ROBOTS

**What does it do?**

**What is the state of the art of robot?**

According to my research, 2 best robots in the world so far are:

**ASIMO**: a humanoid robot by Honda, created in 2000. It has been continually developed and it is said to be one of the world most advanced social robots. ASIMO can move objects, postures, gestures, can understand and analyze it’s surrounding environment, it can also interact with humans. ASIMO is unique as it is said to be the most physically capable robot which has the ability to run, walk or even climb stairs.

**Valkyrie robot**: created by NASA in collaboration with University of Edinburg. Valkyrie is designed to operated in hazardous or damaged human-engineered environments. It has the ability to one day assist the setup of habitats prior to astronauts arrival.

**Paro**: it is a therapeutic robot with the appearance of a baby seal. It created for animal-assisted therapy to calm people down, this help avoid problems associated with live animals. Paro responds to petting and interaction by wagging its tail, opening and closing its eyes. Paro even actively seeks for eye contact, it responds to touch and cuddle with people, just like real animal.

**What can be done now?** Most of robots today are used for purposes such as:

Automated transportation: this one is not a robot that can drive cars, in fact, the cars are made like robots that can drive itself and may include AI.

Security, defense and surveillance: robots can survey specific area can spot immediately any type of disturbance occurred. in military, robots are used for tasks that are dangerous for soldier such as arming and disarming bombs, monitoring enemy’s area. we can also use robots to protect our home and properties, especially when we are away.

Medicine: robotics has undeniable impact on this field. Surgical robots can carry out operation with even better accuracy than human; Pharmacy robot can dispense pills and medicine, they can choose doses of medicine that suits the best with the pathological signs of the patient, which is not only more effective but can also help reduce side effects.

Exploring space: scientists send robots into space to collect data, photos and samples of their destination back to Earth. This can minimize the loss of human lives. Sending robots is cheaper than sending real humans as they don’t need to eat, sleep or go to the bathroom, they can work continuously without resting. They survive in space easier as they can withstand extreme conditions. Furthermore, they can be left out there when missions finished, no need return trip.

Industrial robot: robots have high endurance and excellent accuracy, they also work with greater speed. They can be used for repetitive tasks, manufacturing, packing, etc. and work that requires strength such as lifting objects.

**What is likely to be able to be done soon?**

In the near future, scientists are working hard on robot that can predicting and defecting crime. With this, law enforcement officials will be able to act quickly if there are any suspicious behaviors. Actually, automatic recognition of suspicious activities has been used on camera-based security systems.

Soon, there will be more home maintaining robots such as robot that are used to look after pet even when you are away, robot that can help you with laundry, clean kitchen and toilet and can multi-tasking which allow robots to help human with all of the house chores. Maybe, we will have speech comprehension robot that can take orders from humans, there will also be robots as friends, robots as co-worker. There will be nanobot and microbot in medical field to do surgery part which need precise and accurate performance, etc. In fact, all of the fields mentioned have has robots but all of them will be updated and become more advanced in 3 years time.

**What technological or other developments make this possible?**

Some of these technologies are believed to bring robotics field to the next level:

Computer vision.

Natural language processing (NLP) – use human voice commands to a robot.

Edge computing – computing that can be done at or near the source of data, not relying too much on Cloud.

Complex event process – tracking and analyzing information about things that happens so that it can respond as quick as possible.

Transfer learning and AI - use knowledge gained from solving one problem and reapply it into solving similar problems

Hardware acceleration for AI – computer hardware specially made to perform functions more efficiently as possible.

Reinforcement learning – provide framework to design sophisticated and hard-to-engineer behaviors

Generative adversarial networks (GANs) – use to get better data, even in areas that data is not easy to come.

Mixed reality – use combination of physical and virtual objects to create a prototype mechanism for algorithms.

Emotion research – affective computing – systems and devices that recognize, interpret and simulate human emotions.

**What is the likely impact?**

**What is the potential impact of this robot?**

Robots will literally have impact on every aspects of the society: economy, industries, businesses, security, politics world’s peace and our daily life. Robots are changing the world gradually as they help humans do thing better and easier, even things that weren’t possible before. With the help of robots, it enable humankind kind to do things that used to be beyond our ability.

**What is likely to change?**

Everything is likely to change in a more positive ways as robots are meant to help us with our life, things will be done easier and faster, with higher accuracy and better quality thanks to the help of robots. everything has pros and cons, but so far, the pros of robots have outweighed the cons and it promises many positive opportunities for our future.

**Which people will be most affected and how?**

Robots will definitely impact lower-skilled people. They can be replaced with robots as robots can do their job but with better performance, greater speed and higher accuracy. Better working efficiency creates profits, there seem to be no reasons not using robots instead of low-skilled workers.

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

Based on current situation, jobs like factory workers, pharmacists, drivers, etc. will have very high potential to be replaced, which will lead to redundancy in those jobs. Those people cannot do anything but to retrain themselves, they can’t rely on government to stop their jobs being taken away by technology. On the contrary, jobs related to technology and robotics will be in high demand. However, for every job created by technology and automation, several more will be eliminated.

For thousands of years, humans have always been able to create new job, a century ago most of our ancestors were farmers and more and more jobs were created due to our need at different stage of time. Personally, I don’t believe we can’t be made redundant that easily because of automation.

But we are automating jobs faster than creating them so this problem is quite hard, only time can tell.

**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?**

to be honest, the impact of robots can only be clearly seen in developed countries, Vietnam is still in its developing stage and might takes a few more decades before it really affects our life. It is undeniable we are getting more and more modern and better than ever before but the impact is only fractional compared to that of developed countries. So I will say that it haven’t had much effects on us so far.