



Artificial intelligence, its types and application in various fields

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Abstract

The vast branch of study known as artificial intelligence (AI) focusses on creating computers and machines that are capable of learning, reasoning, and acting in ways that would typically need human intelligence. Artificial intelligence (AI) refers to a group of technologies that are capable of a wide range of sophisticated tasks, such as data analysis, recommendation-making, and language comprehension and translation. This research paper is an attempt to study the concept of artificial intelligence, its types. It also has analysed the use of artificial intelligence in various fields. According to this study the artificial intelligence is shaping the human life like never before. It is necessary to study the concept of AI. The AI is going to have impact on various fields of knowledge and without the proper knowledge of AI any human or business cannot survive.

Keywords: Artificial intelligence, types, application in various fields

Introduction

Artificial Intelligence (AI) encompasses everything from search algorithms used in board games to intelligent robotics. It is useful in almost every way that people utilise computers in our daily lives.

When John McCarthy hosted the first academic meeting on the topic in 1956, he first used the phrase artificial intelligence. John McCarthy defines artificial intelligence as the science and engineering involved in creating intelligent machines, especially intelligent computer programs. However, the investigation into whether or not computers are capable of true thought started far earlier.

Over the decades, there hasn't been much advancement in what most people consider to be "true AI." In the field, overestimating the complexity of underlying problems has been a recurring concern. For the past 60 years, significant advancements in AI have been predicted "in 10 years." Furthermore, the term "intelligent" is sometimes redefined once machines have mastered a certain task or issue. The demise of US-based AI research in the 1980s was attributed in part to this so-called "AI Effect."

Meaning of AI

The phrases artificial and intelligence are combined to form artificial intelligence. Artificial means "not real" or "natural," while intelligence is defined as "the ability to reason, to trigger new thoughts, to perceive and learn."

Review of literature

- In the opinion of (Jain, 2019) ^[1] demonstrated that artificial intelligence is now broadly accepted and has a lot of potential to change the workplace. As technology advances at a rapid pace in both business and human life, AI will assist companies in preparing for the problems that lie ahead. Since AI improves sustainability and market leadership, it has been demonstrated to have a favourable effect on all corporate activities.
- In the research conducted by concluded that (Verma, 2018) ^[3] the study of artificial intelligence enables machines to use concepts to think analytically. In the past two decades, artificial intelligence techniques have

made a tremendous contribution to a variety of fields. AI will keep becoming more and more significant in a variety of fields.

- (Prof Neha Saini, 2023) ^[2] mentioned that Over the next few years and decades, artificial intelligence (AI), a genuinely groundbreaking achievement in computer science, will likely be included into all contemporary software. This offers both an opportunity and a threat. The application of AI will support both offensive and defensive cyber operations. Furthermore, new methods of cyberattack will be developed to exploit the unique flaws in AI technology. Lastly, AI's voracious appetite for vast quantities of training data will make data even more important, changing the way we must think about data protection. It will take careful global governance to guarantee that this game-changing technology will result in widely distributed safety and wealth.

Various forms of artificial intelligence

1. Narrow AI

Artificial intelligence (AI) tools that are made to do extremely specific tasks or commands are referred to as narrow AI, weak AI, or artificial narrow intelligence (ANI). ANI technologies are not able to learn skills beyond their design on their own; they are designed to support and enhance a single cognitive ability. They frequently use neural network techniques and machine learning to accomplish these predetermined tasks.

2. Artificial General Intelligence

Artificial general intelligence (AGI) refers to AI that can learn, think, and do a variety of tasks comparable to humans. It is also known as general AI or powerful AI. To be able to build computers that can do multiple activities and serve as realistic, intelligent helpers to people in daily life is the aim of artificial general intelligence design.

3. Artificial Superintelligence

Super AI, often known as artificial superintelligence (ASI), is the stuff of science fiction. It is predicted that

if AI reaches the level of general intelligence, it would learn so quickly that its skills and knowledge will surpass even that of humanity.

