

Artificial Intelligence and its Application: Review

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Abstract

In the future, intelligent machines will replace or enhance human capabilities in many areas. Artificial intelligence is the intelligence exhibited by machines or software. Artificial Intelligence is becoming a popular field in computer science as it has enhanced the human life in many areas. Study in the area of artificial intelligence has given rise to the rapidly growing technology known as expert system, Natural language processing, Neural Networks, Robotics, Fuzzy logic systems.

Application areas of Artificial Intelligence is having a great impact on various fields of life as expert system is widely used these days to solve the complex problems in various areas as science, engineering, business, medicine, weather forecasting. the application areas of this technology.

Keywords: *Artificial Intelligence, Neural Networks (computer).*

I INTRODUCTION

Artificial intelligence is playing an increasing role in the research of management science and operational research areas. Intelligence is considered as the ability to collect knowledge and reason about knowledge to solve complex problems. In the near Future intelligent machines will replace human capabilities in many areas. Artificial intelligence is the study and developments of intelligent machines and software that can reason, learn, gather knowledge, communicate, manipulate and perceive the objects.

Artificial intelligence is different from psychology because it emphasis on computation and is different from computer science because of its emphasis on perception, reasoning and action. It makes machines smarter and more useful. It works with the help of artificial neurons (artificial neural network) and scientific theorems.

Major Artificial Intelligence areas are Expert Systems, Natural Language Processing, Speech Understanding, Robotics and Sensory Systems, Computer Vision and Scene Recognition, Intelligent Computer Aided Instruction, Neural Computing. From these Expert System is a rapidly growing technology which is having a huge impact on various fields of life.

II. AREAS OF ARTIFICIAL INTELLIGENCE

- A. Expert Systems:** The expert system can resolve many issues which generally would require a human expert. It is based on knowledge acquired from an expert. It is also capable of expressing and reasoning about some domain of knowledge. Expert systems were the predecessor of the current day artificial intelligence, deep learning and machine learning systems.

Examples – Flight-tracking systems, Clinical systems.

B. Natural Language Processing:

Natural Language Processing (NLP) refers to AI method of communicating with intelligent systems using a natural language such as English.

Processing of Natural Language is required when you want an intelligent system like robot to perform as per your instructions, when you want to hear decision from a dialogue based clinical expert system, etc.

The field of NLP involves making computers to perform useful tasks with the natural languages humans use. The input and output of an NLP system can be –Speech, Written Text.

Examples: Google Now feature, speech recognition, Automatic voice output.

C. Neural Networks

Artificial neural networks (ANNs) are statistical models directly inspired by, and partially modeled on biological neural networks. They are capable of modeling and processing nonlinear relationships between inputs and outputs in parallel. The related algorithms are part of the broader field of machine learning, and can be used in many applications

Examples – Pattern recognition systems such as face recognition, character recognition, handwriting recognition.

D. Robotics

Robotics is a branch of AI, which is composed of Electrical Engineering, Mechanical Engineering, and Computer Science for designing, construction, and application of robots. They operate in real physical world, Inputs to robots is analog signal in the form of speech waveform or images. They need special hardware with sensors and effectors.

Examples – Industrial robots for moving, spraying, painting, precision checking, drilling, cleaning, coating, carving, etc.

E. Fuzzy Logic Systems

Fuzzy Logic (FL) is a method of reasoning that resembles human reasoning. The approach of FL imitates the way of decision making in humans that involves all intermediate possibilities between digital values YES and NO.

Examples–Consumer electronics, automobiles, etc.

III Artificial Intelligence Applications

Artificial Intelligence system (AIS) and its semantic neural networks centric and expert systems have broadened the applications in all aspects of human exhibited activities of actions. AI has been used to widen the technological advancement of various fields such as machine industries, finance sector, healthcare center, education sector, transportation/Navigation, Weather conjecture and more.

- **In Finance:** Stock analysis algorithmic, stock exchanging information, Market examination and information mining, Personal finance portfolio, Portfolio administration today are, vast extent subject matter to AI.
- **In Heavy machinery industries:** Robots has turned out to be common in many industries and they are frequently given assigned task or those jobs in which humans' perfection is constrain. Many robots have demonstrated successful in employments that are exceptionally redundant in doing those works which may slip by humans due to a lapse in concentration.

