

ETHICAL PUBLISHING IN THE AGE OF AI

AI and Scientific Writing

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Medicine and Life Sciences Journals

Springer Nature



SPRINGER NATURE

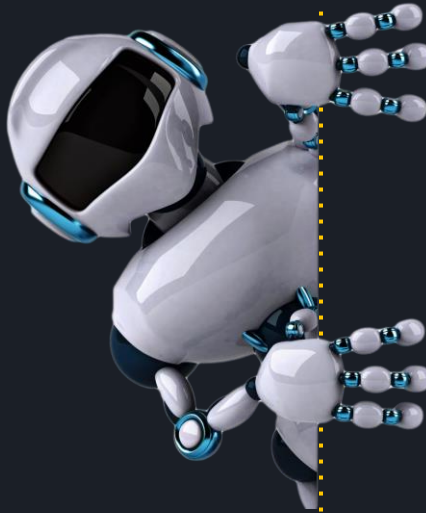
Artificial

+

Intelligence

Anything that is made or produced by human beings that is not natural.

The ability to understand, think and learn.



The goal of AI is to make machines seem like human beings and mimic human intelligence.

Human intelligence learns through experience



It will NEVER be perfect



Machine Learning

Machines that improve
automatically through
experience.

A subset of AI where systems learn patterns
from data instead of being programmed.

2 Main AI Subsets

Some definitions ...with thanks to a LLM!

Artificial Intelligence
(Big umbrella)



Generative AI
Creates new content
like text, images, music



LLMs
A type of Generative AI
focused on language

Image credit: Microsoft CoPilot

Generative AI

- AI that can create new content (text, images, audio, code) using **learned patterns**
- Often powered by LLMs
- ChatGPT (text) / DALL·E (images) / AI code generators
- **Can be used for drafting abstracts, graphical summaries, translations**

Large Language Models (LLMs)

- A kind of generative AI specifically trained to **understand and generate human language.**
- They are trained on very large text datasets to understand and generate language
- **They answer questions, write, summarize, and more.**
- GPT models/Chatbots/Document summarization
- **Can be used for manuscript triage, language editing**

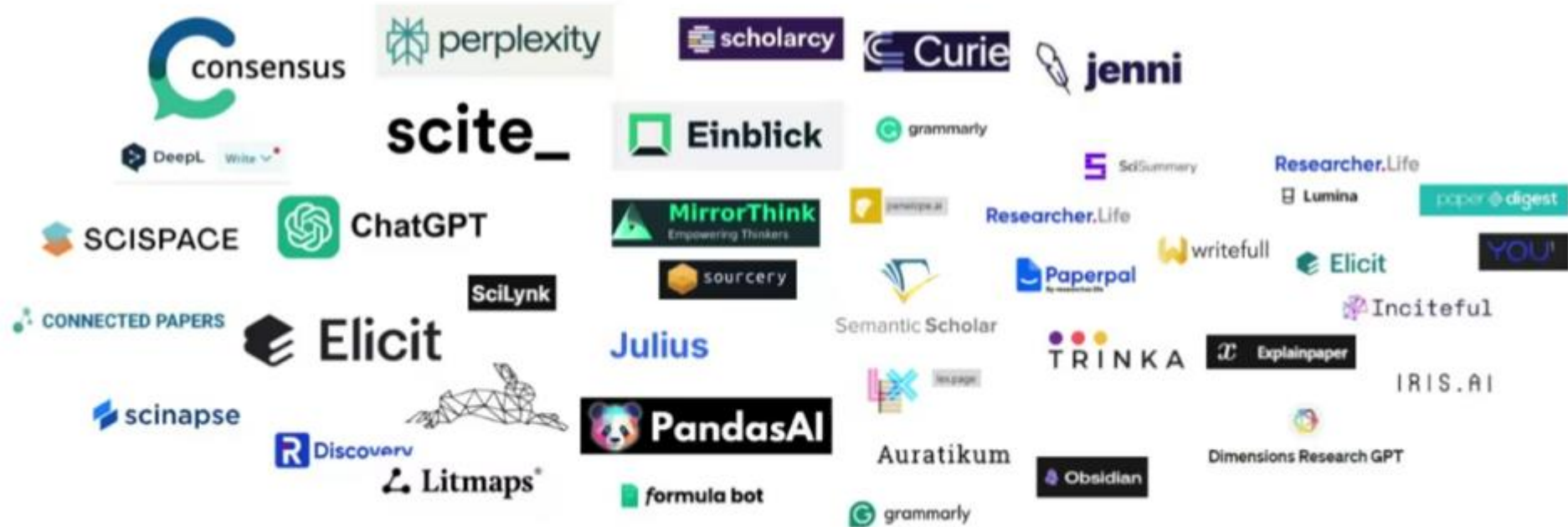
A REVOLUTION IS UNDERWAY

7

Generative AI is transforming how humanity creates, accesses and evaluates information



—



AI IS NOW A KEY PART OF THE RESEARCH JOURNEY, WITH THE MAJORITY OF RESEARCHERS USING IT DAILY OR SEVERAL TIMES A WEEK FOR KEY ACTIVITIES

9



HOW RESEARCHERS USE GENERATIVE AI

➤ ChatGPT was released in the public domain in November 2022

[nature](#) > [news feature](#) > [article](#)

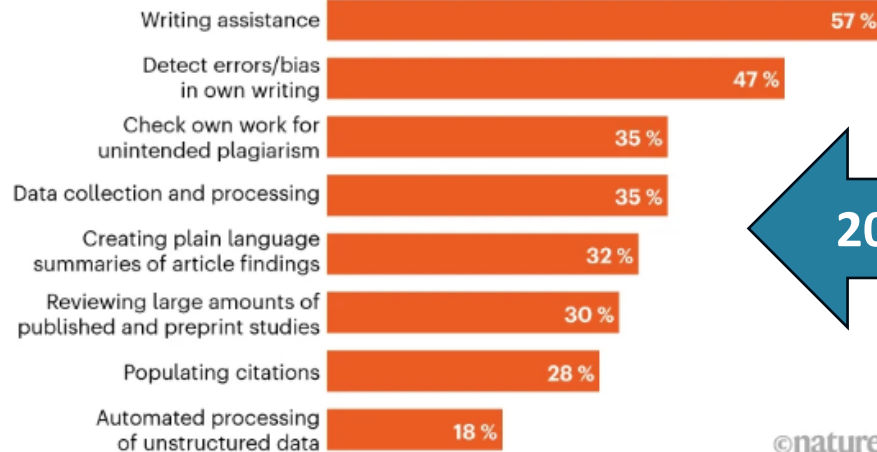
NEWS FEATURE | 27 September 2023 | Correction [10 October 2023](#)

AI and science: what 1,600 researchers think

A *Nature* survey finds that scientists are concerned, as well as excited, by the increasing use of artificial-intelligence tools in research.

<https://www.nature.com/articles/d41586-023-02980-0>

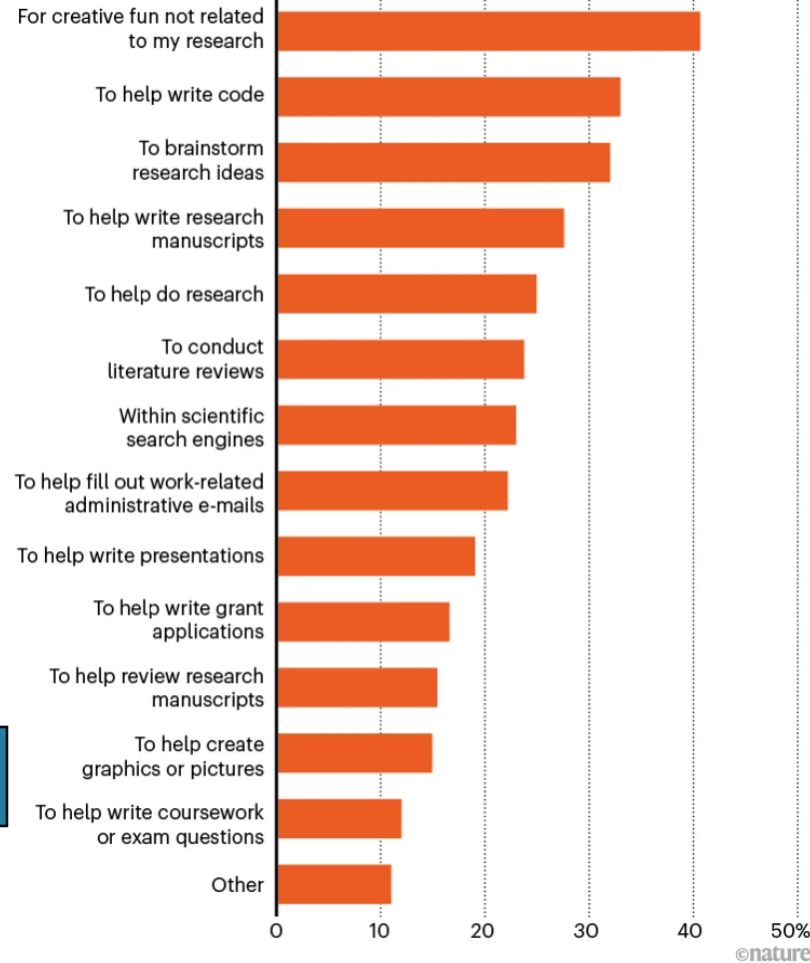
Q: Which, if any, of these represent use cases or solutions that are similar to anything you are already doing and/or have already tried with AI in the past?



2025

HOW RESEARCHERS USE LARGE LANGUAGE MODELS

Q: What do you use generative AI tools (such as ChatGPT and other large language models) for? (Choose all that apply.)



<https://www.nature.com/articles/d41586-025-00343-5>

WHAT DO RESEARCHERS FIND APPEALING ABOUT AI?



