



AI and authorship:

What does the development of AI tools mean for publication ethics and authorship?

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North America at Springer Nature**

May 20, 2024

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SPRINGER NATURE

What is Springer Nature?

Leading global research publisher

9.4k employees in over 45 countries



OUR DIVISIONS



RESEARCH



EDUCATION

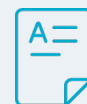


HEALTH

IN RESEARCH ALONE



Handling
1.8m+
article submissions



Publishing
420,400+
articles a year and



8.5 billion+
content downloads



14,000+
research books



Coordinating a team of
100,000+
academic editors



750,000+
peer reviewers



Research represents
c72% of Springer Nature



AI and Authorship: Threats

AI Explosion in AI Solutions

Examples of generative AI solutions for content creation

Text

MARKETING

- copy.ai, Jasper, Writesonic, Ponzu, frase
- copysmith, MidJourney, Moonbeam, Bertha.ai
- anyword, Hypotenuse AI, Clickable, letterdrop
- Simplified, Peppertype.ai, Omneky, CONTENDA

AI ASSISTANTS

- Andi, Quickchat

SALES

- LAVENDER, Smartwriter.ai

GENERAL WRITING

- Rytr, wordtune, Subtxt, LEX, sudo write, LAIKA, NovelAI, WRITER, COMPOSE AI, OTHERSIDEAI

SUPPORT (CHAT/EMAIL)

- Cohere, KAIZAN*, Typewise, CRESTA, XOXInd

OTHER

- Twain, Outplay, Reach, regie.ai, Creatext, Character.AI, AI DUNGEON, KEYS

MODELS: OPENAI GPT-3, DEEPMIND GOPHER, FACEBOOK OPT, HUGGING FACE BLOOM, COHERE, ANTHROPIC, AI2, GPT-NEOX, GPT-J, AI21, ALIBABA, YANDEX, ETC.

Other

MUSIC

- SPLASH, Mubert, Ava Technologies, Endel, boomy, Harmonai, SONIFY

GAMING

- AI DUNGEON

RPA

- Adept, mAyā

AI CHARACTERS/AVATARS

- Character.AI, inworld, The Simulation, OASIS

BIOLOGY/CHEMISTRY

- Cradle

VERTICAL APPS

- Harvey

MODELS: OPENAI JUKEBOX

Video

EDITING/GENERATION

- runway, FLiki, Dübverse, Opus

PERSONALIZED VIDEOS

- tavus, synthesia, Hour One, Rephrase.ai, Colossyan, Mario

MODELS: MICROSOFT X-CLIP, META MAKE-A-VIDEO

Image

IMAGE GENERATION

- MidJourney, OpenArt, craiyon, PLAYGROUND, WEMBOAI, PhotoRoom, ROSEBUD.AI, alpaca, Lexica, mage.space, Nyx + gallery, KREA, artbreeder

CONSUMER/SOCIAL

- MidJourney

MEDIA/ADVERTISING

- SALT, THE CULTURE DAO

DESIGN

- Diagram, uizard, VIZCOM, Aragon, Poly, II maket, INTERIOR AI, CALA

MODELS: OPENAI DALL-E 2, STABLE DIFFUSION, CRAIYON

Code

CODE GENERATION

- GitHub Copilot, replit GhostWriter, tobnine, MUTABLEAI

TEXT TO SQL

- AI 2sql, seek

WEB APP BUILDERS

- Debuild, Enzyme, durable

DOCUMENTATION

- Mintlify, Stenography

OTHER

- excel/formulabot

MODELS: OPENAI GPT-3, TABNINE, CODEGEEK

Speech

VOICE SYNTHESIS

- RESEMBLE.AI, broadn, WELLSAID, coqui, podcast.ai, descript overdub, FLiki, Listnr, REPLICAI, VOICEMOD

MODELS: OPENAI

3D

3D MODELS/SCENES

- mirage, CSM

MODELS: DREAMFUSION, NVIDIA GET3D, MDM, APPLE ML

This list is growing by the day!

SPRINGER NATURE

4 practical Generative AI ‘text’ use cases

1

Text Generation

LLMs such as GPT-4 can generate text from scratch based on prompts such as “Write a report about latest developments in AI.” This use case needs to be taken with caution as **this kind of text generation often hallucinates text components which are not correct.**

2

Text Conversion

LLMs can convert texts in many ways, from long to short (summarization) and vice versa, from complex to simple and vice versa, language translation. This is a very powerful set of use cases to be explored. **It requires human fact-checking.**

