

Generative AI use in research and publication

consequences for research integrity and publication ethics



Lex Bouter



my personal page

2025-05-06 Generative AI use in research and publication –University College Dublin – LM Bouter – 60 minutes (40 min presentation and 20 min Q&A)

Bouter LM. What research institutions can do to foster research integrity. Journal of Science and Engineering Ethics 2020; 26: 2363-69.

<https://bit.ly/4fXXIfm>

Bouter L, Kleinert S, Horn L. Research integrity and societal trust in research. South African Heart Journal 2021; 18: 80-1.

<https://www.journals.ac.za/index.php/SAHJ/article/view/4879>

Bouter LM. Research misconduct and questionable research practices form a continuum. Accountability in Research 2024; 31: 1255–1259.

<https://bit.ly/3YYaluu>

Bouter L. Why research integrity matters and how it can be improved. Accountability in Research. 2024; 31: 1277-1286.

<https://research.vu.nl/files/219241433/5.248.pdf>

Bouter L. Tackling research misconduct. British Medical Journal 2024; 386: q1595. <https://bit.ly/3OkCOLO>

Bottomline

- ❑ GAI is not inherently good nor bad
- ❑ GAI does not change the principles and standards of research and research integrity
- ❑ GAI 'just' increases the possibilities of doing research, committing research misconduct, and of detecting it

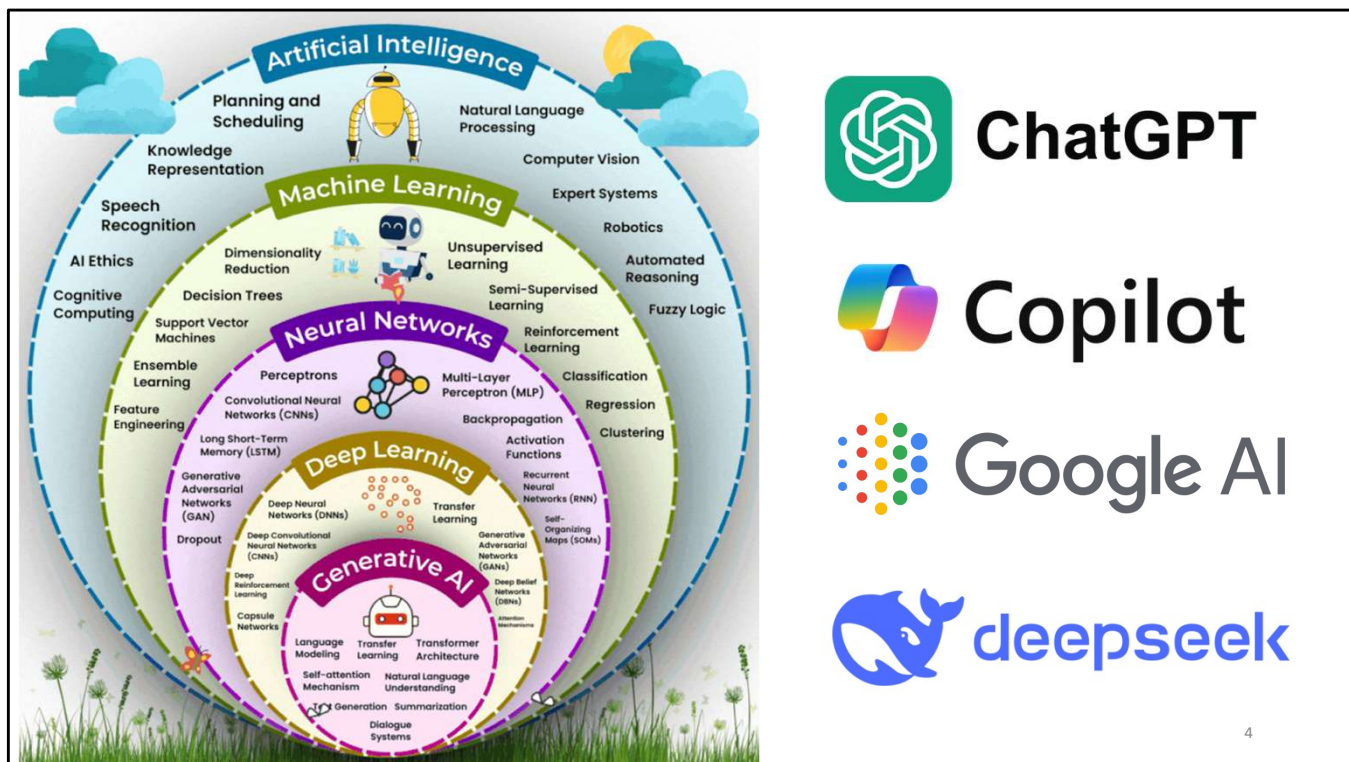
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Inspired by

Editorial. Rethinking research and generative artificial intelligence. Lancet 2024; 404: 1

Content

- ☐ Opportunities and threats GAI brings
- ☐ State of the scientific literature
- ☐ Role of stakeholders in solving the issues



<https://www.linkedin.com/feed/update/urn:li:activity:7210361725710172160/>

AI:

At the outermost layer, we have AI, the broadest and most encompassing term. AI refers to machines and systems designed to perform tasks that typically require human intelligence. Some of these tasks include:

Natural Language Processing: Enabling machines to understand and respond to human language.

Computer Vision: Allowing machines to interpret and process visual data.

Knowledge Representation: Storing information about the world in a form that a computer system can utilize.

AI Ethics: Ensuring AI systems are developed and used responsibly.

Cognitive Computing: Simulating human thought processes in a computerized model.

Machine Learning (ML):

Moving one layer in, we find ML. This subset of AI involves systems that learn from data to make decisions and predictions. Key concepts include:

Dimensionality Reduction: Simplifying data without losing significant information.

Unsupervised Learning: Finding patterns in data without pre-labeled outcomes.

Reinforcement Learning: Learning optimal actions through trial and error.

Ensemble Learning: Combining multiple models to improve performance.

Neural Networks:

Delving deeper, we encounter Neural Networks, which are inspired by the human brain's structure. These are essential for many advanced AI capabilities. Components include:

Perceptrons: The simplest type of neural network.

Convolutional Neural Networks: Specialize in processing visual data.

Recurrent Neural Networks: Handle sequential data, like time series.

Multi-Layer Perceptrons: Networks with multiple layers between input and output.

