

## THE WORLD OF AI

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### **What is Artificial Intelligence?**

[1] Artificial intelligence is the complete knowledge behind the intelligent machines; it is used in building up machines which have higher order thinking capacity and work on computer programming. It focuses on how to make robots and machines think like humans. [2] since we know that intelligence is very essential, inducing it in machines enables that particular entity to work at its greater potential. AI machines can be used to enhance many sectors of life like healthcare, education, manufacturing, security etc. And make the world smarter than ever before

### **Brief History and Growth of Artificial Intelligence**

[3] Just the thought of having a mechanical assistant, centuries ago, led to the current discovery process of AI. It was only in the last half century the process of implementation of AI has begun (i.e. building up machines which have the capacity to think). In the past many philosophers like Rene Descartes and Gottfried Wilhelm Leibniz had different thoughts and imaginations of machines which work on intelligence. Even though, at that time Leibniz and Pascal designed the calculating machines they never thought that the devices could think. As these thoughts were spreading more, people started to dig into it. Even the science fiction writers have used this idea of intelligent machines in their writings. For example, L. Frank Baum wrote the Wizard of Oz. In which he took the robots as characters, which resembled humans. All these made people curious about the world of AI. In the early twentieth century development in electronics and the modern computers (which were also referred as giant brains) created a good opportunity to build AI machines. A major breakthrough in AI development was Turing's 1950 seminal paper in the journal 'Mind'. The paper explained how a computer can be programmed to think intelligently and he also provided the Turing's test, the next year AI based first program was written. [4] And after 5 years (in 1956) artificial intelligence, with proper structure and foundation, was introduced by John McCarthy (also known as father of AI). The next year, the first general problem solver was successfully tested and paved the way for the development of AI. It was when people started to show complete interest towards AI. [3] Robots were invented that time, but inducing common knowledge into them became a tricky task. In the process of research Isaac Asimov in 1942 gave the three famous laws of robotics. And after the development of AI started, the first autonomous vehicle was created in the Stanford AI lab. [4] At the initial stage everyone believed that AI will be doing the work which human beings can do, but according to scientists it was impossible for this to happen, so after more research they came to a conclusion that Artificial intelligence is nothing but making intelligent machines which can help humans to complete a given task faster with ease. And now researchers and programmers are working more in bringing AI to its higher potential. [3] And even AI started to fall in the eyes of the people of different disciplines (such as, engineering, biology, psychology, mathematics, logic.etc), and therefore led to the increase in its applications. Now AI started to help many fields and enhanced the lifestyle of many.

### **AI in Health Care Appliances**

[5] As we all know healthcare is vital for human life, introducing artificial intelligence in healthcare will be extremely helpful. The way it analyses the given data and gives suggestions is very accurate. It is a very useful tool to increase the efficiency and reduce the cause of damage.

[6] The major benefits of artificial intelligence in healthcare sector are it detects any problem well in advance so that patients can take necessary precautions, it gives risk analysis of a particular problem, its accurate and detailed imaging technique helps in better study of the problem, and it also reduces the health care costs. It is also used in identifying and collecting the data about new viruses and diseases. It does many jobs from taking the required information from the patient to the end of the process. [7] The most important use of AI in healthcare is its ability to manage the data perfectly. Since, many patients admit into hospitals everyday it is very important to manage their data properly. It gathers important information related to the patients by analysing their data. It also helps in storing a huge amount of data safely. And by making it very easy for the people in hospital to refer the details of a particular patient. It also does the repetitive jobs like taking X-rays, CT-scans and data entry perfectly.

It also provides advanced healthcare treatment by upgrading the treatment tactics, analyzing the data to give accurate treatment and monitoring the treatments carefully in order to avoid any miscalculations.

[8] The learning health systems (LHS) and of AI in medicine have many common points. In order to make AI's applications more effective there needs to be improvement in data sharing and infrastructure, it should work more on giving personalized care, and it should try to remove traditional obstacles that patients face while receiving the treatment.

[7] Still there are different processes going on to improve the reasoning capabilities and to induce extensive range of medical knowledge in AI machines, which they hope will improve the medical field. And save more lives of people.

### **AI in Manufacturing and Production**

[9] Over the last few decades, machines with AI technologies have become very important for manufacturing and production. AI not only improved production but also the economy of the country. In the modern manufacturing, industrial artificial intelligence (IAI) has become the core system of smart manufacturing. AI powered manufacturing majorly improved closed-loop production chains. Particularly, IAI based knowledge enhanced the modern manufacturing process. And the advanced properties of AI took the manufacturing to a greater level.

[10] AI provides higher efficiency and quality in production. It improves the production and makes the manufacturing process quicker, easier and effortless. It also reports the quality of the product and makes sure the consistency in production is good. Its environment-friendly service helps users in production. The process of manufacturing requires many things such as sensors, interconnections, collaboration, analysis, decision making and control systems. These all requirements are well managed by AI and hence removing a huge workload from humans.

[11] In this modern world, manufacturing and logistics systems are increasing rapidly because of the powerful computing networks. With raising capabilities, this Big Data is being updated and analysed deeply. These properties increased the demand of AI and introduced us to a new age called smart factory.