3

Text Interrogation

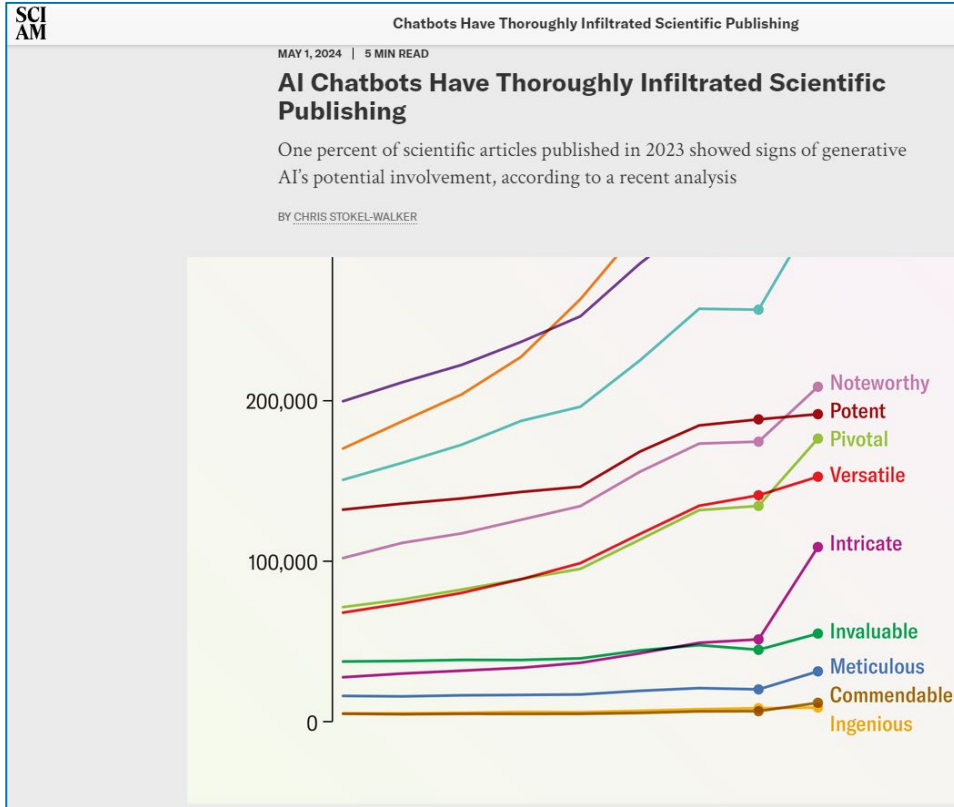
LLMs allow users to interrogate given texts such as “What are the key recommendations?” This is a very powerful use case as it holds the potential to greatly advance qualitative research. **It requires human fact-checking.**

4

Idea Generation

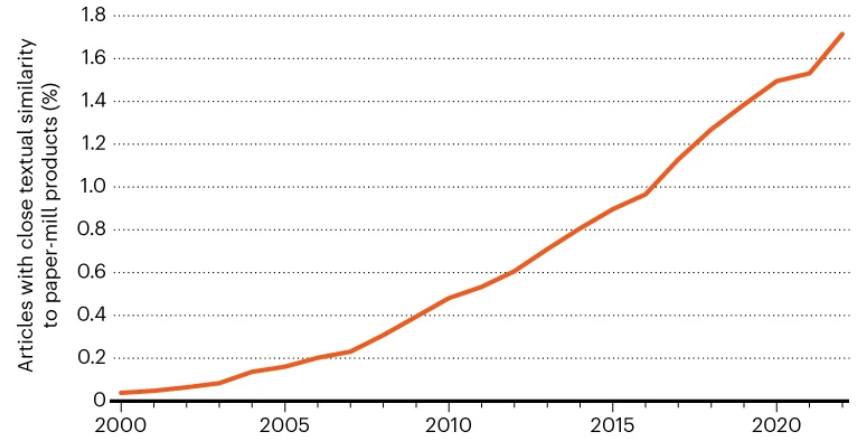
LLMs are also a powerful innovation tools accelerating ideation processes. Prompts such as “Come up with 50 ideas for my next research in Computational Linguistics” are great starting points for brainstorming and idea generation.

