A Study on Role of Artificial Intelligence in the Field of E-Commerce

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Abstract

This research paper centers on how Artificial Intelligence (AI) , a field of computer science that aims to make computers emulate human thinking and behavior, is being applied in the realm of e-commerce. Due to the rapid advancement in technology, innovation and society as a whole, the utilization of artificial intelligence has been on the rise in both work environments and individual's lifestyles. It is utilized for personal shopping, AI-powered assistance, fraud prevention and recommendation system. Specifically, it will also examine the impact of chatbots in providing round the clock services, highlighting both the benefits and drawbacks they bring.

Keywords: Artificial intelligence, ecommerce, applications, chatbots.

Introduction

This research illuminates the impact of Artificial Intelligence (AI) in the realm of E-Commerce. AI plays a crucial role in the hi-tech industry. The main objective of AI is to enhance computer functions that are linked to epistemology. Currently, AI has started making its mark in the corporate galaxy, exceptionally in the ecommerce sector. Through digitalization, AI has come up with the growth of the e-commerce industry. AI is poised to provide e-business with the ability to detect prevalent vogue by collecting abundance of requisite data for making informed business diagnosis.

Objectives of the study
- To conduct an examination on the application of artificial intelligence in the field of e-commerce.
- To focus on how AI technology can enhance customer gratification by providing tailor-made solution
- To enable AI to assist in delivering round the clock services to meet customer needs.
- To discover how artificial intelligence will amplify productivity within the e-commerce industries.

Artificial Intelligence

Artificial Intelligence (AI) is a field of computer science focused on creating intelligent machines that can perform tasks frequently requiring human intelligence. With numerous areas, artificial intelligence excels in task performance compared to humans specifically that are repetitive and detailed-oriented such as analysing a significant amount of documents to ensure accurate completion of relevant fields. AI tools demonstrate the ability to complete tasks swiftly and efficiently with facile.

E-Commerce

The term electronic commerce commonly known as e-commerce is a business model facilitating e-tailing across various market segments through computers, tablets, smartphones, and other smart device that has led to high level of competition. Ecommerce functions across various markets such as business-business (b2b), business- customers (b2c), customers-customers (c2c) and customers-business (c2b).

Artificial Intelligence in E-Commerce

Artificial Intelligence (AI) in e-commerce primarily revolves around mastering technologies and algorithms. The advancement of AI technology within ecommerce has resulted in substantial transformations in the shopping experiences. Online retailers are extensively leveraging this technology by offering features such as chatbot and virtual assistant's, analysing customer quires and delivering personalised services to online shoppers. The applications of AI have notably progressed in recent years and are increasingly prevalent in the e-commerce sector.

Role or application of Artificial intelligence in E-Commerce

1) Personalised shopping

Personalization in the e-commerce industry has permeated the expanding online retail landscape, ascribed to advancements of AI and machine learning technologies. One such advancement is the employment of tools like Boomtrain which aids online merchants in discerning the customers interactions on online platforms. The process entails tailoring the shopping experience to align with customers' tastes, preferences and interests, consequently fostering brand loyalty.

2) AI-powered assistants

AI powered assistants carry out their tasks through the utilization of advanced AI, natural language processing, Robotic Process Automation (RPA) and machine learning technologies. These technologies aid in collecting intricate data from conversation, comprehending it, and responding accordingly. By leveraging algorithms, the system amalgamates historical data to identify behavioural patterns and adjusts this information based on new inputs. The RPA software streamlines repetitive and rule based tasks. Through this software, assistants such as Alexa, Siri or Google Home to address general quires using user profiles, historical data and any recent additions.

3) Fraud prevention

Today, online retailers are encountering two significant challenges: credit card frauds and fake reviews. Artificial intelligence is poised to mitigate such fraudulent activities by identifying and rejecting dodgy proceedings, as well as flagging undertakings for further investigation. These AI models will offer detailed reason codes to explain their decision in flagging a transaction, guiding investigators to uncover underlying issues and streamline the investigation process. Moreover, considering the customers often rely on reviews when making purchasing decisions, the AI tool will assist in detecting any suspicious activities in reviews.

4) Recommendation system

AI will improve its operations by using advanced methods to analyse data for the purpose of predicting customers' behaviour accurately and providing tailored recommendations to watch customers. The algorithms considers numerous factors such as customer preferences, past behaviour and external data sources. This approach will enable online retailers to offer more customised information and suggestions to their customers, ultimately leading an enhanced customer experience with optimised solutions.

5) Chatbots

Chatbots also known as Chatterbots, operate based on set of guidelines or machine learning algorithms. The integration of chatbots has propelled online conversation to a more advanced level in the e-commerce sector. They are specialised programs designed to engage in conversations with users online. By generating responses from a pre-defined pool of information, chatbots assist in resolving customer probe, enhancing customer service and providing assistance interminably.

6) Inventory Management

Another field within e-commerce involves the utilization of artificial intelligence to forecast and analyse future market trends. These predictions are made possible through machine learning, enabling businesses to accurately project the quantity of raw materials required for order and consumption. AI software also facilitates adaptions to changes in demand, technological advancements and even automation process.