Drives productivity

- Saves time on **repetitive tasks**
- **Speeds up literature review** and synthesis



Improves output quality

- **Enhances clarity**, structure, and **writing**
- Helps produce more polished papers



Supports end-to-end research

- **Helps across search** → analysis → writing
- Reduces workload throughout the research lifecycle



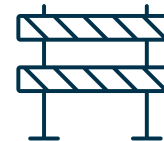
Expands research capabilities

- **Helps with** more **technical tasks** (e.g.: data analysis and coding)
- Helps identify patterns and insights faster



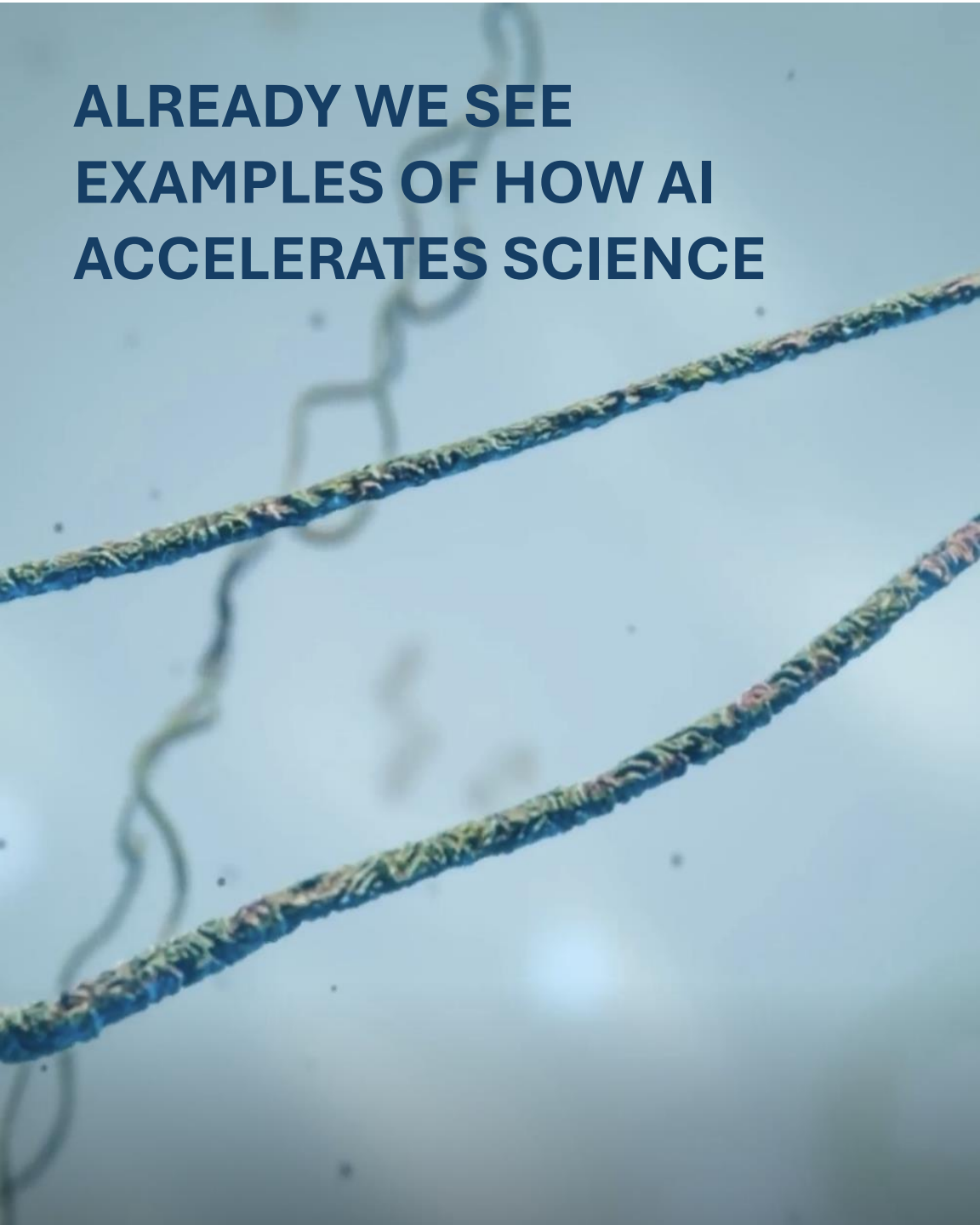
Enables global publishing

- Supports **English writing and translation**
- **Reduces barriers** for non-English speakers

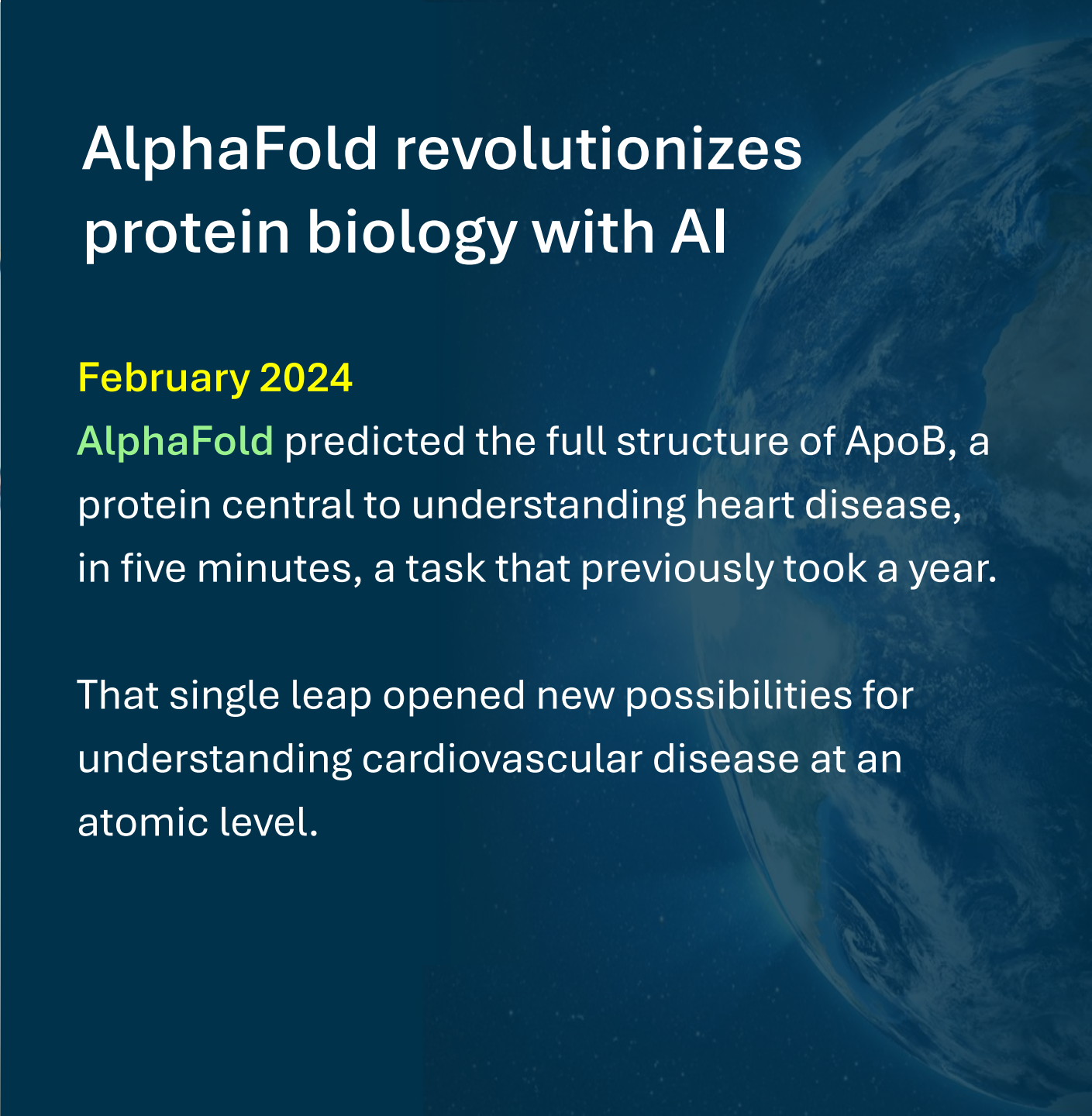


Lowers barriers to entry

- **Democratizes access to** advanced **analytical support**
- Enables broader participation beyond well-funded labs

A microscopic view of two long, thin, and textured protein strands, possibly collagen, running diagonally across the frame. The strands are composed of many small, interconnected units, giving them a rope-like appearance. The background is a light, hazy blue.

ALREADY WE SEE EXAMPLES OF HOW AI ACCELERATES SCIENCE

A view of the Earth from space, showing the curvature of the planet and the blue and white clouds. The image is dark and serves as a background for the text on the right side of the slide.

AlphaFold revolutionizes protein biology with AI

February 2024

AlphaFold predicted the full structure of ApoB, a protein central to understanding heart disease, in five minutes, a task that previously took a year.

That single leap opened new possibilities for understanding cardiovascular disease at an atomic level.

ALREADY WE SEE EXAMPLES OF HOW AI ACCELERATES SCIENCE

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MOVE OVER, ALPHAFOLD: OPEN-SOURCE MODEL PREDICTS SHAPE OF 1 BILLION PROTEINS

May 2026

An open-source atlas generated by an artificial-intelligence system called ESMFold2 vastly increases the known protein universe.

