VARIOUS ASPECTS OF ARTIFICIAL INTELLIGENCE

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What is AI?

Ref 1: [1]Artificial Intelligence is the science of making machines with human intelligence like computers. It is used to understand human nature using computer knowledge. Intelligence is the mathematical aspect of person's capacity to accomplish goals in the real life. Sometimes, but not always or even most of the time. On the one hand, we can learn a lot about how to make robots solve problems by watching other people or simply studying our own processes. On the other hand, rather of studying people or animals, most AI research focuses on the issues that the world presents to intelligence. Researchers in AI are free to utilise methods that have never been observed in humans or that require far more computing than humans are capable of.

Ref 2: [2]One of the interesting facts about Artificial Intelligence is it is difficult to identify the subject.The majority of artificial intelligence research has focused on simulating the symptoms of intelligent behaviour that we see in ourselves. Investigation into the underlying factors of intelligence has been omitted in order to achieve the intelligence's direct effects more quickly. These efforts yielded computer programmes with exceptional performance, but only in a few application domains.

History of AI

Ref 1: [3]The history of Artificial Intelligence can be followed back to philosophy, literature, etc. Problem solving, knowledge representation demonstration in language understanding, translation, etc were the early achievements. AI has been affected by early inventions in electronics, engineering, and a variety of other fields. Work in problem solving, which includes foundational work in learning, knowledge representation, and inference, as well as demonstration programmes in language comprehension, translation, theorem proving, associative memory, and knowledge-based systems, were among the early milestones. The essay concludes with a look at some of the field's most significant organisations and contemporary issues.

Ref 2: [4]Standard concept of creating Artificial Intelligence is the system must have a goal through its actions which has global economy and massive influence in it.

Growth of AI

Ref 1: [5] The future of health care may change significantly as entrepreneurs provide artificial intelligence-based solutions that change how we prevent, diagnose, and treat illnesses (AI). This article examines AI-driven health-care businesses and highlights emergent business model paradigms that entrepreneurs from around the world are employing to bring AI solutions to market. It identifies areas of value creation for AI in health care applications and presents a method for developing business models for AI health care businesses.

Ref 2: [6] Artificial intelligence, particularly machine learning (ML), is the most important general-purpose technology of our time. ML refers to a machine's ability to continually improving its performance without humans needing to explain how to complete all of the jobs it is assigned. Machine learning has grown significantly more effective and readily available in the last several years. We can now create systems that self-learn how to complete tasks.

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AI in Healthcare Appliances

Ref 1: [7] Artificial Intelligence has become a well known field in computer science, as it has improved the lives of human lives in many areas.Human performance in a variety of fields is improving, and there is reason to believe that this trend will continue in healthcare. AI could help with disease prevention, detection, diagnosis, and therapy. Cancer, neurology, cardiology, and diabetes are among the major illness areas where AI is used. The present state of AI applications in healthcare is discussed in this review. AI may also be used to detect problems and threats to patient safety with high accuracy and speed, such as patterns of sub-optimal treatment or outbreaks of hospital-acquired illness.

Ref 2: [8] Human intervention is minimal when it comes to AI. Artificial intelligence (AI) systems that aid front-line healthcare personnel in detecting and monitoring disease efficiency. In the Covid-19 pandemic, artificial intelligence (AI) has performed well for us. Because robots are not suspected of being infected with the virus, they are being used to complete a variety of activities such as cleaning, distributing food packages to suspected regions, and administering medicine to reduce the need for human intervention. AI has been used in a variety of fields, including programme translation and intelligent personal assistants. Along with the growing use of electronic health records (EHRs) and the rapid development of bioscience, including neuroscience, AI has found various applications in the medical industry.

Ref 3: [9] AI can be used in health care to streamline the check-in process for patients, improve the efficiency of patient records, monitor disease, aid diagnosis, assist in surgical procedures, and provide mental health therapy. AI helps radiologists with a variety of tasks, including patient scheduling, billing, staffing optimization, protocol creation, picture quality assessment, radiation dose reduction, and image interpretation. AI should not be feared because it will not replace people; rather, it should be embraced because of its ability to improve and extend human life.

AI in Manufacturing and Production

Ref 1: [10] Artificial intelligence (AI) technology has recently received a lot of interest in the industrial industry. It attracts a lot of attention as a crucial technology in smart manufacturing and the Industry 4.0 agenda. Product lifecycle management (PLM) encompasses a wide range of engineering, business, and management operations that occur throughout the lifecycle of a product, from the conception of an intangible concept to the recycling of a finished product.