4. Machine AI that Reacts

Machines that are reactive are just that—reactive. They can react to demands and duties right away, but they lack the capacity to store memories, learn from mistakes, or develop their functioning over time. Reactive machines are also limited in the range of input combinations they can react to. The simplest form of AI is reactive machines.

5. AI with a Limited Memory

limited memory In order to create predictions, AI can store historical data. This indicates that it actively constructs a small, temporary knowledge base of its own and uses that information to complete tasks. Deep learning is the foundation of limited memory AI, mimicking the way neurones in the human brain work. This let a machine to "learn" from experiences and incorporate data, thereby increasing the precision of its actions.

6. Artificial Intelligence Theory

The term "theory of mind" describes the idea of artificial intelligence that is able to sense and understand other people's feelings. The phrase is taken from psychology to describe how people may read other people's emotions and use that information to forecast their own behaviour in the future. The next significant advancement in AI is theory of mind, which has not yet reached its full potential.

7. Self-Aware Artificial Intelligence

Artificial intelligence with self-awareness is referred to as self-aware AI. One of the ultimate objectives in AI development is self-aware AI, often known as the AI point of singularity, which is the level beyond theory of mind. Since self-aware AI would not only be able to experience other people's emotions but will also have a sense of self, it is believed that once this technology is developed, AI machines will be uncontrollable.

Application of AI to various industries

1. Education Sector

The field most influenced by humans is education, although artificial intelligence has begun to advance in this area as well. Faculty members are now more successful and have been able to shift their focus from office or administrative duties to students thanks to the gradual use of AI.

2. Automation

Robotics is another field that regularly uses artificial intelligence applications. Real-time updates are used by AI-powered robots to identify obstacles in their path and instantaneously plan their courses. It is applicable to Moving goods at factories, hospitals, and warehouses; Keeping up massive machinery and office structures; Control of inventory.

3. Medical Care

Artificial intelligence has several applications in the healthcare sector. constructing cutting-edge tools with AI applications that can recognise cancer cells and diagnose illnesses. Artificial intelligence can help analyse lab and other medical data related to chronic illnesses to ensure early diagnosis. AI finds new drugs by combining medical expertise with historical data.

4. Farming

Artificial intelligence is used to identify soil flaws and nutrient imbalances. AI can use robotics, computer vision, and machine learning technology to identify weed growth. AI bots are able to harvest crops faster and in larger quantities than human workers.

5. Video Games

AI technologies have also become more and more popular in the game business. Intelligent, human-like NPCs that interact with players can be created using AI. It can also be used to predict human behaviour to enhance testing and game creation.

6. The Banking Sector

Artificial intelligence can be used by the banking sector to handle high-speed, record-level data and obtain useful insights. Features like digital payments, AI bots, and biometric fraud detection systems also help to provide high-quality services for a wider clientele.

7. Manufacturing

In the manufacturing industry, artificial intelligence (AI) refers to the application of technology to automate laborious tasks and find previously undiscovered patterns in work flows or production processes. To improve overall production effectiveness, reduce risks, and raise profits, every manufacturer looks for new ways to do so. Their existence and a prosperous, sustainable future depend on this.

8. Money

AI has a significant positive impact on corporate finance since it can more precisely detect and assess credit risks. For companies looking to increase their value, machine learning and other AI technologies can improve loan underwriting and lower financial risk. There are many benefits to using AI in finance, including process automation, fraud detection, and personalised recommendation generation.

9. Automobiles

Testing automobiles is the most popular usage of artificial intelligence in the automotive industry. Vehicle performance will be tested and measured continuously by AI and ML systems, together with model-based testing protocols. Moreover, manufacturers can use ML algorithms to produce hundreds of product and part prototypes.

Conclusion

An intelligent agent is a system that acts in a way that maximises its chances of success. Artificial Intelligence (AI) is the area of computer science that studies the intelligence of robots. It is the study of concepts that allow

computers to reproduce human intelligence. Artificial intelligence is an incredibly fascinating area. AI is constantly altering our lives, just like a lot of other new technology. It's feasible that intelligent machines may be introduced soon to improve everyone's comfort and convenience.

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