

# Exploring the artsy side of 3-D printing

May 16 2013, by Jennifer Forker

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This undated publicity photo provided by Nervous System shows a black nylon plastic Cellular Pendant, created by designer Jessica Rosenkrantz. This and other pieces were inspired by cell-like structures found in nature. The design studio, Nervous System, in Somerville, Mass., prints art, jewelry and housewares in sterling silver, stainless steel and nylon plastic using 3D printer technology. (AP Photo/Nervous System, Jessica Rosenkrantz)

Three-D printing technology is a game changer in the arts and crafts world. "It really takes the lid off of what's possible," says Andrej Suskavcevic, president and CEO of the Craft and Hobby Association, in Elmwood Park, New Jersey. "It seems to me it'll provide a really good bridge between technology and hands-on crafting."

Randy Sarafan, technology editor at Instructables, a website for sharing do-it-yourself projects, calls 3-D printing "mind-blowing. And the technology is adapting, changing and growing so fast."

Already, desktop 3-D printers can make doodads, such as plastic rings, figurines, and small gears and parts. Sarafan prints his own robotic parts. A colleague printed a record that plays music. There are umpteen projects for printing cell phone covers. You can find advanced DIY projects at Thingiverse, a digital design-sharing website, and at Instructables.

"In a way, this reverses the industrial revolution and takes it back to people building things in their own workshops," says Ken Denmead, editorial director at Make magazine, which devoted its winter 2013 issue to 3-D printing.

At-home, desktop 3-D printers don't print high-quality pieces, say the artists who play around with them—not yet. Until they do, there also are companies willing to print your 3-D artwork or objects for you.

Joshua Harker is a sculptor whose most fantastical design ideas were locked in his imagination until 3-D printing became accessible.

"I've been drawing literally forever," says Harker, 43, of Chicago. "I wanted to develop the drawings I was doing three-dimensionally and there was absolutely no way to do it."

With 3-D printing, he says, "there are all these possibilities to get my head around. There's a lot of room to explore and it's still exciting for me."

Three-D printer machines build up layers of extruded material—mostly plastics but also ceramics, metals, even a wood filament—one [thin layer](#) at a time using CAD (computer-aided design) software. Larger, commercial machines actually have been around since the mid-1980s.

Tabletop machines, which print primarily in plastics, have dropped in price in recent years. They cost a few hundred dollars to several thousand. Some notable desktop brands are Makerbot, Deezmaker and Cubify.



This undated publicity photo provided by Wearable Planter shows a tiny wearable planter created by Colleen Jordan, of Atlanta. Jordan has a degree in industrial design that helps her design tiny wearable planters using 3D modeling software. She exports a finished design to a 3D printing service, such as

Shapeways or Ponoko, and receives her finished pieces about two weeks later.  
(AP Photo/Wearable Planter, Colleen Jordan)

Newcomers enter the scene rapidly, says Denmead. One is Printbot, whose Printbot Jr. is the smallest and—at \$400—least expensive 3-D printer on the market, according to Make. The magazine's reviews of more than a dozen 3-D printers are available at Makezine.com, as are tips on using CAD modeling software.

Or skip the machine and focus on the CAD software, modeling and tweaking your art or object for printing by one of the many 3-D printing services, such as Shapeways and Ponoko. A lot of the software, such as ReplicatorG, is free online.

This is the route many artists take.

"It's a low-overhead way to run a business," says Colleen Jordan of Atlanta, who makes 3-D-printed jewelry that she sells online at the Etsy.com store Wearable Planter, and through Fab.com.



This undated publicity photo provided by Chicago artist, Joshua Harker, 43, shows his design creation, Crania Anatomica Filigre. 3D printing made it possible for Harker to sculpt his elaborate designs. (AP Photo/Joshua Harker)

Jordan, 25, who has a degree in industrial design, designs a 3-D model in software such as SolidWorks or Rhino, then uploads the file to a printing service, often Shapeways. She warns that modeling software takes time and patience to learn, but otherwise the process is simple. She receives her finished pieces from the printer in a few weeks.

Jordan couldn't create her jewelry by traditional means, which involve tens of thousands of dollars to create molds and other manufacturing startup costs.

"I spent \$25,000 on printing last year," she says. "If I were to put that into just making molds, I'd only have 30 products before shipping."

Instead, she prints her jewelry—diminutive planters that can hold tiny plant sprigs—only as needed.

Other artists echoed the cost savings of 3-D printing on demand, and say the medium will create opportunities for young designers and inventors.

Jessica Rosenkrantz, co-founder and co-designer at Nervous System in Somerville, Massachusetts, prints art, jewelry and housewares in sterling silver, stainless steel and nylon plastic at Shapeways.





This undated publicity photo provided by Wearable Planter shows small bike-mounted planters created by Colleen Jordan, of Atlanta, using 3D modeling software. Her pieces are printed by a 3D printing service, such as Shapeways or Ponoko. Jordan sells her creations, including diminutive planter necklaces, at her Etsy shop, Wearable Planter. (AP Photo/Wearable Planter, Colleen Jordan)

"It's the most affordable way to do it other than printing it yourself," says Rosenkrantz, 30, noting that a desktop printer couldn't manage her products' intricate designs.

Desktop 3-D printers are good for messing around with and printing prototypes, says Jordan.

"It's more of a toy than a tool. It's a cool toy," says Jordan about her Makerbot 3-D printer. "It's kind of cool to have around."

Denmead sees 3-D printers changing the way artists create, hobbyists build and homeowners tinker.

"We're not going to need to send away for spare or replacement parts anymore," says Denmead. "We're going to be able to download a file from a company and fix the piece at home."

Sarafan likewise predicts that users won't need to understand 3-D design software to play in the medium, and they'll be able to use apps to print from phones.

"It's stuff like that that is going to revolutionize the way people think of this technology," says Sarafan.

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