Research Article

A Review of Using Chatgpt for Scientific Manuscript Writing

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Abstract

Scientific manuscripts an important in publishing research findings and advancing scientific knowledge. The method of writing a manuscript can take time and be a challenge for a lot of researchers. Artificial intelligence have helped the improvement of scientific writing. ChatGPT is an AI language model developed by OpenAI. This study review aims to evaluate ChatGPT for scientific manuscript writing, showing an overview of ChatGPT's abilities and limitations and highlighting its benefits and challenges in scientific writing. This study talks about review studied various methods in which researchers could use ChatGPT. This review also discussed ethical considerations related to ChatGPT in scientific manuscript writing including the impact of authorship, plagiarism, and the science community. It considers the importance of clarity and ensuring appropriate attribution when incorporating AI-generated content into scientific manuscripts the review gives the evaluation of researchers who using ChatGPT in scientific writing and it highlights their experiences challenges and recommendations for using ChatGPT as a written tool effectively.

1. INTRODUCTION

Scientific manuscripts are core sides of research and allow researchers to communicate discoveries to the scientific community [1]. The process of writing a manuscript can be time-consuming requiring careful attention to details, clarity of expression with evident formatting and style guidelines as the volume of scientific literature stays to increase exponentially researchers are staying looking for rules to update and improve the manuscript process [2].

AI have opened up new chances to improve various parts of scientific writing. There are a lot of AI models like ChatGPT improved by OpenAI shown large natural language processing and generation capabilities. These models are instructed on the large total of text data and can identify and generate human text answers [3].

This study aims to review of ChatGPT for writing scientific manuscripts. It is weighs ability benefits and issues combined with the integration of the AI model for writing processes and shows valued perceptions of qualifications and limitations to researchers.

The main advantage of using ChatGPT for scientific manuscript writing is the ability to generate manuscript parts. Researchers can input research results and methods into the model and generate clear and structured manuscripts. This function significantly reduces the time and work required to create an initial manuscript, allowing researchers to focus on analyzing and reading results [4].

ChatGPT is a tool used to produce draft manuscripts to improve language and organize ideas in scientific writing [5]. It can suggest substitution word scales, sentence structures, shows grammar and punctuation corrections, making it useful for non-native English speakers or researchers who strain with expressing ideas clearly. ChatGPT have been used to help researchers organize ideas and arrange the structure of their manuscripts. The ethical considerations such as authorship and proper attribution. The model have been generated text, but it is necessary to clearly outline the contributions made by the AI model beside human researchers. Plagiarism detection and citation practices are important for maintaining academic integrity [6].

This survey explores ethical considerations and the ability impact of AI-generated content on the scientific public. It will present the evaluations of researchers who have used ChatGPT in the writing process, highlighting experiences, challenges,

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and recommendations for combining AI tools into the manuscript writing workflow. This knowledge will enable researchers to make informed decisions about leveraging AI tools to develop the efficacy and quality of scientific manuscript writing.

2.   CHATGPT FOR WRITING MANUSCRIPT

ChatGPT is a large language model utilized for generating research abstracts, but its accuracy and reliability in scientific writings are still under discussion. This proposal collected five abstracts of research from main medical journals and generated using ChatGPT. The AI output detected most of the abstract generated as false, with an average of 99.98%. Yet blind human critics correctly identified 68% of the abstracts generated as ChatGPT and 14% as ChatGPT [7].

Large-scale language models (LLMs) are of scientific interest because can improve efficiency in writing tasks including peer review reports. There are no standards for using these systems for inspection tasks. There are five-sector studies have shown that LLMs can significantly change the part of peers and editors, promote high-quality reviews, and solve review shortages such as ChatGPT in OpenAI. There are still fears about bias, privacy, and reproduction in the review report. The study recommends authors and publishers relate the use of LLM and suppose full liability for data security, privacy, and reporting accuracy [8].

OpenAI is a powerful tool that allows researchers to write minimally in manuscripts, grants, and revisions and revolutionize scientific writing. However, there are concerns about the role of the author in verifying the accuracy of the text generated automatically and the accountability of AIGC tools. Academic editors support the statement that AIGC tools cannot initiate original research without human guidance but question the need for strict editorial policies [9].

This proposal analyzes the limitations and capabilities of six AI chatbots in scholarly writing in archaeology and humanities. The analysis focuses on quantitative accuracy and qualitative precision, with ChatGPT-4 scoring near the passing grade. All AI chatbots, with the exception of ChatGPT-4, have demonstrated competence in the reunification of existing knowledge, but have not generated original scientific content. The study suggests that large language models have reached a plateau, and while AI chatbots have revolutionized subject generation of ability to create original scientific contributions remains limited [10].