Activation Functions: Functions that determine the output of a neural network.

Backpropagation: The method for training neural networks.

Deep Learning:

Within neural networks, we have the realm of Deep Learning. This subset involves networks with many layers (hence "deep") and includes:

Deep Neural Networks: Networks with multiple hidden layers.

Generative Adversarial Networks: Networks that generate new data similar to the input data.

Deep Reinforcement Learning: Combining deep learning with reinforcement learning.

Generative AI:

At the core, we find Generative AI, which is about creating new content. This includes:

Language Modeling: Predicting the next word in a sequence.

Transformer Architecture: A model that handles sequential data efficiently, crucial for NLP.

Self-Attention Mechanism: Allows models to focus on different parts of the input sequence.

Natural Language Understanding: Comprehending and generating human language.

Dialogue Systems: AI systems that can converse with humans.

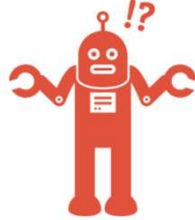
Transfer Learning: Using knowledge from one task to improve performance on another.

ChatGPT: Chatbot Generative Pre-training Transformer

GAI won't go away and can be used in many **good** ways



ChatGPT



Copilot

- As source of **inspiration** or **search engine** → **OK**
- As a tool for **research** (data collection, code generation, data analysis and reporting) → **OK, if reported transparently**
- As **mentor** or **supervisor** of (post)graduate students → **OK, with restrictions**
- As a tool for **editorial offices** (data integrity, reporting quality, fraud detection, improving peer review) → **OK, if announced clearly and with restrictions** ⁵

Restrictions to use as mentor or supervisor:

- Use it for guidance only, not for monitoring purposes
- Respect privacy (GDPR) and intellectual property
- A human takes the responsibility for the use

Restrictions to use by editorial offices:

- Use it as tool to help, not to replace editors and reviewers
- Respect privacy (GDPR) and intellectual property
- A human takes the responsibility for the use

Blau W et al. Protecting scientific integrity in an age of generative AI. PNAS 2024; 21: e2407886121. <https://www.pnas.org/doi/epub/10.1073/pnas.2407886121>

Hosseini M, Rasmussen LM, Resnik DB . Using AI to write scholarly publications, Accountability in Research 2023. <https://doi.org/10.1080/08989621.2023.2168535>

Mohammad Hosseini, Serge P. J. M. Horbach, Kristi Holmes, Tony Ross-Hellauer; Open Science at the Generative AI Turn: An Exploratory Analysis of Challenges and Opportunities. Quantitative Science Studies 2024. https://direct.mit.edu/qss/article/doi/10.1162/qss_a_00337/125096

Flanegin A, Bibbins-Domingo K, Berkwits M, Christiansen SL. Nonhuman “authors” and implications for integrity of scientific publication and medical knowledge. JAMA 2023; 329: 637-9

McGowan et al. Maintaining scientific integrity and high research standards against the backdrop of rising artificial intelligence use across fields. Journal of Medical Artificial Intelligence 2023: 6-24. <https://jmai.amegroups.org/article/view/8234/pdf>

Hadan H, et al. The great AI witch hunt: reviewer’s perception and (mis)conception of generative AI in research writing. Computers in Human Behavior: Artificial Humans 2024: 100095. <https://www.sciencedirect.com/science/article/pii/S2949882124000550>

Ganjavi C, Michael B Eppler, Pekcan A, Biedermann B, Abreu A, Collins GS, Gill IS, Cacciamani GE. Publishers’ and journals’ instructions to authors on use of generative artificial intelligence in academic and scientific publishing: bibliometric analysis. BMJ 2024; 384: e077192

Diana Kwon. AI is complicating plagiarism: how should scientists respond? Nature 30 July 2024.

Bergstrom T, Ruediger D. Generative AI and scholarly publishing. Ithaka S+R, 2024. <https://sr.ithaka.org/wp-content/uploads/2024/10/SR-Brief-Generative-AI-and-Scholarly-Publishing-103024.pdf>

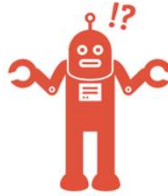
Pearson H. Can AI review the scientific literature – and figure out what it all means? Nature News Feature 13 November. <https://www.nature.com/articles/d41586-024-03676-9>

Stuart Leich. Jagged Edges of Conversational Interfaces Over Scholarly and Professional Content. Scholarly Kitchen, May 30, 2024. <https://scholarlykitchen.sspnet.org/2024/05/30/guest-post-jagged-edges-of-conversational-interfaces-over-scholarly-and-professional-content/>

GAI won't go away and can be used in many **bad** ways



ChatGPT



Copilot

- GAI as tool to **fabricate** and **falsify** data, write **fake papers** and **fake peer review reports** → **NOT OK** (difficult to detect)
- GAI often concerns (micro)**plagiarism** and **copyright violation**
→ **NOT OK** (difficult to detect)
- Research + texts using GAI need to be checked for **error, bias and hallucinations**
- GAI **cannot be held accountable** and therefore **can never be an author**

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Blau W et al. Protecting scientific integrity in an age of generative AI. PNAS 2024; 21: e2407886121. <https://www.pnas.org/doi/epub/10.1073/pnas.2407886121>

Hosseini M, Rasmussen LM, Resnik DB . Using AI to write scholarly publications, Accountability in Research 2023.

<https://doi.org/10.1080/08989621.2023.2168535>

Mohammad Hosseini, Serge P. J. M. Horbach, Kristi Holmes, Tony Ross-Hellauer; Open Science at the Generative AI Turn: An Exploratory Analysis of Challenges and Opportunities. Quantitative Science Studies 2024.

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Flanegin A, Bibbins-Domingo K, Berkwits M, Christiansen SL. Nonhuman “authors” and implications for integrity of scientific publication and medical knowledge. JAMA 2023; 329: 637-9

McGowan et al. Maintaining scientific integrity and high research standards against the backdrop of rising artificial intelligence use across fields. Journal of Medical Artificial Intelligence 2023: 6-24.

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Hadan H, et al. The great AI witch hunt: reviewer's perception and (mis)conception of generative AI in research writing. *Computers in Human Behavior: Artificial Humans* 2024: 100095.