AI generated manuscript text



THE PAPER-MILL PROBLEM

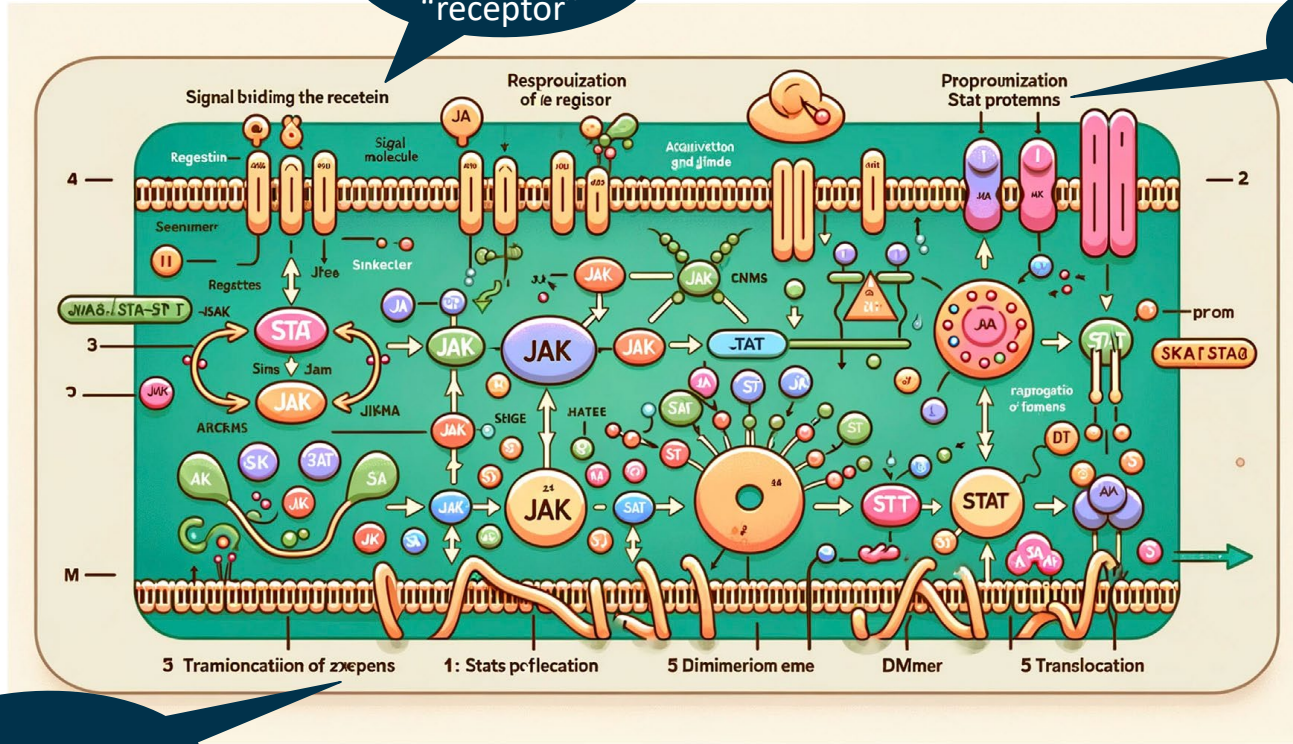
A software analysis finds that articles with close textual similarity to paper-mill products are rising as a proportion of the literature.



©nature

Source: Adam Day, unpublished estimates

AI generated images



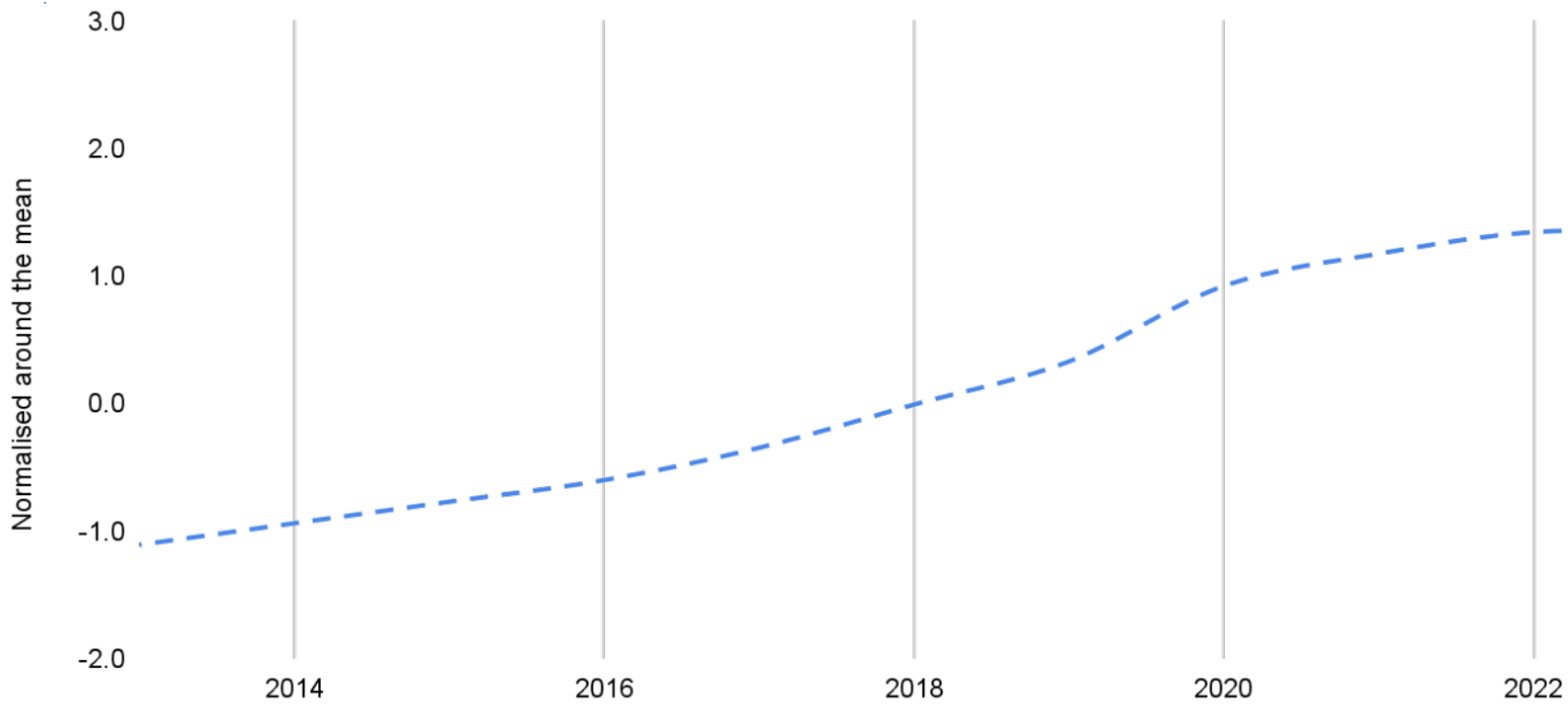
“recetain”
not
“receptor”

