Artificial Intelligence Applications in Today's Field of Business

Bharathi Arasu.B
Senior Advisory Technical Services Specialist – IBM

Abstract

Artificial Intelligence is also known as Machine Intelligence, refers to the ability of computers to perform human like acts such as learning, problem solving, perception, decision making, speech and language. The term artificial intelligence was coined in 1956, but AI has become more popular today thanks to increased data volumes, advanced algorithms, and improvements in computing power and storage. This paper discusses about the Artificial Intelligence Application in today's field of business.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning

Introduction: AI is a broad term that is used in computer science that makes machine seem that they have human intelligence

Artificial intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans. Some of the activities computers with artificial intelligence are designed for include:

- Speech recognition
- Learning
- Planning
- Problem solving

Techopedia explains Artificial Intelligence (AI)

Artificial intelligence is a branch of computer science that aims to create intelligent machines. It has become an essential part of the technology industry.

Research associated with artificial intelligence is highly technical and specialized. The core problems of artificial intelligence include programming computers for certain traits such as:

- Knowledge
- Reasoning
- Problem solving
- Perception
- Learning
- Planning
- Ability to manipulate and move objects

Review of Literature

According to Nilson22, the emergence of AI as an independent field of research strengthened and was further strengthened by three important meetings – a 1955 session on Learning Machines held in conjunction with the 1955 Western Joint Computer Conference in Los Angeles, a 1956 summer research project on Artificial Intelligence convened at Dartmouth College and a 1958 symposium on the "Mechanization of Thought Processes" sponsored by the National Physical Laboratory.

About sixty years ago, a Dartmouth conference established the basis of artificial intelligence (AI). The name was coined for the use of technology in accomplishing tasks that usually need human intelligence. These tasks include, but are not limited to, interpreting language, making decisions, and applying visual perception [1,2]. Soon after the conference, the AI field started to develop exponentially. One major example was the DENDRAL project of Stanford University that started in the early 1960s. DENDRAL used heuristic programming to provide solutions in the field of science [3].

The first major extension of feedforward neural network took place in 1971. when Werbos developed backpropagation learning algorithm s. Unfortunately his work remained unnoticed. In 1985-86 Rumelhart, Hinton and William s rediscovered this technique. The elements used by Rumelhart in the backpropagation network differ from Madaline architectures. Madaline structure uses hard limiting quantizer, while the elements in the backpropagation network use only differentiable nonlinearities

The use of AI in medicine has led to a debate about how beneficial AI is in improving medical practice. Advocates of such integration list advantages such as increasing efficiency and helping medical practitioners to practice medicine in its real meaning. On the contrary, opponents of such integration cite different disadvantages that include concerns about the accuracy of these systems, the risk of having "deskilled" physicians, and fewer future jobs, especially in diagnostic medical fields such as radiology and pathology [6,7].

Objective

To study the Artificial Intelligence Applications in Today's Field of Business

.

Research Purpose

  To generate insights about Artificial Intelligence Applications in Today's Field of Business

Data Collection

All data is collected from Secondary sources Such as websites and journals

Secondary Source:https://www.debatingeurope.eu/2018/05/07/will-artificial-intelligence-change-society/#.XIgC1SIzaUk

Working of Artificial Intelligence
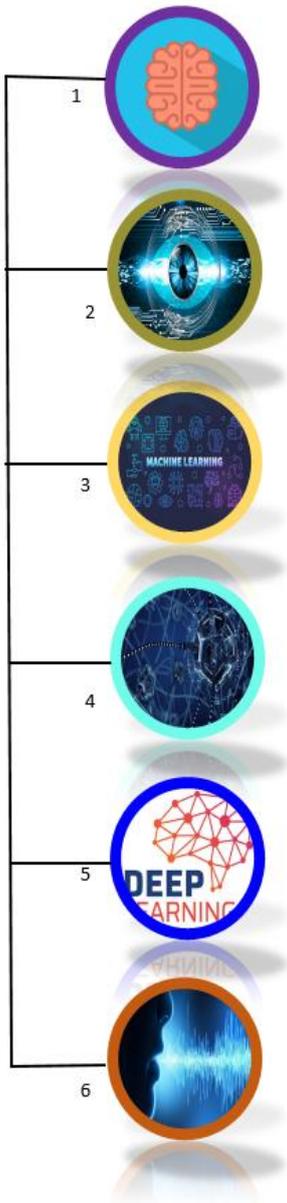
1.   Cognitive Computing

