



Study of Artificial Intelligence and its Application

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Abstract :- Artificial Intelligence otherwise known as AI it is the development and the theory of some computer systems which are able to undertake certain task which will normally need the intelligence of humans. AI has received increased attention from the information systems (IS) research community in recent years it is the science and engineering of making intelligent machines, especially in intelligent computers programs. but AI does not have to confine itself to methods that are biologically observable. The AI powered machine can perform many jobs at once; they are not costly compared to human beings and are accurate and efficient. This paper examines the future of artificial intelligence, introduction, definition of AI, history, applications, growth and achievements.

Keywords :- Natural Language processing and knowledge base system, deep learning, machine learning, neural networks.

I. INTRODUCTION

Artificial Intelligence (AI) is the branch of computer science which deals with intelligence of machines where an intelligent agent is a system that takes actions which maximize its chances of success. Artificial Intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.

AI manifests in a number of forms. A few examples are:

- chatbots use AI to understand customer problems faster and provide more efficient answers
- Intelligent assistants use AI to parse critical information from large free-text datasets to improve scheduling
- Recommendation engines can provide automated recommendations for TV shows based on users' viewing habits.

What is Artificial Intelligence-

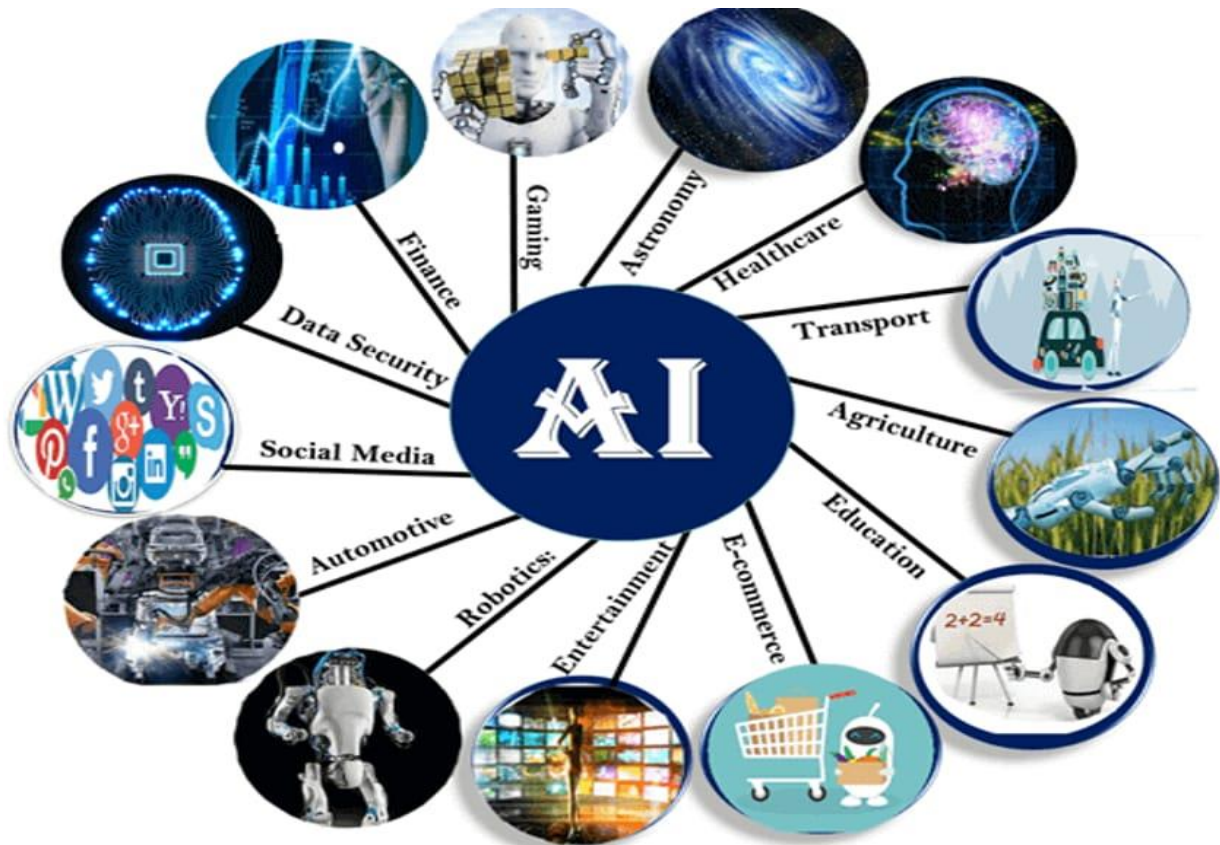
Artificial Intelligence (AI) refers to simulation or approximation of human intelligence in machines. The goal of artificial intelligence includes computer-enhanced learning, reasoning, perception. AI is being used today across different industries from finance to healthcare.

There are 4 types of AI-

- **Reactive AI** - The most basic type of artificial intelligence is reactive AI, which is programmed to provide a predictable output based on the input it receives. Reactive machines always respond to identical situations in the exact same way every time, and they are not able to learn actions and conceive of past and future.
- **Limited Memory AI** - Limited memory AI learns from the past and builds experiential knowledge by observing actions or data. This type of AI uses historical, observational data in combination with pre-programmed information to make predictions and perform complex classification tasks. It is the most widely-used kind of AI today.

- **Self-aware AI** – The most advanced type of artificial intelligence is self aware AI .when machines can be aware of there own emotions, as well as the emotions of others arond, they will havea level of consciounass and intelliegence similae to human beings . This type of AI willhave desires, needs,and emotion as well.
- **Theory-of-mind AI** - Theory of mind means that people have thoughts , fellings and emotions that affect their behaviour.future AI systems must learn to understand that everyone(both peopele and AI objects) have thoughts and fellings .Future AI system must known how to adjust their behaviour to be able to walk among us.

