CURMUDGEON CORNER

AI for AI, not AI for science?

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"Our inventions are wont to be pretty toys, which distract our attention from serious things. They are but improved means to an unimproved end."

— Henry David Thoreau

All at once, countries, disciplines, and industries are encouraging the exploration of "AI for Science." Leveraging AI seems to signify being advanced, while not using it means falling behind. Colleagues in other fields have told me that when they apply for funding now, their priority is to figure out how to incorporate AI, rather than to focus on the research questions which really interest them.

Beneath this irresistible wave, a disturbing trend is surfacing. A significant portion of so-called "AI for Science" research is degenerating into "AI for AI." At the core of this degeneration is a research paradigm driven primarily by the application of AI techniques rather than the goal of solving fundamental scientific problems. It chases technological fads and prioritizes short-term publishability, with outputs that often serve only to add another paper to the literature on AI applications, rather than contributing a brick to the edifice of scientific knowledge.

The scale and speed of this academic fervor are most apparent in the medical field. In the frontier of precision medicine, for instance, publications swelled at a compound annual growth rate of 34.3% between 2019 and 2024, with over 57% of this output concentrated in the last two years (Adam et al. 2025). Another broader analysis covering the entire medical field shows that related literature maintained a 28.4% CAGR from 2019 to 2023 (Lin et al. 2025). Such a growth rate, which outpaces the normal trajectory of academic accumulation, indicates the presence of powerful drivers beyond intrinsic scientific breakthroughs, forming a research bubble.

More critically, this explosion in quantity is accompanied by a systemic dilution of quality. Bibliometric analyses from different fields consistently reveal an alarming pattern a comprehensive analysis of medical AI (Lin et al. 2025) and a case study focused on nursing (Hu et al. 2025) both find that while some countries lead overwhelmingly in the volume of publications, their academic impact, as reflected by average citations per paper, is relatively low. Conversely, some countries with lower output, such as the United Kingdom, demonstrate significantly higher citation impact. This decoupling of quantity and quality suggests that the current academic incentive structure may be systematically encouraging quantity over quality.

This trend of prioritizing quantity over quality is further reflected in how research agendas are set. Research hotspots have rapidly shifted from specific scientific problems like "next-generation sequencing" to trendier technical terms like "deep learning" and "multi-omics data integration." Agendas quickly converge on the latest societal hot topics, such as "COVID-19" and "ChatGPT," which looks less like a nimble scientific response to societal needs and more like trend-chasing for the sake of technology application. When a researcher's core question shifts from "What is the best method to solve this scientific problem?" to "What can I study with this new AI tool?", science becomes a stage for showcasing AI's capabilities. This is the severe challenge of "AI for AI."

Sociological theory posits that hype is not merely useless noise; it is a "performative" force that can "create reality." In academia, this force is on full display, delivering the most critical resources: funding, positions, citations, and prestige. When "artificial intelligence" becomes a term with its own halo, simply incorporating AI elements into research becomes a shortcut to acquiring resources. Therefore, "AI for AI" is not just a frivolous choice but potentially a "rational" survival strategy that is tacitly permitted, or even encouraged, under the current systems of evaluation and resource allocation.

The analysis of hype in sociology helps explain this (Kotliar 2025). Hype is not harmless exaggeration but a "performative" force that shapes reality by creating expectations to attract resources, influence policy, and ultimately guide research directions. This power is particularly evident in

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academia: a study linked to AI is more likely to receive funding, gain media attention, and be accepted by high-impact journals. Scholars are both drivers and captives of this trend. This performative hype has formed a structured rhetorical strategy within scientific publications. A typical "AI for AI" paper often opens with claims of disruptive societal effects, which makes vague temporal promises about near-term applications, and its very publication contributes to a narrative of adoption—"all the top scholars are doing it"—thereby reinforcing the field's legitimacy. The paper's core contribution is often a technical claim, such as an extremely high accuracy rate achieved on a specific dataset, that demands rigorous scrutiny. All of this ultimately serves an implicit purpose: to make attractive economic or impact projections in grant proposals.

The most severe consequence of this hype-driven research paradigm is the hollowing out of scientific methodology. Researchers become obsessed with building more complex models and tuning parameters to chase improvements in metrics by a few decimal points, while systematically neglecting more fundamental scientific principles. Independent, multi-center external validation with real-world data becomes a luxury. Frank discussion of model limitations and failure cases is deliberately avoided as it is seen as detrimental to a paper's prospects. Transparent sharing of code and data remains a struggle. When the tool itself becomes the end, when the "AI-powered" label matters more than rigorous scientific validation, the very core of the scientific method is eroded.

Ultimately, the direct beneficiaries of this technology-fueled carnival are the researchers who gain promotions by publishing papers, the universities that climb global rankings, the journals that reap high impact factors, and the tech companies that provide the computational platforms and foundational models for it all. The price is paid by misallocated research funds, by the young scholars drawn into this hyper-competitive, zero-sum game, by the corrosion of scientific integrity, and, in the long run, by public trust in the scientific enterprise.

The scientific community is not without its voices of sobriety. A noteworthy phenomenon in medical AI is that one of the most cited papers is a critical review which systematically articulates the "key challenges" of AI in clinical applications (Lin et al. 2025). Meanwhile, in some more mature subfields, research keywords are beginning to shift from purely technical metrics to more practical concepts like "patient safety" and "validation" (Hu et al. 2025). These faint glimmers show that the commitment to the scientific spirit and the pursuit of genuine value have never disappeared. However, in the face of an academic system driven by hype, these rational voices seem faint. When the goal of scientific research is no longer the discovery of truth but the successful application of an "AI-powered" label in a publication, we lose not only precious resources but the spirit of science itself. Before the next wave of technology arrives, the entire academic community must engage in serious soul-searching: Are we using AI to advance science, or are we using science to deify AI?

Declarations

Conflict of interest The author declares no competing interests.

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