



ARTIFICIAL INTELLIGENCE-APPLICATION IN THE FIELD OF E-COMMERCE



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ABSTRACT

Artificial intelligence is playing a vigorous role in the present era. This concept is not a new concept but development in the area of artificial intelligence is continuously happening since the initiation of the concept. Development of the intelligent systems is making the human work easier and also convenient and save most of the time and effort. This paper simply describes the current state of e-commerce development and AI technology prospects, analyses the current state of AI technology application in the field of e-commerce, and focuses on studying and discussing in detail from the perspectives of Artificial Intelligence Assistant (chatbot), intelligent logistics, Recommendation Engine, Warehouse Automation, Visual Search and optimal pricing application through the research of e-commerce intelligent operation.

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1. INTRODUCTION

Artificial objects are described as those that are created or generated by humans rather than existing naturally. The simplest concept of intelligence is a method that involves a collection of problem-solving skills that helps one to solve real-world problems. Artificial intelligence (AI) is the process of simulating human intelligence in computers that are designed to think and behave like individuals. The concept may also refer to any computer that displays human-like characteristics like understanding and problem-solving (Frankenfield and Investopedia (2021)). According to the father of Artificial Intelligence John McCarthy, it is "The science and engineering of making intelligent machines, especially intelligent computer programs".

For researchers, Artificial Intelligence is not a new concept or a new technology. This concept is one of the oldest one and still it's having ample opportunity for the research (Tran (2019)). The evolution of artificial intelligence can be traced since 1943, the first work which is now recognized as AI was done by Warren McCulloch and Walter Pitts in 1943. They proposed a model of artificial neurons. After



the continues development, in the Year 1956, the word "Artificial Intelligence" first adopted by American Computer scientist John McCarthy at the Dartmouth Conference for the first time, AI coined as an academic field. Since then, AI has advanced to a remarkable level. Deep learning, big data, and data science are all major topics at the moment. Companies such as Google, Facebook, IBM, and Amazon are also using AI to build amazing products.(Kumar and Trakru (2019)) This study is undertook to understand the concept of artificial intelligence and its application in various fields

1.1 ADVANTAGES AND DISADVANTAGES

Human makes mistakes from time to time but intelligent systems do not make mistakes if programmed properly as a result we can reduce the errors and can enhance accuracy to the greater extent.(Tyagi (2016)) Artificial intelligent powered by robots can be used in natural or man-made disasters. If we replace humans with artificial intelligent machines it can work 24*7 without any breaks and also it can help in repetitive jobs without getting bored.

Artificial Intelligence has a lot of advantages than the ones mentioned above. People are becoming more interested in Artificial Intelligence as they see how it can help them succeed in their ecommerce business's high profits and customer relationships. As every bright side has a darker version in it. Artificial Intelligence also has some disadvantages. Even though Application of intelligent system require huge cost Artificial intelligent is making humans lazy because most of the works are competed by the artificial intelligent applications.as a result human interference is becoming less which may lead to the unemployment. Over and above that there is no scope for emotion and out of box thinking when we use AI systems.(Sima et al. (2020))

1.2 STRONG AND WEAK ARTIFICIAL INTELLIGENCE

John Searle pointed out that you can think of AI in two different ways. He called them strong and weak artificial intelligence. Weak AI, also known as narrow AI, is artificial intelligence with limited functionality. Weak AI refers to the use of advanced algorithms to accomplish specific problem solving or reasoning tasks that do not encompass the full range of human cognitive abilities. Weak AI is not so enthusiastic about the outcomes of AI; it is simply the view that intelligent behavior can be modeled and used by machines to solve complex problems and tasks. Just because a machine can behave intelligently does not prove that it is actually smart in a way that a human is. The best example of weak AI is Siri and Alexa, or Google Search.(Kakkar (2017)) Strong AI is a theoretical form of machine intelligence which supports the view that machines can really develop human consciousness equal to human beings. Strong AI refers to machines or programs with the mind of their own and which can think and accomplish complex tasks on their own without any human interference. Strong AI has complex algorithm that helps systems act in different situations and the strong AI-powered machines can make independent decisions without human interaction. Strong AI-powered machines can carry complex tasks on their own just like human

beings do. It simply states that a computing machine with the appropriate functional organization has a mind that perceives, thinks, and intends like a human mind. This is AI we see in sci-fi movies like “Her”, “The Terminator”, “I-Robot”, “WALL-E” and more.(Yu et al. (2018))

