

Robotics And Artificial Intelligence

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Introduction

Artificial intelligence refers to the replication or/and modelling of intelligence behaviour through the use of a computer. Artificial intelligence research focuses on the development and analysis of the algorithms that will enable machines to execute intelligent behaviour without human intervention. Military planning and logistics, mathematics, gaming, medical diagnostics, e-commerce, and robotics are examples of the problems where artificial intelligence is applied. However, e-commerce, computer vision, computational biology, and robotics are independent disciplines, but they are researched under the artificial intelligence umbrella. Specifically, contemporary studies have placed more emphasis on the probabilistic language model, active computer vision, machine learning, natural language interface, multi-agent negotiation, mobility mechanism, and estimation theory to be applied in the interface of spoken language and the integration of the motor, auditory, haptic and visual information. The paper aims to illustrate how artificial intelligence technology is an important aspect of the modern society.

The computer has provided solutions to the realms of problems. The execution that results from artificial intelligence is more complex compared to the problem-solving idea, which is very simple. First, human input or the sensor provides the facts to the computer or AI robot. The computer determines which information is significant by comparing it with the stored data. Then, the computer uses the collected information to predict appropriate action. Conversely, only the programmed problems are solved by the computer since it does not have analytical abilities. A good example is Chess computers.

Artificial intelligence technology has enhanced advanced robot capabilities in learning but at a considerable capacity. Modern robots with learning abilities to understand certain actions like movement will execute the same action in case the same situation repeats itself in future. Nevertheless, there is a very limited situation where the modern computer can perform the same function since the retention of information is not like that of humans. Other robots mimic human actions. Robots in Japan can dance after learning from humans.

Applications Of Artificial Intelligence

AI in healthcare: The healthcare industry applies artificial intelligence to perform many tasks. (Russell & Norvig, 2021) For instance, treatment procedures and diagnoses are the common areas where doctors use artificial intelligence. The technology has reduced the equipment and machines required to perform specific tasks in healthcare centres, lowering operational costs. Recently, the FDA

approved an artificial intelligence machine called the Sedasys system as a mechanism for delivering anaesthesia. Watson also introduced an artificial intelligence system called IBM in health. The Watson machine uses the medical history of the patients to determine appropriate treatment, which has been efficient.

Data management and analysis of patient data are also popular applications of artificial intelligence. An artificial intelligence machine called the Electronic Patient Record uses lifestyle and patterns as well as patient symptoms to predict the outcomes of diseases. The improvement of the population's health will be easy if the health facilities adopt artificial intelligence. Furthermore, artificial intelligence is an integral aspect of the devices that are used to pump insulin and monitor the heart rate.

AI in Banking & Finance: The application of Artificial Intelligence in financial services is essential since the complexity of financial data keeps increasing on a daily basis. Humans are less efficient in managing finance and analyzing market data as compared to robots. The robots are also capable of solving simple problems that are raised by the clients. Similarly, the application of artificial intelligence in banks and financial institutions includes identifying the customer base and attending to customer needs.

AI in Manufacturing: Immediately after the emergence of artificial intelligence, manufacturing industries started using the technology. The robots are used from the initial stage of manufacturing up to the last stage. However, robots with learning abilities are being integrated to manufacture and assemble more complicated products. For instance, robots with the ability to detect a defect in an electronic device are being developed.

Ethical Issues Of Artificial Intelligence

Lethal Autonomous Weapons Systems: They are weapon systems that can engage targets without the need for subsequent human operator after the initial activation. The weapons enable the elimination of human operator engagement on the battlefield. There is fear that autonomous weapon systems may fall into the wrong hands, such as terrorists, through black markets. Terrorists may use weapons with bad intentions, such as in an attack on innocent people. The possibility of an AI arms race in most countries is a pressing concern. Also, the use of autonomous robots in war may lower the human cost of war; thus, starting wars will be easier. (National Institute of Standards and Technology, 2023) The use of robots on the battlefield to perform certain functions, such as mine clearance and bomb disposal, has proven to be beneficial. It reduces the risk of loss of soldiers' lives.

Artificial intelligence can result in joblessness: It is predicted that the introduction of artificial intelligence threatens certain job categories. Since the start of the industrial revolution, the application of automation technologies has contributed to job losses. The introduction of artificial intelligence is expected to cause further job losses. With AI technology, the trend is expected to

extend to fields that are considered safer from automation, such as education, medicine, and law. The introduction of self-driving vehicles threatens the jobs of people currently employed as drivers.

Conclusion

The computer was invented to increase the efficiency of task performance and reduce manual effort. The field of digital technology has continued to advance over time to produce more useful products such as robotics and artificial intelligence. The application of artificial intelligence has been advancing in most of the technologically relevant fields, such as manufacturing and banking. The artificial intelligence approach of using algorithms in training machines to behave like humans enables the application to perform tasks and make decisions like humans. It is expected that robots will play most of the vital operations in our daily lives in the future, apart from industrial applications. However, the technological progress in AI production presents certain risks and ethical issues; thus, the integration should be done cautiously.

References

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