Applications Of AI -



1. **AI in Astronomy** : Artificial Intelligence can be very useful to solve complex universe problems. AI technology can be helpful for understanding the universe such as how it works, origin ,etc.
2. **AI in healthcare** : Healthcare Industries are applying AI to make a betrter and faster diagonis than humans. AI can help doctors with diagonis and can confirm when patients are worsening so that medical can help reach people to the patient before hospitalization.
3. **AI in Gaming** : AI can be used for gaming purpose . The AI machine can play strategic games like chess, where the machine needs to think large number of possible places.
4. **AI in Finance** : AI and finance industries are best matches for each others . The finance industry is implementing automation ,chatbot,adaptive intelligence ,algoritham trading ,and machine learning into financial process.
5. **AI in Data Security** : The security of data crucial for every company and cyber-attacks are growing rapidly in the digital world.AI can be used to make your data more safe and secure . Some examples of such as AEG bot, A12 platform, are used to determine software bug and cyber-attacks in a better way.
6. **AI in social media** : Social media sites such as Facebook, Twitter, and snapchat contains billions of user profiles, ehich needs to be stored and managed in very efficient way. AI can organize and manage massive amounts of data. AI can analyze lots of data to identify the latest trends, hashtag, and requirement of different users.
7. **AI in Travel and Transport** : AI is become highly demanding for travel industries. AI is capable of doing various travel related works such as from making travel arragement to suggesting hotels, flights, and best routes to the customers. Travel industries are using AI-powered chatbots which can make human-like interaction with customer for better and fast Response.

8. **AI in Automotive Industry:** some automotive industries are using AI to provide virtual assistant to their user for better performance. Such as Tesla Has introduced TeslaBot, an intelligent agent virtual assistant.
9. **AI in Robotics:** Artificial Intelligence has a remarkable role in Robotics. Usually, general robots are programmed such that they can perform some repetitive task, but with the help of AI, we can create Intelligent robots which can perform task with their own experience without pre-programmed.
10. **AI in Entertainment :** Online streaming platforms rely on AI to enhance content discovery. AI Analyzes scene, objects and metadata to categorize movies and shows, enabling more accurate genre classification and recommendations.
11. **AI in Agriculture :** Agriculture is an area which requires various resources, labour, money, and time for best result. Now a day's agriculture is becoming digital, and AI is emerging in this field. Agriculture is applying AI as agriculture robotics, soil, and crop monitoring, predictive analysis. AI in agriculture can be very helpful for farmers.
12. **AI in E-commerce :** AI is providing competitive edge to the e-commerce industry, it is becoming more demanding in e-commerce business. AI is helping shoppers to discover associated products with recommended size, color, or even brand.
13. **AI in education :** AI can automate grading so that the tutor can have more time to teach. AI chatbot can communicate with student as a teaching assistant.

II. METHODOLOGY

Machine Learning : Machine learning is a branch of artificial intelligence that develops algorithms by learning hidden patterns of data sets used it to make predictions on similar type data, without being explicitly programmed for each task. Machine learning is used in many different applications, from image and speech recognition to natural language processing, recommendation system, fraud detection, portfolio optimization, automated task, and so on. Machine learning models are also used to power autonomous vehicles, drones, and robots, making them more intelligent adaptable to changing environment.

Natural Language Processing(NLP) : Natural Language Processing (NLP) is a branch of artificial intelligence (AI) that enables computers to comprehend, generate, and manipulate human language. Natural Language processing has ability to interrogate the data with natural language text or voice. This is also called "language in". NLP is the core technology behind virtual assistant, such as Oracle Digital Assistant (ODA), Siri, Cortana, or Alexa. When we ask questions of these virtual assistants, NLP is what enables them to not only understand the user's request, but it also responds in natural language. NLP applies both written text and speech, and can be applied to all human languages.

Automation and Robotics : The purpose of automation is to get the monotonous and repetitive task done by machines which also improve productivity and receive cost-effective and more efficient result. Many organizations use machine learning, neural network, and graphs in automation. Such automation can prevent fraud issues while financial transactions online by using CAPTCHA technology. Robotics Process automation is programmed to perform high volume repetitive task which can adapt to change in different circumstances.

Machine Vision : Machine vision is the ability of computer to see; it employs one or more video cameras, analog-to-digital conversion and digital signal processing. The resulting data goes to a computer robot controller. Machine vision is similar in complexity to voice recognition. Machine can capture visual information and then analyze it. In machine vision, two vital aspects are sensitivity, which is the ability of machine to perceive impulse that are weak and resolution, the range to which the machine can distinguish the object.

Knowledge-Based System(KBS) : A KBS can be defined as a computer system capable of giving advice in a particular domain, utilizing knowledge provided by a human expert. A distinguishing feature of KBS lies in the separation behind the knowledge, which can be represented in a number of ways such as rules, frames, or cases, and the inference engine or algorithm which uses the knowledge base to arrive at a conclusion.

Neural Networks : A neural network is a method in artificial intelligence that teaches computers to process data in a way that is inspired by the human brain. It is a type of machine learning process, called deep learning, that uses interconnected nodes or neurons in a layered structure that resembles the human brain. It creates an adaptive system that computers use to learn from their mistakes and improve continuously. Thus, artificial neural networks attempt to solve complicated problems, like summarizing documents or recognizing faces, with greater accuracy.

III. CONCLUSION

Hence we Had studied About Artificial Intelligence and Their Applications.

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