

By David King

Futures Past

Devices that were once hallmarks of science fiction and a dream of comic book imagineers have become standard furnishings of the real world. Emerging technologies continue to stretch the horizons of the possible.

NO ONE CAN PREDICT THE FUTURE, but that's never stopped people from trying. Speculation about things to come has fueled mankind's imagination for centuries, and have really captured the public's fancy since Mary Shelley jump-started the science fiction genre with Frankenstein. Since then, countless writers, artists and filmmakers have imagined scientific advancements big and small, good and bad. Oftentimes the speculation turns out to have been far off the mark, but every so often something goes eerily as predicted. Jules Verne, for example, famously predicted the Apollo missions and diesel-electric submarines.

The past few years have seen the development of several devices that were once hallmarks of sci-fi: flat screen TVs are now commonplace, as are cordless phones. Skype has made video communications, a sci-fi standard, an everyday banality. While we're still a long way from the gadgetry of *The Jetsons*, the four examples of emerging tech described below might well have sprung from comics and science fiction.

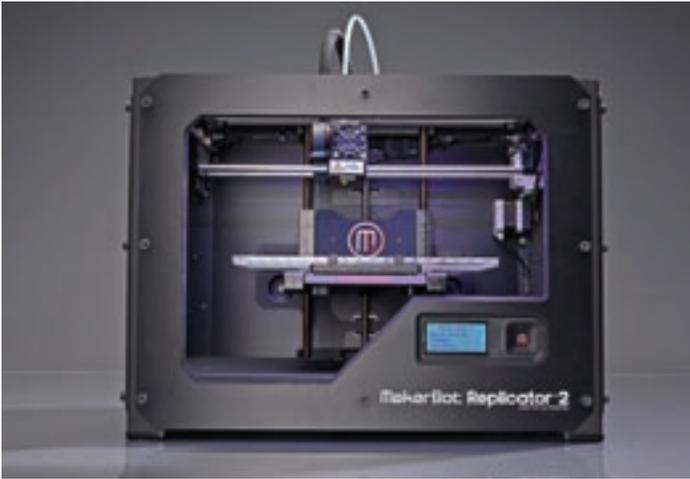
Iron Man's Exoskeleton

When billionaire inventor and weapons manufacturer Tony Stark is captured by terrorist agents in Afghanistan he escapes by building a rudimentary suit of armor. Once back in the U.S. he constructs a more advanced version that enhances his strength and comes equipped with state of the art weaponry, allowing him to take up crime-fighting in the guise of Iron Man. In real life, the U.S. military has been trying to build exoskeleton prototypes for years now. In theory, soldiers will be able to wear a robotic frame that improves their strength and endurance.

Scientists and engineers may have finally reached a breakthrough with the French-designed RB3D Hercule, which finally became available this year. When using the device, which is fitted to the wearer's arms and legs, a soldier can easily lift about 200 pounds, perform difficult labors with minimal effort and gain endurance for long hikes or climbs. On the home front, the Hercule's potential for people with disabilities is enormous; it could easily be used to supplement prosthetic limbs. The bot runs for about 12.5 hours on a charge and does not require any training to use, since it simply augments the normal movements of a human. It's still a long way from being as flashy as the armor Tony Stark wears, but the possibilities it offers could reshape the world.

The French-designed RB3D Hercule gives its wearer strength and endurance.





Star Trek's Replicator

Instant Matter Materializers, machines that make something out of nothing, once seemed to be on the farthest edges of sci-fi, just one step short of straight-up magic. But all that's changed with the advent of 3D printing. Matter materializing devices have appeared in countless science fiction media. The 1956 film *Forbidden Planet*, for example, featured a robot capable of synthesizing diamonds and emeralds on demand. But if there was any one sci-fi device that seems likely to have inspired additive manufacturing, or as it is more commonly known, 3D printing, it would have to be Star Trek's Replicator.

For now, the majority of 3D printers produce objects made of

MakerBot acknowledges the Star Trek legacy and the promise of additive manufacturing with its Replicator line of 3D printers.

hard plastics. More specialized printers handle concrete, metals and even human tissue. Medical applications are among the most promising for the technology, with customized prosthetics and implants already being produced. Foods, too, are issuing from the 3D printer, with chocolate a popular choice of material. It seems it won't be long before we all have our "tea, Earl Grey, hot" on demand, just like Captain Picard. Simpler, affordable 3D printers are now being mass-produced, and the possibilities for this invention truly seem to be endless.

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Minority Report's Targeted Advertising Face Scanner

The movie is set in a futuristic world where privacy has all but become extinct and facial scanners are a part of daily life, used not only for security purposes but also to customize advertisements.

When *Minority Report* came out in 2002, there really wasn't a consumer version of biometric face scanning technology, the kind that knows who you are when you walk through a mall or sit down at your computer. Now, face scanning is available on everything from the new Dell XPS Ultrabook to many Android phones, including the Samsung Galaxy SIII.

To use the scanner, you just sit still for a moment and look at the camera. The detector scans your face and examines your nose, the distance between your eyes and the shape of your cheeks. Granted, face scanning is not perfectly accurate yet; if someone who resembles you attempts to break into your device, the biometric reader will probably grant him access.

Some retailers are already taking advantage of the newly affordable technology, using it to scan customers' faces in order to use the data to create advertising targeted at specific demographics. The process mirrors the personalized advertising depicted in *Minority Report* as well as Google's and Facebook's real-life use of browser cookies. It's important to remember that technological advancement is usually a double-edged sword.



Back to the Future Part II's Self-Tying Laces

OK, so we'll still need roads for the time being, but pretty soon we won't need shoelaces. In the sequel to Robert Zemeckis' sci-fi comedy classic, "Doc" Brown takes Marty McFly 30-years into the future, to the then distant year of 2015. Among the many futuristic gadgets featured are a pair of sleek Nike (product placement will never be outdated) sneakers with laces that fasten themselves automatically. In 2011, Nike manufactured a limited number of sneakers based on the ones in the film, but those still used regular laces. The company has confirmed it will release shoes outfitted with the so called "power laces" to the general public in 2015. The question is, will their appeal be limited to 80's nostalgia buffs or will the tech be developed into a standard feature on all footwear.



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