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*Correspondence*

# Written by AI, Reviewed by AI, and Published by AI – the Human Editor as the Ultimate Gatekeeper in Publication Ethics

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Declaration of Interests

Google's Gemini and OpenAI's ChatGPT (GPT3.5) were prompted to provide answers and data upon which the manuscript is based. The writing of the manuscript itself was done without the aid of either of the above or any other LLMs.

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Artificial intelligence (AI), particularly generative AI and large language models (LLMs), has greatly impacted academic publishing. These, in the form of freely available chatbots, have been hailed to facilitate academic manuscript writing and even the review of such writings. The inclusion of ChatGPT as authors in scientific manuscripts has also prompted reactions from journals and publishers, denouncing and barring the practice.[1] Personally, I have often dreaded the possibility that AI might one day take over the entire academic publishing process, resulting in a vicious cycle in which "papers are written by AI, reviewed by AI, read by AI and with the above processes repeated."[2] Indeed, this has already occurred to some extent, with AI-written and reviewed papers infiltrating scholarly literature.[3] To an old fogey like me, this situation is intuitively objectionable, but the incessant drive to use AI in research and academic work by research institutions and the scientific community to enhance effectiveness and productivity can appear to be overwhelming. However, against the torrent of AI optimism, a question remains: who would observe publication quality and standards in an AI-dominated scientific publication process?

A recently published paper on "Research integrity in the era of artificial intelligence"[4] provided me with an introduction to AI-driven publishing. Parsing the text of the paper (without the title or author information) through GPTZero (https://gptzero.me) returned the following output score in terms of proportion of contributions: AI-74%, mix-26%, human-0% (The "Abstract" plus "Introduction" part returned a 100% AI score, as assessed by both GPTZero and another AI writing detection tool, Scribbr https://www.scribbr.com/ai-detector/). Using this as an example of a paper that was largely written with the aid of AI, 2 LLM chatbots, Google's Gemini (https://gemini.google.com/app) and OpenAI's ChatGPT (GPT3.5) (https://chat-gpt.com), were independently prompted to provide a 500-word review of the said text. Subsequently, with the reviews combined (anonymized: Gemini-reviewer 1; ChatGPT-reviewer 2), both chatbots were prompted to provide an editorial decision. Transcripts of the chats are attached as supplementary materials.

The paper subjected to AI review above has been published after peer review, and as such there is a likelihood that both AI chatbots might view it favorably and endorse its acceptance. Both Gemini and ChatGPT provided positive, albeit somewhat generic, remarks on the paper's strengths, with significant overlap between the 2 sets of comments. Interestingly, however, the chatbots had different opinions when it came to considerations for improvement. While Gemini's review criticized the limited discussions of AI benefits, specificity in recommendations and future research considerations, ChatGPT asked for further empirical data, broader stakeholder perspectives and "to compare the proposed AI research integrity guidelines with existing frameworks or guidelines in related fields." In conclusion, Gemini noted that "This paper provides a valuable analysis of the challenges and opportunities presented by AI in scientific research," while ChatGPT asserted that "Overall, the paper makes a significant contribution to the literature by addressing a timely and important topic with clarity and depth." On the whole, Gemini and ChatGPT's comments appear to be 2 well-structured but separate positive reviews. Notably, however, these chatbots tend to spell out broad notions of strengths and weaknesses of the paper in a rather general and templated manner, but do not really go into details of any of the writings and initiate criticisms from within the lines.

When it comes to editorial decisions based on the 2 reviews, Gemini indicated that it would

"accept the paper for publication with revisions," and ChatGPT recommends "...publication after the authors address the revisions suggested by the reviewers." Thus, despite the positive reviews, both chatbots have insisted on revisions. The chatbots were then prompted with the following: "Will you still accept the paper if I tell you that it is largely written by AI (AI-74%, mix-26%, human-0%)?" Gemini responded by exclaiming, "That's an interesting development!" and "while the authorship breakdown is unusual, it wouldn't necessarily prevent publication, assuming the following conditions are met" (transparency, quality of paper, and human oversight). ChatGPT was less supportive, indicating that "the fact that it is predominantly written by AI without human input raises complex issues that would need careful consideration." Both chatbots thus appear to place some emphasis on human involvement in publication processes driven by AI.

The above exercise is limited to a single paper, and it is therefore not possible to generalize. However, it did alleviate somewhat my perhaps naive worry that AIs will simply accept papers written by an AI, if only because they are likely trained with grossly overlapping datasets from the existing literature. The exercise has also provided a glimpse into the potential for AI's usefulness in the publication review process, such as providing a preliminary screen for the suitability of submitted manuscripts for further review. This might be helpful for editors addressing pressing issues such as reviewer fatigue.[5] It would also help editors to provide some useful feedback to authors whose manuscripts are desk-rejected without peer review, beyond a templated, generic, and uninformative rejection letter.

In the end, I think perhaps the most useful feedback offered by the chatbots was on the criticality of having human oversight. It would be a human editor (and editorial assistants, including AI-based tools, that the editor has available) who could recognize (and as such potentially penalize or minimize) the AI dependency of a manuscript, enable its fair and rigorous peer review (even if the reviewers covertly use AI to write their reports), and make constructive and insightful editorial decisions based on the balance of the reviews (AI- or human-produced). In making an initial editorial assessment before proceeding to engage peer reviewers, the editor could examine the AI-based content of a manuscript and whether declarations made on such by the authors are in line with journal guidelines. The editor could also ensure that reviews that are eventually used in making an editorial decision post-peer review are authentically crafted by human reviewers with true expertise to navigate and interrogate the scientific and technical intricacies of the manuscript content. The exercise above thus reaffirmed the notion of the editor as the ultimate gatekeeper of ethical oversight in academic publishing.

While the use of AI in writing is allowed by many journals and publishers (with proper declarations by the authors), there are, to this author's knowledge, thus far no explicit guidelines for review reports that could also be crafted with AI. However, some reviews are indeed already being produced by AI, and such instances are only going to increase in extent and frequency. If AI-based academic publication is a growing trend that can neither be avoided nor reversed, please at least let the editors be human.

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