



AI in Publishing: Challenges and Opportunities

Valda Vinson
Executive Editor
Science Journals

Science

AAAS

Science Journals:

Artificial intelligence (AI). Text generated from AI, machine learning, or similar algorithmic tools cannot be used in papers published in *Science* journals, nor can the accompanying figures, images, or graphics be the products of such tools, without explicit permission from the editors. In addition, an AI program cannot be an author of a *Science* journal paper.



EDITORIAL

ChatGPT is fun, but not an author

H. HOLDEN THORP [Authors Info & Affiliations](#)

SCIENCE • 26 Jan 2023 • Vol 379, Issue 6630 • p. 313 • DOI: 10.1126/science.adg7879



Nature: AI Authorship

Large Language Models (LLMs), such as ChatGPT, do not currently satisfy our [authorship](#) criteria. Notably an attribution of authorship carries with it accountability for the work, which cannot be effectively applied to LLMs. Use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript.



BIAS

Me: what are the challenges and opportunities of using AI in scientific publishing?

ChatGPT: The use of AI in scientific publishing brings both challenges and opportunities.

Challenges:

1. Quality and Accuracy
2. Data Availability and Access
3. Ethical Considerations
4. Interpretability and Explainability

5. Accountability

6. Availability of algorithms and code

7. Data privacy

Doing the research: Data analysis

Opportunities



Alphafold and RoseTTA fold “solve” protein folding. But these algorithms learn from a well curated dataset and there are good metrics for success.

Challenges

- Sufficient high quality data.
- Accounting for bias in the data
- A well defined problem – the bias below arose because health costs were used as a proxy for health needs. There are also many examples of biased answers coming from bias in the data.

RESEARCH ARTICLE

f t in r w e

Dissecting racial bias in an algorithm used to manage the health of populations

ZIAD OBERMEYER  , BRIAN POWERS, CHRISTINE VOGELI, AND SENDHIL MULLAINATHAN  [Authors Info & Affiliations](#)

SCIENCE • 25 Oct 2019 • Vol 366, Issue 6464 • pp. 447-453 • DOI: 10.1126/science.aax2342

Writing the paper

Opportunities



An increasing number of tools aimed at doing background research, drafting the paper and editing the paper. Can these tools expand our view, introducing us to work and scientists we may not have found?

Challenges

- **Accountability**
- Completeness and accuracy of the data
- Entrenching existing biases

Reviewing the paper

Opportunities



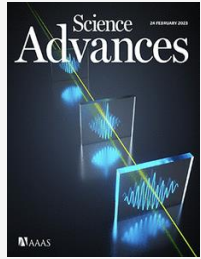
AI could improve detection of plagiarism and figure manipulation.
Might enhance tools to find reviewers – could this improve diversity?

Challenges

- Accountability
- Quality and Accuracy of Review
- Confidentiality – many chatbots retain the input data

Communicating the science

Opportunities



Gold Open Access

Green Open Access – the author accepted manuscript can be deposited

AI might help contextualize the science and write summaries for a lay audience. Work that is available to chatbots will be incorporated into their datasets

Challenges

Datasets used by chatbots will have biases and may include publications that are not peer reviewed. This could drive misinformation.

[Another randomized trial](#) of 200 health-care workers and other adults at high risk of exposure found that 2% of those treated with the antiparasitic ivermectin developed Covid-19 compared with 10% of patients in a control group. [A meta-analysis](#) of five randomized clinical trials showed that early use of hydroxychloroquine reduced infection, hospitalization and death by 24%. All of these findings were statistically significant. These medications have been used for decades and have safety profiles comparable to other commonly prescribed medications. This includes hydroxychloroquine, a medication routinely prescribed to pregnant women and breast-feeding mothers.

Florida surgeon general quotes two preprints while meanwhile hundreds of peer-reviewed RCTs showed no effect of hydroxychloroquine and ivermectin.

WSJ | OPINION



is ivermectin or hydroxychloroquine effective against COVID



As of my last knowledge update in September 2021, there was limited evidence to support the use of either ivermectin or hydroxychloroquine as effective treatments for COVID-19.

🔒 | EDITORIAL

An EU landmark for AI governance

URS GASSER [Authors Info & Affiliations](#)

SCIENCE • 15 Jun 2023 • Vol 380, Issue 6651 • p. 1203 • DOI: [10.1126/science.adj1627](https://doi.org/10.1126/science.adj1627)

”It is also a wake-up call to the science and technology community more broadly, highlighting the importance of integrating AI ethics and regulation into the core curriculum of aspiring AI researchers and educating decision-makers about the promise and limits of AI.”

Thank You