“protemns”
not
“proteins”

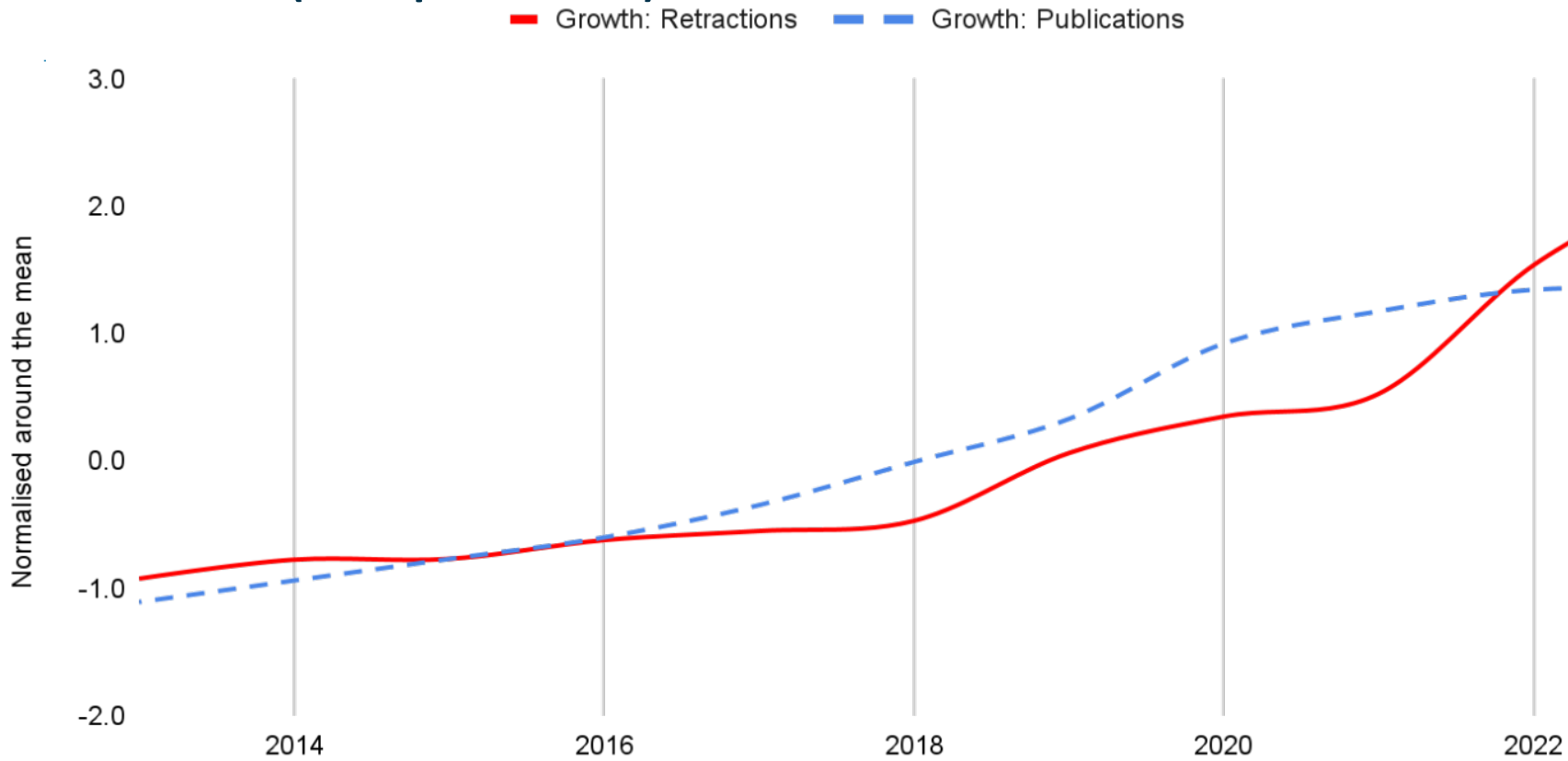
“zxpens”??

Retractions (after publication)

Growth: Retractions Growth: Publications



Retractions (after publication)





**AI and
Authorship:
Policy**

5 Ethical Principles for AI at Springer Nature

Dignity, Respect and Minimising Harm

We prioritize human well-being and dignity, and take steps to prevent harm to society and the environment.

Fairness and Equity

We mitigate the potential for structural bias and inequities.

Transparency

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

Accountability

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

Privacy and Data Governance

We safeguard personal privacy and follow all relevant data protection laws.

LLM Springer Nature Editorial Policy

EDITORIAL | 24 January 2023

Tools such as ChatGPT threaten transparent science; here are our ground rules for their use

As researchers dive into the brave new world of advanced AI chatbots, publishers need to acknowledge their legitimate uses and lay down clear guidelines to avoid abuse.

