

Toward Third-Generation Academic Journals: Parallel Publishing for Parallel Humans with New AI

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Brief—The rapid rise of large-scale foundation models and autonomous AI agents is reshaping the knowledge ecosystem. Academic journals, long designed for human-to-human communication, now face a growing mismatch: an increasing share of knowledge is consumed by machines, not only by people. This editorial argues that this shift calls for a move toward a third generation of academic journals enabled by parallel publishing. Using the historical transition from hunting and gathering to agriculture as an analogy, we suggest that knowledge production must evolve from passive harvesting to systematic cultivation of content that is reliable, structured, and usable by models and agents. We then examine the risks of low-quality, fabricated, and citation-manipulated publications, and discuss how the role of researchers is changing from authors to stewards of reusable knowledge assets. Finally, we draw attention to recent community efforts promoting parallel embodied and digital publishing systems and propose knowledge asset tokenization as a practical mechanism to improve traceability, incentivize quality, and support sustainable human-AI co-evolution.

Index Terms—Parallel publishing, third-generation academic journals, foundation models, autonomous agents

For almost three hundred years, academic journals have carried the core mission of building and spreading human knowledge. The format has changed, but the structure has not. In the print era, journals organized peer review and distributed certified results. In the digital era, journals moved online, became searchable, and accelerated access. Yet the basic design still assumes a human reader and a human author. It is still a “human-to-human” system. Now this assumption is being challenged. Artificial intelligence, especially large models and autonomous AI agents, is changing who uses knowledge and how it is used. Knowledge is no longer consumed only by researchers reading papers. It is also consumed by machine systems that read at scale, learn patterns, and perform reasoning. When machine systems become major knowledge users, we must ask a direct question: does the current journal system still fit the new knowledge ecosystem? Under this change, we believe it is time to discuss and build a third generation of academic journals.

Large models and AI agents do not become capable by magic. They need to be fed. Data, knowledge, experience, cases, and rules are the “food” that supports their learning and their decisions. But we are now facing a practical limit. High-quality public data that can be used for training and reasoning are being used up quickly. For more than a decade, AI

progress has relied on a “hunter” approach. We scrape the internet. We collect papers and code. We reuse open datasets again and again. This approach brought great results, but it is reaching a ceiling. The same sources are repeatedly harvested. The marginal gain is dropping. At the same time, new AI agents require not only more data, but also more reliable and more structured knowledge.

Human history offers a useful analogy. At a certain point, hunting and gathering could not support population growth and stable life. When nature’s gifts were not enough, humans created agriculture. They began to produce food in a planned and systematic way. Today we face a similar turning point in knowledge. If AI agents are growing in number and in capability, then “knowledge food” cannot rely only on passive collection. Academic publishing must go through a similar shift: from recording research outputs to systematically producing machine-usable knowledge. This is why we need parallel publishing. Parallel publishing is not a change of style. It is a change of production mode. A journal should not be only a showcase of results. It should become an important “farmland” for knowledge production in the AI era.

This idea is not only theoretical. It is already being discussed in the publishing community. We have held the 5th Workshop on Parallel Publishing in Beijing, shown in Fig. 1 [1, 2]. At the workshop, participants discussed both new opportunities and new risks that AI brings to publishing. In the future, every publishing house, every journal, and even every book should have its own parallel “embodied” and “digital counterpart”. In simple terms, publishing should have a human side and an AI side that work together. Large models and AI agents should be deeply integrated with the existing human editorial and peer-review process. The goal is to form multi-level services for authors, reviewers, editors, readers, and society. The expected result is higher quality, higher efficiency, and faster response to real needs. This proposal matches the larger trend: publishing is moving toward a hybrid human-AI knowledge system.