Cognitive computing is to simulate human thought processes in a computerized model. While computers have been faster at calculations and processing than humans for decades, they haven't been able to accomplish tasks that humans take for granted as simple, like understanding natural language, or recognizing unique objects in an image.

Some people say that cognitive computing represents the third era of computing. This sort of process could be done for any field in which large quantities of complex data need to be processed and analyzed to solve problems, including finance, law, and education.

2.   Computer Vision

Computer vision works on allowing computer to see, recognize, and process images the same way as the human vision does, and then provides an appropriate output. Computer vision is very closely related with artificial intelligence. The computer must understand what it sees, and then analyze it accordingly. This comes under AI.

Machine vision is the ability of a computer to see; it employs one or more video cameras, analog-to-digital conversion (ADC) and digital signal processing (DSP). The resulting data goes to a computer or robot controller. Machine vision is similar in complexity to voice recognition.

3. Machine Learning

Machine Learning is the knowledge in which machine can learn by its own from the examples and the experience. The program for this machine need not be precise. The machine tends to change or correct its algorithm from the examples and experiences.

Artificial Intelligence and Machine Learning are the two most commonly misunderstood words. They are not the same thing, but the understanding that they are, leads to some confusion.

Both these terms arise repeatedly when the topic is Big Data or Data Analytics, or something related to these subjects which is making its rounds around the world.

4. Neural Network

Neural networks are a set of algorithms, modeled loosely after the human brain, that are intended to identify patterns. They interpret sensory data through a kind of machine perception, labeling or clustering

raw input. The patterns they recognize are numerical, contained in vectors, into which all real-world data, be it images, sound, text or time series, must be translated.

Neural networks help us cluster and classify. You can think of them as a clustering and classification layer on top of the data you store and manage. They help to group unlabeled data according to similarities among the example inputs, and they classify data when they have a labeled dataset to train on. (Neural networks can also extract features that are fed to other algorithms for clustering and classification; so you can think of deep neural networks as components of larger machine-learning applications involving algorithms for reinforcement learning, classification and regression.)

5. Deep Learning

Deep Learning is a subfield of machine learning concerned with algorithms inspired by the structure and function of the brain called artificial neural networks. Deep Learning is concerned with emulating the learning approach that human beings use to gain certain types of knowledge. At its simplest, deep learning can be thought of as a way to automate predictive analytics.

6. Natural Language Processing

NLP is a field in machine learning with the ability of a computer to understand, analyze, manipulate, and potentially generate human language. Natural Language Processing broadly refers to the study and development of computer systems that can interpret speech and text as humans naturally speak and type it.

Natural Language Processing (or NLP) is an area that is a confluence of Artificial Intelligence and linguistics. It involves intelligent analysis of written language

Artificial Intelligence Applications

1. **In Marketing** – Marketing is the way the products are targeted to customers. Artificial intelligence marketing (AI Marketing) is a method of leveraging customer data and AI concepts like machine learning to anticipate your customer's next move and improve the customer journey.

2. **In Banking** – Banking is a booming industry in Finance. Nowadays digital banking is becoming popular. Customers have gained more insights into the way bankers can handle their personal information and opened a new world of competition. Banks play an important role to customers. AI is playing an important role. Eg. – Online Banking Apps. AI Can be positioned to conduct better stock analysis and forecasts.

   Companies such as MasterCard and RBS World Pay have relied on AI and **Deep Learning** to detect fraudulent transaction patterns and prevent card fraud for years now. This has saved millions of dollars.

