

Role of Artificial Intelligence in Society and Business: An Overview

Pooja Asthana

MBA student, Christ (Deemed to be university) (India)

ARTICLE DETAILS

Article History

Published Online: 25 May 2019

Keywords

Artificial intelligence, Society, Business.

Corresponding Author

Email: pooja.asthana26[at]gmail.com

ABSTRACT

AI is the facsimile of the human intelligence process, achieved with the help of computer system using large pool of data. Multiple allied disciplines have led to the development of this multifaceted contributor. The present study aims at reviewing the potential contribution of AI in different sectors. The present review suggested that apart from diagnosis and surgery support, AI has led to the development of virtual nurses, prognosis of breast cancer, prediction of recurrence of prostate cancer etc. in health sector. Similarly the emergence of 'chatbot' for better customer care, self-driving cars in transportation sector, easy and accurate decisions finance related decisions, development of business strategy based on market conditions, contract analysis with the help of significant clauses in legal system, and answering queries of students in education sector validate the multidimensional contribution of AI.

1. Introduction

The term artificial intelligence (AI) was coined by John Mc Carthy in 1956 at the Darmouth Conference. Intelligence is a very complex phenomenon and its different aspects have been studied in various fields like, psychology, neuroscience, engineering, cognitive neuroscience, computer science, linguistic, statistics, etc. Wechsler (1944) defined "Intelligence is the aggregate and global capacity of individual to act purposefully, to think rationally, and to deal effectively with his environment ". In other words, it is the ability to think, learn and act according to the demand of the situation. It is a process of applying knowledge. It is an ability to adapt to the changes in the environment.

Artificial intelligence is an umbrella term and the progresses made by the different related disciplines have significantly contributed in the development of AI.

"AI can be defined as a branch of computer science that studies the properties of intelligence by synthesizing intelligence" (Simon, 1995). AI can be described in two ways

- (i) As a science that aims to find out the essence of intelligence and develop intelligent machines.
- (ii) As a science to develop methods for solving complex problems with right decision based on large amount of data.

AI is the simulation of human intelligence process by machine with the help of computer system. It involves different computational technologies which have been developed keeping in view how the human nervous system processes the information and body reacts accordingly.

These new technologies are influencing almost all aspects of human life to make it more effective, easy and comfortable.

2. Review of Literature

AI is changing our daily lives by improving the human health, safety, and productivity. The technological development of AI has influenced different facets of human life as well as society by monitoring well-being, alerting about the risk and providing different services as per requirement. AI is also

helping people to interact with new technologies. It continues to deliver important benefits in different domains of life like, health, transportation, education, law, security, business strategy, etc.

Health:

AI is widely used in health care system. It is primarily applied in different segments of health care system eg., diagnosis, support in surgery, patient's monitoring, care as well as management. The effectiveness of the application of AI depends upon to what extent doctors, nurses and patients have trust in the use of machine in health care system as well as policy support. Now days, many young entrepreneurs are trying to widen the application of AI in different segments of health care system. Recent advances in natural language processing, has significantly contributed in the development of several conversational applications.

The development of virtual nurse is one of the very sound example of AI in health care sector. The virtual nurse can perform almost all activities which are being performed by human nurse. Further, the application of virtual nurse is not limited with respect to the types of environment.

Such technologies are used to make faster, cheaper, and more accurate, diagnosis, which consequently improves the outcome and reduces the cost. One of the technology developed by IBM known as 'Watson', understands natural language and responds to the question asked by the doctor. The system mines patient data and other available relevant information and helps doctor to find out relevant information from large amount of information. It analyses both structured and unstructured data. It helps in diagnosis as well as in the treatment plan (IBM, 2018). The computational method has been used to extract and utilize newer, more effective features required for the prognosis of breast cancer (Beck et al., 2011). Gann et al. (2017) demonstrated that AI can be helpful in predicting the recurrence of prostate cancer by using the features that cannot be observe by human pathologists. There is another development in computational pathology which helps in detecting malaria with greater accuracy (Delahunt et al., 2015). It is also helping in epidemiological analysis for

understanding their burden and assist in planning the preventive measures. Now days, health records are being digitalized by utilizing the application of AI.

Access to quality health care in developing countries is a major challenge which can be reduced to a great extent by using AI technologies. It can be helpful as it overcomes the shortage of skilled medical personnel (Purohit&Bandopadhy, 2014).

Customer Care:

The application of AI is being utilized in the different segments of customer care. The use of natural language in the AI system has made its applicability wider and improved the interaction with the customers. A 'chat-bot' is a good example of the application of AI system in customer care. A chat-bot asks relevant information and queries about the case in natural language and on the basis of such information provides the best possible answer. In certain cases, if customers are not satisfied from the responses, the human representative tries to answer to the queries. A chat-bot also takes the customer's emotion also into account during the conversation.