ESMFold / ESM Atlas (BioHub) / <https://www.nature.com/articles/d41586-026-01686-3>

nature

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[nature](#) > [articles](#) > article

Article | Published: 19 May 2026

Accelerating scientific discovery with Co-Scientist

[Juraj Gottweis](#) ✉, [Wei-Hung Weng](#) ✉, [Alexander Daryin](#), [Tao Tu](#), [Petar Sirkovic](#), [Artiom Myaskovsky](#), [Grzegorz Glowaty](#), [Felix Weissenberger](#), [Alessio Orlandi](#), [Dan Popovici](#), [Anil Palepu](#), [Keran Rong](#), [Ryutaro Tanno](#), [Khaled Saab](#), [Fan Zhang](#), [Jacob Blum](#), [Andrew Carroll](#), [Kavita Kulkarni](#), [Nenad Tomašev](#), [Dina Zverinski](#), [Ivor Rendulic](#), [Elahe Vedadi](#), [Florian Hasler](#), [Luka Rimanic](#), ... [Vivek Natarajan](#) ✉

+ Show authors

AI Co-Scientist (Gemini/Google DeepMind)

<https://www.nature.com/articles/s41586-026-10644-y>

nature

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[nature](#) > [articles](#) > article

Article | Published: 19 May 2026

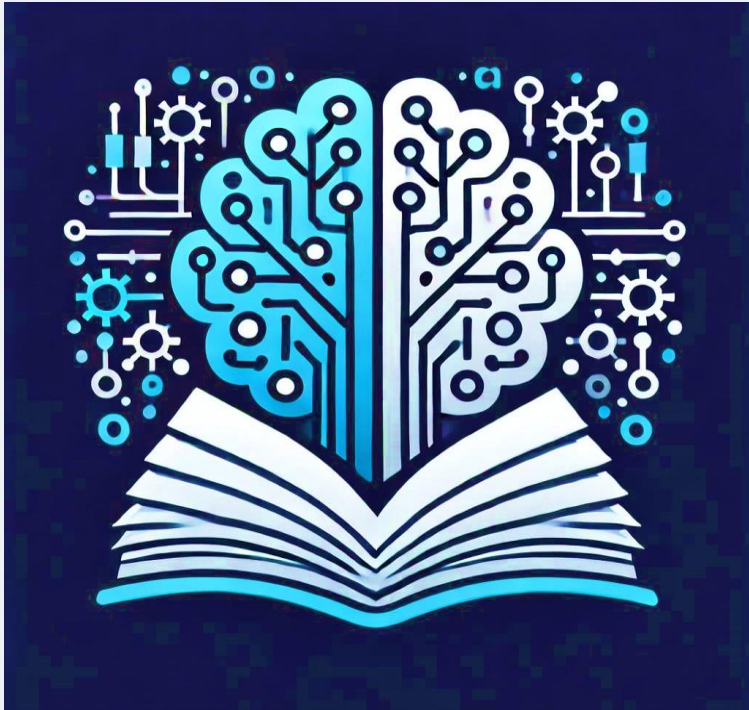
A multi-agent system for automating scientific discovery

[Ali Essam Ghareeb](#), [Benjamin Chang](#), [Ludovico Mitchener](#), [Angela Yiu](#), [Caralyn J. Szostkiewicz](#), [Dmytro Shved](#), [Gavin J. Gyimesi](#), [Jon M. Laurent](#), [Samantha M. Wright](#), [Muhammed T. Razzak](#), [Andrew D. White](#) ✉, [Silvia C. Finemann](#), [Michaela M. Hinks](#) ✉ & [Samuel G. Rodrigues](#) ✉

Robin (Future House)

<https://www.nature.com/articles/s41586-026-10652-y>

SPRINGER NATURE HAS BEEN USING AI FOR OVER 10 YEARS



Machine learning and natural language processing technologies have been part of our products, services and workflows for many years.

We remain open to things which will improve the experience for our customers and the wider research community

When we do this, we will always apply the same considerations we have to date:

- We provide a benefit for our customers and the wider research community
- We keep ‘human’ in the loop?
- We meet AI governance principles of fairness, transparency, accountability, and respect

OUR AI STRATEGY IS BUILT AROUND 3 STRANDS: TRANSFORM, DISSEMINATE AND MAINTAIN TRUST

1



Transform

Build a smooth publishing process serving authors, editors and peer reviewers.

2



Disseminate

Enable researchers to **use trusted knowledge at every point** of the research process.

3

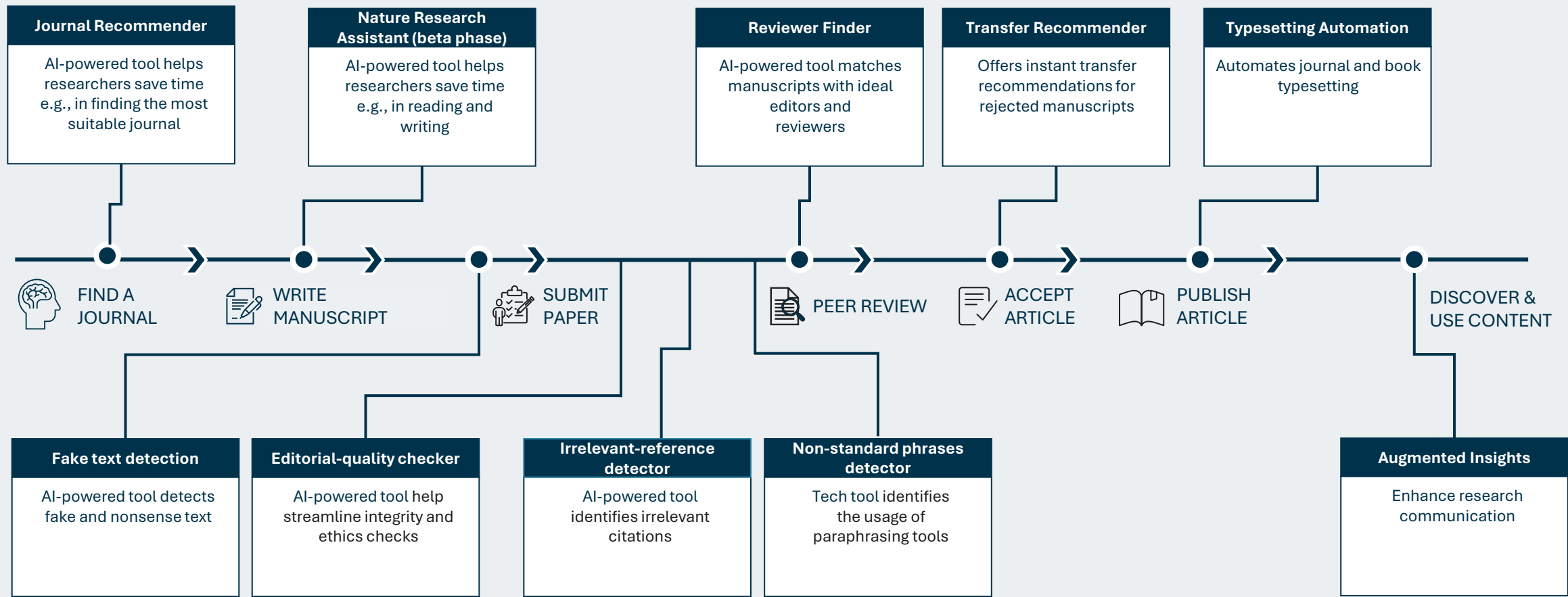


Maintain trust

Protect the integrity of the scientific record, our journal brands, and the communities we serve.

WE ARE ADAPTING TO THE GROWING OPPORTUNITIES OF MODERN TECHNOLOGIES TO ENSURE WE MEET COMMUNITY NEEDS

Examples of technology initiatives embedded across our research ecosystem



RESEARCH INTEGRITY AND AI

No tool can currently detect AI-generated text from all Large Language Models (LLM) with absolute accuracy

The following set of patterns has been reported as potential red flags of AI-generated content:



High submission volume

Unusually large number of articles submitted in a short time



Authorship clustering

Many submissions originating from a small group of authors



Unusual affiliation patterns

Authors may lack domain expertise



Structural similarity

Submissions share similar structure and style



Generic language

Use of formulaic, overly formal and flowery language



Repetitive opening sentences

Identical phrasing across articles



Rigid paragraph structure

“Firstly, secondly, thirdly” transitions



Standardized conclusions

E.g. “In conclusion... Interpret cautiously.”



Limited references

Narrow citation scope, little engagement with broader literature

HIGH productivity vs LOW trust: the AI's Double-Edged Sword

Benefits

- Saves time
- Helps keep up with trends
- Improves understanding
- Helps overcome writer's block



Risks

- Hallucinations
- Ethical issues
- Unclear accountability
- Over reliance on AI and skills erosion
- Access limitations due to costs



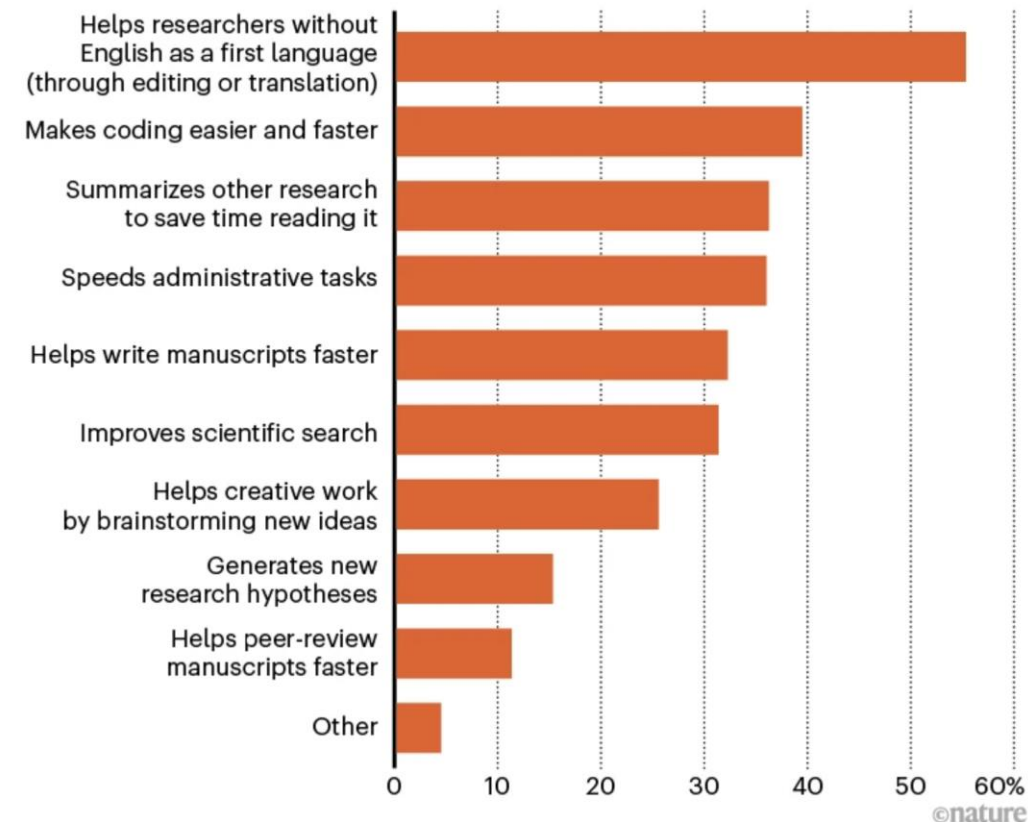
"The time I have spent just trying to get that snapshot. [With] Chat GPT, maybe something that would have taken the whole day, I'm now able to do it in two hours."

