

# Art enters the third dimension

Artists are turning to 3-D printing as the technology – which can also help museums transport works – becomes more accessible

## TECHNOLOGY

**New York.** Over the past five years, 3-D printers and scanners have successfully made everything from guns and burritos to fully functioning kidneys. And the art world is taking notice. Artists are using these tools to construct complex works that would have been inconceivable a decade ago, while museums are using 3-D technologies to pioneer new conservation techniques.

Three-dimensional printing enables artists to realise sculptures in previously impractical shapes and sizes. The technology creates 3-D objects from digital models by printing thousands of successive layers of material. The artist Frank Stella was an early adopter. In the mid-2000s, he used a 3-D printer to produce metal and resin segments

**“Museum objects are no longer static – they are downloadable and remixable”**

for his spiralling polychrome sculpture series “Scarlati Kirkpatrick”. The technology gave Stella “an opportunity to project work out from the wall in a way that would have been difficult, and too heavy, using traditional means”, says Ron Labaco, a curator at the Museum of Art and Design in New York. He will include Stella’s work in an exhibition devoted to computer-enabled work, “Out of Hand: Materialising the Postdigital”, which is scheduled to open on 14 October (until 6 July 2014).

The machines are becoming more accessible. “In the beginning, 3-D printers were only used by industry... to build parts for cars and prototypes for products,” says Steven Sacks, the founder of Bitforms Gallery in New York. “Now you can buy one for \$2,000.”



**A specialist uses scanning and 3-D printing to build a crate for Claes Oldenburg's 7-Up, 1961, in the Smithsonian Institution's 3D digitisation department**

says. But others are experimenting with the idea that a mass-produced machine can create a one-of-a-kind object. “If you can hack them well enough, these machines prove to exhibit expressionistic potential,” says the Brooklyn-based artist Shane Hope.

He built his own 3-D printer from assorted parts and tweaked the construction to ensure that the machine made mistakes. Fuentes says that, because the technology changes constantly, “there is this tragic instant obsolescence – hence uniqueness – inherent in the work being produced right now”.

## Challenge to authorship

For other artists, the technology can be used to challenge traditional ideas of authorship. Last year, the artist Jon Monaghan, who is based in Washington, DC, teamed up with New York’s Metropolitan Museum of Art to make 3-D scans of objects from its collection and

make the data publicly available online. “Museum objects are no longer frozen or static – they are downloadable and remixable,” Monaghan says.

The technology is also transforming the practice of museum loans. Conservators can build customised crates for works of art that were previously deemed too fragile to transport. The Smithsonian Institution’s Digitization Program Office recently used a 3-D scanner to build a foam cradle for Claes Oldenburg’s plaster-soaked cloth sculpture *7-Up*, 1961, so that it could travel to New York’s Museum of Modern Art for the exhibition “The Street and the Store” (until 5 August).

3-D scanning technology can also be used to monitor the condition of works. For example, the Smithsonian compared a 2009 scan of Bruce Nauman’s wax sculpture *From Hand to Mouth*, 1969, with a scan made this year to find that the work is in good condition.

The full potential of the technology has yet to be realised. “It’s one thing to push pixels or plastic around,” says Shane Hope. “It’ll be another thing altogether when it’s atoms.”

*Julia Halperin*

## In brief

### More money for software that puts names to faces

The University of California, Riverside, has just received a second grant from the National Endowment for the Humanities to develop facial recognition software that identifies unknown sitters in historical portraits. The \$60,000 award will help researchers refine their algorithm to allow for variations in angle, style and lighting. The software is still in its early stages (*The Art Newspaper*, May 2012, p1), but it has already identified Lorenzo de’ Medici as the subject of a 15th-century death mask and bust (right). J.H.

