

A Survey on Role of ChatGPT in Diverse Areas

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Abstract— This paper discusses how ChatGPT can assist data scientists in automating various diverse areas like education, business for their workflow, including data cleaning and pre-processing, model training, and result interpretation. ChatGPT (Chat Generative Pre-trained Transformer) is a large language model-based chatbot. It enables users to refine and steer a conversation towards a desired length, format, style, level of detail, and language. It utilizes natural language processing and machine learning algorithms, is taking the world by storm and is the buzzword across many sectors today. In this paper, we discuss how ChatGPT - a Natural Language Generation (NLG) model can enhance education via chat, as well as other sectors such as health care, business, Agriculture, mathematics, etc. We will analyse the current use-cases of ChatGPT in these areas and explore possible future applications.

Key words: ChatGPT, Agricultural, Public Health, Business, Education

I. INTRODUCTION

ChatGPT is a large language model developed by OpenAI. It uses machine learning techniques to generate human-like text based on a given prompt or input. It is a highly sophisticated chatbot that is capable of fulfilling a wide range of text-based requests, including answering simple questions and completing more advanced tasks such as generating thank you letters and guiding individuals through tough discussions about productivity issues[6]. ChatGPT can be used for a variety of natural language processing (NLP) tasks, such as text generation, text completion, and conversation. Due to its ability to understand and respond to human language, ChatGPT is well-suited for use in applications such as chatbots, virtual assistants, and language translation[3]. Attention Mechanisms, Chatbot, Generative Model, Generative Pre-Trained Transformer, Language Model, Multimodal Neurons, Natural Language Processing, Neural Network, Supervised Fine-Tuning, Transfer Learning, Unsupervised Pre-Training are the aspects of chatGPT[6].

ChatGPT is particularly useful for many sectors in enhancing their user's service by providing instant support and assistance to customers. ChatGPT is an automated platform that makes it operational 24/7 eliminating the need for human customer service representatives to be available around the clock. Users can be provided with instant services with nearly perfect accuracy without having to wait for human representatives to respond[4]. Productivity. In the education sector, students would benefit from being able to answer their queries quickly through conversation rather than searching online[7]. Similar to that, doctors could leverage this technology for faster diagnosis and treatment plans tailored specifically towards each patient's needs. Businesses that use GPT-enabled chatbots allow employees to complete tasks more efficiently because they no longer need to spend time navigating complicated menus and can instead ask the bot directly what they need to get the job done. All of these advancements show just a few of the ways that incorporating chatGPT into our daily lives improves the quality of life for both current and future generations[7].

II. LITERATURE OVERVIEW

A. Can Chat GPT Replace the Role of the Teacher in the Classroom: A Fundamental Analysis[1]

This research paper conducted analysis of ChatGPT ability to replace the role of teachers and its teaching methods in the classroom learning process. The methodology used to collect data includes attentive listening and careful documentation of relevant information, which is then subjected to analytical procedures such as data reduction, data display, and conclusion drawing. The literature for this study was obtained from digital media and scientific repositories using keywords related to the themes discussed, namely ChatGPT and the role of teachers. The study concluded that using ChatGPT in learning technology can only be a tool and cannot replace the role of the teacher entirely as they have the role of mentors and role models for students. ChatGPT can be used to assist students in learning by providing high-quality reading materials for students and develops effective ways for teachers in managing learning with Technology that makes teachers' tasks easy. By utilizing ChatGPT, teachers can create high quality reading materials to meet students' needs.

B. Role of Chat GPT in Public Health[2]

In this paper we have examined the use of chatGPT in the health sector, its advantages and limitations. ChatGPT has the ability to generate human-like large amounts of data and has the potential to support individuals and communities in making informed decisions about their health. In the area of Health Promotion and Disease Prevention Strategies, Information about strategies for healthy lifestyle choices regarding regular physical activity, a healthy diet, and also avoiding harmful remedies like tobacco and excessive alcohol consumption are provided by chatGPT. Vaccination, Screening and early detection of cancer, managing stress, reducing exposure to hazardous chemicals and pollutants information also provided by chatGPT. It also helps community health workers (CHWs) and health educators in encouraging and protecting the health of populations in urban and rural areas. Information about the types of community health programs and services available, the populations they serve, and the specific health outcomes they aim for is provided by ChatGPT. Besides all these pros, in this research paper they also narrated cons

also like Limited accuracy, Bias and limitations of data, Lack of context, Limited engagement, No direct interaction with health professionals.