RESEARCHERS CLEARLY SEE VALUE IN USE OF AI TOOLS, BUT ARE ALSO CONCERNED ABOUT MISUSE

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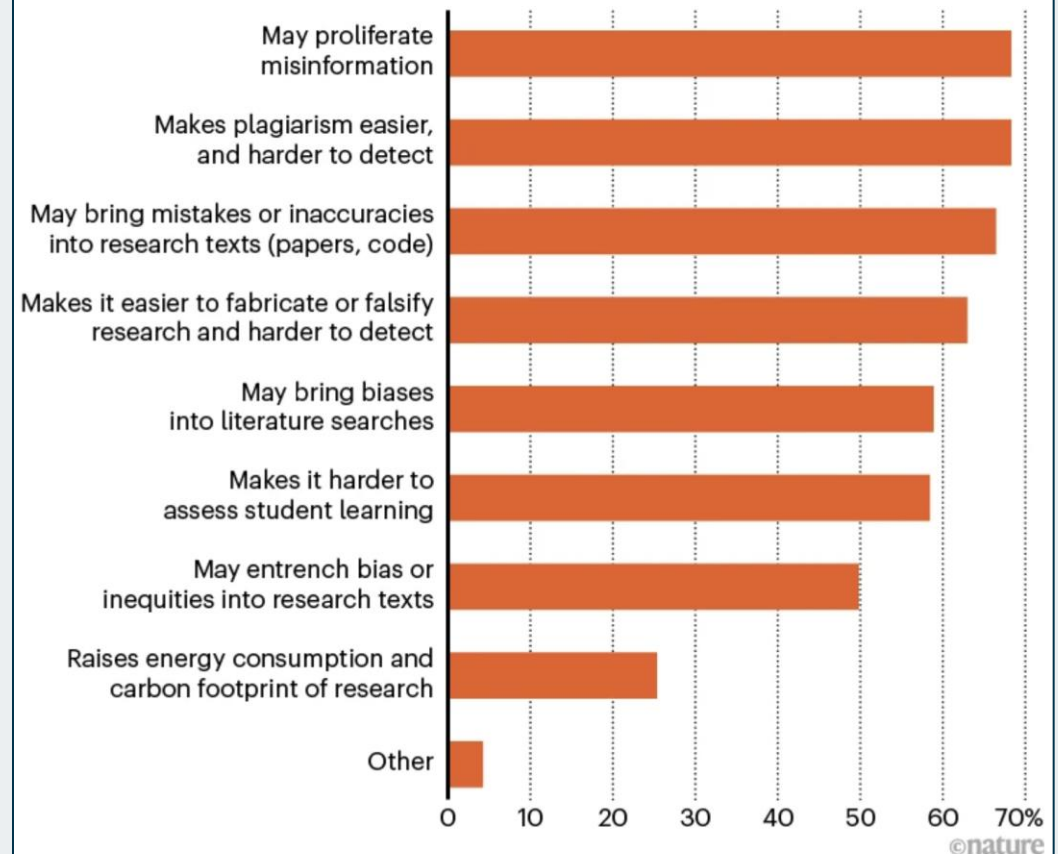
BENEFITS OF GENERATIVE AI

Q: What do you think are currently the biggest benefits of generative AI for research? (Choose all that apply.)



PROBLEMS OF GENERATIVE AI

Q: Where do you think generative AI may have negative impacts on research? (Choose all that apply.)



FRAUD IN SCIENCE: A GROWING PROBLEM?

20

Fraudulent research is 'destroying trust in science'

Matthew Ward Agius
08/10/2025

Organized networks are infiltrating the academic publishing system to promote fake science, say experts investigating research fraud. A new study highlights the major challenge for modern science.

Fake papers are contaminating the world's scientific literature, fueling a corrupt industry and slowing legitimate lifesaving medical research

Published: January 29, 2025 2:53pm CET

'The situation has become appalling': fake scientific papers push research credibility to crisis point

Last year, 10,000 sham papers had to be retracted by academic journals, but experts think this is just the tip of the iceberg

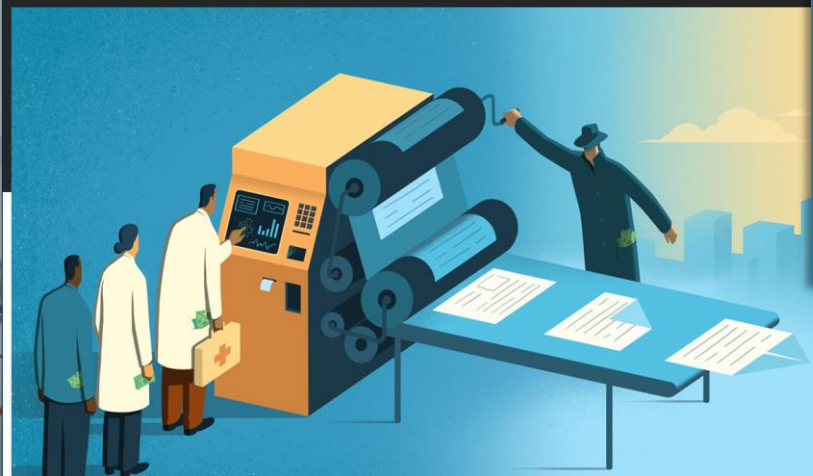


☒ Fake research papers could jeopardise drug development, warn academics. Photograph: Westend61/Getty Images

Scientific fraud has become an 'industry,' alarming analysis finds

Sophisticated global networks are infiltrating journals to publish fake papers

4 AUG 2025 · 3:00 PM ET · BY CATHERINE O'BRIEN



➤ **80% increase of SN recorded ethical cases in 2025 compared to 2024**

➤ During 2024, we saw the first integrity cases that involved papers potentially written with the help of LLMs.

➤ **Approx. 7.5% of incoming flags are now related to AI**

Categories:

- Image irregularities (39%)
- Data (errors/fabrication) (19 %)
- Plagiarism (11 %)
- Peer review process (6 %)
- Authorship disputes (6 %)
- Unverified authorship (6 %)
- Duplicate publication* (5 %)
- Human ethics issues (3 %)
- Citation manipulation (3 %)
- Policy issues (2 %)
- Permission/license (2 %)
- Data ownership (2 %)
- Competing interests (2 %)
- Duplicate submissions (1 %)
- Defamation (1 %)
- Consent to publish (1 %)
- Animal ethics (<1 %)

AI IS MAKING IT EASIER TO CREATE FAKE SCIENCE...BUT IT'S NOT ONLY AI

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1

Increased article output – growth is not without risk

More researchers worldwide & collaborative efforts

Digital technology reducing TATs, increases the volume of publications

AI and new technologies enabling faster data collection, analysis, and publication, proliferation of specialized journals

2

Pressure to Publish

Publish or perish: Researchers face increasing pressure to publish in high-impact journals to secure funding, promotions, or tenure. This can lead to questionable practices to meet these demands.

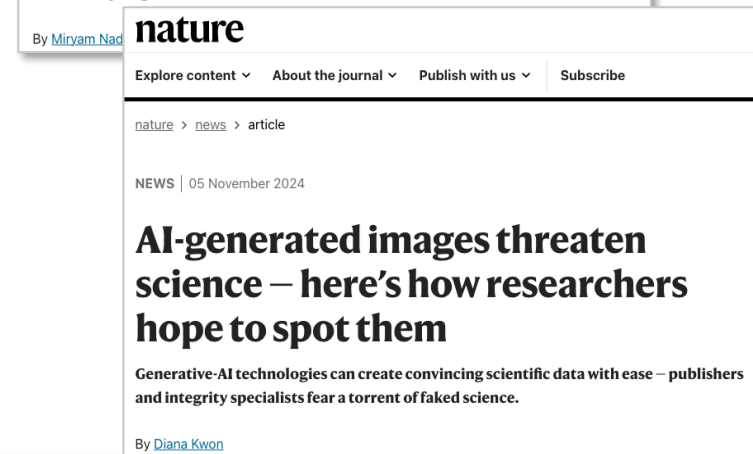
Competition: Intense competition for limited research funding can incentivize researchers to engage in unethical behaviors, like manipulating data or rushing studies.

3

Increased Detection

Advanced Technology: Journals and institutions have adopted sophisticated tools to detect ethical misconduct which has led to the identification of more ethical cases.

Open Science: Calls for transparency in data, methodologies, and peer reviews mean that unethical practices are now more easily discovered by the wider scientific community



NEWS FEATURE | 26 March 2025

AI is transforming peer review – and many scientists are worried

Artificial intelligence software is increasingly involved in reviewing papers, provoking interest and unease.