That's why it is high time researchers and publishers laid down ground rules about using LLMs ethically. *Nature*, along with all Springer Nature journals, has formulated the following two principles, which have been added to our existing guide to authors (see go.nature.com/3j1jxsw). As *Nature's* news team has reported, [other scientific publishers are likely to adopt a similar stance](#).

First, no LLM tool will be accepted as a credited author on a research paper. That is because any attribution of authorship carries with it accountability for the work, and AI tools cannot take such responsibility.

Second, researchers using LLM tools should document this use in the methods or acknowledgements sections. If a paper does not include these sections, the introduction or another appropriate section can be used to document the use of the LLM.

LLM Springer Nature Editorial Policy

Should *Nature* allow generative artificial intelligence (AI) to be used in the creation of images and videos? This journal has been discussing, debating and consulting on this question for several months following the explosion of content created using generative AI tools such as ChatGPT and Midjourney, and the rapid increase in these platforms' capabilities.

Apart from in articles that are specifically about AI, *Nature* will not be publishing any content in which photography, videos or illustrations have been created wholly or partly using generative AI, at least for the foreseeable future.

Artists, filmmakers, illustrators and photographers whom we commission and work with will be asked to confirm that none of the work they submit has been generated or augmented using generative AI (see go.nature.com/3c5vrtm).

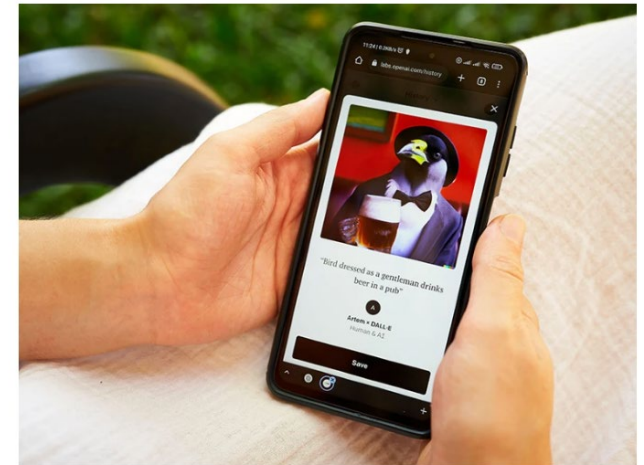
How are publishers adapting to the popularity of these tools?

Journals differ in their policies around AI-generated imagery. Springer Nature has [banned the use of AI-generated images, videos and illustrations in most journal articles that are not specifically about AI](#) (*Nature's* news team is independent of its publisher, Springer Nature). Journals in the Science family [do not allow AI-generated text, figures or images](#) to be used without explicit permission from the editors, unless the paper is specifically about AI or machine learning. *PLOS ONE* [allows the use of AI tools](#) but states that researchers must declare the tool involved, how they used it and how they verified the quality of the generated content.

EDITORIAL | 07 June 2023

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.