ChatGPT has revolutionized writing, but it's crucial to differentiate human writing from AI. A method has been developed to differentiate ChatGPT-generated text from academic scientists using supervised classification methods. The approach uses 20 features, achieving over 99% accuracy in assigning authors to humans or AI. This strategy can be adapted for other supervised classification skills[11].

Scientific writing is a complex task requiring precision, rigor, and extensive research. ChatGPT, based on advanced LLMs GPT-3.5 and GPT-4, can simplify academic writing and publishing. Its applications include hypothesis generation, literature review, safety recommendations, troubleshooting, paraphrasing, editing, proofreading, journal selection, and journal-style formatting. This book chapter will discuss its advantages and applications[12].

A new AI text detector has been developed for scientific journals, allowing accurate distinction between human-generated and AI-generated text. The device has been tested on various journals of chemistry, AI text from the largely advanced model, and AI text generated using obfuscation prompts. This advance is crucial for understanding the impact of automated text generation on scientific publishing [13].

ChatGPT and other AI models have gained popularity, with many believing they will disrupt society and change the education system. A study comparing human-written and ChatGPT-generated argumentative student essays found that ChatGPT generates higher-quality essays due to its unique linguistic characteristics. The study suggests educators should use AI models to re-invent homework and develop teaching concepts, similar to how math uses calculators [14].

2.1   Ethical of using ChatGPT for generating text

LLMs, such as ChatGPT, can enhance scientific and writing research, but their use is an ethical gray area. Plagiarism occurs when somebody else's work is presented as one's own, and it's unclear where the individual ends their contribution and starts plagiarism. Journals like Science and Nature have issued guidelines, stating that AI-generated text or figures are not allowed in published papers and that researchers using LLM tools should document their use in the acknowledgments and methods section[15].

2.2   Improving Writing

ChatGPT, an AI-assisted writing tool, has made it accessible to a wider range of researchers and scientists. It improves text clarity by presenting new ways of ordering thoughts, reformatting text, and summarizing thoughts [16]. It can also help outline documents, create bulleted lists, and modify text to different readerships. ChatGPT can also be used for emails, grant reports, tutorials, documentation, and choosing appropriate keywords for publications. However, it is important to disclose its usage and follow ethical guidelines for responsible usage, especially when using ChatGPT for publishable research [17],[18],[19].

2.3   Code generation

ChatGPT is a tool that can improve code appearance and construct script logic in bioinformatics settings. It accelerates the learning of new tools by providing an environment interactive for commenting on pipelines [20],[21]. It can give code chunks to fix errors, demand, and write complex SPARQL queries. However, human experts must review the code to prevent semantic errors. ChatGPT can perform functional refactoring's, improve code modularity, and translate between programming languages. It can also assist with "designing after the fact" and enhance code quality[22]. It is essential to set up robust tests to maintain code reliability and prevent bugs. ChatGPT can be added to integrated development environments (IDEs) via plugins, such as GPT-3.5 and GPT-4 in Visual Studio Code [23].

2.4   Bibliography Generation

This study examines the prevalence of fabricated bibliographic citations in literature reviews using ChatGPT-3.5 and ChatGPT-4. The results showed 55% of GPT-3.5 citations are fabricated, while just 18% of GPT-4 citations are real citation. This study also found 43% of real GPT-3.5 citations have substantive citation errors, indicating that while GPT-4 is an improvement, problems persist [24].

3. DISCUSSION

ChatGPT used to improve writing of scientific manuscripts by generating parts of papers, developing language flexibility, and organizing ideas. These tools help to reduce time and work required to create draft manuscripts and allow researchers to focus on analysing and explaining results. They also have been used to suggest selection words, sentence structures, and grammar corrections of benefit non-English-speaking people. Ethical issues such as authorship, appropriate allocation, plagiarism detection, and citation practice are crucial. ChatGPT may be used for improve efficiency, language quality, and ideas organization, but evaluation needs to be achieved between using AI tools and human supervision in scientific writing.

4. CONCLUSION

This study survey for using ChatGPT an AI language model, for scientific manuscript writing. ChatGPT found an improvement in efficiency, language quality, and organization. Ethical reflections, incorporating the right assignments, plagiarism detection, and reference practices, are essential. Researchers should follow the guidelines to ensure using of responsibility. This study shows recommendations for the efficient use of ChatGPT and highlights the importance of clear communication. Although its potential, researchers must train responsibility and maintain human supervision to ensure accurate and relevant content.

Conflicts Of Interest

The author's paper emphasizes that there are no conflicts of interest, either perceived or actual, that could impact the research integrity.

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