<https://www.sciencedirect.com/science/article/pii/S2949882124000550>

Ganjavi C, Michael B Eppler, Pekcan A, Biedermann B, Abreu A, Collins GS, Gill IS, Cacciamani GE. Publishers' and journals' instructions to authors on use of generative artificial intelligence in academic and scientific publishing: bibliometric analysis. *BMJ* 2024; 384: e077192

Diana Kwon. AI is complicating plagiarism: how should scientists respond? *Nature* 30 July 2024.

Bergstrom T, Ruediger D. Generative AI and scholarly publishing. *Ithaka S+R*, 2024. <https://sr.ithaka.org/wp-content/uploads/2024/10/SR-Brief-Generative-AI-and-Scholarly-Publishing-103024.pdf>

Pearson H. Can AI review the scientific literature – and figure out what it all means? *Nature News Feature* 13 November.

<https://www.nature.com/articles/d41586-024-03676-9>

Stuart Leich. Jagged Edges of Conversational Interfaces Over Scholarly and Professional Content. *Scholarly Kitchen*, May 30, 2024.

<https://scholarlykitchen.sspnet.org/2024/05/30/guest-post-jagged-edges-of-conversational-interfaces-over-scholarly-and-professional-content/>

Need for codification

- **Not** in codes of conduct for research integrity (GAI does not change principles and standards)
- **Certainly** in codes for GAI use in research (do's and don'ts)
- Codifying a moving target is very difficult



Recommendations for researchers, research institutes, and funders

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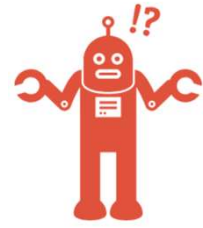
European Commission. Living guidelines on the responsible use of AI in research.
https://research-and-innovation.ec.europa.eu/document/download/2b6cf7e5-36ac-41cb-aab5-0d32050143dc_en?filename=ec_rtd_ai-guidelines.pdf

Evaluatie Nederlandse gedragscode wetenschappelijke integriteit.
<https://storage.knaw.nl/2024-10/Adviesrapport-Evaluatie-Nederlandse-gedragscode-wetenschappelijke-integriteit-2024.pdf>

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<https://doi.org/10.31234/osf.io/g3m5f>

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<https://doi.org/10.1080/14703297.2024.2446236>

Tsunami of GAI codes



- Similar to research integrity codes
- Global, regional, national, local
- Different perspectives (e.g. legal, ethical, publisher, funder)
- Ranging from *high-over* to *hands-on*
- Alignment and regular updates are key
- *Codes are nothing, coding is everything*

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Marx V. Quest for AI literacy. Nature Methods 2024; 21: 141-1415.

Transparency on AI use in research

WHEN?

Intentional use: employed with a specific goal or purpose in mind

and

Substantial use:

to make decisions that directly affect research results, *or* to generate content, data or images, *or* to analyze content, data or images.

WHAT? Name and version of AI tool and prompts used

WHERE? In the Methods section (details in digital supplement)

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David B. Resnik & Mohammad Hosseini (24 Mar 2025): Disclosing artificial intelligence use in scientific research and publication: When should disclosure be mandatory, optional, or unnecessary?, Accountability in Research.
<https://doi.org/10.1080/08989621.2025.2481949>

Kwon D. Science sleuths flag hundreds of papers that use AI without disclosing it. Nature
24 April 2025

Publications with undeclared AI use: <https://www.academ-ai.info/>

Glynn A. Suspected Undeclared Use of Artificial Intelligence in the Academic Literature: An Analysis of the Academ-AI Dataset. <https://arxiv.org/abs/2411.15218>

Polluted research record

- Some articles are **fake, fraudulent, fatally flawed or ethically unacceptable**
- These should never have been submitted or have passed peer review
- If these have been published, they should be **retracted** to repair that mistake
- Not all articles that should be retracted, actually are retracted
- And even when retracted, these articles are **still often cited**
- This leads to persistent **'pollution'** of the published evidence base
- The consequence is that researchers follow **false leads**, systematic reviews are ¹⁰**flawed**, and evidence-based guidelines are **corrupted**

Graña Possamai C, Cabanac G, Perrodeau E, Ghosn L, Ravaud P, Boutron I. Inclusion of Retracted Studies in Systematic Reviews and Meta-Analyses of Interventions: A Systematic Review and Meta-Analysis. JAMA Intern Med. Published online March 31, 2025.

A personal take on science and society

World view

Retractions are increasing, but not enough



By Ivan Oransky

Retraction Watch Leaderboard

1. Joachim Boldt (220)
2. Yoshitaka Fujii (172)
3. Yoshihiro Sato (124)
4. Hironobu Ueshima (124)
5. Ali Nazari (104)
6. Jun Iwamoto (91)
7. A Salar Elahi (79)
8. Diederik Stapel (58)
9. Yuhji Saitoh (56)
10. Adrian Maxim (48)

> 2 % of articles meet COPE retraction criteria (<0.1% are retracted)

Annually > 3 million scholarly articles are published, so retracting 60,000 (2%) or more will be a daunting task → let's focus on prevention

Ivan Oransky. Retractions are increasing, but not enough. Nature 2022; 608: 9.
<https://www.nature.com/articles/d41586-022-02071-6>

