Capitol Connection

Will robots be as transformative as the Internet?

April 1, 2013 | Author:Summer Allen, Graduate and Postdoc, Brown University

Robots are already changing the military. A U.S. Marine Corps technician prepares to deploy a device that will detonate a buried improvised explosive device in 2005. (Image: U. S. Marine Corps, photo by Lance Cpl. Bobby J. Segovia)

In March, experts from academia and industry released A Roadmap for U.S. Robotics From Internet to Robotics, a report highlighting recent advancements in robotic technology and forecasting future goals for the field. Presented at a meeting of the Congressional Robotics Caucus, the report is the first robotics roadmap released since President Obama started the National Robotics Initiative (NRI) in 2011.

The Roadmap begins with a bold claim: "robotics is one of a few technologies that has the potential to have an impact that is as transformative as the Internet." The report goes on to back up this claim. The entire report is 129 pages long and quite comprehensive, but here are some interesting tidbits I learned about the present and future use of robots in the five sectors covered by the report:

1) Manufacturing

Present: During 2011, the sale of robotics used for manufacturing went up 44%.
Future: The Roadmap sets a goal that within 15 years, self-driving cars will be "safer and more predictable than a human driver with less than one year's driving experience" and these cars will be able to teach themselves how to drive in unusual situations (like extreme weather).

2) Medical robots and healthcare

Present: Robots can reduce complications from surgery by 80% and can help people recover from strokes faster and more completely.
Future: The Roadmap sets this as a goal: in 15 years, "Groups of tetherless millimeter- and micron-scale robots will be able to both swim through bodily fluids and bore through tissue to perform highly localized therapies."

3) Service applications

Present: Service robots can vacuum, mow lawns, inspect bridges and power plants, and deliver hospital supplies (like bedding, food, and medication).

Future: A five year goal in the report is that robots will be able to "learn skills from a person through gesture and speech."

4) Space

Present: Robotic rovers Spirit and Opportunity have allowed us to explore Mars from afar, and robots are being tested on the International Space Station to do menial tasks.
Future: A Roadmap goal is that within 15 years, robots will be able to routinely capture and remove large pieces of debris from orbit.

5) Defense

Present: More than 50% of Air Force pilots operate aircraft remotely.
Future: The report says that a goal is to have "unmanned medical evacuation with on board human assistance and interaction" within ten years.

It's clear to see from this report that robots are—and will continue to be—amazing. Not only do "robots go where it's dirty, dull, or dangerous" (as the Congressional Robotics Caucus puts it) but they are transforming the manufacturing and health care sectors and may be a saving grace for the US economy as a whole. As to whether robots prove as transformative as the internet, only time will tell.

1 comment

DARWIN THORPE
April 21, 2013 - 12:30pm
I'm glad that the politicians have finally discovered the impact of robots now, and potential for the future, as they blabber about the need for jobs. I have no idea where the studies of the effect of robots on jobs is, or whether there is one, but it's high time we went in that direction.

Although unregulated human population growth, and the lack of correspondence of people, basic resources, and jobs is the major problem of earth, how we allocate these resources and jobs will make all the difference in the world, as society struggles correct the first part.

Darwin Thorpe
AAAS