

# ROBOTICS: YESTERDAY, TODAY & TOMORROW

Yesterday, calculators as robots; Today, machines as robots; and Tomorrow, humans as robots.

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**Y**ears back when first Programmable calculators were introduced people mistaken it as an Artificial Intelligence(not in the sense of today's AI) after that people understood the logic of PROGRAMMING. In today's world we program machines to work for us & in the future there might happen a unification between HUMANS & MACHINES which will give rise to Cyborgs and SuperHumans

Before Discussing Robots and Robotics, we need to understand:

What is AI?

Artificial intelligence is a technology which can develop intelligent devices that can react and work as a human being.

AI includes:

- Speech recognition
- Learning
- Problem-solving, and
- Planning

Without AI, we cannot develop smart machines or else we can make machine work with pre-written programming codes.

## ROBOTS

Robot is a machine capable of carrying out a complex series of actions that substitute for (or replicate) human actions.

Robots can be guided by external control devices like remotes, radios or the embedded controls like pre-programmed AI.

## ROBOTICS

Robotics is a combined branch of engineering and science which deals with the study of development, operation, and control of intelligent robots. Robotics is a part of Artificial intelligence. The goal of robotics is to design intelligent machines that can help and assist humans in their day-to-day lives and keep everyone safe.

## **QUICK FACTS:**

-Deep Learning(DL) is a subset of Machine Learning(ML), Machine Learning(DL) is a subset of Artificial intelligence(AI), Artificial intelligence is the Universal set.

-The term 'Robot' is derived from an old Church Slavonic word 'Robota', meaning "servitude" or "forced labor".

-The first industrial robot was "Unimate." It was manufactured by American inventor **George Devol** in 1950

-The Humanoid machine(Cyborg, AI Robots) was started planning in the early 20th century.

## IDEA OF ROBOTS:

The idea of robots were first described in ancient Greece and Egyptian mystic texts. The modern concept began to be developed with the onset of the Industrial Revolution, which allowed the use of complex mechanics. With the advent of electricity, this made it possible to power machines with small motors.

## TIMES OF ROBOTICS:

We have been seeing this robots evolution way before 1950s, till now it's supply and demand increased exponentially, there was a drop only in robotic subfields like Artificial Intelligence, Machine Learning et-cetera but not in the whole Robot Universe

### Robotics Yesterday:

First robots were made from Wood, the carpentry has been very difficult, later near the Industrial revolution it made all the wood workings to mechanical parts with which robotic parts performed well using gears, screws, nuts and bolts. Later there came some kind of devices which automates our day to day works like washing machine for washing clothes, Vacuum Robots for floor cleaning et\_cetera

### Robotics Today:

As we know today we're all surrounded with many big-small robots which makes our day to day tasks easier, provide efficient work with the highest precision and in less time. For example: Amazon's Echo devices in your home, Google Assistant or Siri in your Smartphones (These are invisible robots, often known as Virtual Assistants), Tesla or Google's Self Driving Cars.

An overview of areas where robots & AI can be applied today:

- Health Care: AI-nascent field of healthcare where diseases are more quickly and accurately diagnosed, giving patients a personalized experience. eg- The AI imaging of an ordered set of teeth with healing time can be generated in 15min when a map of present condition of patient's teeth is given.

- Education: Textbooks are digitized with the help of AI, virtual human tutors can understand facial expressions from which the emotions of students can be determined so they know who's struggling & bored. we can discuss 'What if our Teachers become an AI' in Q&A section

- Transportation: Self driving cars of Google or Tesla can do your commutes. Even big trucks are now self driving.

- Media: AI is implemented in making quick sense of complex financial reports and updates about Market fluctuations.

- Restaurants: Now AI robots were used in hotels of Kerala to order & serve foods

-**COBOT** is a robot intended for direct human robot interaction within a shared space.

Woods are our first tools, even today many prototypes are made up of wood.

More exciting Robo-tech we use today are: Virtual Reality(VR), Augmented Reality(AR) & Mixed Reality(MR) these are implemented in high levels of areas explained above. Now we have Humanoid Robots(A robot which looks overall as a Human), which is then divided into Android Humanoid(male body) and Gynoids Humanoid(female body).

### Robots Tomorrow:

This is the topic we have most to explain,

Nowadays we see & understand robots as human-like machines but that may not be the reality in the future. There may be machines with emotions, but most probably the future may look like that of: You being a Cybernetic Organism(Cyborg) with additional abilities like mechanical power to lift objects, Neuralink connected to brain that may boost your productivity, your commutes and even turning on your routine commands(lights and fan ON) when you arrive home with just a spark of thoughts in the brain. Maybe next year you may go out with Alexa, Google Assistant, Cortana or Siri built-in earpods, cloth clickable button or a ring that is capable of booking a Uber self-driving car, hotel room et\_cetera. Or imagine how about waking down the street seeing Amazon drones going in and out of buildings for services & delivering products, going to a shop without cash and bags; asking Alexa to deliver these and that things to your home. This is just an imaginative future created by taking our present day technologies to next levels.