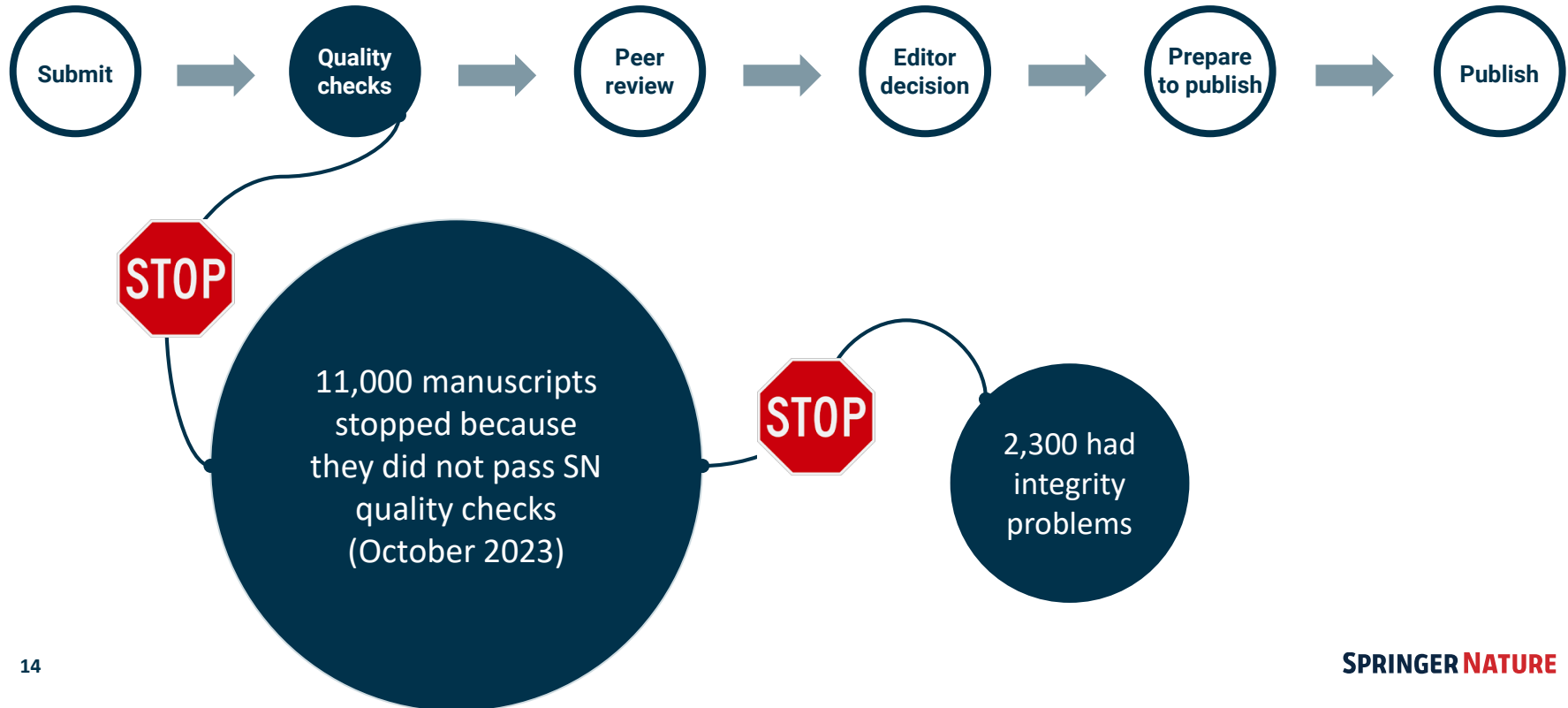


Nature will not publish imagery created wholly or partly using generative AI. Credit: Artem Medvediev/Alamy

**AI and
Authorship:
technology
and people**

Problem prevention (before publication)

Springer Nature removes articles with integrity problems before peer review



LLM vs. LLM

Geppetto, launched 20 November 2023

**Distribution of
earthquake activity in mountain area
based on embedded system and
physical fitness detection of basketball**

LLM vs. LLM

SnappShot, currently in testing

Snapshot

Pairing AI with human expertise

The screenshot displays the SnappShot interface. On the left, a sidebar shows a list of issues: Issue-edb5, Issue-4c7d, Issue-62e2, Issue-c990, Issue-bd6c, and Issue-a247. The main document area shows a Western blot with three rows of bands. The first row is labeled 'FAK₂₀₇' and the second row is labeled 'perk1/2'. Each row has three columns of bands, with labels above them: 'L1_{S1194L}/Nrp1', 'L1_{S1224L}/Nrp1', and 'L1/Nrp1'. Below each of these labels are sub-labels '3A' and 'cont'. The bands in the 'perk1/2' row are highlighted with a green box, and a red dashed box highlights a specific band in the 'L1_{S1224L}/Nrp1' column. On the right, a 'Compare images for Issue-edb5' window is open, showing two side-by-side images of the Western blot with a 'Scaled' manipulation detected. The window includes 'Image filters' (Emboss, contrast, brightness, invert) and 'Opinion' options (Flag, Clear). A 'Note' field is also present.