Ref 2: [11] Cloud computing, the Internet of Things, the Industrial Internet of Things, Big Data, Blockchain, Cyber-Physical Systems, Artificial Intelligence, and other new, innovative technologies characterise the fourth industrial revolution, dubbed Industry 4.0. Artificial Intelligence (AI) technology is becoming increasingly important in modern production, especially in the context of the Industry 4.0 paradigm.

Ref 3: [12] Modern industrial and logistics systems rely on increasingly pervasive and powerful computing networks to function. Oceans of data are constantly generated by sensors, machines, systems, smart devices, and individuals within these networks. Big Data is being analysed quicker, more broadly, and more deeply than ever before, thanks to growing computer capabilities. These developments have re-defined the usefulness of Artificial Intelligence (AI) technology, ushering in a new era known as Industry 4.0, or the Smart Factory.

AI in Security and Surveillance

Ref 1: [13] Surveillance cameras can be used for a variety of purposes in newly developed cities, including smart traffic, healthcare, monitoring, and security. Egypt's new administrative capital, "New Cairo," is one of the most well-known new cities. Egypt's new administrative capital is mostly known for its green lifestyle, which is exemplified by the "Green River."

Ref 2: [14] Nowadays, video surveillance systems (CSS) are in high demand in a variety of industries for smart manufacturing. However, the increased use of CSS will have a number of limitations in terms of storage capacity and transmission bandwidth. This project attempts to design a revolutionary artificial intelligence (AI)-based data processing algorithm based on real-world needs. Artificial intelligence (AI) can be used to process a huge number of videos captured by the CSS, and computer vision algorithms can be used to recognise deviant behaviours or notable things, lowering labour requirements.

Ref 3: [15] To solve concerns such as society, environment, morphology, and many others, cities are increasingly turning to specialised technologies. Smart Cities, a new idea that promotes the integration of sensors and Big Data via the Internet of Things, is a strong supporter of this possibility (IoT). This avalanche of data opens up new possibilities in city planning and management, as well as new commercial opportunities. While Big Data processing via Artificial Intelligence (AI) can make a significant contribution to the urban fabric, sustainability and liveability must not be disregarded in favour of technological advancements.

AI in Education

Ref 1: [16] For over 20 years computers have been used. The first computer based training (CBT) and computer aided instruction (CAI) have been used for teaching computers. The instructions in these were not customised for students instead the guidelines for taking a student were scripted.While CBT and CAl may be helpful to some students, they do not provide the same level of specialised attention that a student would receive from a human tutor. To give such attentiveness, a computer-based educational system must reason about the domain and the learner. This has sparked interest in intelligent tutoring systems research (ITSs). ITS allows for more flexibility in material presentation and a better ability to respond to unique student demands.

These systems gain intelligence by capturing pedagogical decisions about how to teach as well as learner information. This gives you more flexibility by allowing you to change the colour scheme.

Ref 2: [17] AI in education mainly focusses on development of AI techniques for the study of human teaching and developing the system to enhance the human learning.When it comes to the engineering side of the topic, the phrase "intelligent tutoring system" (ITS) is widely employed. Planning, control, knowledge representation and acquisition, explanation, cognitive modelling, and dialogue management are all supported by computational approaches. Alternative learning theories are investigated and evaluated using computational models. The prospect of developing powerful teaching systems with more domain knowledge, increased capacity to form inferences about student behaviour, and increased reasoning ability about topic selection and response production motivates the research.

Ref 3: [18] OLM(Open Learner Modelling) and ITS(Intelligent Tutoring System) mainly focusses on interpretability of basic AI representation. OLMs are used for opening up AI models of learners ‘cognition and and emotion in order to help human learning and teaching.Over thirty years of ITS (also known as AI in Education) research has resulted in essential work that explains how AI can be utilised in Education to greatest effect and, through the OLM study, what considerations are required to make it interpretable and explainable for the benefit of learning.

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Advantages of AI

Ref 1: [19] AI applications are used to recreate human intelligence ignorer to solve the problems and for making decisions. Some of the advantages of AI are permanency reliability, and cost effectiveness.AI has been used in a variety of modelling, prediction, decision support, and control applications in fields as diverse as engineering, economics, linguistics, law, manufacturing, and medicine (1). One of the most potential AI applications is its widespread use on the Internet, such as in search engines (2). Although AI has great efficacy, it, like any other application, has limitations in terms of capability and functionality. These constraints will be discussed more in this essay. Before going over AI's drawbacks, this article will go over some of its benefits.