NEWS FEATURE | 05 December 2023

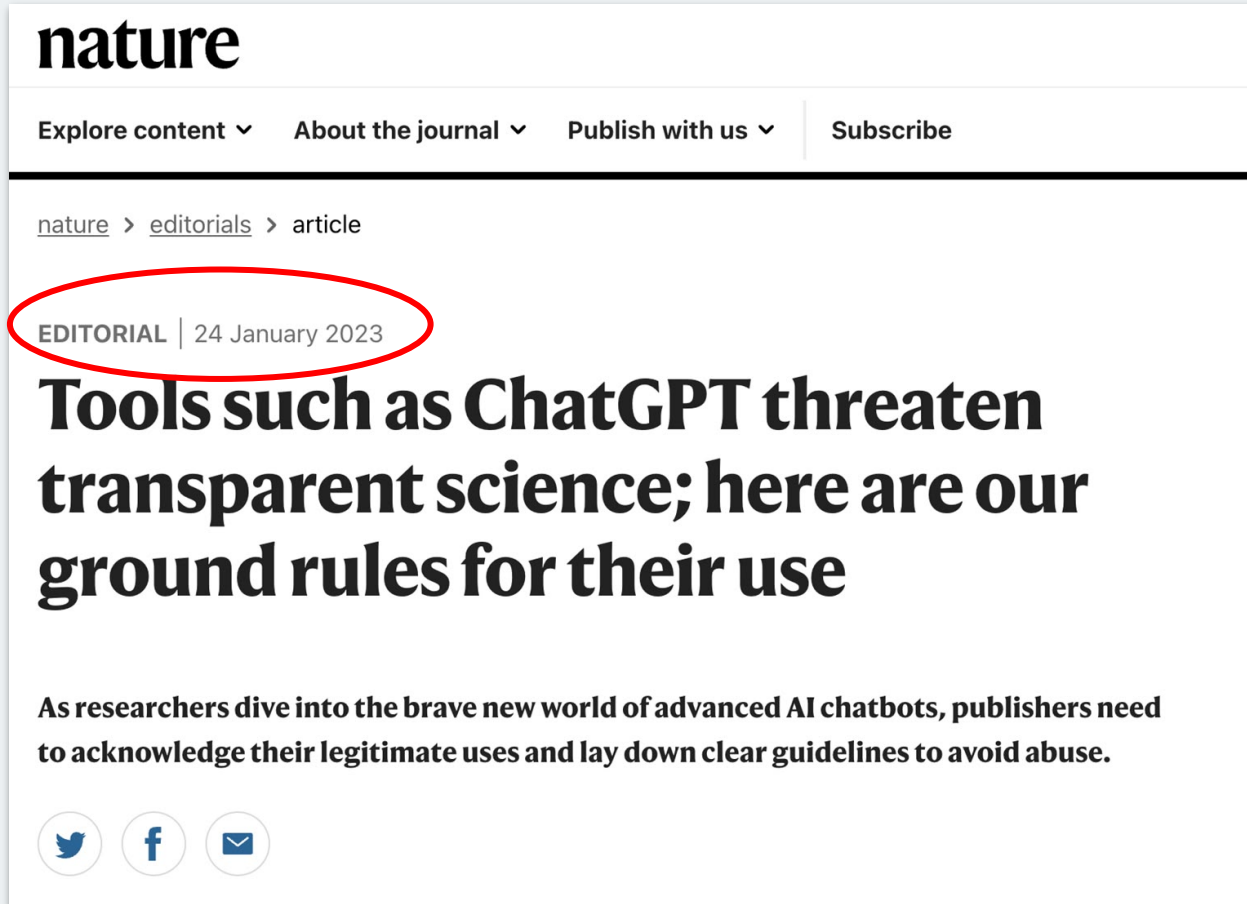
Is AI leading to a reproducibility crisis in science?

Scientists worry that ill-informed use of artificial intelligence is driving a deluge of unreliable or useless research.

SPRINGER NATURE

JAN 2023

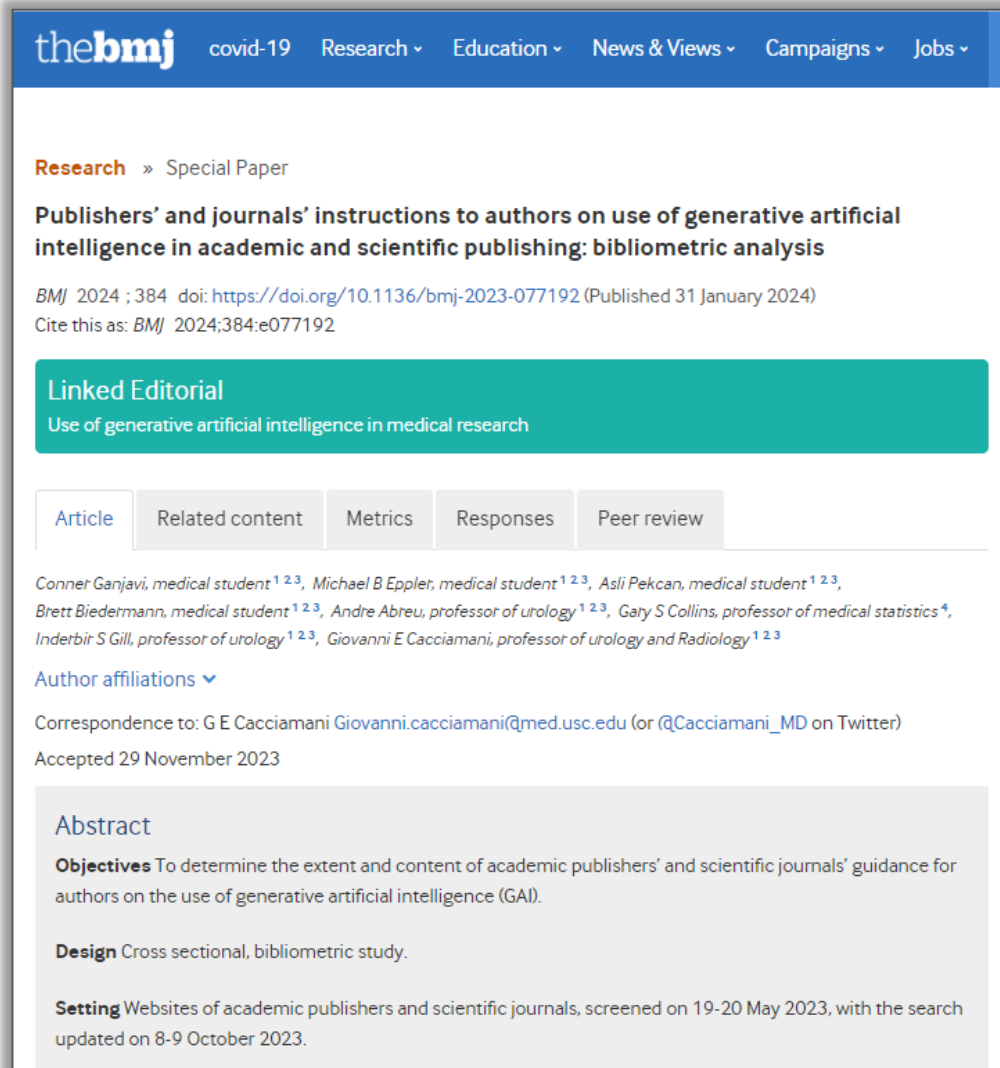
SPRINGER NATURE PUBLICLY RELEASED ITS FIRST GUIDELINES ON THE USE OF AI



<https://www.nature.com/articles/d41586-023-00191-1>

- No LLM tool will be accepted as a **credited author** on a research paper. This is because any attribution of authorship carries with it accountability for the work, and AI tools cannot take such responsibility.
- Researchers using LLM tools should **document this use** in the paper.

UNIQUE GUIDELINES ON THE USE OF AI BY AUTHORS ARE LACKING



thebmj covid-19 Research ▾ Education ▾ News & Views ▾ Campaigns ▾ Jobs ▾

Research » Special Paper

Publishers' and journals' instructions to authors on use of generative artificial intelligence in academic and scientific publishing: bibliometric analysis

BMJ 2024 ; 384 doi: <https://doi.org/10.1136/bmj-2023-077192> (Published 31 January 2024)
Cite this as: BMJ 2024;384:e077192

Linked Editorial
Use of generative artificial intelligence in medical research

Article Related content Metrics Responses Peer review

Conner Ganjavi, medical student^{1 2 3}, Michael B Eppler, medical student^{1 2 3}, Aslı Pekcan, medical student^{1 2 3}, Brett Biedermann, medical student^{1 2 3}, Andre Abreu, professor of urology^{1 2 3}, Gary S Collins, professor of medical statistics⁴, Inderbir S Gill, professor of urology^{1 2 3}, Giovanni E Cacciamani, professor of urology and Radiology^{1 2 3}

Author affiliations ▾

Correspondence to: G E Cacciamani Giovanni.cacciamani@med.usc.edu (or @Cacciamani_MD on Twitter)

Accepted 29 November 2023

Abstract

Objectives To determine the extent and content of academic publishers' and scientific journals' guidance for authors on the use of generative artificial intelligence (GAI).

Design Cross sectional, bibliometric study.

Setting Websites of academic publishers and scientific journals, screened on 19-20 May 2023, with the search updated on 8-9 October 2023.

- Among the top 100 largest academic publishers, 24% provided guidance on the use of AI
- Among the top 100 highly ranked journals, 87% provided guidance on AI
- The inclusion of AI as an author was prohibited in 96% of publishers and 98% of top journals
- Where to disclose the use of AI varied, including in the methods or acknowledgments, in the cover letter, or in a new section

<https://www.bmj.com/content/384/bmj-2023-077192>

THERE REMAINS CONFUSION ON WHAT IS BEST PRACTICE IN WRITING

nature

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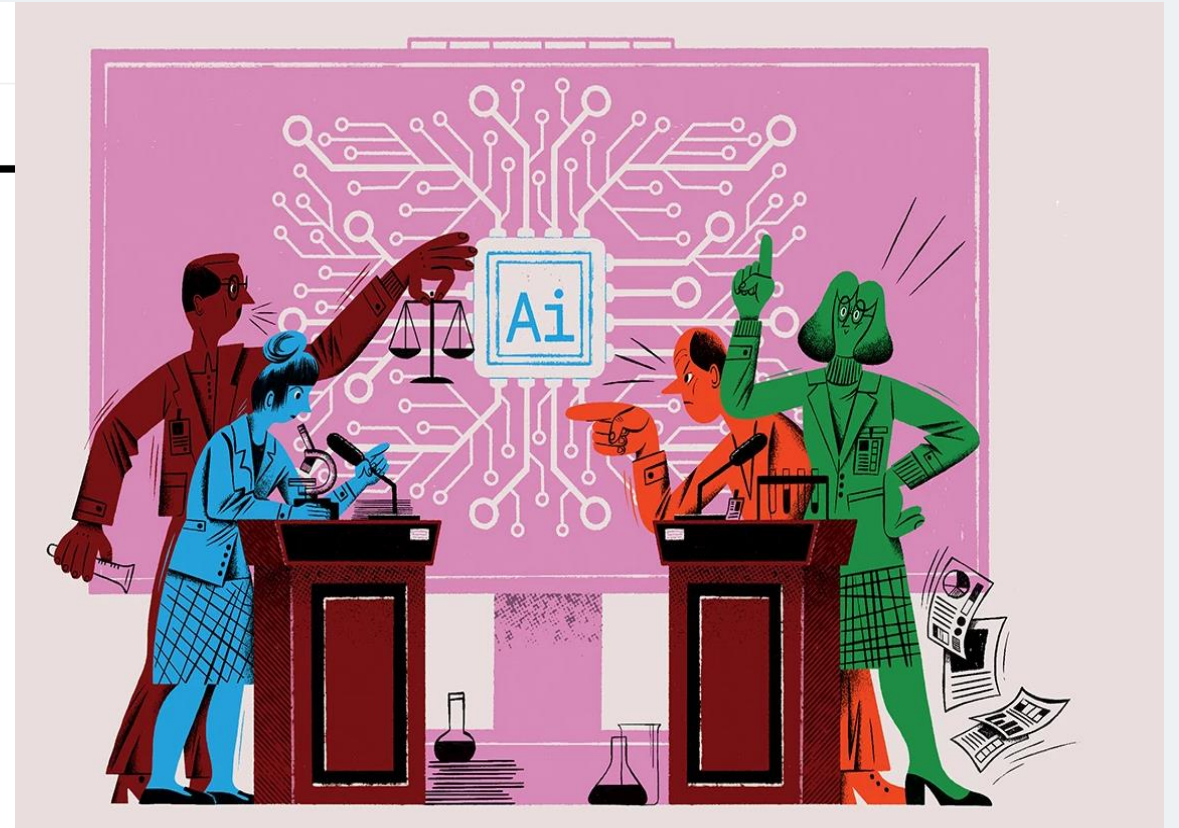
[nature](#) > [news feature](#) > [article](#)

NEWS FEATURE | 14 May 2025

Is it OK for AI to write science papers? *Nature* survey shows researchers are split

Poll of 5,000 researchers finds contrasting views on when it's acceptable to involve AI and what needs to be disclosed.

