

*Editorial corner – a personal view*

## The temptation of golden lies: Does Artificial Intelligence elevate or erode science?

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Major technological breakthroughs always change the course of humanity. Whether we harness them for good depends entirely on the ethical and moral state of the world at the time. Just as the principle of nuclear fission allows humanity to generate clean energy for progress, it can also become a devastating weapon if misused. Artificial intelligence (AI) perhaps represents an even greater power. It is up to us to decide how we utilize it: to advance science and technology or for short-term gains, even through dishonesty.

### **Publish, perish, or cheat? The erosion of science in the new era**

The fundamental question is when the use of a tool crosses the line from assistance to fraud. With the rise of AI, both science and cheating have become more accessible than ever. In the past, scientific publications were primarily driven by the desire to be the first to share professional achievements, earning recognition in the academic community. However, today, there are only three increasingly dominant factors: money, money, and money.

Several factors contribute to this shift. One key issue is global university rankings, where teaching quality is unfortunately absent as an indicator. Instead, the metrics often emphasize quantity over quality, prioritizing the number of publications and citations rather than their substance.

This environment has led to a troubling rise in misconduct. The funds for institutions are increasingly based on the number of publications and citations their researchers produce annually. This puts enormous pressure on researchers, as institutions only reward quantity, not quality. Serious forms of fraud are starting to spread, such as purchasing publications and citations or forming international networks for mutual citation and publication boosting. This has reached such proportions that unknown universities are climbing to the upper ranks of global rankings year after year, quite often undeservedly.

### **Lies, algorithms, and lost integrity: Has science become a numbers game?**

A new ‘profession’ has emerged, known as the ‘mega-author.’ These self-proclaimed researchers – better described as frauds or scientific celebrities – increasingly offer their ‘services’ for steep fees. These mega-authors publish hundreds of articles annually, accumulating hundreds or even thousands of citations. What makes the achievements of these mega-authors even more incredible is that they ‘research’ in scientific fields that simultaneously encompass broad fields of knowledge that would shame the polyhistorians of old ages. They are the anti-scientists – or scientific celebrities – of modern times, who can combine geology and theology even with rheology, or cosmology and cosmetology, in

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their science. These mega-authors market themselves aggressively, often boasting 10–20 affiliations simultaneously across multiple continents. Institutions are willing to pay for their virtual presence even though these individuals never physically appear on campus. It is no wonder – they would hardly have the time to write one or two articles per day otherwise. This creates a vicious cycle: institutions gain more funding and rise in international rankings due to increased publication and citation counts, perpetuating the problem.

A related problem is the spread of journals that favor profit over academic correctness. Anyone who pays can publish in these journals, even if the article is incoherent or nonsensical. The problem is not the Article Processing Charge (APC) business model itself but its misuse. For instance, when a journal publishing a few hundred articles annually suddenly shifts gear and churns out thousands, or even tens of thousands within a few years, it is clear that quality has been sacrificed for profit. Another red flag is an explosion in editorial board memberships – from a few dozen members to hundreds or even thousands – turning the boards into another profit-driven temptation. It is staggering to consider how these two forms of malpractice have grown into a global business, rivaling the GDP of some countries.

### **AI and the rise of scientific frauds: Gold mines or ethical landmines?**

The third problem to consider is how to publish nowadays. The emergence and rapid advancement of artificial intelligence (AI) present new challenges for the scientific community. With AI, it has become remarkably easy to generate technically accurate literature reviews and introductions that do not reflect the researchers' actual work. This exacerbates problems in the publication ecosystem, making it increasingly difficult to distinguish AI-generated content from human-authored work while quality metrics are further sidelined.

Moreover, non-specific AI systems may produce articles containing fabricated or 'made-up' references. Such occurrences are dangerous because these AI-created sources can appear convincingly written yet include false data and citations. AI can create citations that resemble real references but are entirely fake, potentially causing significant harm to the scientific community. These practices could have serious implications for scientific journals, which may

risk being categorized as predatory and ostracized by the academic community's quality-driven segment.

### **Chasing shadows: AI-driven fraud and the vanishing trust in research**

Reforming the current system is essential if the scientific community aims to return to high-quality research and effectively address the growing number of fake contributors. A potential solution involves fundamentally rethinking how publications are written and evaluated, including the integration of AI. Since banning the use of AI is no longer feasible, promoting its proper and ethical use is crucial.

