Published: 03/25/2008; Volume: 27; Number: 30
Source URL: http://www.nowtoronto.com/lifestyle/technology.cfm?content=162291

Technology

When printers go Star Trek

Next-generation copiers replicate in 3-D, no goofy glasses required

By Joseph Wilson

If you want to blow some minds at your next gathering, type “3D printers” into YouTube. Scroll down to the video by Thinglab for a jaw-dropping selection of three-dimensional objects that have been “printed” by a device much like your desktop ink-jet. The Thinglab printer is much bigger, of course, and costs around $50,000, but the ZPrinter 450 can turn those 3-D images on your computer screen into full-colour 3-D objects in under four hours.

Much like a conventional printer, which puts down layers of ink on a page, the 3-D version prints layers of tiny polymer molecules that eventually build up the object. The polymer particles stick to one another, with the aid of a box filled with adhesive powder, to reproduce a solid object.

Thinglab, a subsidiary of Inition, a British 3-D imaging company, has developed a series of 3-D printers of which the Z450 is merely the latest and most streamlined. The Thinglab site (www.thinglab.co.uk) greets you with a bizarre invitation to “scan and print your face.” Indeed, the company’s 3-D scanners can copy any object, which the printer can reproduce. The current limit for printing size is around 1 cubic foot.

Other companies are exploring this technology, too. Objet Geometries (www.2objet.com), based in Israel, has a remarkable line of printers for as little as $5,000, able to “rapidly prototype” interesting models. Check out the impressive product video for OG’s brand new Connex 500, complete with Tim Burtonesque score, in which the printers make tiny models of cellphones, bikes – even a rocking horse.

This technology has remarkable implications. Regular users of computer-aided design (CAD) technology who make three-dimensional animated game characters or architectural models can print their creations within hours of completion. Instead of crafting a scale model, imagine sending the CAD file to clients who can print it out and scrutinize a 3-D model.

On the Thinglab site, researchers construct a 3-D model from an MRI image. A life-sized skull, complete with bumps, ridges and possible forensic data, takes only four hours to print.

The innovative work that’s made this technology a reality is now at a tipping point. What was once the proprietary information of a few scientists in specialized labs is now spreading into the mainstream. As prices drop, the market share will rapidly start to grow, and printers will get smaller and more efficient.

Soon they’ll no longer be a novelty. You’ll be able to download the image of the washer you need to fix your kitchen faucet, print it out and replace it within minutes. If you need a new Blackberry case or Tupperware container, all you’ll need to do is find the image on BitTorrent and press print.

Industry analysts predict researchers will soon figure out how to print objects out of materials that are sturdier than polymer, like silicone or even titanium. Instead of ordering that mountain bike part from Italy, skip the six-week wait and print it out at home.

What would you print?

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