

## Guidance on the Use of Generative Artificial Intelligence for *SPUR* Authors, Reviewers, and Readers

### Abstract

Generative artificial intelligence is increasingly being applied in scholarly research, education, and publishing. Consequently, we need to consider how AI might be used in work appearing in *Scholarship & Practice of Undergraduate Research (SPUR)* and establish some guidelines for its use by prospective authors, reviewers, and this journal.

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Generative artificial intelligence (AI) is everywhere and has significantly impacted higher education and academic publishing (Baek and Wilson 2024; Miller 2024). I invited Dr. Haseeb Kazi, chair of the Council on Undergraduate Research's Mathematical, Computing, & Statistical Sciences Division, to submit a commentary about AI from his perspective as a faculty member and undergraduate research mentor. He partnered with an undergraduate, Areeba Kazi, to share their experience and insights. I hope their thought piece is the first of many contributions exploring the ethics and use of AI in undergraduate research, scholarship, and creative inquiry. We at *Scholarship & Practice of Undergraduate Research (SPUR)* are eager to learn more about your experiments using AI in your undergraduate research ventures, and we look forward to receiving your submissions on this topic.

In this editorial, I will focus on some of the opportunities and issues *SPUR* readers, authors, and reviewers should consider regarding using AI in *SPUR* submissions. Because we see value in providing everyone with guidance as we navigate this new and unfamiliar landscape together, we have created a set of guidelines for the use of AI in *SPUR* publications, not to serve as gatekeepers but to ensure that the scholarship you read in *SPUR* continues to be rigorous and trustworthy. We will update this policy as the technology continues to improve and its use expands. We always welcome your input, and I hope you will contact us if you have questions, concerns, or ideas regarding using AI in your work. As you have no doubt heard, some other publishers and journals are using AI in their peer review and publishing processes (Li et al. 2024). I want

you to know that we currently do not make use of AI in these ways, and we will let you know if and when we do. You will always be part of the conversation.

AI has tremendous potential to facilitate academic research and writing. Kalifa and Albadawy (2024) systematically reviewed the literature and identified six core domains where AI can benefit academic research and writing. These include idea generation and research design; literature research and synthesis; improving manuscript structure and content; data management and analysis; manuscript editing, review, and publishing; and facilitating ethical compliance issues, communication, and outreach. Indeed, there is an exponentially growing number of apps leveraging different quality AI resources, many free, that can locate, interpret, summarize, and cite peer-reviewed research studies and organize, edit, and proofread scholarly manuscripts. Major vendors such as Clarivate are integrating AI into their databases and offering AI-supported search strategies. Some of these tools can help researchers identify relevant research and improve the archival quality of their work by enabling investigators to identify and place their research in the context of others' prior work, producing a more robust literature review. A good example of this type of research tool is Litmaps, which I use in teaching science, technology, engineering, and mathematics (STEM) undergraduates and graduate students about the temporal, disciplinary, and geographic aspects of scholarly discourse. Apps like Grammarly AI and Writefull can be helpful in proofreading manuscripts by identifying and offering suggestions to address fundamental grammatical, spelling, and stylistic errors. For authors seeking to publish in journals like *SPUR*, which enjoy global authorship and readership, these AI apps can aid native and nonnative English writers alike in improving the readability of their research and thereby maximizing the scholarly impact of the authors' work. Still, other apps such as Scholarcy, Trink AI, and Scite AI can automate the citation process for various styles, including Chicago, which *SPUR* uses. Some apps offer more holistic, broad-based support for the writing and submission process up to publication. PaperPal AI, which integrates with MS Word, provides a breadth of features, such as outline generation, that are helpful in teaching graduate and undergraduate student authors how to structure and organize their manuscripts. This AI app even allows authors to precheck their manuscripts to ensure they meet a journal's peculiar formatting requirements, thereby minimizing the likelihood of journal desk rejection. In sum, these tools offer authors many attractive benefits that can save busy authors time and allow them to focus on the big picture.

Nonetheless, AI also presents many challenges and limitations, some of which have already proven to threaten research credibility by introducing the potential for bias and fabrication (hallucinations). Unsupervised use of these apps can catch even disciplinary experts unaware. For example, consider the recent case of Stanford University professor and misinformation expert Jeff Hancock, whose affidavit for an anti-misinformation law included fake AI-generated citations. Of course, who has not heard about the widely publicized image of grossly oversized rat genitalia and donut-bespeckled signaling pathway cartoons produced by Midjourney, which appeared in the now-retracted research study of Guo and colleagues (Guo, Dong, and Hao 2024), or the AI's apologetic self-disclaimer appearing in the now-withdrawn medical case report and literature review by Bader and colleagues (2024). In both examples, there were multiple errors made by the authors, who failed to disclose AI use in their manuscripts and proofread their work, and the reviewers and editors, who failed to properly perform their responsibilities and detect the use of AI and the glaring errors appearing in the submissions before publication. At present, neither humans nor AI seems to be able to flag AI-generated writing accurately and reliably (Chaka 2023; Fleckenstein et al. 2024). There is strong evidence of the potential bias against nonnative English writers (Giray 2024). Since AI can't be responsible and therefore accountable for its output, the consensus is that AI cannot be an author. Since we cannot determine whether and how AI has been used currently, *SPUR* authors need to disclose what AI tools and how these tools have been used and accept full accountability for all AI output in their manuscripts. Consequently, doing so ethically and responsibly is vital if you choose to use AI apps. In your cover letter, state your use of AI and provide more detailed information, as appropriate, in your manuscript's methods and acknowledgment sections.

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