### **AI in Security and Surveillance**

[12] AI has wide range of application in security and surveillance. It helps in providing very good security in various places such as cyber networks, information storage, national defence, and in many other confidential areas.

[13] The role of security and surveillance is very essential in national defence, and therefore AI can be very useful in these areas. The critical mission areas such as border security, Domestic counter terrorism, protection of critical infrastructures, defending against sudden terrorism and emergency preparedness requires a lot of intelligence. And this can be possible with the help of AI. It makes sure that all these areas are safe and also gives various types of warnings at emergency situations by analysing the data.

[14] As there is a lot of progress in this modern world, there arises the necessity to keep confidential data safely. Non ethical hackers can get access to personal data and cause threat.

That is where AI comes in. AI can help in providing stronger security, it detects if there is any problem and gives alerts well in advance. Therefore by providing a safer environment in the smart world.

### **AI in Education**

[15] AI can be very useful in education in various activities like planning, administration knowledge representation and explanation. Its use in the education can enhance the process of studying.

[16] Computer based training (CBT) and computer aided instruction (CAI) were the systems used in tutoring via computers. These are the core systems which are used in the smart education.

[17] AIED (Artificial Intelligence in Education) includes everything like personalized dialogue systems, AI explanatory learning, game based environment, student support chatbots.etc which makes the studying process more comfortable and easier. The smart environment helps students to be educated effectively. AI improves the quality of education and makes studying process fun and comfortable. And the most important thing is the application of AI in grading students by their performance. AI not only helps student but even teachers and staff. Correcting the exam papers of students is a huge task for teachers, their whole time gets into it and they may not be able to focus more on improving the interaction between the students. Therefore, AI in this situation is very helpful, it can correct the papers, and it can grade students and make the teachers work simple and easier.

[16] These systems may be effective but the individual attention given by a physical tutor has its own benefits. Anyhow it reduces the work load and makes the education process smoother.

### **Advantages of AI**

AI is introduced into this world only because of its advantages. Here are some advantages of AI.

[18] AI doesn't have any emotions. It only works on facts. Whereas, we humans have a lot of emotions which affects us while taking any critical decision. The machines only work what is true according to its code and cannot be influenced by any.

Humans cannot work continuously 24/7 but the machines can work continuously without getting tired. The consistency in their work is uniform throughout a given task. They can take up different types of task without any difficulty or pressure.

Sharing the knowledge between different machines is seamless process. For completing huge work we need help of many people, people who have knowledge about the task, so we have to

educate them, which is a lengthy process. Whereas, in machines we can just copy the code and make the other machines work on the same task.

[19] AI is faster than humans. Any given task is completed very fast by AI.

It also processes complex work easily without any difficulty. Human beings can do complex work but it is very stressful. Whereas, AI completes it seamlessly and the errors made by it are negligible.

[20] By using AI in areas where it is dangerous for human beings we can save many lives. Example like mining, fuel exploration, defence related areas which are life threatening. We have seen many incidents where people lost their lives while working at these areas. Therefore, we can replace them with robots which do the similar work but this time there would be no risk for human life.

Not only in industries but also in education, e-commerce, safety and security, social media, etc. AI is utilised.

Therefore AI has got many advantages and can completely change the future upcoming world

### **Disadvantages of AI**

AI is not introduced into the world completely because of its disadvantages. Here are the disadvantages of AI.

[21] AI sometimes can be used in an inappropriate way in hands of few, which can lead to huge problems. We live in a world where there are different kinds of people with different mindsets. What may be correct for ones may not be the same for others.

We saw many advantages of AI as it can replace humans in different areas. But the problem here is growth of unemployment. And we can also see the rapid growth in the population these days.

Since the machines totally work program based, we have to be very careful because program mismatch sometime makes the bots or machines do opposite things which can be dangerous.

The younger generation will become lazy because they will totally dependent upon AI and forget the importance of living.

[22] Equipment required to design these machines are expensive. It costs huge amount to create and repair these machines. Therefore development in AI didn't even start in many regions.

[23] AI can be fast but the natural intelligence has better ability to think than AI. Some of the decisions cannot be done by AI. AI is the subset of our intelligence, only its mechanism makes it quicker.

In order to use AI efficiently it has to be explored in more depth.

Therefore these are some disadvantages in AI which are to be taken under consideration for future workings on AI.

### **Conclusion**

The artificial intelligence has completely changed the world. It has influenced each and every sector of the society; from education to healthcare. It made humans work simple and easier. It enhanced the lifestyle of different people. And what we are seeing is just the beginning of AI. AI can further be used in an unimaginable way; it has a lot of potential. It requires more research and experimentations on this field. AI has its own pros and cons, the research should be done considering all these factors. And according to some assumptions many are stating that in the future AI will conquer the whole world. And people will completely depend on AI.

According to me AI should be developed but my only concern is that it will lead to a lot of unemployment, ofcourse people who have invested in and working on it have profit but the ones whose jobs are going to be replaced in future will have a lot problem. They will have no work in future which cuts off their income source and makes the poor poorer. So I would say Balancing both employment and development of AI we have to take the next step.

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