Ref 2: [20] Artificial Intelligence has many benefits. This field of science provides us capability to evolve completely and go to the history of artificial robots. Artificial intelligence has great benefits; what this field can offer us is the ability to evolve definitively and go on to the history of artificial robots. Artificial Intelligence's key benefits are as follows:Finished task faster than a human,Stressful and complex work completed easily, Difficult work done in short period,Various functions can done at a time, Success ratio is high,Less errors in task and defects also,More efficiency in short time, Less space, less size,Calculation of long term and complex situations, and Discover unexplored things. i.e. outer space.

Ref 3: [21] Some areas of AI constantly use Empirical methods. Such as, standard domain planning and search algorithms, etc. However for some applications like user modelling, empirical is rare. For example, only about a fourth of the articles in User Modeling and User Adapted Interaction (UMUAI) report significant empirical evaluations. A simple evaluation study with limited sample sizes and typically no statistical methodologies is included in many of them. Empirical research, on the other hand, is required for estimating the effectiveness, efficiency, and usability of a system that employs AI approaches in real-world scenarios. Empirical evaluations are especially important for user modelling strategies that are based on human-computer interaction.

Ref 4: [22] Human work can be reduced by using Artificial Intelligence. Humans can be replaced with machines, while humans can be doing other work. Artificial Intelligence is like a cheap labour which can be used for the works which needs to be done fast and also leads to profits.

Ref 5: [23] Usage of AI leads to highest accuracy with zero amounts of risks. Robots which are using AI can be used for various purposes like sendingthem to the space and exploring things there. Sending them to the deep oceans, knowing about the deep earth, extracting the fuel,When performing repetitive and time-consuming jobs, artificial intelligence can be quite useful.

AI can do jobs that are hazardous to human health and life, like as rescuing people and putting out fires, etc.

Disadvantages of AI

Ref 1: [24] The following are some of the most significant drawbacks of Artificial Intelligence (AI) in our daily life. It can be misused at times, resulting in enormous disaster; programme mismatches are sometimes carried out in the opposite direction of the order;

Human jobs are being impacted, the unemployment rate is rising, creativity is reliant on programmers, there is a lack of human touch, the younger generation is becoming lazy, it takes a lot of time and money, and technological dependency is increasing.

Ref 2: [25] Due to expensive machines it is not easy to upgrade them, it can cost tons of money to build, recreate, repair. Replacing robots with humans leads to severe unemployment, machines can be easily destroyed if they go to a wrong person‘s hands, etc.

Some of the disadvantages of AI are as follows:It is difficult to design machines since the necessary equipment is costly, Creating, rebuilding, and repairing can be extremely expensive in terms of both money and time. Robotic repair may be used to reduce the amount of time it takes for humans to fix things, but it would cost more money and resources, Robots can cause severe unemployment if they replace jobs that AI can't perform, or if humans can repair the unemployment by doing things that AI can't do, or if the government is significantly changed to communism. If placed in the wrong hands, machines can quickly bring havoc. That is, there should be a minimum of dread of the diverse humans.

Ref 3: [26] Cost of the repair is one of the main drawbacks of AI. It should be maintained regularly, the software should be updated every time for meeting the requirements. In case of a breakdown the cost of the repair would be very high.

Ref 4: [27] Although government and schools plays a crucial role in considering artificial intelligence for business English education, maximum ideas are executed in a professional level. The main reason is that the universities create talent development programmes. AI awareness and ability training is not completely created for higher studies. Innovation and entrepreneurship education will be difficult to progress smoothly if the artificial intelligence training goal is not incorporated in the professional education plan.

Ref 5: [28] The future generation may look back to our time and states it as a rapid change era. IN a matter of decades, we‘ve changed rapidly to information based society. Artificial agents(including various forms of AI) are the tools that involve in decision making and solely depends on automated.Referring to gadgets and decision-making aids that use automated, data-driven, or algorithmic learning techniques (including artificial intelligence (AI) in its various forms) as artificial agents. Devices as simple as Roomba robots and internet recommendation engines to more complex cognitive systems like IBM's Watson fall under this category. Such agents are increasingly becoming incorporated in our daily decision-making. As a result of their introduction and adoption, a slew of policy issues have arisen.

Conclusion

Artificial Intelligence has become a vital role in a human life where we can complete all the works so easily and efficient with it. The human life rely on the AI for almost each and every work going in the present world. There are some disadvantages of AI also but they can be reduced with some practices and enjoy the advantages of it. AI is at the heart of a new business that creates computational intelligence models. The main assumption is that intelligence (human or other) can be expressed in the form of symbolic structures and operations that can be programmed on a digital computer.

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