C. Importance of chat GPT in agriculture: According to chat GPT[3]

This paper shows how chatGPT can be used for agriculture in many major areas like crop forecasting, soil analysis, crop disease, pest identification, precision farming, and irrigation scheduling and farm management. In the area of crop forecasting, chatGPT used to monitor real-time data from weather stations and other sources to provide up-to-date crop forecasting information. This information can be used by farmers to make decisions about planting, fertilizing, and harvesting their crops, as well as by traders and buyers for market analysis. In terms of soil analysis, by analyzing data on soil properties, such as pH level, nutrient content, and moisture levels, chatGPT predicts the nutrient and water requirements of a particular crop, based on the current soil conditions and forecasted weather patterns to help farmers to make decisions about fertilizing and irrigation. Using ChatGPT for crop analysis, farmers can improve crop yields, quality and reduce costs by using more precise and efficient methods for managing their crops.

Crop diseases that ChatGPT can be helpful in identifying: Late blight in potatoes and tomatoes, rust in wheat, root rot in soybeans. The corn earworm, aphids, whitefly and armyworm are some of the examples of pest identification that are known by chatGPT. By generating reports and alerts for farmers using chatGPT, it provides real-time monitoring of their crops, soil and weather conditions that helps in improving crop yields.

ChatGPT can be used to analyze data on transportation routes, shipping times, and inventory levels to determine the most efficient logistics routes and shipping schedules to help logistics companies and manufacturers reduce costs and improve delivery times. It can be used in maintaining cost by assisting with supply chain management, logistics, and inventory management for agricultural products. Besides mentioned benefits of chatGPT in agriculture there are some of the limitations also i.e. data is incomplete then output may be affected, data breaches, High cost.

D. Analyzing the potential benefits and use cases of ChatGPT as a tool for improving the efficiency and effectiveness of business operations[4]

In this paper explore the benefits of ChatGPT that foster productivity in the operations of business organizations. The uses of PSI and COPRAS approaches to prioritize the potential benefits and use cases of ChatGPT in business operations which includes the data collection process, criteria selection, analysis, and interpretation of results. In this research paper identified three benefits of ChatGPT i.e. 1) Cost Savings (CS) 2) Enhanced customer engagement (ECE), Generate high-quality content (GHC) which subsequently branched into nine sub-Benefits: Increased Efficiency within a business, Improved Accuracy within a Business, automate repetitive tasks such as answering frequently asked questions, providing quick, informative, and more natural responses, leads to a more positive experience for the customer, increased customer satisfaction and loyalty, Save businesses time and resources for content creation, ability to generate human-like text and personalize customer interactions and tailor responses based on the customer's preferences. There are several problems like data protection, technical complexities, or client confidence that may present difficulties.

E. Guiding AI with human intuition for solving mathematical problems in Chat GPT[5]

This research paper shows how machine learning can help mathematicians come up with new conjectures and theorems by giving cases of new basic findings in pure mathematics found with its assistance. Finding patterns and using them to create and support conjectures, or theorems, is a key component of mathematics practice, for that Computers have been used by mathematicians. ChatGPT Describes the guided structure and how it can be done, and fully and successfully applies solutions of mathematical errors and its mathematical advances to recent research questions in several regions of mathematics.

In this paper concentrate on assisting the highly developed intuition of skilled mathematicians, producing both interesting and profound results. Using human intuition to guide AI in ChatGPT to solve mathematical issues, errors, and hallucinations. ChatGPT's use of AI to support intuition is much more logical in this paper demonstrating this. Case studies show that how framework aids mathematicians in better understanding the behavior of objects too vast for them to perceive patterns in mathematical problems to solve.

III. CONCLUSION

The impact of AI-based chatbot technology ChatGPT has been revolutionary in diverse areas. By this survey we conclude that chatGPT has had a positive effect on various areas like education, classroom, business, health care, mathematics, agriculture. Using chatGPT builds stronger relationships with their users while also increasing use of it. In education by providing assistance to students with course material, in healthcare providing automated patient support services, In business by providing powerful automated tools, In agriculture providing better management to farmers. By addressing the challenges and ethical concerns associated with its use we will also take into consideration use of chatGPT in digital marketing, e-commerce, Bug finding, development and finance future.

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