By [Diana Kwon](#)

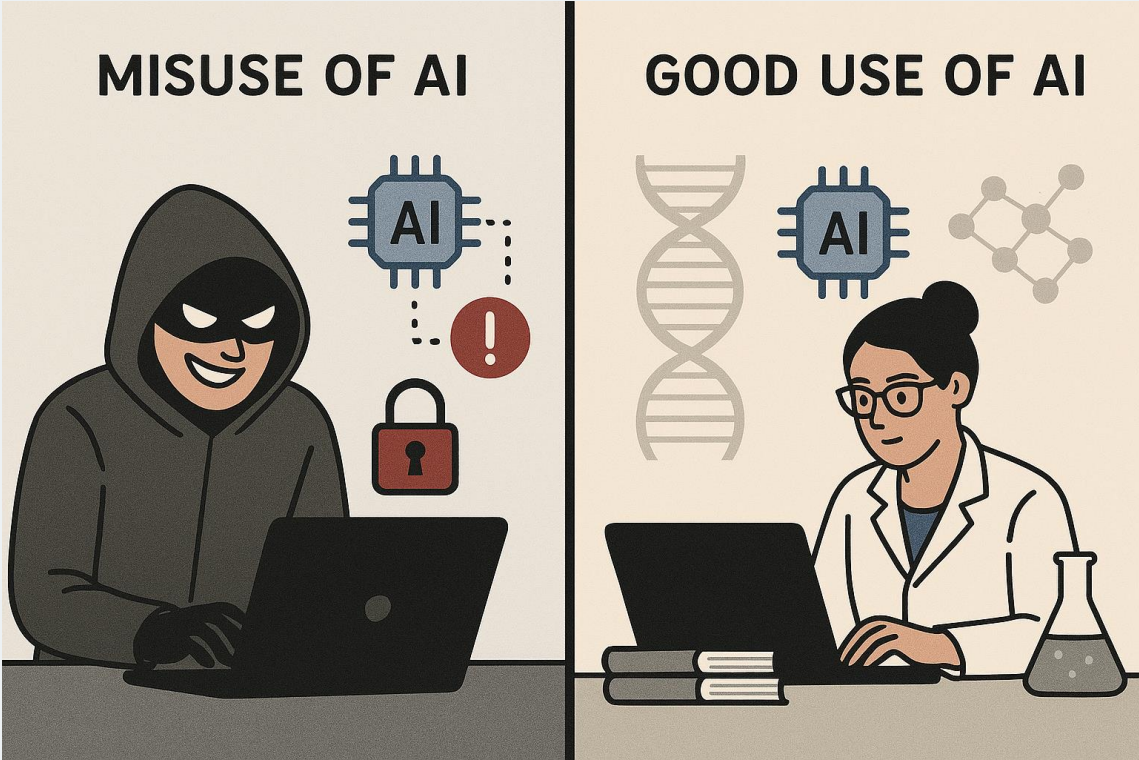
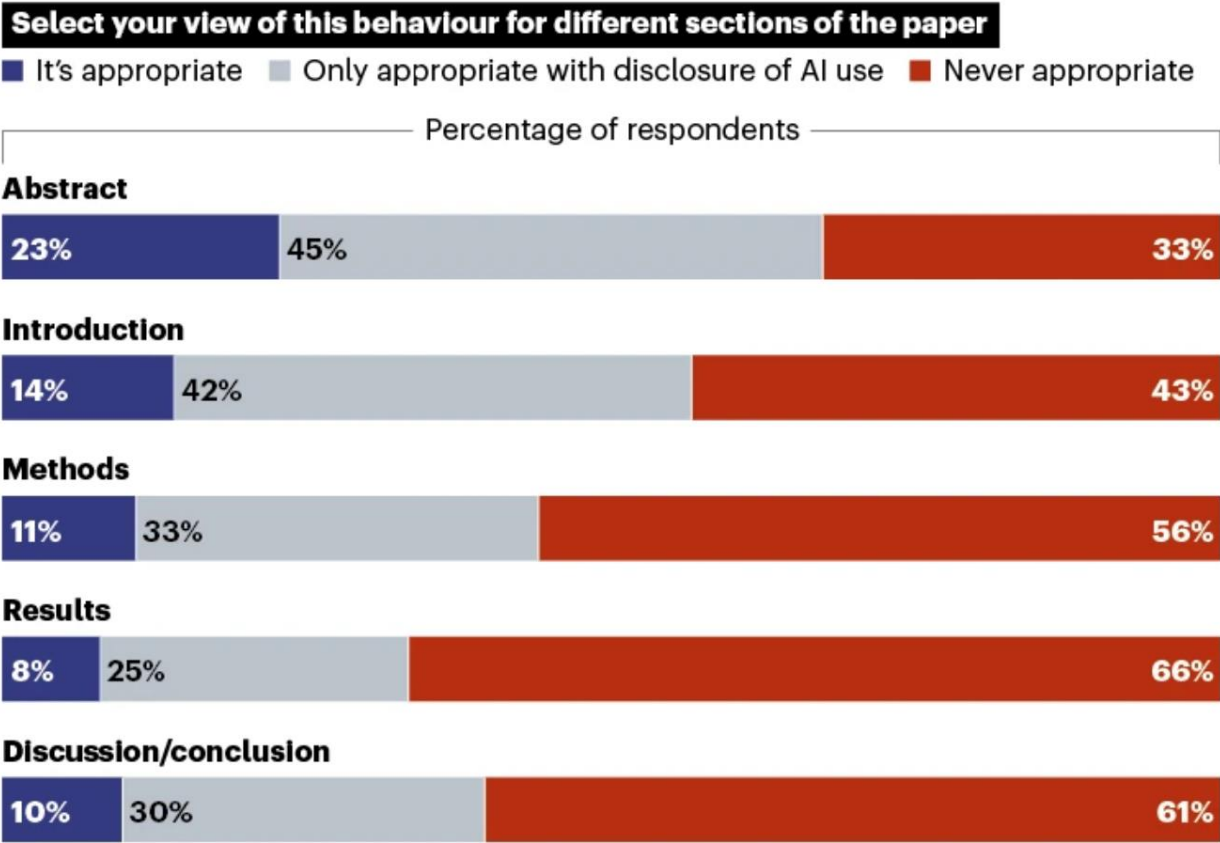


Nature **641**, 574-578 (2025)

doi: <https://doi.org/10.1038/d41586-025-01463-8>

WHICH PARTS OF THE PAPER CAN I USE AI TO GENERATE?

Nature’s survey asked people to consider the following scenario: “Dr Bloggs uses an AI tool to write a section of a research paper, then edits the results. They don’t disclose that they used AI.” Respondents showed most concern about using AI for the results section.



STM DRAFT RECOMMENDATIONS FOR A CLASSIFICATION OF AI USE

<https://stm-assoc.org/document/recommendations-for-a-classification-of-ai-use-in-academic-manuscript-preparation/>

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STM

RECOMMENDATIONS FOR A CLASSIFICATION OF AI USE
IN ACADEMIC MANUSCRIPT PREPARATION | DRAFT

This document presents a classification of various ways that AI may be used in the preparation of academic manuscripts and should be declared by authors.

Recommended Classification

	Use of AI in the preparation of academic manuscripts (*)	What	Examples	Does NOT include
1	Refine, correct, edit, or format the manuscript to improve clarity of language (**)	Automated tools were used to suggest language improvements	Spell checkers, grammar checkers, predictive text in Microsoft Word	Generating text using AI prompts, generating machine summaries of text, analysing or summarising textual documents as part of the research process
2	Writing or drafting manuscript content	AI was used to create part or all of the manuscript text	Generating text using AI prompts, asking AI to expand on text, generating machine summaries of text (e.g. to summarise arguments made in another publication)	Use of simple spelling and grammar checkers, analysing or summarising textual documents as part of the research process
3	Translation of manuscript text for the purpose of publishing (***)	AI was used to assist translation of an author's original work into a secondary language	Authors using tools (e.g. Google translate, ChatGPT) to assist with translating their manuscript draft	Translation of materials as part of the research process (unrelated to manuscript preparation)
4	Refining or formatting of data reported in the submitted manuscript	Data reported in the submitted manuscript (e.g. included as supplementary material, or stored in a data repository linked to from the manuscript) are refined or formatted using AI	Authors using tools to correct (e.g. on the level of language) or format research data before it's published	Using AI to visualise data sets (activity 6) or data manipulation; any generation, correcting, or editing of data used as part of the research process
5	Generation, refinement, correction, editing or formatting of images, diagrams or other figures for illustrative purposes only	AI was used to generate images or diagrams or other figures in the manuscript for illustrative or aesthetic purposes only	Using AI to create an image of e.g. people farming in an ancient society - the sort of image that might otherwise be created by a human artist as an illustration	Visualisation of actual data or research outputs, editing of visualisations of actual data or results, presentation of generated images as research outputs in themselves or as representing research outputs
6	Generation, refinement, correction, editing or formatting of visualisations of research data or results	AI tools were used to visualise or refine visualisations of research data/results	Using AI to generate a graph or other visualisation of a given research data set	Generation of images or other content without any basis in real research data/outputs
7	Refinement or formatting of code reported in the submitted manuscript.	AI tools were used to assist with refinement of the presentation of code within the manuscript	Using AI to assist with human assessment to improve the readability of code submitted as part of a manuscript	Code generated or improved by AI that was used for the research itself; any new code generated by AI alone
8	Assisting with compilation of reference lists	AI tools were used to create or suggest references to include in the manuscript	Asking AI to generate a list of articles that are related to the research to use as references	AI generation of plausible-sounding references that do not exist; using automated tools to generate a citation in a particular style/format based on a DOI
9	Presentation of any kind of content generated by AI as though it were original research data/results from non-machine sources (****)	AI was used to create data, text, images, graphs, spectra, or other content that is presented as though it were original research data/results collected or analysed from other, non-machine sources	Any content generated wholesale by AI without any basis in original research data/outputs, presented as though it is based on original data/results	Using AI to visualise original research data/results (activity #6); carrying out research on the outputs of GenAI (in which case GenAI outputs can be considered research data)