<https://retractionwatch.com/>

<https://retractionwatch.com/the-retraction-watch-leaderboard/>

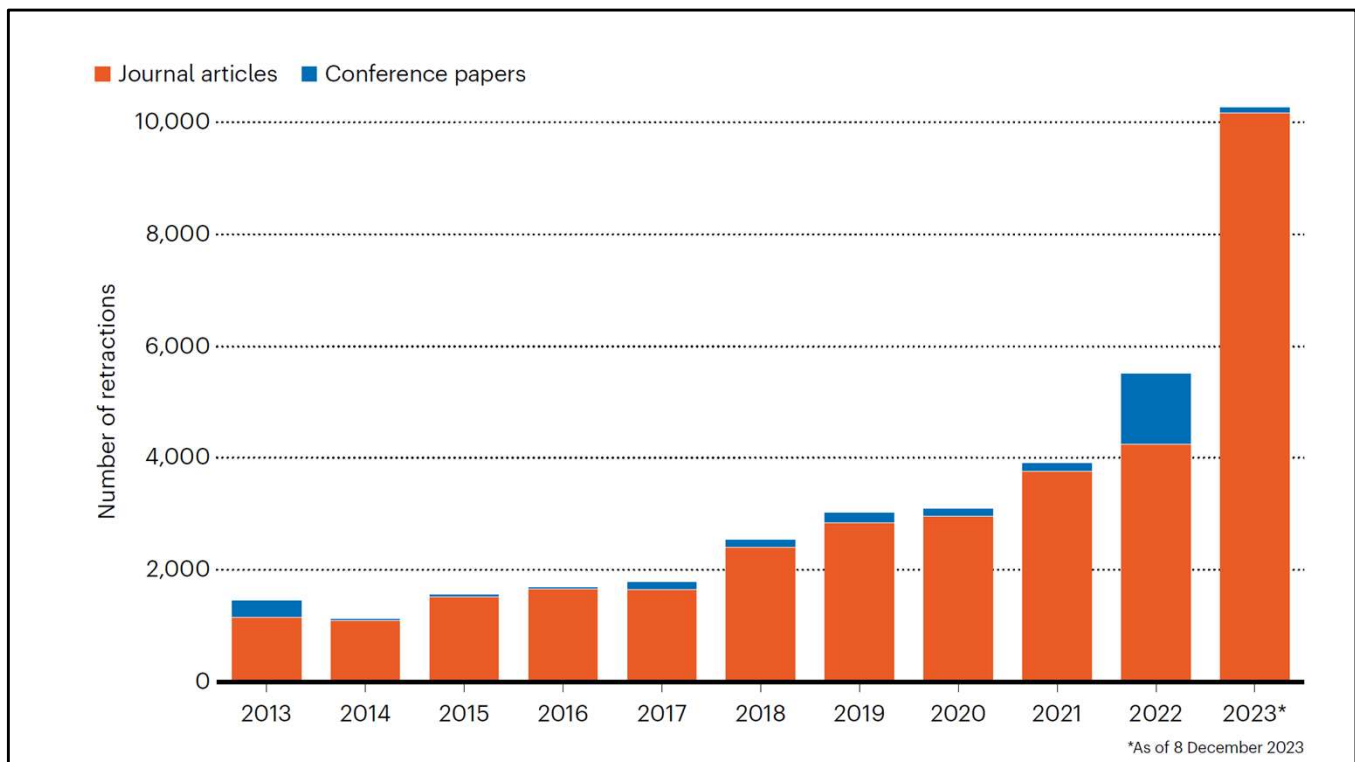
Retraction Watch Database:

<https://retractionwatch.com/retraction-watch-database-user-guide/>

<https://retractiondatabase.org/RetractionSearch.aspx?>

<https://gitlab.com/crossref/retraction-watch-data>

<https://publicationethics.org/>



Richard van Noorden. More than 10,000 research papers were retracted: a new record. *Nature* 2023; 624: 479-481.

Fake publications are on the rise

- Produced by **Paper Mills** (using GAI)
 - Fabrication from scratch or by paraphrasing (plagiarism)
 - Authorship brokering
 - Citation boosting (citation cartels)
- **Fake reviewers** submitting **fabricated review reports**
- **Bribed** (guest) **editors** (of special issues)
- **Predatory** and **highjacked journals**

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We have no solid data on the frequency of these phenomena, but they definitely seem to be on the rise.

Byrne JA, Abalkina A, Akinduro-Aje O, Christopher J, Eaton SE, Joshi N, et al. (2024) A call for research to address the threat of paper mills. PLoS Biol 22(11): e3002931. <https://doi.org/10.1371/journal.pbio.3002931>.
<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3002931>

COPE & STM report on paper mills:

<https://publicationethics.org/sites/default/files/paper-mills-cope-stm-research-report.pdf>

MA Oviedo-Garcia. Review Mill at MDPI. <https://predatoryreports.org/news/f/review-mill-at-mdpi>

Lonni Besançon I, Cabanac G, Labbé C, Magazinov A. Sneaked references: Fabricated reference metadata distort citation counts. J Assoc Inf Sci Technol 2024; 1–12. <https://asistdl.onlinelibrary.wiley.com/doi/10.1002/asi.24896>

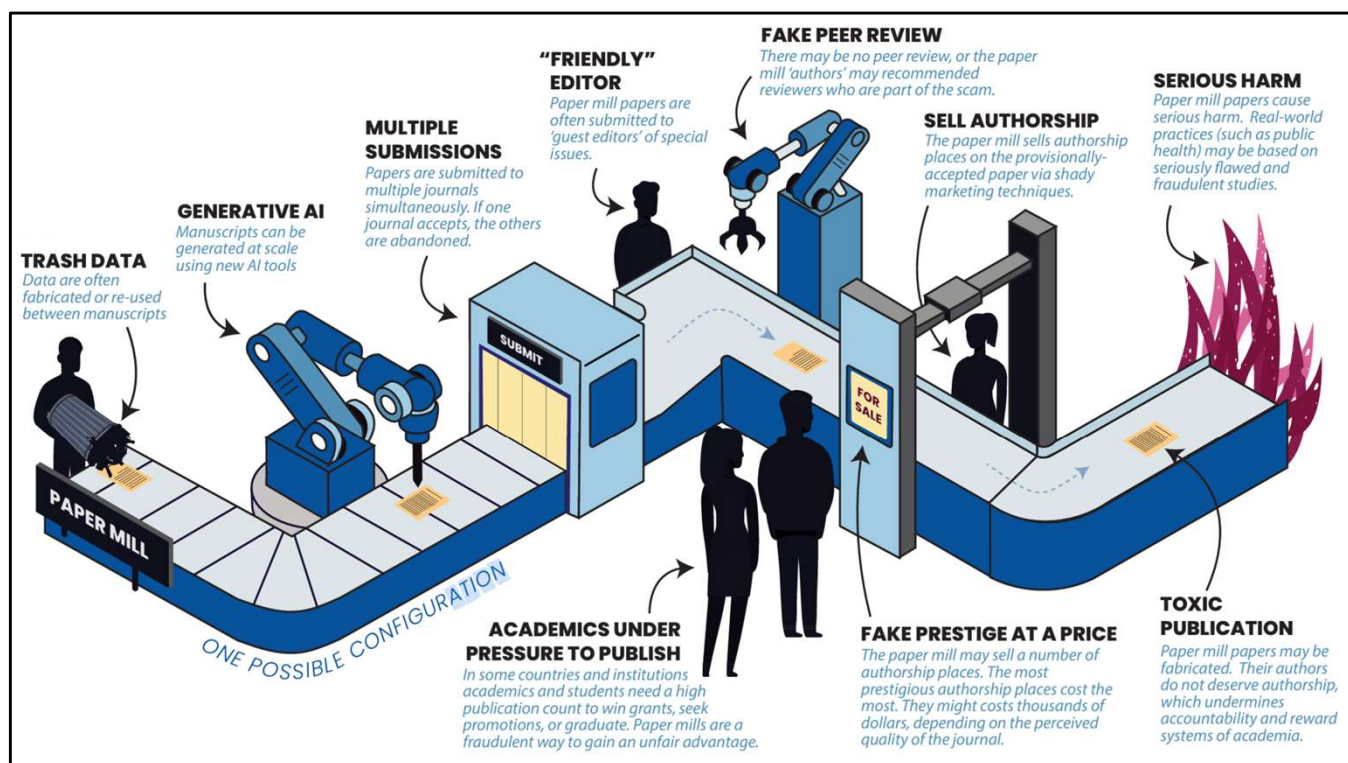
Strinzel M, Severin A, Milzow K, Egger M. Blacklists and Whitelists To Tackle Predatory Publishing: a Cross-Sectional Comparison and Thematic Analysis. mBio 2019; 10: e00411-19 <https://journals.asm.org/doi/epdf/10.1128/mBio.00411-19>