Consider plastics as an example: while the media has labeled them a public enemy, modern life and progress are unimaginable without them. The issue lies not with the materials but with how humans misuse them. We pollute the environment and then blame the materials for the resulting damage. Is this ethical? Developing an independent, manipulation-proof AI-powered system that could gain widespread acceptance among scientists would be highly beneficial. This system would serve multiple functions: detecting plagiarism, identifying redundant or repetitive research, verifying the authenticity of authors and citations, and uncovering potential fraud. One significant advantage of such a system is its ability to assist journal editors in selecting reviewers. The invitation and review process would remain anonymous until a manuscript is accepted, involving experts genuinely active in the relevant field, thus reducing the burden on editorial boards. Furthermore, AI could provide preliminary evaluations that are accessible to reviewers, streamlining and accelerating their work.

We all experience the constant flood of review invitations, which would leave no time for our own work if we accepted them all. At the same time, it is vital for transparency and accountability in the scientific community that reviewers' names and the complete peer review process be published alongside the accepted publication. This transparency would make the scientific discussion an integral, public part of the article, increasing its value and credibility. This system would be mandatory for any journal aiming for international visibility and impact. It would filter out low-value publications that do not advance science while promoting faster dissemination and more meaningful evaluation of high-quality research.

### Broken metrics: When citations fail science

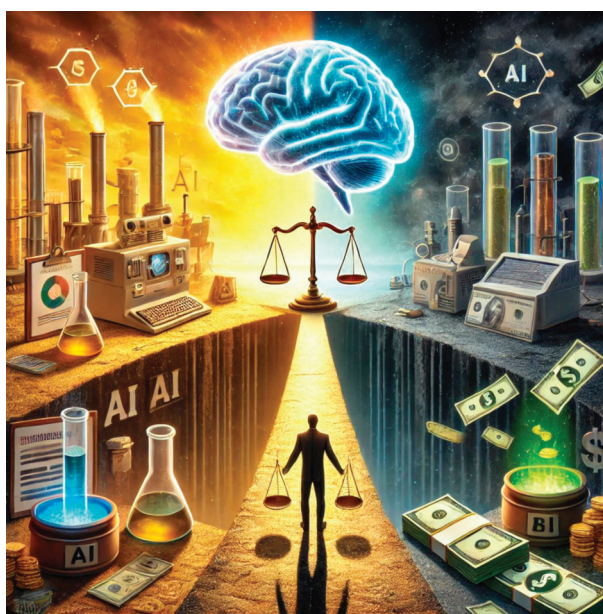
Another solution for the problems, which might seem surprising at first glance, involves reshaping the structure of scientific publications through the utilization of AI. Eliminating literature reviews and ‘Introduction’ sections from articles could be a logical step, as AI can easily generate these. They often lack new information and may even introduce inaccuracies. Therefore, removing both introduction sections and references from publications would be rational. Articles would begin directly with ‘Results and Discussion’, focusing solely on reproducible descriptions and actual findings. Those interested in the background or foundational works could copy-paste the article’s results into an AI tool, providing the necessary context in seconds. This approach shifts the emphasis to presenting and analyzing results, ensuring that genuine scientific contributions are clearly highlighted.

A natural question arises: what about rankings and lists? We believe these still have a role but require fundamental transformation to encourage a culture of quality in publications. International rankings can continue to play a key role in evaluating the scientific community, but they should incorporate qualitative metrics alongside—or, perhaps instead of—current quantitative approaches. Assessing the social and economic impact of scientific achievements, considering the quality of education, and factoring

in alumni feedback could lead to a fairer and more balanced system. These new, quality-focused evaluation systems could help restore the credibility and integrity of science in the long run while emphasizing the true values of the research community. Such changes would also greatly aid early-career researchers in distinguishing meaningful work from less impactful contributions.

An AI-driven system could be instrumental in achieving this vision by prioritizing real scientific performance and quality over quantity, contributing to a healthier, more sustainable future for science. This would drastically reduce the overwhelming volume of articles and citations generated today. Researchers would focus on actual research, with AI supporting them in producing high-quality work and assisting editors in identifying fraudulent submissions.

When the morality of science diverges from ethical principles, critical reflection and a reassessment of values become essential. Ethics serves as a ‘control mechanism’ that reminds us that the true purpose of science is not short-term profit but the advancement of humanity and respect for knowledge. Ethical scientists must speak up and move science back to truth and integrity when morality turns away from the ethical track. As we shape the future, we must ask ourselves: Are golden lies and artificial minds saving science or destroying its soul? We must take care to proceed wisely.



AI-generated illustration of the article’s content and message.