POTENTIAL APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN CURRENT SCENARIO

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Abstract

In contrast to the intelligence exhibited by humans or other animals, artificial intelligence (AI) refers to the perception, synthesis, and inference of information made by computers. Speech recognition, computer vision, interlanguage translation, and various mappings of inputs are some examples of tasks where this is done.Advanced web search engines like Google Search, recommendation systems used by YouTube, Amazon, and Netflix, speech recognition software like Siri and Alexa, self-driving cars like Waymo, generative or creative tools like Chat GPT and AI art, automated decision-making, and winning at the highest levels of strategic game systems like chess and go are just a few examples of applications for AI. In the present review, I have discussed uses of AI in different fields like medicine, transportation, agriculture etc.

Keywords: Artificial intelligence, Chat GPT, Automation, Perception, Synthesis

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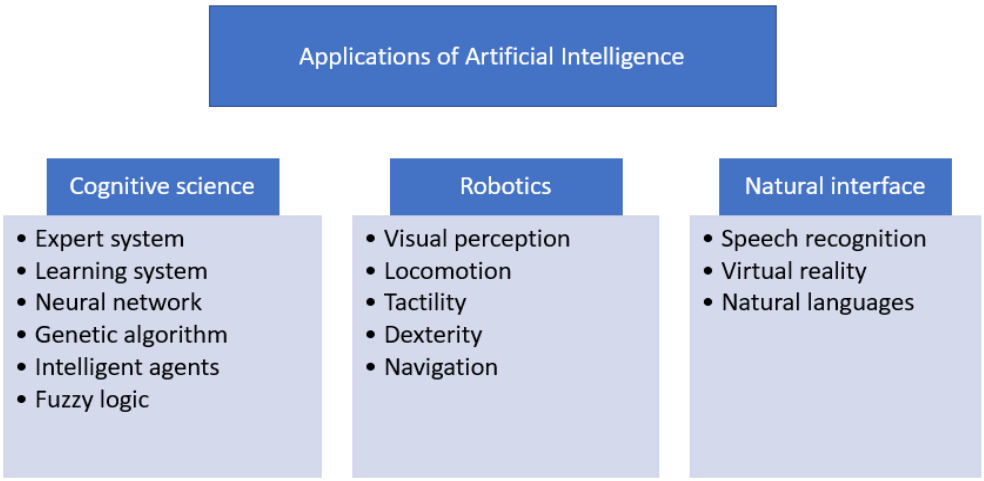
Introduction

Artificial intelligence (AI) is the ability of a machine to demonstrate intellect and solve complicated problems being a computer or other device. In order to create artificial intelligence, computer science and physiology must be combined. Intelligence is the capacity for thought, creation, memorization, understanding, pattern recognition, decision-making, adaptation to change, and learning through experience. Artificial intelligence is focused with having computers act in a way that is more reminiscent of human behaviour and in a lot less time than it would take a person. As a result, it is known as artificial intelligence. According to the AI philosophy, artificial intelligence can be separated into many components. Artificial intelligence (AI) is a phrase used to refer to the modelling of intelligent behaviour by computers with little to no human involvement. The development of robots is widely regarded as the beginning of artificial intelligence. The word "robot" comes from the Czech word "robota," which refers to bio-engineered devices used for forced lab.



Artificial intelligence in medicine:

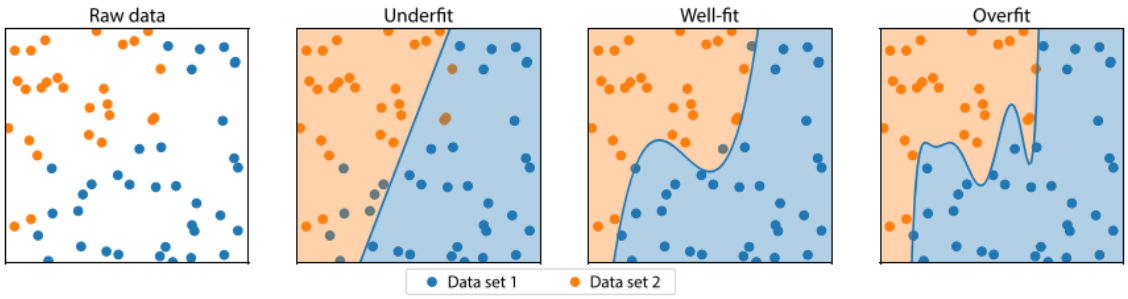
In this area, Leonardo Da Vinci's lasting legacy is the rapidly expanding use of robotic surgery, which bears his name and is used for difficult urologic and gynecologic procedures. The foundation for this breakthrough was laid by the robot sketches in Da Vinci's sketch books[1]. In 1956, artificial intelligence (AI), also known as machine learning, was formally introduced. The phrase can be used to refer to a wide range of medical concepts, including human biology[2], robotics[3], medical diagnosis[4], and even today's "omics".The two primary fields of AI in medicine—the subject of this review—are virtual and physical. The virtual branch consists of informatics techniques ranging from deep learning information management to control of health management systems, including electronic health records, and active physician treatment decision-making support[5-8]. Robots that help the elderly patient or the attending surgeon are the best representation of the physical branch. This branch also includes targeted nanorobots, a novel medicine delivery technology. Further consideration, evidence of these applications' medical utility and economic worth, and the creation of interdisciplinary application techniques are necessary due to the societal and ethical complexity of these applications. Machine learning (sometimes referred to as deep learning), which is represented by mathematical algorithms that enhance learning through experience. There are three different kinds of machine learning algorithms: (1) supervised (classification and prediction algorithms based on examples from the past), (2) unsupervised (ability to find patterns), and (3) reinforcement learning (use of repetitions of rewards and punishments to create a strategy for operation in a particular problem space). Additionally, new computational methods are being created to determine which DNA variations, such as single nucleotide polymorphisms (SNPs), are predictive of specific diseases or behaviours, utilising new evolutionary embedding algorithms that are more reliable and resistant to over-fitting problems that arise when a model has too many parameters in comparison to the number of observations [9-15].

The use of softbots as psychotherapy avatars is a virtual use of AI in medicine. Avatars are named after the well-known James Cameron film from

2009, which portrays a human-alien hybrid made to help with communication with inhabitants of the planet Pandora. The employment of teachable avatars with emotional intelligence is becoming more widely accepted in medicine. It has been used to reduce pain in cancer patients who are children (referred to as the "pain body"), and it can spot early emotional abnormalities in children on Native American reservations, including suicidal inclination. This strategy appears to be more effective than human interventions. The second type of AI use in medicine involves physical things, medical equipment, and more complex robots that assist in providing care (carebots).

Artificial intelligence in disaster management: Natural disasters have the ability to result in significant socioeconomic loss and catastrophic devastation. The actual loss and destruction that have been seen in recent decades have increased[21]. Therefore, it is becoming increasingly important for disaster managers to actively safeguard their communities by creating effective management plans. A Numerous studies process catastrophe-related data using artificial intelligence (AI) approaches to aid in disaster management that is well-informed. This paper gives a broad overview of the existing uses of AI in the four stages of disaster management—mitigation, readiness, response, and recovery[22]. It provides examples of how various AI techniques might support catastrophe management at various stages and outlines their benefits. It also includes several useful AI-based decision support tools.By categorising AI techniques into six groups—supervised models, unsupervised models, deep learning, reinforcement learning, and deep reinforcement learning—this paper examines the state of research and application of AI in disaster management[24-30].

Artificial intelligence to imaging and diagnosis: The term "machine learning" (ML) refers to a wide range of algorithms that make intelligent predictions based on a set of data. These data sets are frequently big, maybe, with millions of distinct data points. Recent advancements in machine learning have enabled it to extract information and interpret semantics at what appears to be a human level[31-33]. It has even occasionally been more accurate than human specialists at spotting abstract patterns.For instance, the detection of metastases on histological sections, the segmentation of radiological images into known anatomical correlates, and the classification of images into specific diagnostic categories are all applications of machine learning to clinical medicine that strongly align with computer vision tasks of detection, segmentation, and classification[35-37].



Atheology supports and guides medical care in a variety of domains. A accurate diagnosis refers to the presence, absence, and pathological severity grade and influences prognosis, risk assessment, and treatment choices.Given the abundance of huge image-based datasets, pathology is an ideal target for machine learning optimisation and automation.Image data produced by histopathology, fundoscopy, and radiography is commonly subject to ML.