Grudniewicz A, Moher, D, Cobey KD and 32 co-authors. Predatory journals: no definition, no defence. Nature 2019; 576: 210-2.

Cobey CD, Grudniewicz A, Lalu MM, Rice DB, Raffoul H, Moher D. Knowledge and motivations of researchers publishing in presumed predatory journals: a survey. BMJ Open 2019; 9: e026516. <https://bmjopen.bmj.com/content/9/3/e026516>

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Retraction Watch. Exclusive: New hijacking scam targets Elsevier, Springer Nature, and other major publishers. <https://retractionwatch.com/2024/11/25/exclusive-new-hijacking-scam-targets-elsevier-springer-nature-and-other-major-publishers/>



From free PDF of Tricky Goose training [https://www.trickygoose.training/https://static1.squarespace.com/static/649145150ac2fb3561f1d30a/t/65647760ccc689604f7be3a8/1701082984469/Paper Mills Discussion Primer %28A3%29.pdf](https://www.trickygoose.training/https://static1.squarespace.com/static/649145150ac2fb3561f1d30a/t/65647760ccc689604f7be3a8/1701082984469/Paper+Mills+Discussion+Primer+%28A3%29.pdf)

Bouter L. Fake academic papers are on the rise: why they're a danger and how to stop them. The Conversation 2024, March 6. <https://theconversation.com/fake-academic-papers-are-on-the-rise-why-theyre-a-danger-and-how-to-stop-them-224650>

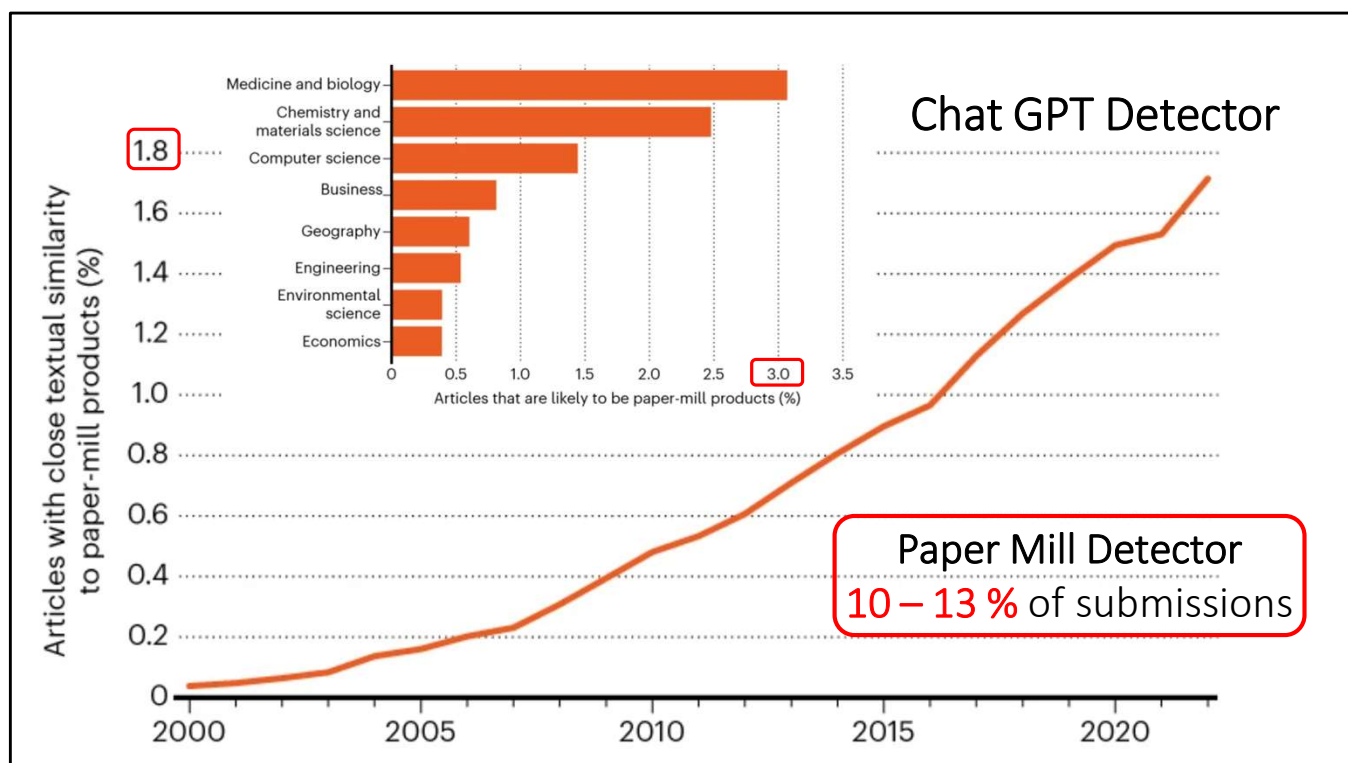
Lisa Parker, Stephanie Boughton, Lisa Bero, Jennifer A. Byrne. Paper mill challenges: past, present, and future. J Clin Epidemiol 2024: 111549. <https://www.sciencedirect.com/science/article/pii/S0895435624003056>

Editorial. Safeguarding research integrity. Lancet 2024; 403: 699. www.thelancet.com/action/showPdf?pii=S0140-6736%2824%2900349-0

Curtis Brundy and Joel B. Thornton. What can librarians do about the paper mill crisis? Insights – 37, 2024. <https://insights.uksg.org/articles/659/files/6683f20bd22ac.pdf>

Anna Abalkina, René Aquarius, Elisabeth Bik, David Bimler, Dorothy Bishop, Jennifer Byrne, Guillaume Cabanac, Adam Day, Cyril Labbé & Nick Wise. 'Stamp out paper mills' — science sleuths on how to fight fake research. Nature 27 January 2025.