2. LITERATURE REVIEW

Intelligent computers can replace or augment human capacities in certain ways in the future. Computer or programmed intelligence is referred to as artificial intelligence. It's a branch of computer science. (Gidh (2020))Artificial Intelligence (AI) is now a common field in computer science because it has improved human life in a variety of ways. Artificial intelligence has significantly increased the efficiency of production and service processes over the past two decades. Expert systems are an increasingly developed technology that originated from artificial intelligence research. As specialist systems are commonly used, artificial intelligence application areas are having a major effect on different fields of life. Expert systems are commonly used these days to solve difficult problems in diverse fields such as research, engineering, industry, medicine, and weather forecasting, and Artificial Intelligence application areas are having a major effect on various fields of life.(Marda (2018)) The fields that use Artificial Intelligence technologies have seen an improvement in productivity and performance. Artificial intelligence equips robots with the capacity to think analytically and conceptually. Artificial Intelligence methods have made a significant contribution to a variety of fields over the past two decades. (Mittal and Sharma (2021)) Artificial intelligence has the potential to gather and process vast amounts of data to make actionable decisions. This technology is also being used in e-commerce to detect trends based on browsing, order background, credit checks, account records, and other factors.(Kakkar (2017)) India is the fastest-growing e-commerce region, according to Forrester. Artificial intelligence would have a huge impact on how e-commerce companies win and retain clients. Computer technology, artificial learning, and engineering jobs will be plentiful as a result of the AI boom in e-commerce.(Bandara et al. (2020)) Several e-commerce companies have begun to use AI in various ways in order to better understand their clients and provide a better user experience.(Gidh (2020))The e-commerce industry's artificial intelligence upheaval will result in a lot of new information science, computer learning, and engineering. AI-powered e-commerce will also build IT jobs to develop and maintain the systems and programming that will power such AI calculations. In either case, the transformation of AI and online business can have an effect on individuals with a limited set of skills who may face unemployment in the near future.(K and K (2020))The rising number of e-commerce orders necessitates further risk control to avoid payment default. A customer defaults in payment when he or she fails to pay a bill within 90 days of receiving it. Credit scoring (CS) is frequently used to determine the likelihood of a customer defaulting. (Vanneschi et al. (2018)

) Artificial Intelligence (AI) would almost certainly change how we live and function. Its adoption is being referred to as the fourth industrial revolution due to its enormous promise.(Srivastava (2018)) Artificial intelligence (AI) applications are dynamic social structures that cannot and cannot be judged solely by their reliability and accuracy.

As for any big technological development, it carries with it both benefits and challenges. In the one side, many applications have been created or are in the works that have the potential to greatly change people's quality of life.(Dhanalakshmi et al. (2020)) however, by having in place the requisite resources and policies, the gains can be maximized and risks can be reduced. India has yet to develop its AI policy, despite the fact that many other countries have done so. (Srivastava (2018)) The study looked at India's existing policy environment and concluded that the shortcomings of data-driven decision-making should be a primary concern in AI policy creation rather than a secondary one.(Marda (2018)) Artificial Intelligence (AI) is changing almost every aspect of human life, including work, economics, connectivity, warfare, privacy, defence, ethics, and healthcare.(Tyagi (2016)) However, we are yet to see how it evolves over time, whether it leads mankind to make the world a happier place to live or a place rife with tragedy. All technology has advantages and drawbacks, but in order for a technology to succeed in the market, the advantages must still outweigh the disadvantages. Nonetheless, we do not yet know if the positive benefits of Artificial Intelligence will still outweigh the negative effects in the long run, and if this is not the case, what will be the consequences. However, we don't know if the beneficial benefits of Artificial Intelligence would still overshadow the detrimental effects in the long run, and if it isn't the case, we're in big trouble. On the one side, we seem to welcome the transformation that technology brings, whether it's smart homes, smart healthcare, Industry 4.0, or self-driving vehicles, as we look around us. In the other side, we were often found demonstrating against the government over issues such as jobs, taxation, and privacy. When AI progresses, more robotics or self-driving vehicles are created to take the place of human labour.(Tyagi (2016))

3. APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN ELECTRONIC COMMERCE

Artificial intelligence technology is maturing along with science and technology, and it is significantly transforming the way people function and operate. In the world of electronic marketing, artificial intelligence technology has evolved into a strong platform for boosting market growth and optimizing e-commerce operations. Some of the techniques namely, Artificial Intelligence Assistant (chatbot), Recommendation Engine, Optimal Pricing and so on are discussed below(Song et al. (2019)).

