

## ChatGPT: A New Era in Research Writing Assistance

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*Madam*, The integration of artificial intelligence in everyday tasks is becoming prevalent, and its application has extended to academic and scientific writing. The utilization of large language models, such as ChatGPT, has gained significant traction among researchers and scientific writers in recent times. According to a recent article published in *Nature*, ChatGPT is capable of generating text that sounds both realistic and intelligent in response to user prompts.<sup>1</sup> A recent study published in December 2022 evaluated the ability of ChatGPT, to execute complex cognitive tasks and generate text that is indistinguishable from text produced by humans,<sup>2</sup> suggesting that it can be difficult for researchers to distinguish between abstracts created by AI and original ones.<sup>1</sup> Another study published in December 2022 showed that ChatGPT could generate precise and believable scientific abstracts.<sup>3</sup> Likewise an additional study published in 2022 postulated that based on the analysis of ChatGPT's applications, capabilities, and limitations, it can significantly enhance academic research across a broad range of fields.<sup>4</sup> A recently published literature review using ChatGPT has been cited as an example of ChatGPT's application in the field of scientific writing and research.<sup>5</sup> Moreover, ChatGPT has also been used to write and publish editorials and research papers.<sup>1,6,7</sup> Despite the benefits, some researchers are still evaluating the implications and effects of using these models in the long term.<sup>1</sup>

This letter aims to present the advantages of utilizing ChatGPT, a large language model developed by OpenAI, in the field of scientific writing. ChatGPT can help researchers in various ways, including generating, summarizing, completing and editing and creating references, bibliography and citations. The most significant application of ChatGPT in scientific writing is text generation, as the model can be used to generate outlines, abstracts, and introductions to research papers. However, it is imperative to point out that ChatGPT cannot provide text with proper citations to research papers and sources. ChatGPT can also support researchers in the text summarization process, enabling them to extract meaningful information from vast amounts of text data like research papers or articles.

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Additionally, some researchers use ChatGPT to analyze large volumes of text to gain deeper insights and knowledge, which is particularly useful in qualitative research and in writing literature reviews. Another application of ChatGPT is text completion, which can improve efficiency in the research writing process by completing sentences and paragraphs. ChatGPT can be used to generate citations in different reference styles but it is much more intuitive to use citation managers such as Endnote and Mendley for this purpose.

It is also imperative to point out that ChatGPT has certain limitations when writing research papers. These include a lack of specialized knowledge, originality, and analytical skills, which are essential for producing high-quality research. Additionally, the model may not always understand the context in which the text is being generated and may reflect biases present in the training data, resulting in inaccuracies or inappropriate suggestions. When asked a question, ChatGPT is prone to providing incorrect answers and it is the responsibility of the user to verify the correctness of the information. The use of ChatGPT may also raise ethical and privacy concerns as it may produce sensitive information or personal data. It is important to thoroughly check the generated text for plagiarism and ensure it is properly cited. The text generated by ChatGPT should be treated as a starting point, as it cannot replace human expertise, content awareness, experience and intelligence. This is particularly evident when requesting ChatGPT to compare the results of your study with previous literature and compose a discussion for a research manuscript. ChatGPT is not able to perform this task adequately and cannot provide references to the information it provides. Lastly, it is imperative to point out that the ethical and appropriate usage of large language models in the context of scientific writing has yet to be clearly defined.<sup>1</sup>

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