<https://www.nature.com/articles/d41586-025-00212-1>



Van Noorden R. How big is science's fake-paper problem? Nature News: 6 November 2023. <https://www.nature.com/articles/d41586-023-03464-x>

Prillaman M. 'ChatGPT detector' catches AI-generated papers with unprecedented accuracy: tool based on machine learning uses features of writing style to distinguish between human and AI authors. Nature News: 6 November 2023. <https://www.nature.com/articles/d41586-023-03479-4>

Katharine Sanderson. Science's fake-paper problem: high-profile effort will tackle paper mills. Nature News 19 January 2024. https://www.nature.com/articles/d41586-024-00159-9?utm_medium=Social&utm_campaign=nature&utm_source=Twitter#Echobox=1705659987

Wittau J, Seifert R. How to fight fake papers: a review on important information sources and steps towards solution of the problem. Naunyn-Schmiedeberg's Archives of Pharmacology, published online: 6 July 2024. <https://link.springer.com/article/10.1007/s00210-024-03272-8>

Wiley Paper Mill Detection service:
<https://johnwiley2020news.q4web.com/press-releases/press-release->

[details/2024/Wiley-announces-pilot-of-new-AI-powered-Papermill-Detection-service/default.aspx](#)

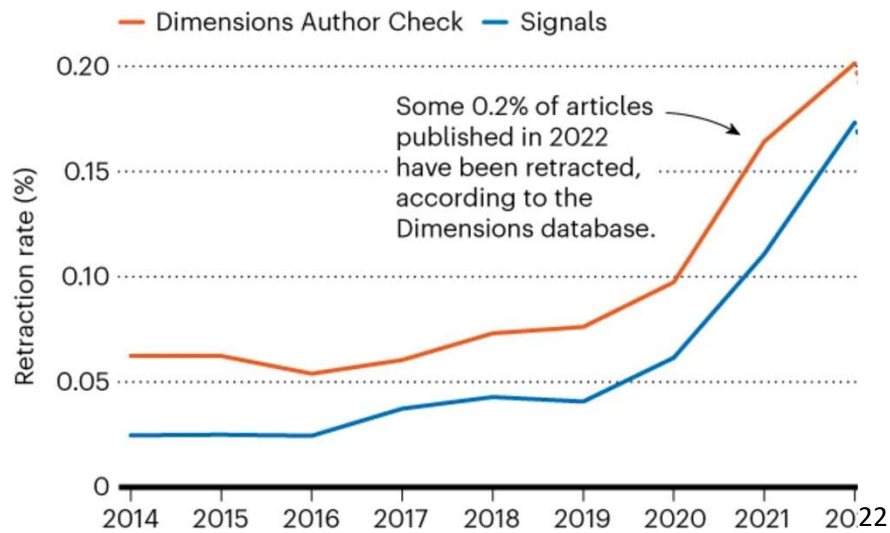
Up to one in seven submissions to hundreds of Wiley journals flagged by new paper mill tool

<https://retractionwatch.com/2024/03/14/up-to-one-in-seven-of-submissions-to-hundreds-of-wiley-journals-show-signs-of-paper-mill-activity/>

Holly Else. Fake papers compromise research syntheses. Science 2024; 386: 955.

<https://www.science.org/doi/epdf/10.1126/science.adu8281>

Retraction rates are on the rise



Richard van Noorden. These universities have the most retracted scientific articles. Nature 2025; 638: 596-599.

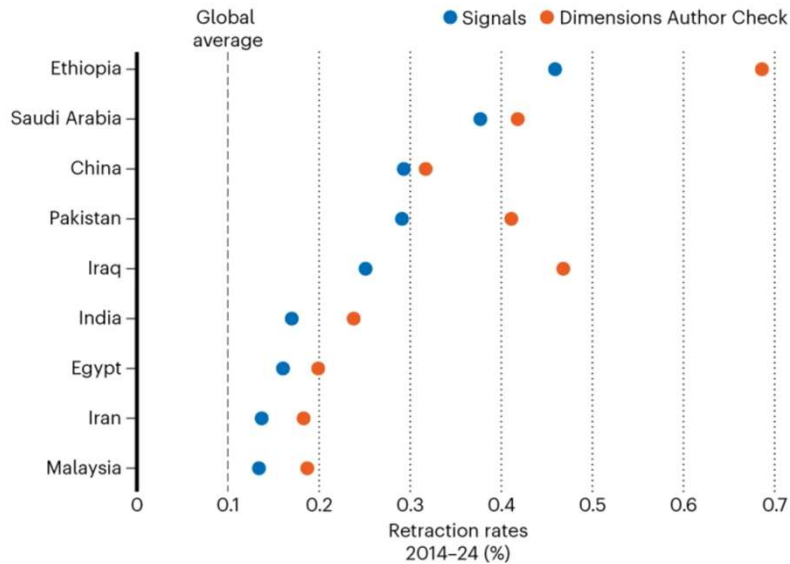
Dimensions Author Check: <https://www.dimensions.ai/products/all-products/author-check/>

Signals: <https://research-signals.com/>

Argos: <https://www.scitility.com/argos>

RETRACTION RATES BY COUNTRY

Among countries that publish a relatively large number of papers, Ethiopia has the highest retraction rate, according to two bibliographic databases.*



