

Design your world – online robots, 3D printers at CeBIT

March 18 2015, by Frank Zeller



A visitor passes an installation during the opening day of the CeBIT technology fair in Hanover, central Germany, on March 16, 2015

Need a copy of your wedding ring, a new name tag for the dog, or a spare part for the washing machine? Just print it, is the message at the CeBIT IT fair in Germany.

A host of companies are showcasing new tech marvels, from web-connected robots to 3D printers, that can turn homes, schools and offices

into design labs and mini factories.

They say the merging of the virtual and physical worlds will unleash a wave of creativity, democratise manufacturing, and lead people to print rather than buy their Christmas presents.

One of the most eye-catching projects at CeBIT in Hanover is "Robochop", where heavy-duty industrial robots carve foam cubes into furniture or sculptures, based on designs people upload online.

Part tech show, part digital-age art installation, it invites Internet users worldwide to create a shape on their PC or tablet using simple design software and upload it for the bots to cut using a hot wire.

The 2,000 most inspiring designs will be mailed free of charge to their creators' homes, anywhere in the world, say the brains behind Robochop, design duo Clemens Weisshaar and Reed Kram.

They say the installation is "a means of translating digits into things".

"These robots are a mini factory that is connected not to the owner of the factory but to everyone else," Weisshaar told AFP.

"That's what's going to completely change over the next years. Software will be written that allows users to take over machinery without having the engineering knowledge that you would normally need if you just bought a robot."

Dentures and spaceships

On a more modest scale the 3D printer has for years been a vital tool for designers, engineers, architects and researchers, who typically use it to create models and prototypes.

But here too, breakneck advances in precision, resolution, speed and available materials are rapidly changing the industry.



A sign reads "robots in automatic mode" at the booth of Robochop during the opening day of the CeBIT technology fair in Hanover, central Germany, on March 16, 2015

3D printing has made headlines with eye-popping uses, including downloadable designs for handguns, a prosthetic beak for a Costa Rican toucan, and the "printing" of entire homes with a mix of concrete and recycled rubble by a Chinese company.

The technology "has in fact been around for more than 25 years, but it has been covered by patents", said Sara Bonomi, of US 3D printer maker

formlabs. "The industry is really developing so much now because these patents are expiring and the technology is becoming accessible for everyone."

Formlabs makes high-resolution desktop 3D printers that have been used to design everything from jewellery to dentures, and medical devices to the model spaceships seen in Hollywood blockbuster "Interstellar".

While most 3D printers create models "from the bottom up", using resin from a nozzle to add layer upon layer, formlabs employs lasers that solidify a resin to create objects with ultra-crisp detail, in a process sometimes called "optical fabrication".

Compostable plastic

As 3D printing advances, becomes more affordable and enters more family homes, it will change the way people live, Bonomi said.

"Definitely in the future we will be able to customise rings and shoes, and then you can just print them at home," she said—cautioning that this may lead some do-it-yourselfers to create counterfeits of branded products.

"There will be more questions about copyright and what you can actually make," she warned.

Vitezslav Musilek, of Czech company be3D, predicted that "the world in 10 years will be much easier to live in".

"If you need to purchase a replacement part or you want a new product, you will either download it from a webpage or model it yourself and then print it on your home 3D [printer](#) or somewhere else," he said.

Such objects would include "a mobile phone case, or a name tag for your dog ... household appliances like a missing part in your dishwasher, or maybe your own chess set".

So will the 3D printing revolution add new mountains of plastic to a planet already choking in garbage?

Not necessarily, according to Musilek, who said his company's DeeGreen printers use a thermoplastic that is 80 percent corn starch, biodegradable and free of toxic fumes when used.

"When you put it in the compost," he said, "given the right temperature, humidity and bacteria, it will completely dissolve, leaving no pollution to harm the environment."

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