More possible future innovations are:

- Health Care: By the intro of high speed 5G network, a doctor in LA,USA can do a surgery of an Indian patient with the help of high precision robots in India and Mixed Reality(MR) in USA

- Education: AI can be connected to different classrooms all over the world, it can teach teachers about the up-to-date information and going to other classes is like going to the next room in your house therefore schools around the world become a collection of rooms.

- Transportation-we can replace the present world to no-car owner world to some companies like Uber, OLA giving cars, whose per year commute cost is 1/4 the cost of buying a new car. It is highly appreciated while we compare: an average ownership of a car is roughly 3 years but if we use the idea we can use taxi cars for 4 years at the cost of 1car. Also you can rent your car while you're at work for 9-5.

- Services: Fire and Safety services can use drones equipped with AI to sense the environment and provide services

### QUICK FACTS:

- Sophia is a first humanoid which has citizenship from the country of Saudi Arabia.

- It took Amazon 6 years to make 1,00,000 robots to work in their warehouses, in just 2 years that number doubled to 2,00,000 and still the graph is growing exponentially.

- Hanson Robotics(Sophia), Boston Dynamics(bipedal, quadrupedal robots), Kiva Systems(Amazon Robotics), NASA(Scientific Robots, Airplanes and rowers without pilot) are some well known Robot manufacturers in the World.

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## **Answers to some of your natural yet striking doubts**

### **1) What if Robots & AI takeover the world(wipe out humans and initiate their supremacy)?**

Ans) Some public figures such as Stephen Hawking and Elon Musk, have advocated precautionary measures for the development and use of AI. In my knowledge there is a chance for AI & Robotics takeover the world, as we increase computing power & efficiency of AI IoT connected devices it may take control over our routines which in turn controls us(not a takeover or destruction). Now we treat Animals as inferior(not all humans), harassing them for experiments & tests likewise a superior AI may treat Humans as their inferiors(not all AI) for developing AI into a superpower(using our critical and innovative power).

### **2) What will be the role of Humans in the Robot Empire?**

Ans) There will always be a role that only humans can do, such roles are Critical Thinking, Creativity, Creation & Innovation of new ideas and most importantly humans' capacity for altruism, love, and friendship.

### **3) What is the chance Homo sapiens will survive for the next 500 years?**

Ans) Robots and AI can be controlled and limited by Human Intelligence, what makes us extinct is our own stupidity-some big threats like nuclear warfare, ecological catastrophe and climate change would wipe us out entirely.

### **4) What would be the jobs after the advent of AI and Robots?**

Ans) There will always be some jobs for humans, just think about the tsunami introduction of new technologies in the late 1990s: since that time we need Programmers, Engineers, Technicians, Factory workers, Exporters, Carriers, Shop-workers and repairing workers for running it without a struggle also many people for making the financing smooth likewise there will be jobs at the time of AI

### **5) Best media to study about Robotics and AI.**

Ans) I would recommend YouTube channels and other websites providing free info & knowledge about Robotics & AI, but on top of everything I recommend to READ BOOKS on the topic.

Now some books;

ROBOTICS: 'Introduction to Robotics: Mechanics and Control',  
'Robotics: Everything You Need to Know About Robotics', Rise of Robots,

AI: Superintelligence, Life 3.0, Our Final Invention.

**6) What if your teacher becomes an AI?**

A. It would be a great surprise for students that AI Teachers can teach every student by knowing their emotions which give them personal care. AI teachers won't forget student's correctness and mistakes. Also one AI teacher is enough to maintain an exam with 100+ students while an AI Teacher microprocessor is connected with cameras around the hall in real time & using moving detection AI Teacher can detect the students' movements.

**7) What if a superintelligent AI takes most jobs out of humans(except the case of engineers, critical thinkers; common people)?**

Ans) As per computer scientist & writer Kai-Fu Lee: 4 types of jobs cannot be replaced by AI; if they need to, it must be upgraded to the working & thinking capacity of a Human Brain

The 4 types of Jobs are:

-Creative Jobs- The creative category includes jobs like scientist, novelist and artist.

-Complex and strategic jobs- These include jobs like executive, diplomat and economist.

-Empathetic and creative jobs- These include jobs like social workers, teachers, nanny and doctors.

-‘As-yet-unknown’ jobs- These include jobs to monitor and coordinate machines and robots, as fleet operators for trucks and rental vehicles.

**In Conclusion:**

Any predictions that we make what the world look like in 50 years may not be correct instead, it may happen after 5-7 years -Elon Musk

**Most Importantly**

We could lead a better life if we manage to:

Or else a future AI will force us to:

**Do something for the wellbeing of Humanity**

**Do something that inspires Humanity**

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