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Applications of AI

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Abstract: ***Artificial Intelligence (AI) is a revolution in computer science that will become an integral part of all modern software in the coming years and decades. This situation creates opportunities as well as threats. Artificial intelligence will be used to improve defense and cybercrime. Additionally, new cyberattack techniques have been developed to exploit specific weaknesses in intelligence technology. Artificial intelligence is a broad field of computing that enables understanding, reasoning and action. The amount of information created by humans and machines today exceeds the human ability to absorb this information, interpret it and make complex decisions based on it. This article explores the characteristics, uses, development and success of artificial intelligence.***

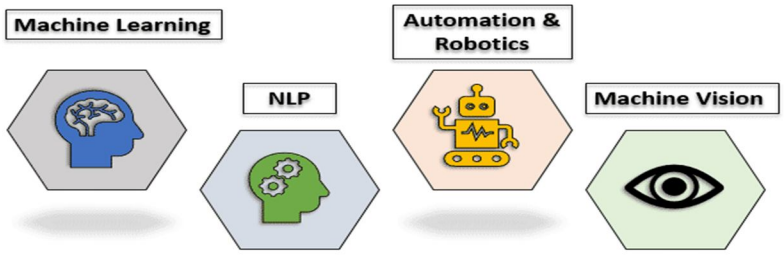
Keywords: Artificial intelligence, machine learning, deep learning, neural networks, natural language processing, automation and robotics

I. INTRODUCTION

In general terms, artificial intelligence refers to computing devices that can replace human intelligence to perform certain tasks. Technology is currently developing at an astonishing rate, similar to the exponential growth experienced by database technology at the end of the twentieth century. Fundamental principles of intelligence include the ability to think, knowledge, plan, learn, communicate, think, and move and control objects. It is the science of making machines intelligent, especially intelligent computers. One of the main goals of artificial intelligence is to perform tasks that previously required human skills.

II. ARTIFICIAL INTELLIGENCE METHODS

1) *Machine Learning:* Is an application of intelligence in which machines are not explicitly taught to do certain tasks, but rather automatically learn and improve through experience. Deep learning is a part of machine learning that performs predictive analysis based on neural networks. There are many types of machine learning algorithms, such as unsupervised learning, supervised learning, and additive learning. In unsupervised learning, the algorithm does not use training data to study without guidance. In training supervision, it works through training materials that contain a set of input and output requirements. The machine uses learning support to find the best thing to think about and do the right thing to get results.
2) *Natural Language Processing:* In NLP, data of human interaction is captured by machines. Then, a voice-to-text conversation takes place and the text is processed and the data is converted into voice. The machine then uses sound to respond to people. Natural language processing applications can be found in IVR (interactive voice) applications used in call centers, translation applications such as Google Translate, and system words such as Microsoft Word that check text for grammatical correctness.
3) *Automation and Robotics:* Automation aims to increase productivity and efficiency by enabling machines to perform regular and repetitive tasks, thereby creating better results. Organizations using machine learning, neural networks, and graphics in automation. Using CAPTCHA technology, this automation can prevent fraud in online financial transactions. Programmers designed RPA to perform many repetitive tasks that can be adapted to different situations.
4) *Machine Vision:* The process involves using a camera to capture visual information, converting the analog image into digital information, and processing the information by processing the digital signal. Applications of machine vision can be found in signatures, pattern recognition, medical image analysis, and many more.

