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## Mohawk creates exact replica of Neolithic Japanese vase using 3D technology and Siemens CT scanner

Hamilton, ON., December 1, 2015



The intricate details of a 4,000 BCE clay artifact, normally displayed behind glass, can now safely be touched and handled thanks to Mohawk College's

Additive Manufacturing Resource Centre.

In a project led by Mohawk professors Reid Flock and Robert Gerritsen, a Neolithic Jomon piece from Japan, owned by Burlington, Ontario-based retired architect James Koyanagi, was scanned using a high resolution CT (computerized tomography) scanner. Thanks to Trillium Health Partners - Mississauga Hospital and Siemens Healthcare, a Siemens SOMATOM Definition Flash CT, was used during a staff training session. As a result of this partnership and collaboration with the three teams, an exact replica of the interior and exterior of the vase was able to be reproduced using an additive manufacturing technology called selective laser sintering.



The Additive Manufacturing Resource Centre is now among the first in Canada and the only college in Ontario to use a combination of 3D scanning and 3D printing to advance archeological conservation and preservation. It is also among the first to use medical data to build a CAD file that could recreate an archeological piece.

The resulting plastic vase, printed in a grade of Nylon 12, is an exact replica of the original 4,000 BCE piece. The replica will allow researchers to examine the full details of the original fragile piece, without risking damage or harm to the piece. Additionally, from the model that was made from the scan, it is now possible to recreate the missing pieces of the vase both digitally and physically through further 3D printing.

From concept to execution, the project incorporated an interdisciplinary approach. Mohawk's Additive Manufacturing Resource Centre (AMRC), established in 2014, has already been praised as being a hot spot of applied research, educating and testing for the 3D printing and additive manufacturing revolution. For the Jomon project, the Centre's researchers and students collaborated with Mohawk's ceramics faculty and healthcare professionals based at Sunnybrook hospital.

### QUOTES:

"This is an opportunity to bring Health Care, the Arts and Technology together through the use of Additive Manufacturing. The entire process, from scanning to the printing, has produced an impressive final product that we can use for further conservation efforts."

**Tony Thoma, Dean of Engineering Technology, Mohawk College**

"What we have experienced with the help of Siemens Canada and the AMRC at Mohawk are two firsts. To our knowledge, no one has CT scanned a Neolithic Jomon piece in its entirety and had it 3d sintered. As you can imagine, the applications with this are far reaching. Conservation and restoration efforts, study collections, and artistic possibilities within the ceramics field will greatly benefit from our research."

**Reid Flock, Ceramics Instructor, Mohawk College**

"It's very exciting to see advanced healthcare and advanced manufacturing technology being combined for a new and unique application such as archeological study. Siemens is amazed at what was accomplished by our partners at Trillium Health and Mohawk College using our CT scanner and we are honoured to have been a part of it."

**Jim Graziadei, Managing Director, Siemens Healthcare Canada**

### About Siemens Canada

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### About Mohawk College

Mohawk College serves 22,500 full-time, part-time and apprenticeship students at three campuses in Hamilton, Ontario. For the fifth consecutive year, Mohawk is ranked the number one college in the Greater Toronto and Hamilton Area for overall student satisfaction. Mohawk is also recognized as one of Canada's greenest employers and one of the top employers in the Hamilton - Niagara region.

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### For more information, please contact:

**Andrea Johnson, Promotions and Industry Liaison Officer**

### Want to see more?

Click below to view video created by Mohawk College students!

For more information or to arrange an interview, please contact Ann Adair, Vice President, Communications and Government Affairs

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