Transport:

The transport industry has accepted the application of AI system very enthusiastically. One of the most important developments in transport industry in the application of AI system is the development of self driving cars. The self driving car uses the light detection and ranging technique to calculate speed, distance, and shape of the moving objects around the car. There are several human factors which are attributed to accidents like, use of alcohol, over speeding, aggressive driving, lack of experience, ignorance of road signals etc. These factors are self-controlled in driver-less cars. Therefore, it is expected that number of accidents by self-driving cars would be much smaller than the human-driven cars (Jiang, 2015). The use of GPS and smartphone during driving is also a good example of application of AI in transportation.

Finance:

The knowledge of AI is being utilized in different segments of bank and other financial organizations. AI technologies are used to manage and organize data according to the requirement, reducing the errors and enhancing the accuracy of work. Now days, the use of chat-bot for activation of accounts or balance checking is also very common.

There is another area in which AI is equally functional i.e. stock market. A large number of data are available on stock trading. With the help of effective AI system such data can be utilized effectively which consequently helps in decision making. In stock market quick decisions are required, which is easily possible with the application of AI technology.

Several banks like SBI, HDFC, ICICI, Axis banks and other banks have already started using AI based application for providing customer services in India.

Business Strategy:

The application of robotic process in highly repetitive tasks is very useful because it reduces the number of errors as well as time taken to perform the task.

The prediction capability of AI –based solutions can be used in deciding business strategy (Agrawal , Gans& Goldfarb, 2017, cited in Srivastava, 2018). A company uses predictions about customers and market conditions to decide where to focus. Once more and more predictions are available, the company may decide to use a different strategy. One example of use of AI for predictions is Amazon, which recommends certain products when someone shops on the platform. More extensive data on the customers can help in making the decisions on where to store the products and to what quantity.

Law:

AI based applications are effectively being utilized in legal domain also. AI based system helps in presenting or making arguments in the presentation of a case by providing the details of similar earlier cases. AI based systems have been developed which advise in legal matters through conversation, helps in contract analysis by providing significant clause and assist in faster resolution of already pending large number of cases through automated analysis of the case.

Education:

The advancement of AI system especially in natural language process has contributed significantly in the development of effective and intelligent tutoring system. AI is useful in providing answers to the queries, feedback and assessment of descriptive answers. A professor at Georgia Institute of Technology has developed AI powered system which assists in teaching and interacts with students like a human teacher. It can evaluate the assignments as well as answer the queries through email in natural language. The interesting fact is that students did not feel that they were interacting with a system and not with a human being until they were informed about it. In recent years the development in AI technologies has made it possible to provide personalized information, as required by any particular student.

3. Conclusion

AI is a broad term that aims at developing intelligent machines, and solving complex problems with the help of computer system. The review suggests that the contribution of this emerging phenomenon is not limited to specific areas. It has been beneficial in varied domains like health, transportation, education, law, security systems, development of business strategies and education. With the use of large pool of information, it has been seen to deliver quick and accurate results in all of the above sectors. In future , the optimal utilization of researches and technological development in AI system will have far reaching effects on the well being of people at large and development of the society as well.

References

1. Beck AH, Sangoi AR, Leung S, Marinelli RJ, Nielsen TO, Van DV, et al.
2. Systematic analysis of breast cancer morphology uncovers stromal features associated with survival. *Science Translational Medicine*. 2011; 3: 108-113
3. Gann PH, Sha L, Macias V, Kumar N, Sethi A. Computer vision detects subtle histological effects of dutasteride on benign prostate tissue. *The FASEB Journal*. 2017; 31(1, Supplement), 520-520.
4. Delahunt CB, Mehanian C, Hu L, McGuire SK, Champlin CR, Horning MP, et al. Automated microscopy and machine learning for expert level malaria field diagnosis. In *Global Humanitarian Technology Conference (GHTC)*. 2015; IEEE, 393-399.
5. IBM Watson Education, homepage, undated. As of October 30, 2018: <https://www.ibm.com/watson/education>
6. Jiang T, et al. Self driving cars : Disruptive or incremental ? *Applied Innovation Review*. 2015 ; 1 : 3-21
7. Purohit B, Bandyopadhyay, T. Beyond job security and money: driving factors of motivation for government doctors in India. *Human Resources for Health*. 2014; 12(1):12.
8. Simon HA, *Artificial intelligence : An empirical science . Artificial Intelligence*. 1995; 77 : 95-127
9. Srivastava SK . *Artificial intelligence : Way forward for India*. *Journal of Information System and Technology Management* . 2018; 15 (1) : e201815004
10. Wechsler, D. (1944). *The measurement of adult intelligence* (3rd ed.). Baltimore: Williams & Wilkins.