However, if journals are to become farmland for AI agents, we must face a serious problem: today’s “grain” is often polluted. Many papers cannot become useful nutrition for intelligence. Paper mills, fabricated experiments, misleading citations, and low-value incremental writing have injected a large amount of “empty calories” into the system. This is not a small issue. It is a structural risk. If AI agents learn from low-



Fig. 1 The 5th Workshop on Parallel Publishing discusses new opportunities for AI-driven publication (24 September 2025).

quality knowledge at scale, they may amplify errors. They may learn wrong facts, wrong methods, and wrong norms. Bad content does not stay local. It spreads.

There is also a harder truth. At the level of writing, large models can now generate academic text very easily. For many topics, a model can draft a paper-style narrative that is fluent and well organized. In practice, a large fraction of papers can be generated by models, and the writing quality can be comparable to, or even better than, what many humans produce. This is not an attack on researchers. It is a warning about how we evaluate knowledge. If a paper is mainly language assembly, concept repetition, and format compliance, then it has little value for AI agents. It may even be harmful, because it looks “scientific” while carrying little substance. Such papers are like spoiled grain. They fill warehouses, distort judgment, and fail to support real growth. If publishing continues to focus on volume and page count, this system failure will accelerate.

The rise of AI therefore forces a change in role and responsibility. This does not mean researchers are less important. It means their contribution must become more real and more accountable. In the AI era, researchers are not only paper authors. They are producers and maintainers of high-quality knowledge assets. They create the units of knowledge that can be reused, tested, verified, and integrated. If we use a direct metaphor, professors and researchers increasingly resemble “knowledge production workers” in the intelligent age. The key is not the label. The key is the function: they cultivate, filter, refine, and maintain knowledge units that models can absorb and use.

This shift also changes how we should judge a “paper”. The traditional logic asks: is it published, and where? Is it cited, and by whom? These questions will remain, but they are no longer enough. In the new ecosystem, we must also ask: is this work used by models and agents? Does it support reasoning? Does it help real tasks? Does it have traceable impact inside intelligent systems? If knowledge is food, then we need food governance. Human society manages food through standards, inspection, traceability, storage, and allocation. Knowledge in the AI era needs a similar governance system. We need clearer quality standards. We need better provenance and accountability. We need mechanisms to detect pollution and

remove it. We need incentives that reward real nourishment, not just packaging.

Under this framework, knowledge asset tokenization becomes a practical mission, not a fashionable slogan. Papers, data, models, rules, and cases should be treated as knowledge assets that are measurable and traceable. They should be modular and composable. They should be callable and reusable. “Tokenization” here does not need to mean finance. It means that each unit of knowledge should have a clear identity, a clear provenance, and clear usage records. It should be possible to track whether an asset is used, where it is used, and what impact it has. In the same way that modern agriculture depends on standardized seeds, certified supply chains, and measurable yield, the future knowledge system depends on standardized knowledge units and measurable utility.

This leads to a broader view of what third-generation journals should do. Their mission is not only to publish articles. Their mission is to build a parallel system of knowledge production, certification, and circulation for humans and AI agents. High-quality knowledge should be easy to identify, easy to use, and properly rewarded. Low-value content should naturally lose influence and exit the system. Journals should support new workflows where knowledge is prepared for machine use, tested in agent pipelines, and improved through feedback. Peer review should not only judge novelty in words. It should also judge usability in systems. Publication should not be the end. It should be the beginning of a lifecycle.

This transformation will not be simple, and it will not be comfortable. But it is unavoidable. The future intelligent society will not be sustained by more papers. It will be sustained by better “food”. Academic journals, if reimagined with parallel publishing and knowledge asset governance/tokenization, can become the cultivators and guardians of this new farmland. If we succeed, journals will not just document the growth of intelligence, they will produce life support for it.

Let us march to the new generation of academic publications, from old proceedings of royal societies, current transactions of professional communities, to future generations (yes, generation, the proposed name for the third generation of academic publications beyond generative contents and intelligence) of decentralized autonomous/agentive organizations for safe, secure, and sustainable development of humanity and ecology, based on artificial intelligence and physical intelligence, agentive intelligence and psychological intelligence, autonomous intelligence and parallel intelligence, and more smart APIs [3–5].

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