

3D ARCHAEOLOGY

Professor, senior bring ancient culture to today

Engravings of potentially the world's earliest writing. A bust of one of the most famous women of the ancient world. Mummified bodies from northern Europe's Iron Age.

These artifacts preserved in museums across the world are not easily transported to a UWL archaeology classroom. Yet David Anderson's students pass them around to get a feel of what they are like.

Anderson is bringing ancient archaeology into the 21st century — with only his digital camera, 3D printer and an inexpensive computer software program.

Using a process called photogrammetry, he takes many photos of artifacts from multiple angles during his travels around the world. He then transforms them into moveable, 3D models on his computer screen, which can also be printed as teaching aids with 3D printers in the Department of Archaeology and Anthropology. Anyone can view these 3D artifacts and other virtual models on [Sketchfab](#), where people upload and share 3D content from around the world.

Anderson says photogrammetry allows his students to experience



3D architectural imagery from [Sketchfab](#)

archeological finds beyond a textbook description or 2D image, helping them gain a deeper understanding of the topic while also preparing them for a future in archaeology.

"It's catching on so fast that if we are not teaching it, our students will be light years behind," he says. Anderson traveled worldwide during summer to share the technology.



David Anderson, UWL associate professor of archaeology, left, and UWL senior William Feltz are using cutting edge technology to make ancient artifacts easier to see — and feel.

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DAVE ANDERSON

Archaeology major William Feltz built his senior thesis project around photogrammetry. He added 3D representations of prehistoric pottery fragments from the Mississippi Valley Archaeology Center collection to the resources currently provided on the MVAC website, which include written descriptions and hand-drawn illustrations of artifacts.

Feltz's work specifically focuses on 3D computer models that represent different phases in Oneota culture when ceramic pots were decorated differently along the rims. The viewer can move and manipulate a broken piece of pottery to examine small details that differentiate one fragment from another, which can be hard to distinguish in a 2D drawing.

"They can also be printed out for someone to hold and feel the object without needing to be in vicinity of MVAC,

or for these objects to be outside the preservation box," explains Feltz.

One of the goals of his thesis project is to show photogrammetry is a viable method for documenting and sharing artifacts at a time when it is not universally accepted as a worthwhile technique among archaeologists.

The use of photogrammetry isn't reserved for archeologists. It has applications across many disciplines, and is catching on at UWL. In the Biology Department, Anderson has shared tips and techniques with Assistant Professor Eric Snively, who specializes in vertebrate functional anatomy and paleontology. Anderson also consulted on how to use it in human anatomy courses.