

Chapter 14

Examining the Reliability of ChatGPT: Identifying Retracted Scientific Literature and Ensuring Accurate Citations and References

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ABSTRACT

ChatGPT, launched by OpenAI in November 2022 is an advanced AI language model designed for natural language processing and versatile applications across various sectors. However, it is important to address the limitations of AI models in academic research, particularly in contexts where accuracy and evidence-based responses are crucial. In this context, the chapter aims to thoroughly assess the reliability and accuracy of AI-driven tools, specifically ChatGPT, in providing information on retracted academic literature using COVID-19 as a case study. The chatbot's ability was analyzed to identify and reference retracted COVID-19 papers to highlight the limitations of AI models in academic research. The research provides valuable insights into the challenges associated with using AI tools for scholarly purposes. The research provides valuable insights into the difficulties of using AI tools for academic purposes. It highlights the need for enhanced AI models capable of accurately handling complex, fact-based queries in scholarly and research environments. The findings show that ChatGPT can only identify a limited subset of relevant retracted articles on COVID-19, and the references it generates rely on predictive logic rather than verified data. emphasizing the need for improved AI models to accurately handle complex, fact-based queries in academic and research

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INTRODUCTION

1.1 Introduction to ChatGPT

ChatGPT is a large language model developed by OpenAI based on the GPT-3.5 architecture. Its ability to generate coherent and human-like text in response to various prompts has gained popularity. ChatGPT has been used in various applications, including natural language processing, chatbot generation, and information retrieval. It is designed to comprehend and produce text in various languages and domains.

The GPT-3 architecture utilized in ChatGPT is built on deep neural networks, trained on a lot of text data to discover the underlying links and patterns in language (Radford et al., 2021). As a result, ChatGPT can now produce grammatically and semantically consistent text, making it appropriate for various uses. ChatGPT has performed well in tasks such as text completion, question answering, and classification (Brown et al., 2020). Additionally, ChatGPT has been used to create conversational agents and chatbots that can communicate with people naturally and intelligently. It is worth noting that ChatGPT is not the only language model or chatbot powered by AI. Many major technology companies have created models, including Meta's Blenderbot, DeepMind's Sparrow, and Google's LaMDA. However, ChatGPT is widely recognized as one of the most advanced AI language models. It can produce coherent and contextually relevant text, answer questions, summarize information, and even engage in human-like conversation.

The way we engage with machines and obtain information could be completely changed due to emergence of chatbots. For instance, ChatGPT has created chatbots for healthcare, education, and customer service (Gao, Zhao, Yu & Xu, 2023). Additionally, this cutting-edge technology has a wide range of applications, including automated customer service, chatbots, and content creation (Brown et al., 2020). The ChatGPT model has undergone extensive training with massive datasets containing over 570 GB of text and nearly 499 billion tokens. With an impressive 175 billion parameters, ChatGPT is a powerful tool for enhancing any text-based application (Haluza & Jungwirth, 2023). ChatGPT has garnered widespread media attention, with millions of articles discussing its features and a growing user base despite being in beta. Recent reports indicate that accessing ChatGPT is becoming simpler, as internet browsers like Bing are actively integrating it into their platforms (Dayaram, 2023). Additionally, in January 2023, several Google Chrome extensions for ChatGPT were launched.

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