ROBOTS

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What does it do? (600 words) What is the state of the art of this new technology? What can be done now? What is likely to be able to do be done soon (say in the next 3 years)? What technological or other developments make this possible?

Robotics covers a wide range of implementation from autonomous vehicles to personal assistants, to chefs, wait staff, cashiers, and the huge development spike in bionics. Robotics we commonly see today are autonomous vacuum cleaners or personal assistants (such as Amazon Alexa or the Google nest series,) these robots are known as consumer robots. However, robots that are used in industrial scale projects are becoming more and more advanced, but costly.

There are currently millions of robots being used today, robots are used on assembly lines, painting, welding, bolting, soldering and more repetitive tasks. Robots are also being used in some supermarket stores, taking inventory, and cleaning the floors. Food preparation, national defence, social work, and medical care are sectors that are all being enhanced by robots currently.

In recent years we have seen robots further being developed for use in:

* Medical training, simulating various conditions and communicating symptoms to help medical students to practice diagnosis and treatment on various conditions.
* Research, robots are being developed to assist in research both in a university setting but also corporate laboratories and, at a larger scale, space exploration. Mars is home to a robot who assists in researching the conditions, atmosphere and weather anomalies on Mars.
* Military and Security, robots can assist in military deployment to scout ahead for mines, search and rescue missions, support in combat and I.S.R (Intelligence, Surveillance and Reconnaissance)
* Social work, robots can assist autistic children in learning to socialize, or keep dementia patients company.
* Line work, robots are currently used on assembly lines. From chopping lettuce, constructing sandwiches, assembling cars, radios, and other technology. Robots are being used for the monotonous and repetitive tasks, as well as dangerous or difficult ones.
* Prosthetics, perhaps the most promising development in robotics is the improvements in prosthetic and robotic limbs. Bionics, as they are commonly known, are being developed to assist in those who are missing limbs or are paralysed. New technology is being developed to allow for these bionics to mimic biological muscular contraction and relaxation, skin tightening and loosening, and joint movements. These innovations allow the wearers to run, jump, dance, and move exactly as they would with biological limbs.

These developments in robotics are made possible through the research and testing done in robotic centres all over the world and can be attributed to the boom in technological advancement that we have seen over the last 10-15 years. Processing power is getting faster and more affordable as computing equipment is upgraded and updated, and with these advancements we can implement new technologies and new techniques into developing robotics.

Right now, robots are costly. But as with all new technology, this cost has been and will continue to decrease over time. In the past 30 years, the cost of robot production has halved, but experts have theorised that the cost decrease will be exponential within the next decade, potentially to the point where robots that can clean, cook, and assist in the home may be commercially available within 10 years.

What is the likely impact? (300 words) What is the potential impact of this development? What is likely to change? Which people will be most affected and how? Will this create, replace or make redundant any current jobs or technologies?

Robot development can both be beneficial and harmful to our society. Robots are already playing a huge part in our daily lives, but by 2030, experts theorise that robot production will be cheap enough that 50 million jobs will be lost to automation.

However, robots are currently and will continue to assist humans in completing dangerous jobs as well as make their jobs easier. Robots are working with firefighters to access burning buildings, cleaning up nuclear waste, rescuing snow-related disaster victims and so much more. Over the next few years, robots are expected to develop in this direction rather than replacing or obsoleting human jobs.

Bionics are a big talking point in the robotics industry, bionics may not only assist in aiding the physically disabled but may also develop to a point where robotic enhancements attached to our bodies allow us to lift heavy loads without machinery, run long distances without breaking a sweat, or cross dangerous terrain without fear of injury. In the 2019 video game release “Death Stranding” developer Kojima Productions tackled this idea by creating a world so dangerous to traverse that humanity had developed ‘bio-suits’ to enhance the physical capabilities of human beings. This is not only in fiction but is currently being developed by Bionics researchers around the world. Individuals wearing these machines describe the feeling as “walking with zero effort” and find that once you step outside the suit your body feels very heavy and moving your muscles is somewhat of a challenge.

In essence, robots will both enhance current jobs, making them safer and easier to complete, but given enough development, will also replace some jobs entirely especially within the hospitality and customer service sector. However, jobs within robotics will be higher in demand, as professionals with the skills to maintain and repair these robots will be sought after as more and more robots enter the workforce.

How will this affect you? (300 words) In your daily life, how will this affect you? What will be different for you? How might this affect members of your family or your friends?

These developments have the potential to affect a lot of people. Personally, as I am looking to work in IT, robots are unlikely to enter the tech industry in any reasonable timeframe. However, IT workers may end up becoming the face of robotics and repairing a robot may become as common as repairing a PC or Laptop. In this case, a career in IT may shift to become more about robotics and robotic coding rather than repairing PCs for human users, or coding databases with GUIs for human office workers.

Some of my family and friends may be more affected than I, as robots may replace their jobs in hospitality and retail before any other industry. Jobs might be lost and individuals within these sectors may seek to retrain and enter new careers.