reliability means the functioning under all conditions. In modern systems in particular, the complexity of the software has increased to such an extent that faults can never be ruled out completely. In this context, safety means that the system will not assume a critical state, even if a fault occurs. This book examines the standards, reviews measures for determining risk and risk reduction, the different safety levels (SIL1 to SIL4), hardware and software components as well as corresponding models, needed mathematical procedures, various safety systems and contains numerous examples of how these concepts have been applied in various sectors. As such, it offers valuable support for understanding and realising safe electrical, electronic and electronic programmable systems (E/E/PES).