A REVIEW ON ARTIFICIAL INTELLIGENCE MACHINE LEARNING PROGRAMME AND ITS FUTURE PROSPECTIVE

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Abstract

Information systems (IS) research community in nowadays day by day its a growing concern that research on AI could experience a lack of cumulative building of knowledge, which has over shadowed IS research previously. Today's science is the tomorrow's technology concept. New superiorly advanced technologies are not less than blessing of god. Adaptive inventions for reducing the human work and bright future were invented which is simply called as Artificial Intelligence and Machine learning. There are various programming languages that is known as languages of artificial intelligence because they are used almost exclusively in AI applications. Application areas of artificial intelligence is heaving a huge impact on various fields of life as expert system is widely used in these days to solve the complex problems in various areas as education, engineering, business, medicine, weather forecasting etc The research review concludes by emphasizing the importance of responsible and ethical development of AI.

Keywords: Artificial intelligence, Social challenges, Machine learning, Digitalization, Humanoids

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INTRODUCTION

Artificial intelligence is a new technology comes under the branch of computer science and this is concerned about how computers behave as a human.[1] Artificial intelligence (AI) is responsible for developing intelligent software's and machines which can solve complex problem. Intelligence is basically available in both humans and artificial intelligence.[2] For the solving problems, reasoning and learning humans use their intelligence to solve a complex problem. This is basically defined for development of software which is used for solving complex problems using application processes.[3] There are a number of tools used in Artificial Intelligence that belong from various branches such as; biology, neuron science, computer science, psychology mathematics, philosophy and sociology.[4] The Dartmouth Workshop in 1956 marked a significant milestone, where the term "AI" was coined, and researchers gathered to explore the possibilities of machine intelligence.[5] Since then, AI has undergone several waves of progress, from the rule-based expert systems of the 1980s to the resurgence of AI through the advancements in neural networks and deep learning.[6] In healthcare system, AI has been employed for medical imaging analysis, disease diagnosis, drug discovery, and personalized treatment recommendations.[7] This is the area of study which wants to make the systems/computers well educated/smart. John McCarthy came up with the concept, which is named with artificial intelligence and this concept came in 1995.[8] That all parts are; programming languages, reasoning problems, life of artificial, distributed artificial intelligence, constraint satisfaction, belief revision, natural language understanding, knowledge representation, theory of computation(TOC), machine learning, data mining, genetic algorithms, systems, neural networks, proving methods of theorem.[9]

ARTIFICIAL INTELLIGANCE (AI)

According to father of artificial intelligence John McCarthy, who coined the term "Artificial intelligence" in 1956,[10] said that "It is the combination of science and engineering to make intelligent devices for human welfare." "Artificial intelligence is an intellect that is much smarter than the best human brain in practically every field, including computer science and linguistic logic."It is a modern method of machines which will do muscle work and illustrate complex questions in a "intellectual" manner.[11] It is concerned with the basic and most important aspects in our life i.e. philosophy, computer science, mathematics, linguistics, biology, neuron science, sociology etc. AI plays a very important role to exhibit intelligent behaviour, to learn, demonstrate and give advice to the user.[12]

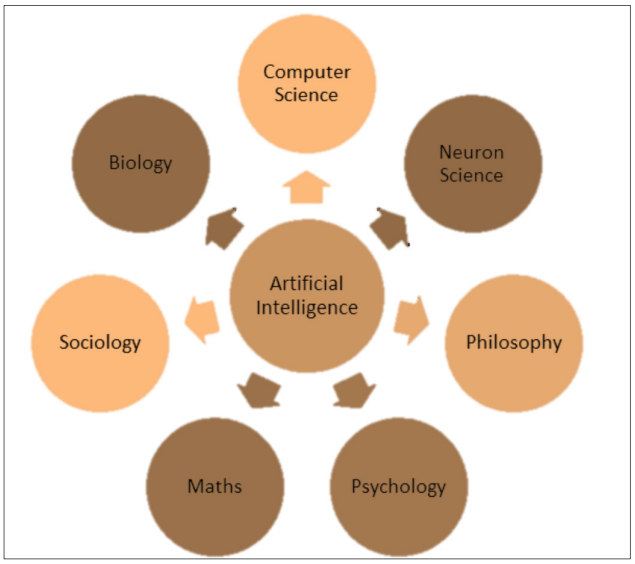

Fig. no 1: Flow chart of "AI"

APPLICATIONS ARTIFICIAL INTELLIGENCE

AI has become a pervasive force, fundamentally altering the landscape of various sectors. Its versatile applications have revolutionized traditional approaches, impacting how tasks are executed and decisions are reached.[13]

1. It exploring its transformative influence on critical domains, including healthcare, finance, transportation, manufacturing, human resource management (HRM).
2. AI technologies reflects the remarkable adaptability and potential of AI across multifaceted industries.[14]
3. Healthcare: AI has made significant contributions to the healthcare sector enabling improved diagnostics, efficient in healthcare delivery.[15]
4. Finance: AI has revolutionized the finance industry, enabling fraud detection, algorithmic trading, risk assessment, and personalized financial services.
5. AI-powered chatbots and virtual assistants have also been utilized to deliver personalized financial advice and services.[16]
6. Transportation: AI is transforming the transportation sector through advancements in autonomous vehicles.

