Robots Report by Michael Souprounovich

What does it do

What is the state of the art of this new technology?

I am going to discuss about robots that try to imitate human or animal movement. I would say that the company that makes the latest and up-to-date robots is US- based Boston Dynamics. They design, and manufacture robots that focuses on agility and strength. They make robots that imitate human and animals' movements. Their robots are battery-powered, thus making it portable. Their robots utilise hydraulic technology to move their limbs. Their latest human-inspired robot, named Atlas, released in 2013, is so agile that it can perform a backflip, and can-do parkour! However, they were built for search and rescue tasks. The processor and memory is unknown, as requested by the US Defence Advanced Research Project Agency, who funded Boston Dynamics for the building of the robot. Atlas have undergone various updates since the initiation in 2013, the latest one showcasing Atlas doing a handstand! The company also recently launched a robot named Spot. It moves in a similar fashion to dogs and is used for assisting constructing buildings. It is only available for specialized construction industries to purchase and use. It is customizable, offering attachments that expand its functionality.

What can be done now?

Boston Dynamics' robots are capable of moving on rough terrain, which is handy for the construction industry and for the military. They can, using AI, detect hazards on the path they are walking in, and avert them by removing them or if unable to do so, walking around it. Their agility is so stable that even if you kick them or push them hard, as numerous people have done on YouTube videos, they will keep their ground and not tip over. Their robots are able to open doors and let people through, carry things of various shapes and sizes and have inbuilt cameras all over their bodies so that they can be remote controlled as well as wandering on their own.

What is likely to be able to do be done soon (say in the next 3 years)?

One of Dynamics' robots, Spot, is being distributed to construction industries and in hope that it will assist them with dangerous tasks such as checking for an oil or gas leak. One of the issues with it is that it still cannot distinguish between soft and hard floor, such as a pile of dirt or cement. Thus, it is not stable and performs poorly in certain conditions. So, the answer to the question what it will be likely to do soon is it hopefully will be much more stable. Another issue is the small battery – it runs for one and half hours, then will need to be replaced. As AI evolves, robots will get smarter and avoid potential hazards and solve problems that could baffle humans. I don't think they will be available to the general public for the next three years, or even ten, but the day when all of us have our own personal robot with AI is coming – soon.

What technological or other developments make this possible?

Boston Dynamics have been rather quiet about the specifications of their robots because their sponsors asked them to, but their robots use hydraulic powered joints to ensure that they can lift heavy weights. All of the robots' chassis are 3-d printed to ensure that they remain lightweight and sturdy, not breaking when they fall over. Of course, AI and machine learning is a necessity for the robots to seem more humanlike. Scientists and engineers at Boston train the machines every day, as machine learning do their jobs of discovering how physics work. They need to upgrade the memory in the robots frequently with every software update which teaches the robots how to do more and more things.

What is the likely impact

What is the potential impact of this development?

The potential impact for this development is at the moment small. The robots are too expensive and unreliable, huge and heavy. They were designed with special tasks that is dangerous or even fatal for humans to do – such as helping the injured in a disaster where there are fire, gas or other dangers. However, Boston have programmed its Spot robot to be able to dance, so they can also be used for entertainment! With the help of Spot, which can carry up to 14kg, carpenters will complete buildings much faster and efficiently.

What is likely to change?

A list of what is likely to change, if Spot is sold to all construction companies:

1. Buildings will be completed faster. This also means that lots of carpenters and other people who work in the construction industry will lost their jobs.
2. The number of deaths from accidents while building buildings will reduce dramatically.
3. Spot was built with inspection in mind, so humans who are tired, sick or distracted, etc won't be able to properly inspect buildings for dangerous situations, thus the robot can hopefully find and eliminate more dangers than humans.
4. In future upgrades, Spot will gain more functionality, maybe the ability to place brick and mortar and other muscle jobs, so it is likely that in the near future there won't be any people at the construction site – only robots, remote controlled by humans far away!

Which people will be most affected and how?

The people most affected, naturally, will be those who work in the construction industry – by losing their jobs, as with many other muscle jobs that future robots will replace soon.

Will this create, replace or make redundant any current jobs or technologies?

Jobs that will become redundant like I mentioned above are carpenters. Technologies that will become redundant include various instruments that test wood, brick, wires, etc for faults because they will be embedded in robots.

How will this affect you

In your daily life, how will this affect you?

The evolution of robots that assist with constructing buildings won't really affect my daily life, except for if a construction is going on nearby, as I walk or ride past, I will see a nest of robots working together, which is probably a little creepy. But if Boston programmed their robots to be able to fix motorbikes, then I would be out of a job, as I come to my local motorbike mechanic and clean up for the mechanics.

What will be different for you?

I have always dreamt of building my own house. But if robots did it for you, it would take away all the fun from building something original that really belong to you.

How might this affect members of your family or your friends?

As I have many friends who are tradesmen, when robots replace them, they will very likely lose their jobs and forced to work at McDonalds' or something. They may even become homeless. They will be forced to pick an alternate route to gain a good income, one that may include undertaking a course to gain knowledge for a different job.