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 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, minimizing 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 are enable to 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?**

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

“ 1. Robotics in public security

Artificial technology for predicting and detecting crime might seem far-fetched, but it's quite possible for the future we’re looking at. Drone footage, for instance, will make that happen soon. In addition, automatic recognition of suspicious activities is already a reality for camera-based security systems.

This technology will change society in a very important way: it will allow law enforcement officials to act quickly whenever a suspicious behavior has been spotted.

2. Robots in education

The line between classrooms and individual learning settings is already starting to blur. As Kendra Roberts, an educational expert from Essays.ScholarAdvisor, explains, “A single teacher does not have the capacity to meet the needs of personalized learning for every single student in the classroom. Computer-based learning is already changing things in that matter. It’s not replacing the teacher, but it enables students to learn at their own pace.”

Robots will boost the process of personalized learning. NAO, the humanoid robot, is already forming bonds with students from around the world. It comes with important senses of natural interaction, including moving, listening, speaking, and connecting.

3. Robots at home

Cloud-connected home robots are already becoming part of our lives. We can set up the vacuum cleaner to do the chore for us, and we can schedule a warm home-cooked meal to be ready by the time we’re finished with work. Multi-function robotic cookers are able to fry, steam, bake, slow cook, and perform any other action without our intervention. We just set them up.

These cloud-connected robots are likely to evolve into more advanced version. We expect to see speech comprehension and increased interactions with humans in the upcoming years. These developments may end up changing the entire look and feel of our homes!

4. Robots as coworkers

Robots will have a profound effect on the workplace of the future. They'll become capable of taking on multiple roles in an organization, so it’s time for us to start thinking about the way we’ll interact with our new coworkers.

The machines will likely evolve more in terms of voice recognition, so we’ll be communicating with them through voice commands. This is how futurist Nikolas Badminton expect things to develop: “You’re probably going to walk into an office and your system’s been churning over the last couple of hours considering what’s been going on in business, your role, your job, what you need to do that day, and probably offer up several ideas about the right direction of what to do.”

Sounds like a pretty achievable future, doesn’t it?

5. Robots might take our jobs

Whether we like it or not, robots have already replaced many people in their jobs. The jobs in office administration, logistics, and transport are also at risk of being replaced. Remember autonomous vehicles? Well, we might see them in the form of big trucks on the roads in future.

A study by Ball State University predicted that many occupations are at risk of being automated, including insurance underwriters, telemarketers, and tax-return preparers. To be more precise, robots are expected to take over half of all low-skilled jobs.

6. They create jobs, too

“Robots will take our jobs!” is perhaps the most common fear surrounding robotics development. Yes, technology is changing fast and it does have economic ramifications. Driverless cars, for instance, are highly likely to replace cab drivers in the future.

In the near future, however, artificial intelligence will most likely replace tasks, not jobs. The good news is that it will also create new markets and jobs. We might need additional education and re-training for those jobs, but the opportunities will be there.

7. Autonomous cars

Self-driving cars still require some human intervention, but we’re getting closer to the day when they won't. In the past decade, the perception of this technology among the public went from “How is it even possible?” to “Maybe it’s possible...” to “Definitely getting there!”

Waymo, the company that arose from the self-driving car project by Google, no longer has a monopoly on this industry. Instead, every significant automobile producer is pursuing this technology, with Uber being one of the strongest players. The users of this service can now get matched with a self-driving Uber when they request the service, so they can get a glimpse of the future.

Where will this trend take us? As companies continue to invest in this trend, we’ll live to see a different face of public transport by 2020.

8. Healthcare robots

We’re looking into a different future for healthcare, too. Instead of visiting a primary care physician who will give us a check-up with a simple stethoscope, we’ll have intelligent robots performing these tasks. They will interact with patients, check on their conditions, and evaluate the need for further appointments.

Pharmabotics will bring more huge changes. They'll be like ATMs for medicines, so we can get the medications we need while avoiding the inconvenience of talking to a stranger about our health issues.

9. Robotics for entertainment

Robots are getting more personalized, interactive, and engaging than ever. With the growth of this industry, virtual reality will enter our homes in the near future. We’ll be able to interact with our home entertainment systems through conversations, and they will respond to our attempts to communicate.

10. Robots will boost our standard of living

We’ve seen this throughout history: automation and mechanization boosts the overall standard of living. We’ve seen it with the Industrial Revolution, and it’s going to happen again. According to estimates from the United Nations, poverty was reduced to a greater extent over the past five decades than in the previous 50. That’s because the global economy grew sevenfold, and technology played a huge part in that progress.”

*L.Buckler, 10 Ways Robotics Could Transform Our Future, Mar, 19. 2018. Accessed on: Dec, 02. 2019. [Online]. Available:* [*https://blog.robotiq.com/10-ways-robotics-could-transform-our-future*](https://blog.robotiq.com/10-ways-robotics-could-transform-our-future)

**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, customer service executives, bookkeeping and data entry, receptionists, proofreading, 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.