



AI in the Editorial Office: From Artificial Narrow to General Intelligence in Scientific Publishing

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Academic publishing is indispensable for the generation, validation, and dissemination of information. Publishing research results through a peer-review process ensures the reliability and quality of scientific literature. Each published study contributes to the body of knowledge in its field and allows findings to be shared on a global scale. Journals foster academic competition among researchers by serving as benchmarks for career development, citation, and scientific reputation.¹ However, the academic publishing industry is under increasing publication pressure. According to PubMed data, the annual number of publications grew from 532,000 in 2000 to over 1.7 million in 2024, and consider also that the number of manuscripts submitted to journals far exceeds the number published.² Because of this increasing volume, the submission-to-publication timeline can last years in some cases. Disseminating information before it becomes outdated is essential for both journals and researchers. However, the process is centered around human labor. The importance of peer reviewers in particular, who contribute on a purely voluntary basis, cannot be overstated. The ever-growing volume of publications primarily increases the burden on reviewers but also negatively impacts other time-consuming, labor-intensive steps such as pre-screening, editorial tracking, language editing, and formatting.

Keywords: Agentic artificial intelligence, scientific publishing, peer review, artificial narrow intelligence, artificial general intelligence

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Artificial intelligence (AI) models that automate tasks requiring human intelligence hold significant transformative potential in this context. Most current AI can be categorized as artificial narrow intelligence (ANI), which focuses on specific tasks.³ In academic publishing, the use of ANI is currently limited to some publishers' submission-stage checks (e.g., grammar/format control, plagiarism screening, verification of mandatory sections) and reviewer recommendations. Tools that evaluate academic content have also been developed independently of publishing houses. However, both publishers and editorial boards remain cautious about integrating AI into the peer-review process because of concerns such as the models' capacity for in-depth scientific analysis, their lack of access to the entire body of literature, the potential for data-driven bias, the confidentiality of unpublished data, and most importantly, the absence of human-like multidimensional reasoning. In contrast, a dangerous practice is becoming increasingly common. Authors have reported that some peer reviewers are using general-purpose large language models in their evaluations.⁴ More alarmingly, their output is sometimes accepted as absolute truth, without critical oversight, and submitted as the reviewer's report. As these models can present misinformation in highly persuasive language (a phenomenon known as "hallucination") and lack advanced reasoning capabilities, their uncontrolled use raises serious ethical and credibility issues that could undermine the foundations of academic publishing. The solution lies not in the uncontrolled use of general-purpose models, but in the development of purpose-built AI systems tailored for academic publishing through collaboration with publishers and journals. An AI model integrated into the peer-review process must be transparent and explainable, have bias auditability and access to the relevant literature, ensure data security, and crucially, maintain a "human-in-the-loop" structure. Such a system could alleviate the workload by pre-analyzing aspects like originality, contribution to the literature, methodology, statistical analysis, and ethical compliance. It could also help systematically address points that reviewers might overlook due to heavy workloads or low motivation, thereby improving the quality of evaluations.

The next step in this vision involves agent-based (agentic) AI systems. Agentic AI consists of multiple specialized ANI models that can make decisions autonomously to achieve specific goals.³ A specialized agentic AI for academic publishing could act as a conductor, coordinating many steps of the process: a *Triage Agent* would analyze the manuscript, check for plagiarism and formatting, and identify suitable editors and reviewers; a *Methodology Agent* would inspect statistical consistency, experimental design, and ethical compliance; a *Literature Agent* would evaluate originality and novelty by comparing citations and findings with the existing literature; and a *Communication Agent* would automate correspondence between authors, editors, and reviewers. The harmonious operation of these autonomous agents has the potential to significantly shorten publication timelines. Nevertheless, these systems cannot replace the human creativity and critical judgment essential for peer evaluation. Therefore, human oversight remains indispensable.

The next true revolution may come with the development of artificial general intelligence (AGI), a theoretical system capable of mimicking all aspects of human intelligence. Although AGI does not yet exist, many technology companies are working intensively toward this goal, and it has been suggested that next-generation models like GPT-5 could be a significant step on the path to AGI.^{3,5} AGI could offer capabilities beyond deep scientific and philosophical analysis, such as detecting data fabrication, proposing novel research avenues, and testing findings through simulations where appropriate. It could also accelerate the publishing workflow by automating standard processes other than peer review. However, it remains uncertain when and under what conditions AGI will come to fruition.

In conclusion, the increasing volume of submissions and the inefficiencies of the current system make the integration of AI into academic publishing inevitable. This integration must not proceed in an uncontrolled manner, but managed using

an approach with clearly defined standards and boundaries, remaining centered around human oversight. In the current landscape, purpose-built multimodal AI tools can facilitate the workflow of authors and editors, saving time and effort while accelerating scientific progress. Guiding this transformation via consensus among publishers, editors, and other stakeholders will be essential to safeguarding the reliability and quality of scientific communication in the future.

Declarations

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References

1. Rowland F. Print journals: Fit for the future? *Ariadne* [Internet]. 1997 [cited 2025 Sep 3];(7). Available from: <http://www.ariadne.ac.uk/issue7/fytton/> [Accessed: 10 Aug 2025].
2. PubMed. U.S. National Library of Medicine. Search results by publication year: 2000 and 2024 (01 Jan–31 Dec). Bethesda (MD): National Center for Biotechnology Information; 2025. Available from: <https://pubmed.ncbi.nlm.nih.gov/> [Accessed 2025 Aug 10].
3. Yenduri G, Murugan R, Maddikunta PKR, Bhattacharya S, Sudheer D, Savarala BB. Artificial General Intelligence: Advancements, Challenges, and Future Directions in AGI Research. *IEEE Access*. 2025;13:134325-134356.
4. Naddaf M. AI is transforming peer review - and many scientists are worried. *Nature*. 2025;639:852-854.
5. Metz C. OpenAI Launches GPT-5, the Next Step in Its Quest for AGI. *IEEE Spectrum*. 2024. Available from: <https://spectrum.ieee.org/openai-gpt-5-agi> [Accessed: 10 Aug 2025].