The time-saving labour reduction of automation is a big advantage of applying ML to segmentation in imaging for diagnosis. Many useful techniques in this field rely on feature detection rather than pure machine learning (Belevich *et al.* 2016)[38]. Machine learning is the basis for some of the semi- and fully automated classifiers, though. A supervised learning classifier that was created to be broadly applicable to many data types and types of microscopy is the trainable Waikato environment for knowledge analysis (WEKA) segmentation (Arganda Carreras *et al.* 2017). This is provided as a plugin for the free and open-source FIJI imaging platform, which can analyse image data and conduct data mining tasks using the WEKA data mining toolkit.In the discipline of histopathology in particular, machine learning has shown to be effective at applying automated segmentation to lessen diagnosis burden. Breast

cancer tissue micro- and macro-metastases were successfully recognised by Litjens *et al.*, and 30% of samples containing just benign tissue were successfully rejected[39].

Artificial intelligence in agriculture:
It is essential that agricultural practises be evaluated in order to propose novel solutions for sustaining and enhancing agricultural activity as the world's population grows geometrically. Other technological advancements, such as big data analytics, robotics, the internet of things, the accessibility of inexpensive sensors and cameras, drone technology, and even widespread internet connectivity on geographically separated fields, will make it possible to apply AI to agriculture[40-45]. Artificial intelligence (AI) systems will be able to provide predictive insights into which crop to plant in a given year and when the best dates to sow and harvest are in a specific area by analysing soil management data sources such as temperature, weather, soil analysis, moisture, and historic crop performance. This will increase crop yields and reduce the use of synthetic fertilisers.

Because it consists of a set of created plausible management options, a simulator that assesses each alternative, and an evaluator that chooses which alternative fulfils the user-weighted multiple criteria, management-oriented modelling (MOM) minimises nitrate leaching. In order to discover the shortest path between start nodes and goals, MOM employs "hillclimbing" as a strategic search technique and "best-first" as a tactical search technique. Engineering knowledge is acquired through three stages: conceptual design, system implementation, and Soil Risk Characterization Decision Support System (SRCDSS) construction. In order to estimate soil texture (including the amounts of sand, clay, and silt), an artificial neural network (ANN) model uses features from current coarse resolution soil maps along with hydrographic data collected from a digital elevation model (DEM)[46].

The market needs high-quality food, and current tactics for intensifying agricultural production require significant energy inputs. Robotics and autonomous systems (RAS) will revolutionise numerous sectors throughout the world. Large economic sectors with poor productivity, such as agro-food (the production of food from the farm to the retail shelf), would be greatly impacted by these technologies[47]. The UK's agro-food business employs 3.7 million people and generates about £108 billion annually, with £20 billion in exports in 2016.

Artificial intelligence in transport:
Since it might be challenging to fully comprehend how certain aspects of the transportation system relate to one another, artificial intelligence (AI) techniques can be offered as an intelligent solution for such complex problems.

Numerous studies have shown how useful AI is for transportation. One example of this is turning the on-road traffic sensors into a smart agent that automatically identifies accidents and forecasts future traffic situations. ANNs are just one of the numerous AI techniques employed in the transportation industry[48-50]. Road planning, public transit, traffic incident detection, and traffic condition prediction are all applications for ANNs. Both supervised and unsupervised learning methods fall under this category. Support Vector Machine (SVM), Probabilistic Neural Network (PNN), Radial Basis Network (RBN), K-Nearest Neighbours, Decision Tree, etc. are examples of supervised approaches, while greedy layer-wise and cluster analysis are examples of unsupervised NNs[50].

Conclusion
Much to how genetics will continue to offer individualised services, personal use of AI will be around for a while. It is crucial to take into account how AI will advance our understanding of health medical systems. My Finder was presented by Takashi Kido as a personalised community computing to address problems with personalised genome services, working in tandem with AI and influencing the personalised and participatory health care of the future. The purpose of this platform is to give personal genome environment interaction in both directions: the influence of our environment, behaviour, and wellness on our gene activity as well as the impact of our environment, health, and drug responses on diseases, health, and drug responses.

The major ideas behind AI in agriculture are its adaptability, excellence, accuracy, and economy. This essay provides an overview of artificial intelligence's uses in soil, crop management, weed control, disease control, and management. The application's advantages and disadvantages are highlighted, as well as how to use expert systems to increase productivity.

The assessment concentrated on a few application areas that are anticipated to have more impact in cities in the future, such as autonomous vehicles, public transportation, disruptive urban mobility, automated incident detection, future traffic status

prediction, and traffic management and control. It demonstrates how AI can be used to address issues including rising travel demand, CO_2 emissions, safety problems, and fuel waste.

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