3. **In Recruitment** – Nowadays IT suffer from understaffing as precise skills are needed for specific jobs. Now AI is able to examine a huge amount of data on company details, culture codes, hiring trends and job offers so the right person can be coordinated with the right company. Second, it can analyze job descriptions that have been successful in the past and use this information to create the ultimate job offer. As the writing skills of computers leave something to be anticipated, a human eye is still needed for the final touch, taking away worries on employment.

4. **In Finance –** AI is help to determine future patterns in the market. Trading mainly depends on predicting future markets. Machines are great at this because they can crunch a huge amount of data in a short span. Machines can also learn to observe patterns in past data and predict how these patterns might repeat in the future. Financial organizations are turning to AI to improve their stock trading performance and boost profit

5. **In Agriculture –** With artificial intelligence, farmers are now able to grow better crops and look after their animals while saving time and energy. Drones monitor the condition of the soil and determine whether it needs watering or seeding, while sensors in and around cows check their health and nutrition. Cameras monitor vegetables and fruit and are being taught to recognize irregularities or problems such as dehydration and unwelcome insects. All of this data can be used to predict the perfect time to harvest, or to estimate total milk production in the long term. This information, in turn, helps farmers to save out on costs for energy, cattle feed, lighting and water.

6. **In Health Care –** Many famous applications of artificial intelligence in healthcare include data management and analyses. Thanks to the Electronic Patient Record and machine learning, caregivers are now able to predict disease outcomes based on information about symptoms, patterns and lifestyle. This not only improves treatment plans of their own patients: AI in healthcare has the power to improve population health in general. Second, AI can be found in more and more devices such as heart rate monitors and insulin pumps. Not to mention the many medical apps that offer health assistance to clients without the interference of a doctor.

7. **In Intelligent Cyber Security –** It works successfully in data protection. AI allows companies to detect vulnerabilities or anomalous user behavior in such business applications as ERP or Financial systems

8. **In Logistics and Supply Chain –** Customer data and analytics are combined, Artificial Intelligence removes resistance from customer experience. Consumers demand shorter delivery waits from

retailers and retailers will expect the same from manufacturers and distribution centers. Autonomous trucks and robotic picking systems allow supply chains to make fulfillment seven days a week.

9. **Sports Betting Industry -** Human traders cannot compete with artificial intelligence when it comes to analyzing huge volume of data. With AI we can perform analysis of the vast volume of sporting analysis data available to maximize our accuracy when it comes to predicting future outcomes.

Conclusion

More advancement in AI is going to shape and take a new way in this revolutionary world. Ai has benefits of error reduction, Digital assistants, Repetitive jobs, No breaks. No matter what advancements take place in the world, man is always the master. Without human communications machine is always powerless. A machine needs a human to generate orders and instructions for them to work.

Reference

https://builtin.com/artificial-intelligence/examples-ai-in-industry

https://www.cleverism.com/artificial-intelligence-complete-guide/

https://www.infosys.com/insights/ai-automation/Pages/AI-where-human-brain-goes.aspx

https://www.analyticsindiamag.com/different-cognitive-computing-artificial-intelligence/

https://www.forbes.com/sites/bernardmarr/2016/03/23/what-everyone-should-know-about-cognitive-computing/#726087750884

https://www.roboticsbusinessreview.com/ai/3-basic-ai-concepts-explain-artificial-intelligence/

https://searchenterpriseai.techtarget.com/definition/machine-vision-computer-vision

https://www.techopedia.com/definition/32309/computer-vision

https://rutumulkar.com/blog/2016/NLP-ML

https://en.wikipedia.org/wiki/Computer_vision

https://data-flair.training/blogs/applications-of-artificial-intelligence/

https://blog.algorithmia.com/introduction-natural-language-processing-nlp/

https://www.lexalytics.com/lexablog/machine-learning-vs-natural-language-processing-part-1

https://skymind.ai/wiki/neural-network

https://builtin.com/artificial-intelligence/examples-ai-in-industry

https://www.happiestminds.com/Insights/artificial-intelligence/

https://interestingengineering.com/17-everyday-applications-of-artificial-intelligence-in-2017

https://www.iqvis.com/blog/9-powerful-examples-of-artificial-intelligence-in-use-today/