A Review on Artificial Intelligence, Challenges Involved & Its Applications

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ABSTRACT: In the coming future, smart machines will replace the humans in several areas. AI artificial intelligence is the imitation of human intelligence processes by machines, particularly computer systems. These processes comprise learning, reasoning and self-correction. Artificial Intelligence is becoming a trendy field in computer science because it has improved the human life in a lot of areas. Artificial intelligence has significantly enhanced the performance of the manufacturing and service systems in the last two decades. Study in the area of artificial intelligence has given ascend to the swiftly rising technology known as expert system. Application areas of Artificial Intelligence is having a massive impact on different fields of life as expert system is extensively used these days to crack the complex problems in various areas such as science, engineering, business, medicine & weather forecasting. The areas using the technology of Artificial Intelligence have seen a boost in the quality and efficiency. This paper presents an outline of this technology and the application areas of this technology.

Keywords: Artificial Intelligence (AI), Machine learning.

I. INTRODUCTION
Artificial intelligence has become the important part of human life and changing this life tremendously. AI has not even changed the life style but it also affected a variety of domains of life like education, health and safety. Artificial Intelligence is helping people to get education, to drive safety, to enjoy various games, to get better medication etc. Its various applications can be visible in school and colleges, hospitals, transportation and houses. The technology
tycoons, researchers, governments all are working to make Artificial Intelligence more useful and practical in various domains of life. Big companies like Yahoo, Google spend a lot to find out the new applications of Artificial Intelligence so as to innovate and offer services to people. AI has changed the life style of people and the way they use technology. Artificial Intelligence can be felt in smart phones, GPS, video games etc. This article presents the facts and applications of Artificial Intelligence mentioned in various research articles and reports. It further elaborates the changes made by Artificial Intelligence in various domains of life. It is important to understand the meaning of some terms before discussing the applications. Artificial Intelligence is the commotion of manufacturing machines intelligent since intelligent means to work with insight in the given environment. AI is the science of creating smart computer programs and related to tasks of using computers to understand human thoughts and decisions. It is a subpart of computer science which makes them intelligent and advanced. Artificial Intelligence is interacting researchers also to realize its applications in a variety of domains of life.

II. ARTIFICIAL INTELLIGENCE

VS.

HUMAN INTELLIGENCE

Human intelligence works naturally and takes decisions by using cognition. On the other hand artificial intelligence works on a model that behaves like humans. Artificial Intelligence is an artificial thing and Human Intelligence is a natural thing. Human intelligence works in the form of signals & artificial intelligence is digital. Artificial Intelligence is based on hardware and software but human intelligence is not based on these issues. Some researchers consider machines equally important and capable as human intelligence.

III. EXAMPLES OF AI TECHNOLOGY

- Automation: It is the process of making a system or process function automatically. Robotic process automation, for example, can be programmed to perform high-volume, repeatable tasks normally performed by humans.
- Machine learning: It is a branch of artificial intelligence which allows computers to be trained directly from examples & data. Through enabling computers to perform specific tasks intelligently, machine learning systems can carry out complex processes by learning from data, rather than following pre-
programmed rules. Increasing data accessibility has endorsed machine learning systems to be trained on a bulky pool of examples, while growing computer processing power has supported the critical capabilities of these systems. Within the field itself there have also been algorithmic advances, which have given machine learning better power. As a outcome of these advances, systems which performed at noticeably below-human levels can now go better than humans at some definite tasks. Many people now cooperate with systems based on machine learning each day, for example in image recognition systems. Now-a-days the concept of machine learning is used in many applications and is a core concept for intelligent systems

- Machine vision: It is the sciences of making computers see. Machine vision captures and analyzes visual information using a camera, analog-to-digital conversion and digital signal processing. It is used in a variety of applications like signature identification etc Computer vision, which is focused on machine-based image processing, is often conflated with machine vision.

- Natural language processing: It is the processing of human -- and not computer language by a computer program. One of the older and best known examples of NLP is spam detection, which looks at the subject line and the text of an email and decides if it’s junk. Current approaches to NLP are based on machine learning. NLP tasks include text translation, sentiment analysis and speech recognition.

  - Pattern recognition: It is a branch of machine learning that focuses on identifying patterns in data. The term, today, is dated.
  
  - Robotics: It is a field of engineering focused on the design and manufacturing of robots. Robots are often used to perform tasks that are difficult for humans to perform or perform consistently. They are used in assembly lines for car production or by NASA to move large objects in space

![AI Techniques](image-url)
IV. ARTIFICIAL INTELLIGENCE APPLICATIONS

Machine learning algorithms are widely used in a variety of applications like digital image processing (image recognition)[5], big data analysis[4], Speech Recognition, Medical Diagnosis, Statistical Arbitrage, Learning Associations, Classification, Prediction etc. Artificial Intelligence will keep on playing an increasingly more significant role in the different fields.[1]

V. CHALLENGES

Artificial Intelligence has changed lives but it has to be adopted under appropriate and pertinent policies since it has several challenges[2]. E.g. Driving in a jam-packed city can be a problem for automation due to unpredictable events. Artificial Intelligence can become significant for millions of people for their health but only if trust of doctors, nurses and patients can be gained. Quality education will necessitate active engagement of teachers. Artificial Intelligence can be used efficiently if teachers accept it and they are trained to use it.

V. CONCLUSION

The article illustrates the concept of artificial intelligence, with its various challenges and applications. The article also highlights the various examples of Artificial intelligence technology such as automation, machine learning, natural language processing, pattern recognition & Robotics etc.

VI. REFERENCES


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