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IS CHATGPT A SILVER BULLET FOR SCIENTIFIC MANUSCRIPT WRITING?

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Open AI, an artificial intelligence laboratory of San Francisco California released their new AI model called ChatGPT in November, 2022.¹ Chatbots are computer programs which are designed to carry out conversation with humans through input via text or voice. GPT (Generative Pre-Trained Transformer) is a machine model that utilizes supervised learning techniques for understanding and generating human like language.² It is an artificial intelligence Natural Language Processing (NLP) module which uses algorithms for analyzing and interpreting human language in the form of text or speech to extract meaningful and useful information based on human input. However, ChatGPT can extract data and phrases from over 150 billion parameters stored on the internet and can carry out long dialogues with its users.⁴ Chatbots using GPT can respond to questions very similarly as to a human's own response thus perfectly simulating human conversation. They can predict the next word in a sequence by detecting the context of previous words.³

ChatGPT has revolutionized scientific manuscript writing. It can assist in literature search and helps in gathering consistent and accurate data at a faster speed and with more ease. It also helps in reviewing and editing. In addition, ChatGPT can be used as a tool to assist in manuscript writing by helping authors draft a manuscript as per their (Journal's) requirements. A researcher's time and efforts are significantly saved with ChatGPT, hence allowing them to concentrate more on data analysis and its interpretation.⁴

Ever since ChatGPT made its debut it has taken the scholarly world by storm, gaining authorship positions in four different published and pre-print articles.⁵⁻⁸ On the other hand, the place ChatGPT holds in authorship criteria is currently being hotly debated among researchers, editors and publishers.⁹ According to the recommended authorship criteria, since ChatGPT cannot take responsibility for, or ensure the accountability and integrity of research, it is unlikely to fulfill the authorship criteria. This is endorsed by well reputed

journals like "Nature" and "JAMA", making necessary changes in their policies of publication, by advising authors to mention AI in Methods or acknowledgement, if used.^{10,11} Likewise, the representative body of international medical editors, World Association of Medical Editors (WAME) has banned inclusion of ChatGPT in the authors list of manuscripts.¹²

ChatGPT cannot replace human medical writers because it lacks the expertise and level of understanding that humans possess. It can generate text that is convincing or "Sounds Plausible" but can possibly be nonsensical or incorrect.¹ This is a common phenomenon exhibited by language models and has been termed as "Hallucination". ChatGPT, at this moment, cannot provide citations or references. It may also overuse phrases. Moreover, errors and biases in the text generated by ChatGPT cannot be overruled. Articles generated with ChatGPT are not free of plagiarism and need to be corrected. As ChatGPT relies on previously stored data, text repetition can be a possible consequence, which may result in a lack of innovation, creativity and originality. Another shortcoming of ChatGPT is that it cannot distinguish between fact, fiction and unreliable information. As a result, the potential misuse of ChatGPT cannot be overlooked as ChatGPT can be tricked and misused.¹³

In a nutshell, ChatGPT is an AI machine that can serve as a friend and guide to its user. It is a powerful authors tool that helps writers in accomplishing many tasks but despite its usefulness in medical manuscript writing, ChatGPT is not a Silver Bullet and can commit errors.¹⁴ The limitations and risks of ChatGPT should be given due consideration while adopting it for the purpose of medical manuscript writing.¹⁵ While on one hand ChatGPT can serve as a useful authors tool for writing, on the other hand the integrity of ChatGPT generated manuscripts are a challenge for editors as it can deceive inexperienced peer reviewers by generating fabricated articles.¹⁶ ChatGPT has been termed as a "double-edged sword" and the scientific community

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has been advised to proceed cautiously with regards to it.¹⁷ The limitations of the ethical uses of ChatGPT in medical manuscript writing have yet to be determined though. Dowling beautifully narrated the role of ChatGPT in research as “It ain’t what you do, it’s the extent that you do it, and that’s what gets (ethically acceptable) results.”¹⁸

