Sheets, Hilarie M. “Artists Take up Digital Tools,” *The New York Times,* 25 October, 2013.

The New York Times

# Artists Take Up Digital Tools

Robert Caplin for The New York Times

"Out of Hand: Materializing the Postdigital," at the Museum of Arts and Design, an exhibition of works by 85 international artists, architects and designers. Untitled #5 by Richard Dupont.

By HILARIE M. SHEETS
Published: October 25, 2013

“PEOPLE have this idea about ‘digital’ that you just press the button and the machine spits something out, which really couldn’t be further from the truth,” said Richard Dupont, a sculptor who makes startling distortions of the human form.

Manipulating 3-D scans of his own body on the computer, Mr. Dupont then marries digital fabrication methods like rapid prototyping and computer numerically controlled milling with traditional plaster casting and other laborious hand work to make figures that can appear both archaic and futuristic. One of his standing nudes, similar in posture to the Kouros statues from ancient

Greece, appears to melt into ripples when viewed on one axis, suggesting the psychic experience of man in the modern world.

“The forms I end up with couldn’t have been done without using digital tools, but you have to disrespect them on some level,” he said. “It’s much more interesting if you can disrupt the expectations of what the technology can do.”

His work is on view now in “Out of Hand: Materializing the Postdigital” at the Museum of Arts and Design in New York, an exhibition of works by 85 international artists, architects and designers including Frank Stella, Maya Lin, Daniel Libeskind, Ron Arad and Hiroshi Sugimoto, who are bending digital techniques to their own expressive ends.

“There’s been an explosion of creativity during the last decade as many artists are exploring the technologies and what boundaries they can push,” said the exhibition curator, Ronald Labaco. He notes that while some of the digital technology has been around since the 1990s, early practitioners approached it more as a novelty. “In recent years I’ve seen a shift in thinking from ‘What can the machine do?’ versus ‘How can I use this as part of the tool kit to achieve what I want to do?’ ”

For Chuck Close, known for his monumental portrait paintings transposed from photographs, the computer’s ability to convert images into data that can be read by an electronic loom got him deeply interested in the age-old medium of tapestry. In the exhibition, his 2009 digitally woven tapestry based on daguerreotypes of five angles of his own face looks almost like a holograph. The faces seem to emerge from the black matte background with a kind of aggressive clarity, an effect he loves.

While traditionally a tapestry might have taken a year or more to weave on the loom by hand, now it can be run off in a day. But the labor is shifted upfront. Mr. Close can spend a year creating a digital weave file on the computer that will direct the loom — establishing a palette with hundreds of steps from the lightest light to the darkest dark, changing thread colors and transitions, making test strips.

“It’s wonderfully complicated because you’re building an image,” said Mr. Close, who compared the process to both photography, in milking the contrast out of a

negative in the darkroom, and painting, in mixing up lighter and darker colors. “I find these old-time systems — the daguerreotype and the loom — have real appeal and are something to breathe new life into.”

Many of the artists in the exhibition are playing with 3-D printing, a newer form of rapid prototyping that is beginning to be recognized by the general public with the advent of desktop 3-D printers and newsworthy developments in the medical field like the 3-D printing of a mouse heart capable of beating with electrodes attached.

“The technology allows you to design an object in virtual space and transmit the data to another machine to ‘grow’ or ‘print’ that object in 3-D,” the industrial designer Marc Newson said of these printers, which can dispense a variety of materials — plastics, metal powder and binders, plaster, animal cells — in very thin slices directed by a laser and build an object in layers.

The process allows for the seamless construction of incredibly intricate designs, including Mr. Newson’s 2006 “Random Pak Chair,” on view in the show, made from a perforated metal skin that mimics cellular structures. The physical fabrication of the chair was simplified through the technology, yet the design of its skin using generative software was more complex than anything Mr. Newson had previously done.

“With the assistance of the inventors of the technology, we used a series of algorithms that made billions of decisions about how to grow this object,” Mr. Newson said.

He started with a geometry known as “random close packing” based on Voronoi cells, which are good mathematical representations of many natural structures. “The digital part of this process alone took weeks, grinding away on a series of dedicated computers,” Mr. Newson said. “The metaphor of growth extended to the creation of the design itself.”

For other artists in the show, the machine not only facilitated the production of the work but became part of its meaning.

Roxy Paine created a playful sculpture-making machine, or “Scumak,” that extruded molten flows of maroon-tinted polyethylene onto a conveyor belt.

Software varying the parameters of each pour, and the shifting air currents and temperature of the room, which affected how the amorphous shapes hardened, conspired to produce 40 unique sculptures, three of which are in the show. These humorous, almost cartoonish objects invite meditation on the machine as a stand-in for the artist and the collision of control and chance.

While Mr. Labaco is hoping that people will be drawn first to the diversity and inventiveness of the objects in the exhibition, he wants to give visitors a hands-on familiarity with various digital techniques. One section of the exhibition is devoted to demonstrations of 3-D printing, 3-D scanning and computer software that can manipulate radical vantage points, 3-D montage and scale shifts.

People can get full body scans and purchase miniatures of themselves in three sizes. The design collaborative Unfold, which has examples of its 3-D-printed ceramic vases on view, has brought its interactive virtual pottery wheel. Visitors can shape forms with their hands in thin air and see the results projected on a screen.

François Brument, another designer in the exhibition, who shapes his vases using a sound-to-volume algorithm, has contributed his microphone into which people can speak, whistle or blow to customize their own vase designs.

Throughout the exhibition, Mr. Labaco has installed video clips of artists explaining how they integrate digital fabrication into their creative processes.

“I don’t want people to be frustrated by the technology,” he said. “I want them coming away from this empowered with a working knowledge of what they’re actually seeing.”