7) AI-Driven CRM

Customer Relationship Management (CRM) facilitate businesses in monitoring and evaluating their connections with customers, suppliers and employees. Online retailers have the capability to merge AI with CRM to boost amplify e-commerce sales. CRM enables access to customer history and sales data, assisting online retailers in refining their sales strategies and services. CRM aids in contact management, document management and sales forecasting for e-business.

8) VR and AR

Virtual Reality (VR) and Augmented Reality (AR) are both technologies that stimulate or magnify a real-life environment. AI technology uses the smartphone camera to enhance live views, creating a real shopping experience for customers. This system allows customers to eventually shop from home, virtually trying on products based on their preferences and desires.

Benefits of Artificial Intelligence in E-Commerce

1) Virtual Personal Assistant (VPA)

VPA is a more advanced tool compared to the chatbot utilized by the e-commerce business. AI has introduced VPA, a highly impactful device for e-business. It enhances the businesses to keep updated with all the activities that are taking place in their business.

2) Improved customer services

Chatter bot also known as Chatbot plays a crucial role in artificial intelligence by revolutionizing communication norms within businesses. By offering round the clock services and aiming promptly resolve issues, chatbots have become one of the most prevalent AI powered technologies, enhancing customer service quality.

3) Focus on predictive marketing

Social media marketing, which capitalizes on AI technology, plays a significant role in predictive marketing strategies that optimize ecommerce websites. By ensuring that customers see their products first, businesses can boost their sales potential.

4) Cyber security

Through the utilization of AI in the e-business, companies can easily identify and address fraudulent activities, thus implementing necessary preventive measures. Leveraging machine learning and AI capabilities, online retailers can effectively pinpoint the origin of fraudulent activities, such as unauthorised transactions and successfully prevent them

5) Automation

Artificial intelligence has significantly contributed to the automation of processes in the ecommerce industry. AI is instrumental in streamlining repetitive tasks necessary for the continuous operation of online stores, such as scheduling sales, publishing new products, providing product recommendations, loyalty discounts and more.

6) Marketing solutions

Particularly, in the realm of e-commerce solutions, AI is the most notable for its marketing applications. By integrating AI into ecommerce practices, businesses can benefit from the ability to analyse precise customer preferences and tastes. This innovation has slowed for accurate predictions of customers' needs by understanding their individual choices, thereby enhancing the personalized experience of each visit.

Drawback of Artificial Intelligence in e-commerce

1) AI powered chatbots

AI in ecommerce presents itself as a viable substitute for human interactions. Customers are inclined to gravitate towards platforms that offer a personalised buying experience due to inconsistencies and inadequate information. An effective combat the issue entails the recruitment of additional support staff, although this poses a challenging for ecommerce business. For instance, automated chatbots can inadvertently make customers feel uneasy as they may perceive them as machines rather than humans.

2) Security risk

Regarding ecommerce, one of the primary hurdles to overcome is the risk of security breaches. Given the substantial amount of data involved in ecommerce transactions, any technical mishap related to data can lead to significant disruptions in the retailers daily operations and tarnish their brand image.

3) Lack of human resources

Artificial intelligence encompasses various disciplines such as mathematics, psychology, statistics and linguistics, in addition to software engineering. This diverse field includes role like business intelligence engineers, AI architects, machine learning engineers and data science teams. Unfortunately, there is currently a significant shortage of qualified professionals in these areas, requiring companies to compete in a limited talent pool to advance their AI projects.

4) Implementation risk

Upon establishing necessary data and human resources, efforts can be directed towards tasks like researching, modelling, training, data sampling and gathering feedback on progress. Even after successful implementation, ongoing maintenance is required to interpret and enhance algorithm functions. Encouraging full company support for AI initiatives and cultivating a new organisational culture may present challenges.

Suggestions

- Efforts to enhance the human intervention in which customers are not solely reliant on machines for all tasks must be pursued. It is crucial to take proactive measures to educate customer about AI technology.
- Furthermore, to enhance online identity verification by embedding one time password, AI biometrics, two-factor authentication and other advanced methods, the ecommerce sector should focus on converting potential leads into paying clients.

- Since AI is a highly technical concept, it is imperative to offer adequate education and training programs to online businesses and its employees to ensure smooth operations.

Conclusion

The incorporation of artificial intelligence (AI) into ecommerce has profoundly transformed the methods through which retailers engage in ecommerce. AI processes the potential to completely overhaul the ways in which businesses engage with customers, allowing them to offer personalised services on a large scale. Companies that embrace advancements in this technology will have a competitive edge over those that do not, as they will be poised to meet customer requirements and generate greater value for their enterprises. AI tools offer significant advantages to online retailers by enhancing their market demand and facilitating collaborations with other entities to leverage their AI capabilities and develop more sophisticated solutions. AI has evolved into a fundamental element for successful online commerce, impacting various aspects such as transactions, customer retention, satisfaction and efficiency.

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