STM is the leading global trade association for academic and professional publishers. It has roughly 160 members from across the globe

SPRINGER NATURE

ETHICAL PUBLISHING IN THE AGE OF AI

Opportunities, challenges and governance

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OPPORTUNITY

IMPROVES PUBLISHING EXPERIENCE

- Solve problems and perform tasks quicker than human beings
- Can drive innovation in various fields
- Can provide personalized experiences and recommendations
- Improves automatically through experience

CHALLENGE

RESEARCH INTEGRITY ISSUES IN PUBLISHING HAVE ACCELERATED

Generative AI tools still have considerable limitations:

- Lack of up-to-date knowledge
- Generation of nonsensical, biased or false information
- Copyright and Intellectual Property issues
- Data Privacy and Security violations

GOVERNANCE

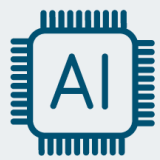
ROBUST HUMAN-AI COLLABORATION IS REQUIRED

- Careful human oversight
- Ensure clear communication about how AI systems operate and use data
- Provide ethical guidelines
- Monitoring AI systems outputs to ensure they meet governance standards

<https://group.springernature.com/gp/group/ai>

WE BELIEVE IN UNLOCKING THE POTENTIAL OF AI, ALWAYS SUPPORTED BY HUMAN OVERSIGHT

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Our AI strategy embeds human augmentation as a core value and combines expanding technical expertise with our commitment to spreading the technology’s powers in an ethically responsible and environmentally sustainable way .



Accountability
We maintain human oversight of the development and outcomes generated by our AI tools and solutions.



Transparency
We disclose when an AI system is being used and explain our processes in accessible language.



Dignity, respect and minimising harm
We prioritise human wellbeing and dignity, and **take steps to prevent harm to society and the environment.**



Fairness and inclusivity
We mitigate the potential for structural bias and inequities.



Privacy and data governance
We safeguard personal privacy and follow.

GUIDANCE FOR RESEARCHERS ON USE OF AI IN PUBLISHING

Authors are accountable and need to declare transparent use of AI

Be accountable. Authors—not AI—are responsible for the accuracy, originality, and integrity of their manuscript.

Do not list AI tools as authors. LLMs such as ChatGPT cannot take accountability and do not meet authorship criteria.

Declare AI use transparently. If an AI tool helped generate substantial text, data analysis, or supplementary material, acknowledge it in the Methods section or in any other part of the ms. This should include the name of the AI tool, the version used, and the developer or manufacturer.

AI-assisted copy editing need not be declared when used only to improve readability, grammar, or formatting (unless substantial changes are introduced) — but authors remain accountable for the final version.

Do not use AI to fabricate, plagiarise, or create false content. Verify and reference any AI-assisted output.

Avoid generative AI images or figures. These are not permitted for publication unless they meet specific exceptions (legally sourced, directly about AI, or based on verifiable scientific data) and are clearly labelled as 'AI-generated.'

Craft prompts responsibly. Do not include personal, sensitive, confidential, or copyrighted material. Ensure that your prompts are fair, respectful, and free from bias, discrimination, or harmful language. Evaluate the results carefully to ensure they are appropriate.

GUIDANCE FOR RESEARCHERS ON USE OF AI IN PUBLISHING

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Editors and reviewers need to take accountability and should not upload manuscripts into GenAI tools

Keep a human in the loop. Editorial and peer-review assessments must be made and verified by humans

Take authorship and accountability for all editorial decisions and review content—these must reflect your expert judgment.

Do not upload manuscripts into generative AI tools. Manuscripts contain confidential and sensitive information.

Declare AI use transparently. If an AI tool has been used to support the evaluation process or refine recommendations, this must be clearly disclosed in the review report.

Maintain confidentiality and integrity throughout the peer-review process.

Editors, reviewers, authors should always check the terms and conditions of any AI tool they use to ensure that they do not grant to the AI the right to train the AI tool on their inputs.

Disability-related assistive technology

Editors, reviewers, authors are not required to disclose the use of AI tools or features within specialist disability-related assistive technology, provided these are used solely for accessibility purposes.

DISCLOSURE TEXT TEMPLATES

Authors

During the preparation of this work the author(s) used [NAME OF TOOL/SERVICE] developed by [NAME OF SERVICE PROVIDER] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

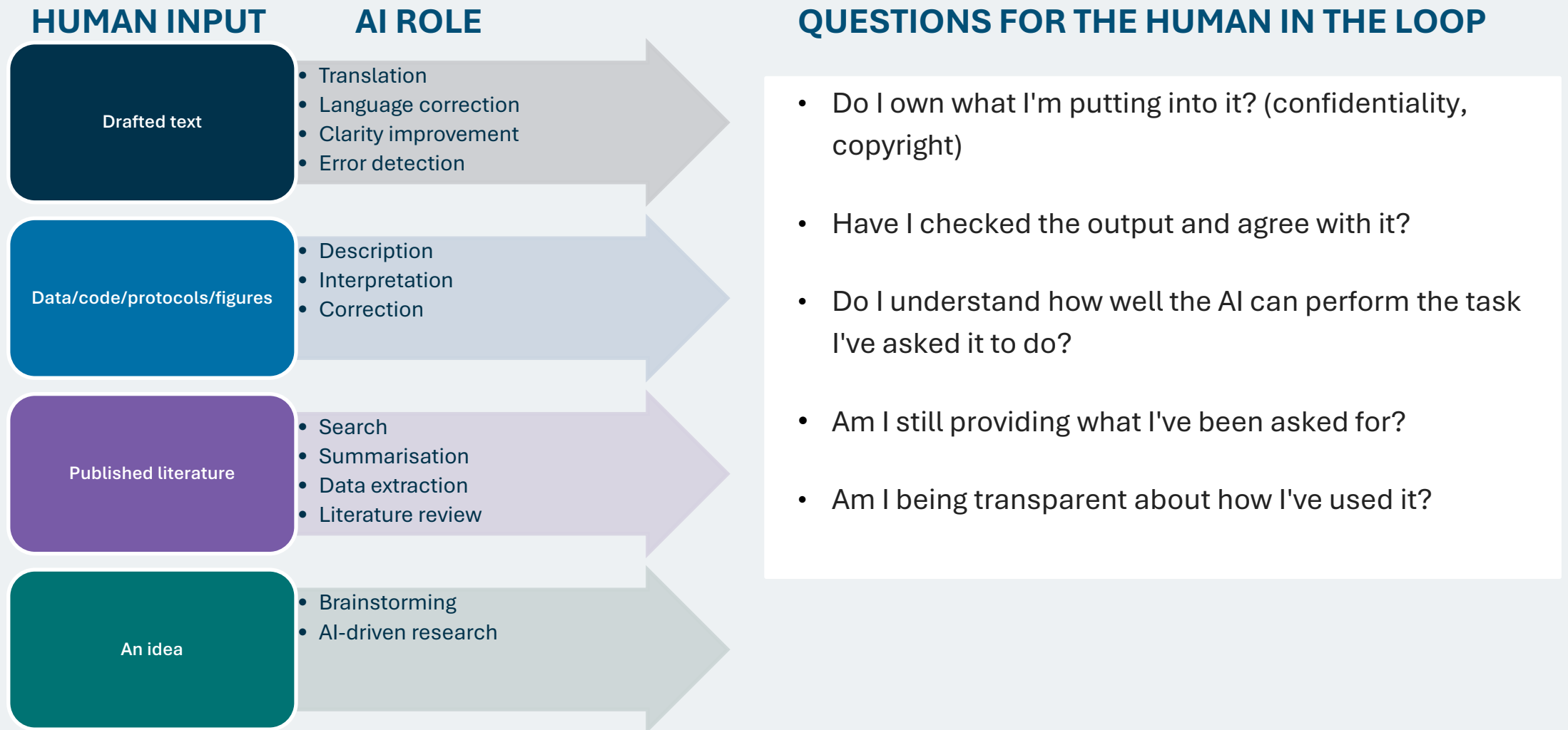
Figure 1. *Schematic overview of study design. Initial image generated using [NAME OF TOOL/SERVICE] developed by [NAME OF SERVICE PROVIDER] and subsequently edited by the authors. All elements were reviewed for accuracy and completeness.”*

Figure 2. *Workflow diagram. Draft created with [NAME OF TOOL/SERVICE] developed by [NAME OF SERVICE PROVIDER]. The final figure was refined and verified by the authors.”*

Editors / Reviewers

During the preparation of this report, I used [NAME OF AI TOOL / SERVICE] developed by [NAME OF SERVICE PROVIDER] in order to [REASON]. After using this tool/service, I reviewed and edited the content as needed and I take full responsibility for its content.