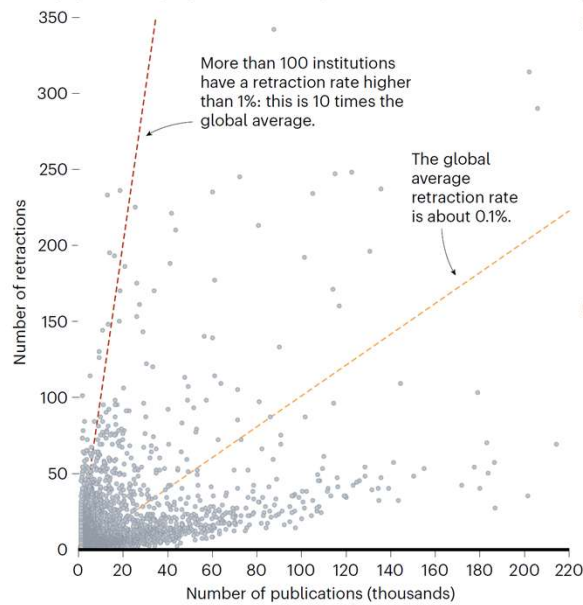
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Sebo P, Sebo M. Geographical Disparities in Research Misconduct: Analyzing Retraction Patterns by Country. J Med Internet Res 2025;27:e65775.
<https://www.jmir.org/2025/1/e65775>

Agrawal, A. (2025). Country-wise Retraction Analysis from 2022-2024. Increased Publishing Leading to Higher Retraction Rates. <https://zenodo.org/records/14634373>

RETRACTIONS ACROSS RESEARCH INSTITUTIONS

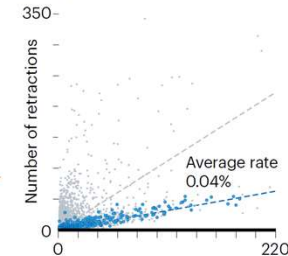
Each dot represents an individual institution worldwide, showing its publication volume and number of retracted articles in 2014–24*. Dots lying on a steeper gradient have a higher retraction rate.



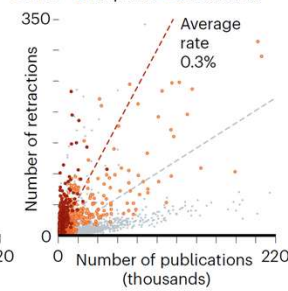
Retractions within countries

Highlighting specific countries reveals variation, with some types of institution within those nations having higher retraction rates than others.