3.1 ARTIFICIAL INTELLIGENCE ASSISTANT (CHATBOT)

The consumer service has become an essential component of every company's growth. Companies today can offer quicker purchases, but they also fail to provide round-the-clock customer service. An artificial intelligence assistant (chatbot) whose central purpose is to use a natural language processing device to automatically answer to consumer requests, respond to basic voice commands, and provide product suggestions. Machine learning algorithms are designed to connect with consumers in a customized manner through chat dialogues on e-commerce sites and mobile pages. Consumers may use chatbots to locate appropriate products, verify product availability, compare different products, and eventually pay for them. Customers may also use the chatbot to contact the appropriate support personnel if they have any concerns or questions. AI is stepping in to assist businesses in providing proactive customer service across various outlets, even in the absence of a person to manage customer inquiries.

3.2 RECOMMENDATION ENGINE

In E-Commerce, artificial intelligence provides customized and immersive purchasing opportunities. Companies may use AI-enabled platforms to view their consumers' needs in real time and provide them with dependable and specialized shopping experiences. AI will recommend appropriate products based on the user's needs. Via personalization and analysis of clicks, shopping carts, purchase history, and search requests; AI may play a significant role in understanding customer behaviour. All of which will assist e-commerce brands in providing appropriate recommendations for extra orders that make sense in the user's mind.

A recommendation engine is a full-fledged recommendation system built on a machine learning algorithm platform. Deep learning, mathematical programming, simulation and interpretation of consumer behaviour, analysis of large data sets, and prediction of which goods are likely to attract customers can all be realized using AI algorithms. First, based on previous searches by prospective users, the recommendation engine's machine learning algorithm will document key specifics of the requested product based on the estimation results. The recommendation engine then produces suitable Suggestions for the viewer and lists them on a personal website, effectively assisting consumers in easily finding the product. The use of a dimensionality reduction algorithm opens the door to the transformation of a recommendation method using artificial intelligence.

3.3 OPTIMAL PRICING

Except for limited inventory online retailers, this kind of long-term constant price change is a significant obstacle in today's e-commerce industry. Artificial intelligence technology, which can rapidly handle huge amounts of data, has effectively solved the issue of automated pricing for a vast range of goods. The final detailed ranking results will be influenced by product rating, logistics costs, and service quality. Optimal pric-

ing is challenging for retailers, and this type of pricing challenge requires extensive research, which is what artificial intelligence excels at. With AI in e-commerce pricing, one can build algorithms that automatically detect pricing trends from data and forecast prices based on that knowledge using analytics software that uses a mathematical model, deep learning, and a variety of other AI models. Automated AI pricing tools in e-commerce will help reduce the manual work involved in monitoring the competitors' costs. Businesses would be able to calculate commodity pricing based on evidence from both internal and external sources in this manner.

3.4 INTELLIGENT LOGISTICS

Intelligent logistics is a logistics production mode in which information technology is used to make machinery and controls intelligent, allowing mechanical equipment to replace humans. Intelligent logistics, as compared to conventional modes of logistics, will significantly increase service quality and operational performance.

3.5 WAREHOUSE AUTOMATION

Artificial intelligence in e-commerce is now changing warehouse management for small companies. AI-powered systems aid in the automation of commodity pick-and-pack operations that do not require lunch breaks. AI robotics can operate 24 hours a day, seven days a week. Using AI solutions in the warehouse can reduce errors because AI robots recognize their location and can therefore position and retrieve them as required. Robots may also take on high-risk jobs, which is useful for ensuring the safety of warehouse workers.

3.6 VISUAL SEARCH

The ability to use an image to look for same or related visual artefacts is referred to as AI-enabled visual search. An image is worth a thousand words, and visual product search ability will undeniably fix the problem of incorrect find queries. When shopping online, a buyer can have an easy search process, but in many situations, the road from 'searching' to 'seeing' a product is fraught with complications that often result in no order at all. AI in E-Commerce has enhanced visual search capability and aids in the discovery of items that are similar to your search.

3.7 E-COMMERCE CATALOG MANAGEMENT

To meet the demands of today's consumers, retailers must develop a simple and user-friendly online shopping experience. As a result, for a great customer experience, online stores must have good catalogue management. An online E-Commerce catalogue lists product names, specifications, costs, supplier information, and other relevant data. Small specifics such as colour, design, shape, cuff, weight, bottom type, and fit must be correctly listed in the catalogue to ensure buyers get the correct product information.

4. CONCLUSION

The E-Commerce business is in full bloom in terms of serving its consumers in every way possible, from knowing their needs to forecasting their buying preferences to suggesting items that better fit their needs to providing round-the-clock customer service. The E-Commerce industry has rapidly transformed the way people sell, shop, and browse items on the internet thanks to artificial intelligence. Most of the corporate companies are using the artificial intelligence techniques in their day to day operations. Artificial intelligence technology is maturing and transforming the way people function and live, particularly in the area of E-commerce. Artificial intelligence technology has increasingly evolved into a powerful weapon to fuel revenue growth and optimize E-commerce operations, especially as research and technology progress.

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