THERE ARE MANY DIFFERENT WAYS AI CAN BE USED



WHAT TO DECLARE AND WHEN

For journals, the right question is not *"how did you use AI?"* but *"can this work be trusted and reproduced?"*

NO DISCLOSURE NEEDED

Language & writing

Translation

Idea generation

Literature discovery
(except for literature
reviews = data collection)

= no impact on reproducibility

DISCLOSURE NEEDED

Study and method design

Data cleaning & processing

Data-linked figures and illustrations

Statistical analysis

Data collection

Code generation & debugging

= impact on evaluation/reproducibility

NEVER present AI –generated content as original research data/results - this is research misconduct!

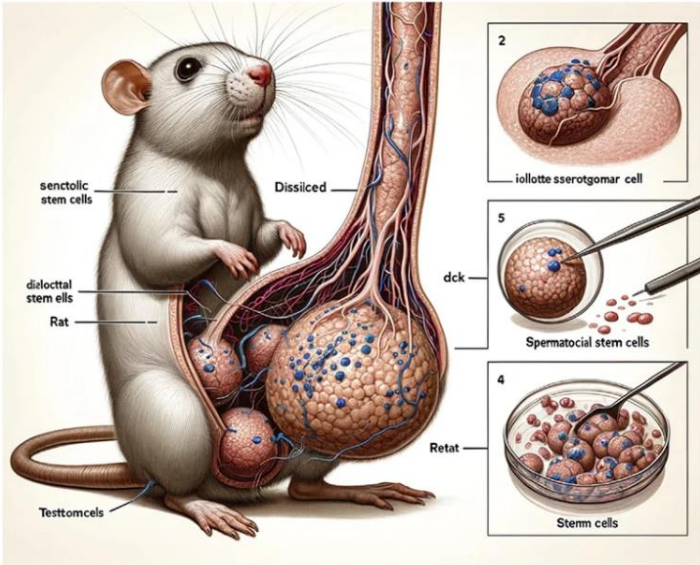
Based on Avi Staiman on Scholarly Kitchen (<https://scholarlykitchen.sspnet.org/2026/02/03/why-authors-arent-disclosing-ai-use-and-what-publishers-should-not-do-about-it-part-2/>)

WHAT ABOUT IMAGES AND VIDEO?

AI cannot be used to generate graphical abstracts and cover art and to create or alter images that represent primary observed or experimental data. This includes adjustments to brightness, contrast, or color balance, which should only be done using established image processing software.

Why *Nature* will not allow the use of generative AI in images and video

Saying ‘no’ to this kind of visual content is a question of research integrity, consent, privacy and intellectual-property protection.



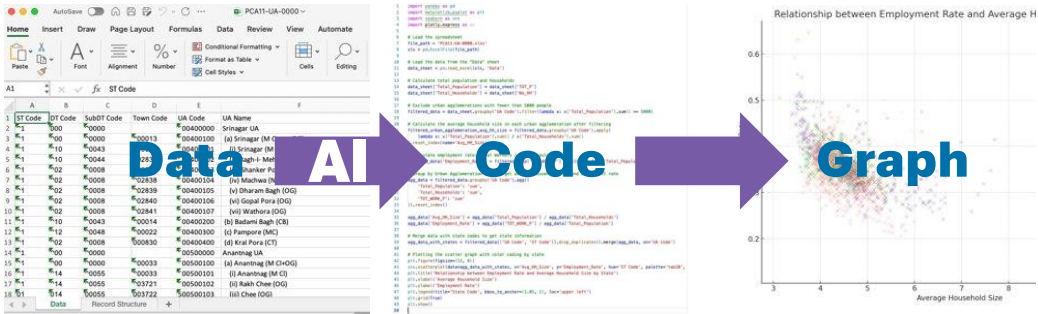
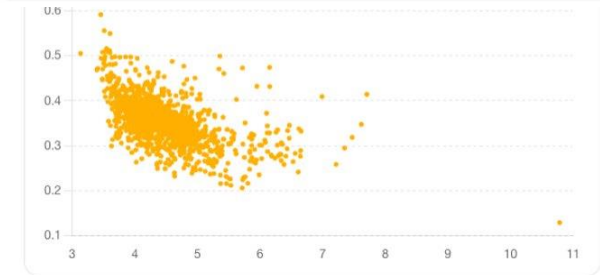
Credit: X. Guo et al./Front. Cell Dev. Biol.



Authors may use AI tools to support the creation of flow charts, or data visualizations presenting results derived from underlying datasets.

The use of AI tools should be disclosed in the caption of each image (including the specific tool, version, and how the tool was used) and in the general AI disclosure statement in the article.

I'm interested if there's a relationship between the employment rate and average household size in each agglomeration. Can you calculate the employment rate and plot it on a scatter graph against average household size?



IN SUMMARY, OUR AI POLICY IS ABOUT ...



Accountability

Humans remain responsible for the work. AI cannot be an author, reviewer, or decision-maker.



Privacy

Do not upload confidential manuscripts or personal data to public AI tools.



Transparency

Declare any use of AI in research, writing, review, or decisions — specifying tool, version, and purpose.



Confidentiality

Protect the integrity of peer review by keeping author and reviewer information secure.



AI, when used responsibly, can accelerate scientific discovery and publishing - and we all have a role to play.

Thank you for your attention!

#BePartOfProgress



OUR AI POLICIES & GUIDELINES ENSURE SCRUTINY & TRUST WHILE SCALING AI ENABLEMENT

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Find out more on our website:



- [How we're approaching AI responsibly](#)
- [AI policies and guidance](#) for authors, editors & reviewers

SPRINGER NATURE AI POLICY & AUTHOR'S GUIDELINES

<https://link.springer.com/brands/springer/journal-policies>

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Journal policies

Overview

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Artificial intelligence (AI)

[Ethics and biosecurity](#)

[Digital image integrity](#)

Springer journals will be guided by COPE guidelines, however the journals will continue to make independent decisions based on our existing policies and principles.

At Springer Nature we believe that only through relationships based upon mutual respect can we build trust and deliver quality publishing products and services to the communities we serve. Our staff are expected to behave professionally and respectfully at all times when engaging with authors, reviewers and readers. Likewise, we expect the same standards of behavior from the academic community and the public in their interactions with our staff. We do not tolerate aggressive behavior, or any form of harassment, bullying or discrimination directed against Springer Nature staff. We reserve the right to bring serious cases to the

Artificial intelligence (AI)

Springer Nature is monitoring ongoing developments in this area closely and will review (and update) these policies as appropriate.

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. The use of an LLM (or other AI-tool) for "AI assisted copy editing" purposes does not need to be declared. The term "AI assisted copy editing" as AI-assisted image generated texts for readability and style, and to ensure that in grammar, spelling, punctuation and tone. These AI-assisted edits include wording and formatting changes to the texts, but do not include editorial work and autonomous content creation. In all cases, the final version of the text and agreement to publish reflects their original work.

Generative AI images

The fast-moving area of generative AI image creation has resulted in novel legal copyright and research integrity issues. As publishers, we strictly follow existing copyright law and best practices regarding publication ethics. While legal issues relating to AI-generated images and videos remain broadly unresolved, Springer Nature journals are unable to permit its use for publication.

Exceptions:

- Images/art obtained from agencies that we have contractual relationships with that have created images in a legally acceptable manner.

AI use by peer reviewers

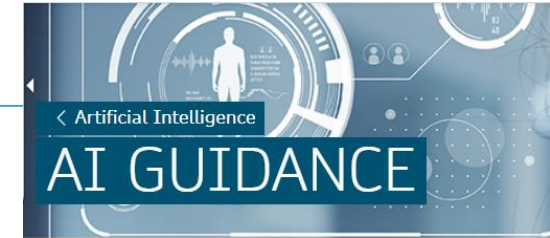
Peer reviewers play a vital role in scientific publishing. Their expert evaluations and recommendations guide editors in their decisions and ensure that published research is valid, rigorous, and credible. Editors select peer reviewers primarily because of their in-depth knowledge of the subject matter or methods of the work they are asked to evaluate. This expertise is invaluable and irreplaceable. Peer reviewers are accountable for the accuracy and views expressed in their reports, and the peer review process operates on a principle of mutual trust between authors, reviewers and editors. Despite rapid progress, generative AI tools have considerable limitations: they can lack up-to-date knowledge and may produce nonsensical, biased or false information. Manuscripts may also include sensitive or proprietary information that should not be shared outside the peer review process. For these reasons we ask that, while Springer Nature explores providing our peer reviewers with access to safe AI tools, peer reviewers do not upload manuscripts into generative AI tools.

If any part of the evaluation of the claims made in the manuscript was in any way supported by an AI tool, we ask peer reviewers to declare the use of such tools transparently in the peer review report.

Images and videos that are directly referenced in a piece that is specifically about AI will be reviewed on a case-by-case basis.

Use of generative AI tools developed with specific sets of underlying scientific data that can be attributed, checked and verified for accuracy, provided that ethics, copyright and terms of use restrictions are adhered to.

AI GUIDANCE: ADDITIONAL RESOURCES



Guidance for authors

- Be accountable. You—not AI—are responsible for the accuracy, originality, and integrity of your manuscript.
- Do not list AI tools as authors. LLMs such as ChatGPT cannot take accountability and do not meet authorship criteria.
- Declare AI use transparently. If an AI tool helped generate text, data analysis, or content, acknowledge it in the Introduction, Preface, or Acknowledgements.
- AI-assisted copy editing need not be declared when used only to improve readability, grammar, or formatting—but authors remain accountable for the final version.
- Do not use AI to fabricate, plagiarise, or create false content. Verify and reference any AI-assisted output.
- Avoid generative AI images or figures. These are not permitted for publication unless they meet specific exceptions (legally sourced, directly about AI, or based on verifiable scientific data) and are clearly labelled as 'AI-generated.'
- Craft prompts responsibly. Do not include personal, sensitive, confidential, or copyrighted material. Avoid biased or harmful prompts and test outputs for appropriateness.

Guidance for editors and peer reviewers

- Take authorship and accountability for all editorial decisions and review content—these must reflect your expert judgment.
- Do not upload manuscripts into generative AI tools. Manuscripts contain confidential and sensitive information.
- If you have used an AI tool to assist your evaluation, declare its use transparently in your review report.
- Maintain confidentiality and integrity throughout the peer-review process.
- Keep a human in the loop. Editorial and peer-review assessments must be made and verified by humans

<https://group.springernature.com/gp/group/ai/ai-guidance-for-our-researchers-and-communities>

Thank you!

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