7. Manufacturing: AI technologies are reshaping manufacturing processes, leading to improved efficiency, quality control, and predictive maintenance. AI techniques were utilized for optimizing production lines.[17]
8. In addition to these capabilities, AI provides predictive analytics to support data-driven decision making and employs chat bots to address routine inquiries.[18]

SOME OTHER APPLICATIONS

1. Fraud detection

The financial services industry uses artificial intelligence in two ways. Initial scoring of applications for credit uses AI to understand creditworthiness.[19] More advanced AI engines are employed to monitor and detect fraudulent payment card transactions in real time.

2. Virtual customer assistance (VCA)

Call centres use VCA to predict and respond to customer inquiries outside of human interaction. Voice recognition, coupled with simulated human dialog, is the first point of interaction in a customer service inquiry. Higher-level inquiries are redirected to a human.[20]

3. Medicine

A medical clinic can use AI systems to organize bed schedules, make a staff rotation, and provide medical information. AI has also application in fields of cardiology (CRG), neurology (MRI), embryology (solography), complex operations of internal organs etc.[21]

4. Heavy Industries

Huge machines involve risk in their manual maintenance and working. So in becomes necessary part to have an efficient and safe operation agent in their operation.[22]

5. Telecommunications

Many telecommunications companies make use of heuristic search in the management of their workforces for example BT Group has deployed heuristic search in a scheduling application that provides the work schedules of 20000 engineers.[23]

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6. Music

Scientists are trying to make the computer emulate the activities of the skillful musician. Composition, performance, music theory, sound processing are some of the major areas on which research in Music and Artificial Intelligence are focusing on. Eg:chucks, Orchextra, smartmusic etc.[24]

7. Antivirus:

Artificial intelligence (AI) techniques have played increasingly important role in antivirus detection. At present, some principal artificial intelligence techniques applied in antivirus detection It improves the performance of antivirus detection systems, and promotes the production of new artificial intelligence algorithm and the application in antivirus detection to integrate antivirus detection with artificial intelligence.[25]

ARTIFICIAL INTELLIGENCE METHODS

1. Natural Language Processing(NLP)

It is the interactions between computers and human language where the computers are programmed to process natural languages. Machine Learning is a reliable technology for Natural Language Processing to obtain meaning from human languages. In NLP, the audio of a human talk is captured by the machine. Then the audio to text conversation occurs, and then the text is processed where the data is converted into audio. Then the machine uses the audio to respond to humans. Applications of Natural Language Processing can be found in IVR (Interactive Voice Response) applications used in call centres, language translation applications like Google Translate and word processors such as Microsoft Word to check the accuracy of grammar in text.[26]

2. Automation & Robotics

The purpose of Automation is to get the monotonous and repetitive tasks done by machines which also improve productivity and in receiving cost-effective and more efficient results.[27] Many organizations use machine learning, neural networks, and graphs in automation. Such automation can prevent fraud issues while financial transactions online by using CAPTCHA technology. Robotic process automation is programmed to perform high volume repetitive tasks which can adapt to the change in different circumstances.[28]

3. Machine Learning

It is one of the applications of AI where machines are not explicitly programmed to perform certain tasks; rather, they learn and improve from experience automatically. Deep Learning is

a subset of machine learning based on artificial neural networks for predictive analysis. There are various machine learning algorithms, such as Unsupervised Learning, Supervised Learning, and Reinforcement Learning. In Unsupervised Learning, the algorithm does not use classified information to act on it without any guidance. In Supervised Learning, it deduces a function from the training data.[29]

4. Machine Vision

Machines can capture visual information and then analyse it. Here cameras are used to capture the visual information, the analogue to digital conversion is used to convert the image to digital data, and digital signal processing is employed to process the data. Then the resulting data is fed to a computer. In machine vision, two vital aspects are sensitivity, which is the ability of the machine to perceive impulses that are weak and resolution, the range to which the machine can distinguish the objects.[30]

5. Knowledge-Based Systems(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.[31] 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.[32]

CONCLUSION

Today‟s machines are ready to give the knowledge based education and are responsible for improving the intelligence. Artificial intelligence can reach great recognition and proceed for human kind required to its many probability. The assumption of AI surface the part of the technology is at an initial or investigational degree. We must be able to realize and appreciate the outcome of each technological tendency. As per my prospective, right now as per contemporary period of AI disclosure and consequently; that must obtain this modify and welcome it by embracing AI and taking steps towards a better society. The entire world is on the way of Digitalization and for that purpose the artificial intelligence and machine learning concepts plays an important role.

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