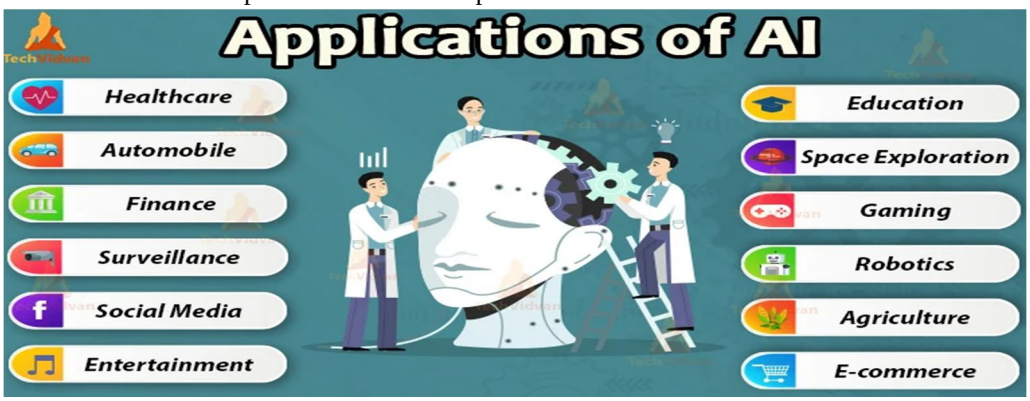


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III. ARTIFICIAL INTELLIGENCE APPLICATIONS

1) *Health:* One of the biggest impacts created by artificial intelligence is in the field of health. Devices like Fitbit or iWatch track a person's sleep patterns, calories burned, heart rate, etc. It can help in the early detection, identification and even diagnosis of pain by collecting a lot of information such as. Equipped with artificial intelligence, the device can monitor and warn of anomalies. This can be arranged to meet with a doctor near you in person, so it is also beneficial for doctors to get help from AI in making decisions and researching the science.
2) *Automobiles:* The role of intelligence cannot be underestimated at the stage where the car transforms from engine and chassis to software-controlled smart systems. The goal of self-driving cars is to take data from all of Tesla's cars on the road and use it in machine learning algorithms pioneered by Tesla's Autopilot. The system then matches the evaluation of the two plates and based on the evaluation whether the material of the two plates is the same.
3) *Business and Finance:* The banking and finance industry is one of the first consumers of artificial intelligence. Its use cases are numerous, from chatbots provided by banks like SIA of Deposit Finance Institutions of India to smart business bots like Aidya and Nomura to manage frequent deliveries. Features such as smart bots, digital payment advisors and biometric fraud detection systems can provide better services to a wider range of customers.
4) *Social Media:* We all love social media. Social media is much more than a platform to communicate and express yourself. It subconsciously shapes our choices, ideologies and temperament. All this thanks to clever tools that work silently in the background, showing us posts we might "like" and advertising products that might be "useful" for research and historical research. For example, Instagram recently revealed how it uses artificial intelligence to customize content in the Search tab. This helps social media because the platform cannot send paid ads to its users based on crowd and behavior.



5) *Education:* Using important skills in learning will solve many problems. Some of these include automatic tagging software, content storage technology, and recommended improvements. This helps teachers monitor not only students' academic performance but also their mental, spiritual and physical health and overall development. This will also help spread education to areas where good teachers are not available physically.
6) *Space Exploration:* Smart devices are designed to reduce the risk to human life by penetrating vast unseen and unseen areas of the Earth, a great job Very scary for working sailors. Therefore, thanks to the use of artificial intelligence, unmanned space exploration such as Mars rovers can be carried out. It has helped us discover many exoplanets, stars, galaxies and, most recently, two new planets in our system. NASA is also working with applications of artificial intelligence in space exploration to improve image analysis and develop an autonomous spacecraft that can avoid space debris without human intervention, creating more efficient and barrier-free through the use of smart technology-based communication network.
7) *Robotics:* As the field of artificial intelligence continues to advance, robots are becoming more efficient at tasks that were previously difficult. The concept of full automation, where machines can not only perform certain tasks but also monitor, analyze and improve them without affecting humans, is often possible only with the help of intelligence. Artificial intelligence in robots can help robots learn processes and perform tasks without human intervention.
8) *Agriculture:* Artificial intelligence is changing the direction of agriculture, one of our most important and important businesses. The use of AI in agriculture is mainly driven by agricultural robotics, predictive analytics, and crop and soil monitoring. Drones are also used on large farms to spray pesticides and capture plants. This helps companies like Blue River Technologies manage their farms better. AI has also increased yields and improved monitoring, harvesting, processing and marketing times.

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IV. THE FUTURE OF ARTIFICIAL INTELLIGENCE

Over the past year, a group of artificial intelligence (generative artificial intelligence) has been under the spotlight. Generative AI uses deep learning to analyze existing data to create new products. Unlike its predecessors, generative AI also has the ability to generate emotions. ChatGPT, which can generate human-like responses to text messages, and DALL-E, which can create images and drawings based on instructions, are popular examples of generative AI. The rise of generative artificial intelligence has sparked curiosity and interest. The future of AI seems to be changing rapidly, as innovations in the field of AI are now accelerating at an alarming rate, making it difficult to keep up. In fact, intelligence shapes people's future in almost every sector.