Document: test document
Collection: x1jAcYhzCRh7ybZawZn1U02GeYz3gt

Compare images for Issue-edb5

Detected manipulations: Scaled

Related Pages: Page 7 Page 7

Opinion: Flag Clear

Note: Add note

SHOW CONTEXT

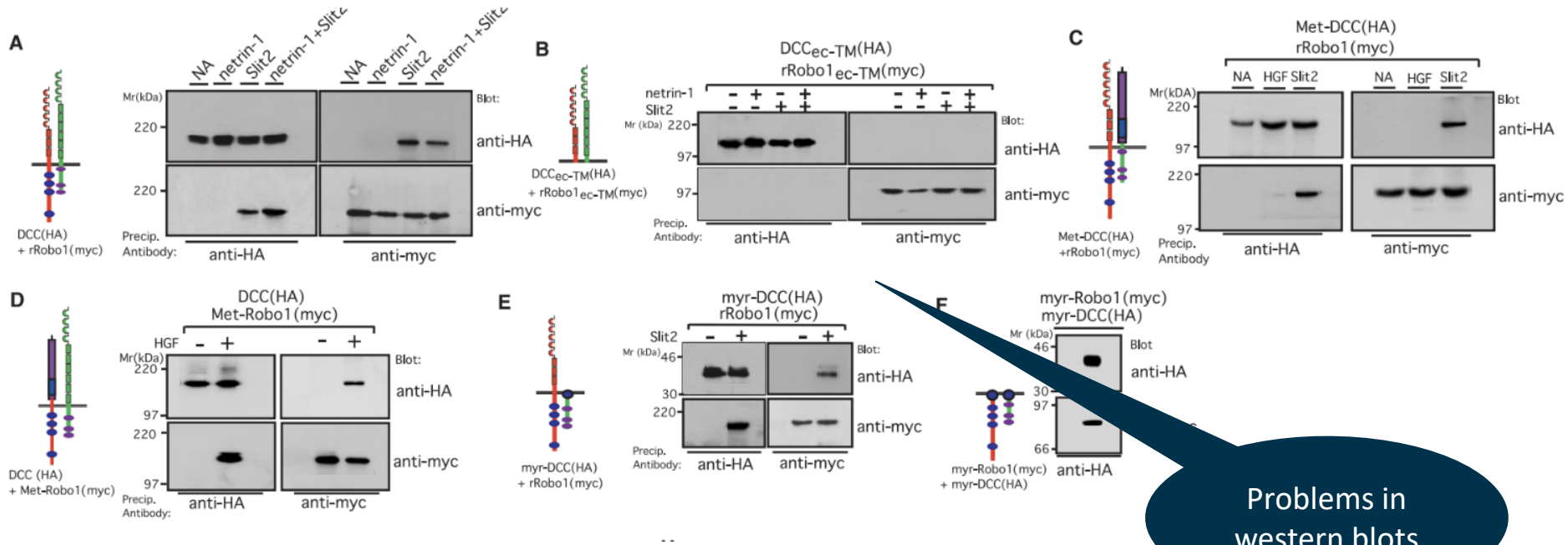
SHOW CONTEXT

18

SPRINGER NATURE

University president resigns after investigation

<https://www.nature.com/articles/d41586-023-02438-3>

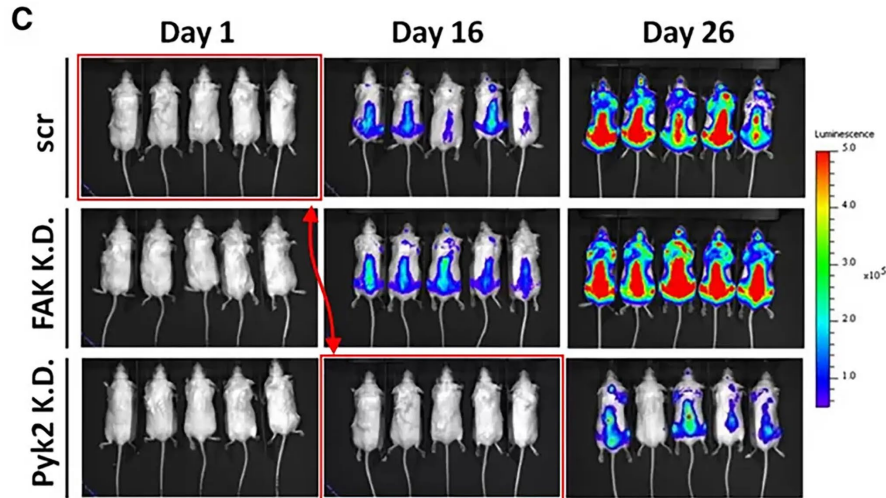


<https://www.science.org/doi/10.1126/science.adg2860>

<https://www.science.org/doi/10.1126/science.1058445>

Using AI to detect image manipulation

External Efforts



The New York Times

Top Cancer Center Seeks to Retract or Correct Dozens of Studies

A British biologist and blogger discovered faulty data in many studies conducted by top executives of the Dana-Farber Cancer Institute.

Share full article

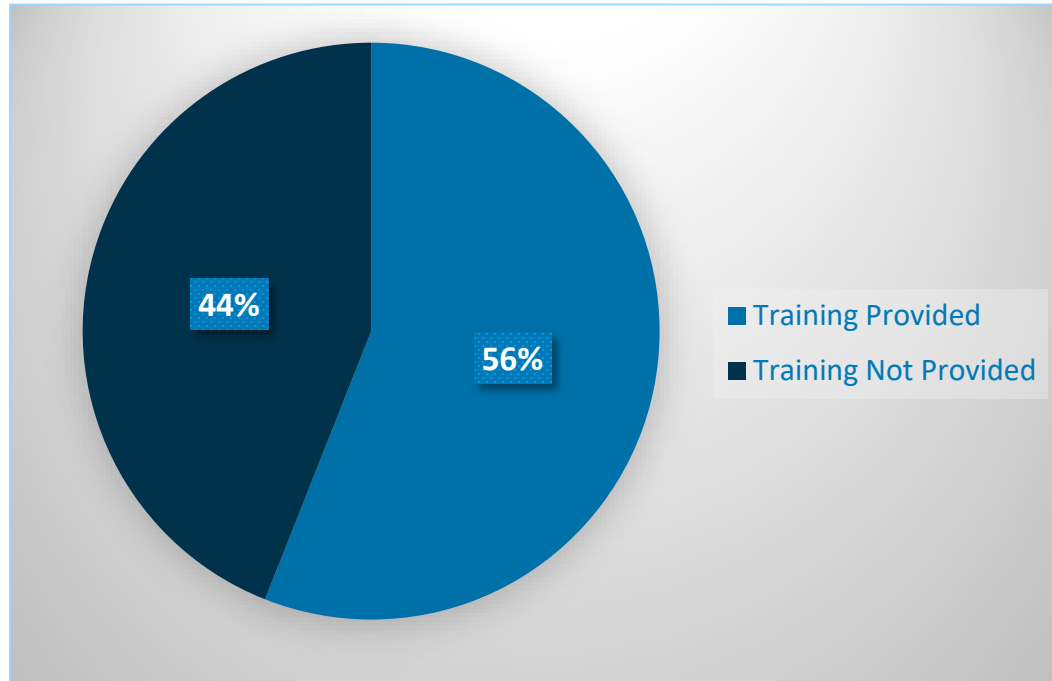


The Dana-Farber Cancer Institute in Boston is one of the nation's foremost cancer treatment and research facilities. Craig F. Walker/The Boston Globe, via Getty Images

Resources

2023 SN Research Integrity US survey

Survey results indicate a need for resources and training



56% of respondents have access to research integrity training, 44% do not

New: April 2023

Free

Research Integrity: An Introduction for Researchers

Research integrity is a key topic for everyone involved in science. However, it can present a bewildering array of topics, and early career researchers may receive little or no formal training in this area. How can you avoid common pitfalls and ensure your work is of the best possible standard? This course aims to give you an overview of the main areas in both research ethics and publication ethics.