■ REFERENCES

1. OpenAI, ChatGPT: Optimizing Language Models for Dialogue. Available from URL: <https://openai.com/blog/chatgpt/>.
2. Castelvechi D. Are ChatGPT and AlphaCode going to replace programmers? *Nature*. 2022; DOI: 10.1038/d41586-022-04383-z
3. Vallance, C. 2022. ChatGPT: New AI chatbot has everyone talking to it, <https://www.bbc.com/news/technology-63861322>; accessed 23 December 2022.
4. Huh S. Issues in the 3rd year of the COVID-19 pandemic, including computer-based testing, study design, ChatGPT, journal metrics, and appreciation to reviewers. *J Educ Eval Health Prof*. 2023;20:5. DOI: 10.3352/jeehp.2023.20.5
5. Kung TH, Cheatham M, Medenilla A, Sillos C, De Leon L, Elepaño C, et al. Performance of ChatGPT on USMLE: Potential for AI-assisted medical education using large language models. 2022. DOI: 10.1101/2022.12.19.22283643
6. O’Connor S, ChatGPT. Open artificial intelligence platforms in nursing education: Tools for academic progress or abuse? *Nurse Educ Pract*. 2023;66(103537):103537. DOI: 10.1016/j.nepr.2022.103537
7. Generative Pre-trained Transformer C, Zhavoronkov A. Rapamycin in the context of Pascal’s Wager: generative pre-trained transformer perspective. *Oncoscience*. 2022;9:82–4. DOI: 10.18632/oncoscience.571
8. GPT, Thunstrom O, Steingrimsson S. Can GPT-3 write an academic paper on itself, with minimal human input? 2022; Preprint at HAL <https://hal.science/hal-03701250>.
9. Stokel-Walker C. ChatGPT listed as author on research papers: many scientists disapprove. *Nature*. 2023;613(7945):620–1. DOI: d41586-023-00107-z
10. Tools such as ChatGPT threaten transparent science; here are our ground rules for their use. *Nature*. 2023;613(7945):612. DOI:10.1038/d41586-023-00191-1.
11. Instructions for Authors. *JAMA*. Updated January 30, 2023. Accessed January 30, 2023. Available from URL: <https://jamanetwork.com/journals/jama/pages/instructions-for-authors>.
12. Chatbots, ChatGPT, and scholarly manuscripts. *Wame.org*. Available from URL: <https://wame.org/page3.php?id=106>.
13. Rose J. OpenAI’s new chatbot will Tell you how to shoplift and make Explosives. *Vice*. 2022. Available for URL: <https://www.vice.com/en/article/xgyp9j/openais-new-chatbot-will-tell-you-how-to-shoplift-and-make-explosives>.
14. Chatterjee J, Dethlefs N. This new conversational AI model can be your friend, philosopher, and guide ... and even your worst enemy. *Patterns (N Y)*. 2023;4(1):100676. DOI 10.1016/j.patter.2022.100676
15. Biswas S. ChatGPT and the future of medical writing. *Radiology*. 2023;307(2):e223312. DOI: 10.1148/radiol.223312
16. Gao CA, Howard FM, Markov NS, Dyer EC, Ramesh S, Luo Y, et al. Comparing scientific abstracts generated by ChatGPT to original abstracts using an artificial intelligence output detector, plagiarism detector, and blinded human reviewers. *bioRxiv*. 2022. DOI: 10.1101/2022.12.23.521610
17. Shen Y, Heacock L, Elias J, Hentel KD, Reig B, Shih G, et al. ChatGPT and other large language models are double-edged swords. *Radiology*. 2023;307(2). DOI: 10.1148/radiol.230163
18. Wigglesworth R. An AI just passed a university exam (but don’t panic: it was only economics). *Financial Times*. 2023 Jan 18; Available from URL: <https://www.ft.com/content/6078bcdd-3a83-4db7-9d12-582a58ce203b>