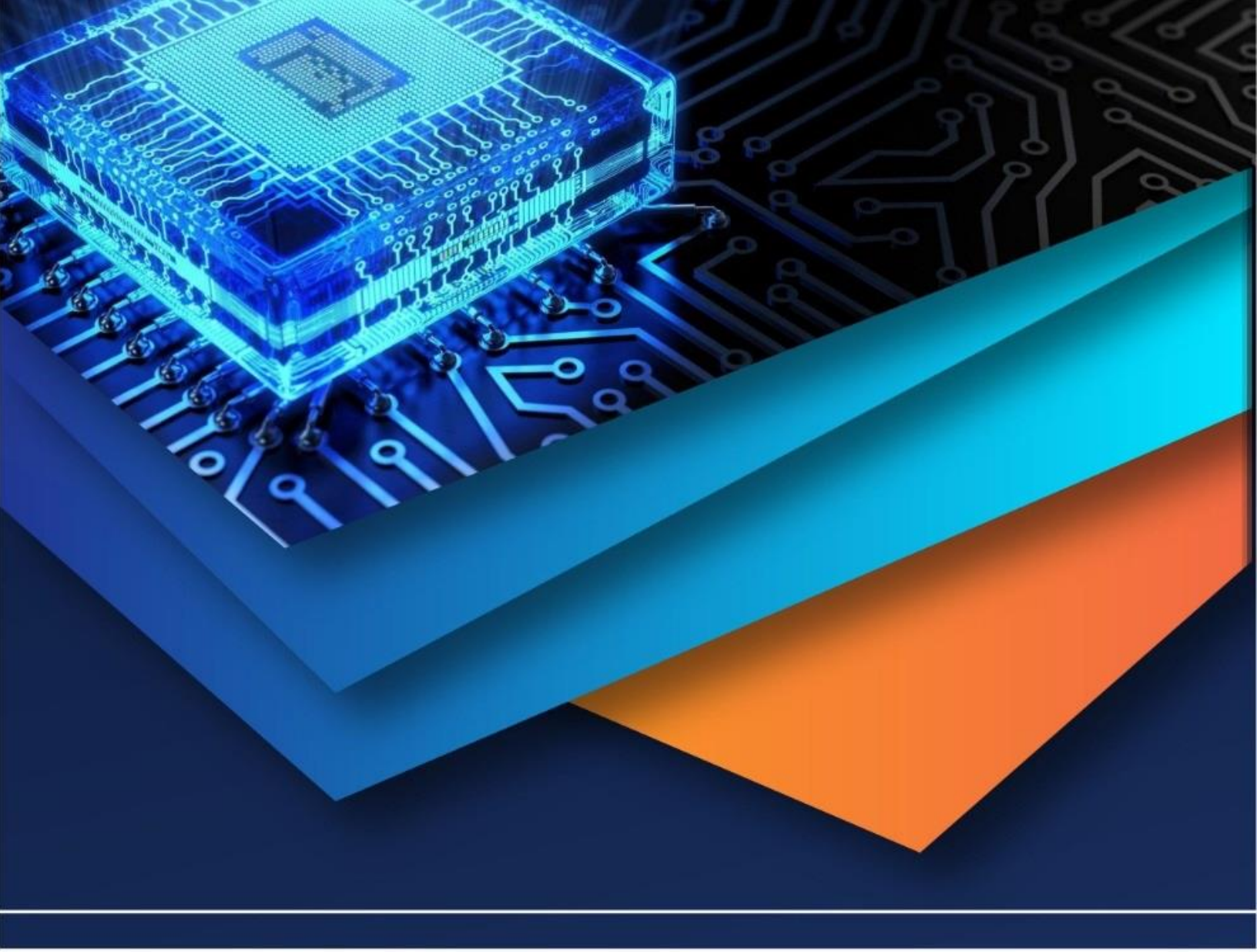
V. CONCLUSION

So far we have briefly talked about Artificial Intelligence. We have mentioned some of its principles, uses, successes and more. . Additionally, AI has been proven to outperform human decision-making in some areas. In some fields, including science, engineering, social and macroeconomic issues, AI is better than humans at finding and creating good policies.

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