We have designed this tutorial with early career researchers in mind, across all scholarly fields. Whether your work involves traditional lab work, field work or research that is literature or theory based, the principles of research ethics and publication ethics are still critical.

You will also have the opportunity to check your understanding with quiz questions as we go.



English



Self-paced



45 minutes



Menu

nature masterclasses

Home > On-demand Courses > Write & publish

Research Integrity: Publication Ethics

New:
September 2023

Free



For researchers in the natural sciences who want to improve their understanding of how to **publish research ethically and with integrity**



7 experts in publication ethics, including a Nature Portfolio journal Chief Editor, Caltech's Chief Research Policy Officer and an elected member of the Committee on Publication Ethics (COPE) Council



Free course - available to all users who register

8 hours of learning

10-40-minute lessons

3-module course with a course certificate

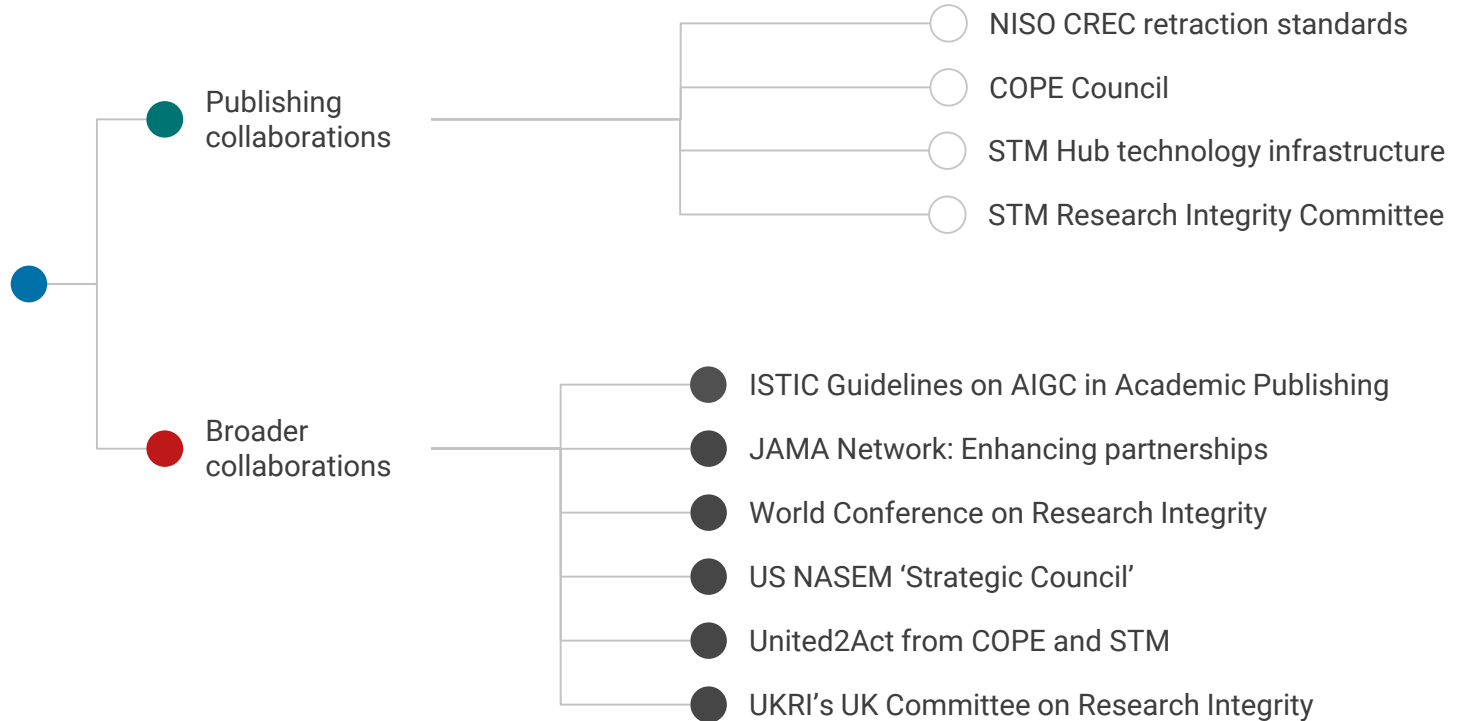
<https://masterclasses.nature.com/publication-ethics/25567404>



Collaboration

Better, together

Collaborations in Research Integrity, examples



Thank you

Kaia Motter

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