- **Hospitals (Facilities) and pharmaceutical:** Artificial neural networks are often used in hospital for critical, clinical emergency decision support systems for medical diagnosis, especially in EMR software. Artificial neural networks schema are even used today for clinical decision support on critical medical diagnosis inbounds diseases. Watson project is another use of AI in this field, a Q/A program that suggest for doctors of cancer patients. In bionic field for artificial arms, legs etc. Today in health sectors 92 Artificial Intelligence start-ups portended machine are used.
- **Transportation:** Most of the automobiles industry are producing and aiming for programmed gearboxes in vehicles. The present automobiles industries now have AI-based driver help highlights, for example, self-stopping and propelled journey controls, self-parking and advanced cruise controls in advance vehicles.
- **Weather Forecasting:** Neural systems of AI are used these days for foreseeing climate conditions. Past information is given to the neural system, which at that point examinations the information for designs and predicts the future climate conditions.
- **Information Mining (Data) or Knowledge Extraction:** Data mining is a fast-growing area. This procedure comprises fundamentally of steps that are performed before completing Data Mining, for example, data choice, data cleaning, pre-handling of data, and data transformation. Data Mining uses computer programmed algorithms to discover hidden patterns and unsuspected relationships among rudiments in a large data set.
- **Accounting Databases:** The use of artificial intelligence is investigated as the basis to mitigate the problems of accounting databases. The following are some difficulties with existing accounting database systems. The needs of decision makers are not met by accounting information. Humans do not understand or cannot process the computerized accounting databases. Systems are not easy to use. There is focus on the numeric data. Integrating intelligent systems with accounting databases can assist (either with the decision maker or independent of decision maker) in the investigation of large volumes of data with or without direct participation of the decision maker. Thus, the systems can analyse the data and assist the users understanding or interpreting transactions to determine what accounting events are captured by the system [5].With the artificial intelligence we store and retrieve knowledge in natural language. There are some artificial intelligence tools or techniques that help in the broader understanding of events captured by the accounting system. There is more emphasis on symbolic or text data rather than just numeric data to capture context. The artificial intelligence and expert system builds intelligence into the database to assist users. Without users direct participation such models help the users by sorting through large quantities of data. Such models also assist the decision makers under time constraints; suggest alternatives in the searching and evaluation of data.
- **Computer Games:** Playing games is one of the most popular uses for computer technology. In the evolution of computer games, they have grown from modest text based to the three dimensional graphical games with complex and large worlds. The systems as graphics rendering, playing audio, user input and game artificial intelligence (AI) when put together provide the expected entertainment and make a worthwhile computer game. Artificial intelligence is the most important part of every computer game and playing the game without artificial intelligence would not be any fun!. If we remove artificial intelligence from

computer games, the games will be so simple that nobody will be interested in playing the computer games anymore!. Without the game AI, the winning would not be difficult at all. Artificial intelligence is used to solve common problems in the computer games and provide the features to the games. Specifically, non-playing character (NPC) path finding, decision making and learning are examined. There are several ways that AI contributes to modern computer games. Most notably are unit movement, simulated perception, situation analysis, spatial reasoning, learning, group coordination, resource allocation, steering, flocking, target selection, and so many more. Even context dependent animation and audio use AI

IV CONCLUSIONS

The field of Artificial intelligence (AI) enables the machine with the rational ability to sense analytically of thinking process, using concepts, systematic logic and reasoning. In the last 2 decades remarkable contributions in these fields are made by humans and machine together for paving new door for technologies.

Artificial Intelligence will continue to play, progressively more important role in the various fields of science and technologies. This paper signifies the present role of concept and existences of Artificial Intelligence and its techniques used in various applications. But when it comes to the question of Artificial Intelligence creating machines, which are more intelligent than human beings, no one seems to have the answer. It is still in embryonic stage and its future depends only on the current bottomless subjects' research of AI technologies, if the researchers solve the mystery of human brain and its neuron in more specific order. Then AI may have human brain features, like learning from experience, cognition and perception. Whether human being consciousness will be integrated in these machines is a still subject of matter, which is totally not known.

We conclude that further research in this area can be done as there are very promising and profitable results that are obtainable from such techniques. While scientists have not yet realized the full potential and ability of artificial intelligence. This technology and its applications will likely have far-reaching effects on human life in the years to come.

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