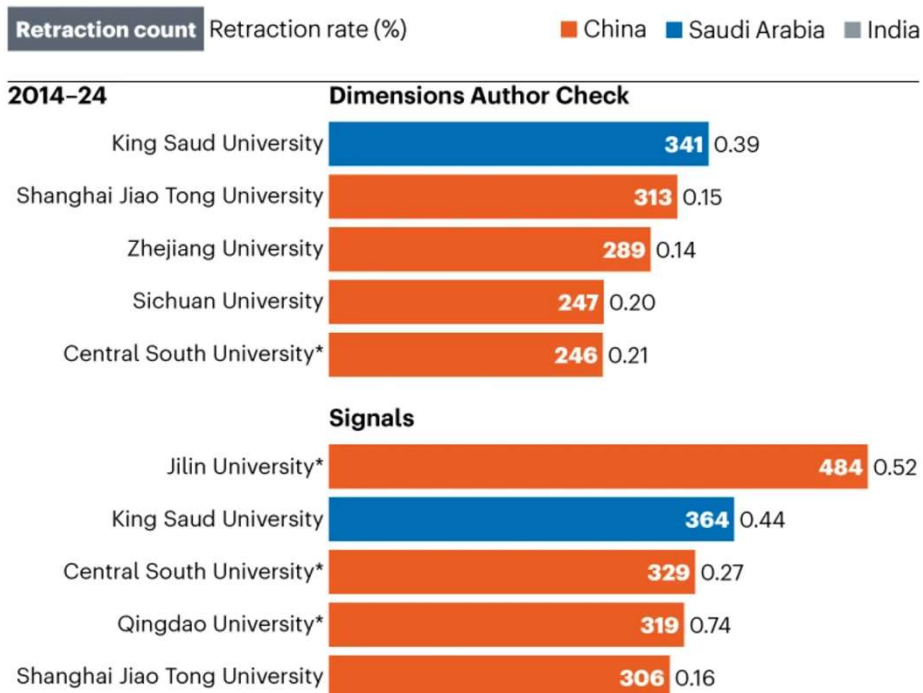
United States



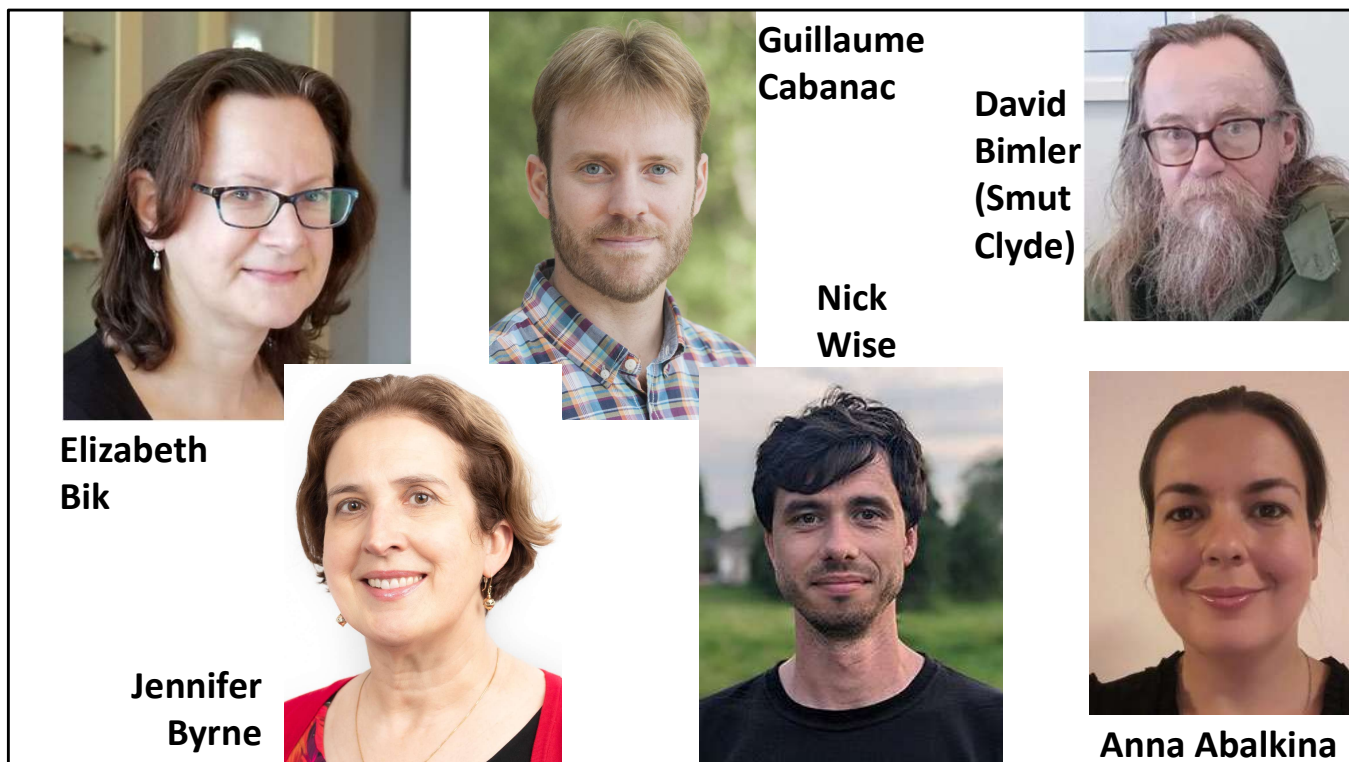
China



Richard van Noorden. These universities have the most retracted scientific articles. Nature 2025; 638: 596-599.



Richard van Noorden. These universities have the most retracted scientific articles.
Nature 2025; 638: 596-599.



Fake or fraudulent paper detectives:

Helen Shen. Meet this super-spotter of duplicated images in science papers. Nature: 13 May 2020. <https://www.nature.com/articles/d41586-020-01363-z>

Jennifer Byrne. We need to talk about systematic fraud. Nature: 6 February 2019. <https://www.nature.com/articles/d41586-019-00439-9>

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research-and-publishing-evidence-from-russia/

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<https://www.analystnews.org/posts/plagiarism-paper-mills-and-profit-these-scientists-are-fighting-the-epidemic-of-fraudulent-science-research>

Difficult issues with retraction

- Journals and research institutes are (very) **slow** in responding
- Journals and research institutes are **reluctant** to investigate
- Retraction notices and meta-data are **vague** and **incomplete**
- Retracted articles are **still cited** and **included in systematic reviews**

- *Consider retractions as correction of the published body of evidence*
- *Make retraction notices and meta-data on retractions more informative*

Holtrop HH. Rethinking the retraction process. Science 2022; 377: 693 <https://www-science-org.vu-nl.idm.oclc.org/doi/10.1126/science.ade3742>

Kersjes T. No shame, no blame – How to make retractions work. LSE Impact Blog 3 July 2024. <https://blogs.lse.ac.uk/impactofsocialsciences/2024/07/03/no-shame-no-blame-how-to-make-retractions-work/>

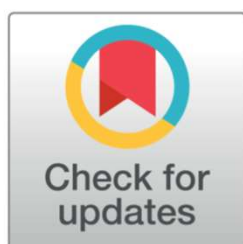
Bakker C, Reardon E, Brown SJ, Theis-Mahon N, Schroter, S, Bouter L, Zeegers MP. Identification of retracted publications and completeness of retraction notices in public health. Journal of Clinical Epidemiology 2024; 173: 111427. [https://www.jclinepi.com/article/S0895-4356\(24\)00182-3/fulltext](https://www.jclinepi.com/article/S0895-4356(24)00182-3/fulltext)

NISO. Communication of Retractions, Removals, and Expressions of Concern (CREC). https://groups.niso.org/higherlogic/ws/public/download/30869/NISO_RP-45-2024_CREC.pdf

RetractoBot - <https://www.retracted.net/>

**All stakeholders need
to collaborate**

*(researchers, research
institutes, funding
agencies, learned
societies, governments,
journals, publishers, etc.)*



World Conferences of Research Integrity Foundation <https://www.wcrif.org/>

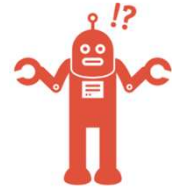
United to act against paper mills <https://united2act.org/>

Coalition for Advancing Research Assessment (CoARA) <https://coara.eu/>

The **Crossmark button** gives readers quick and easy access to the current status of an item of content, including any corrections, retractions, or updates to that record.

<https://www.crossref.org/services/crossmark/>

What can research institutes do?



- Mandate **open** methods, **open** codes, and **open** data
- Offer good training in **research integrity** and **research methodology**
- Have good **supervision** and **quality control** installed
- Reform **researcher assessment** to prevent perverse incentives
- **Investigate signals** of faulty papers rapidly and inform journals
- Demand immediately **retraction** when indicated
- Have clear and concrete **guidelines on GAI use**

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Munafó M, Noble S, Brownie WJ, Brunner D, Button K, Ferreira J, Holmans P, Langbehm D, Lewis G, Lindquist M, Tilling K, Wagenmakers EJ, Blumenstein R. Scientific rigor and the art of motor cycle maintenance. Nature Biotechnology 2014; 32: 871-873. <https://www.nature.com/articles/nbt.3004>

Mejlgaard N, Bouter LM, Gaskell G, Kavouras P, Allum N, Bendtsen AK, Charitidis CA, Claesen N, Dierickx K, Domaradzka A, Reyes Elizondo A, Foeger N, Hiney M, Kaltenbrunner W, Labib K, Marušić A, Sørensen MP, Ravn T, Ščepanović R, Tjeldink JK, Veltri GA. Research integrity: nine ways to move from talk to walk. Nature 2020; 586: 358-60. <https://www.nature.com/articles/d41586-020-02847-8>

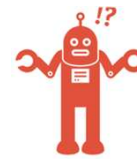
www.sops4ri.eu features 130 guidelines to promote aspects of research integrity

SPJM Horbach, Sørensen MP, on behalf of SOPs4RI. How to create and implement a Research Integrity Promotion Plan (RIPP). https://sops4ri.eu/wp-content/uploads/Implementation-Guideline_FINAL.pdf

Template for writing a Research Integrity Promotion Plan for Research Performing Organisations.

https://sops4ri.eu/wp-content/uploads/Template-Research-Integrity-Promotion-Plan-RPOs_FINAL.pdf

What can journals and publishers do?



- Demand **open** methods, **open** codes, **open** data and **open** peer review
- Check reviewer **identity** and **quality** of review reports
- Perform **quality checks** in editorial office, e.g.:
 - text recycling and image manipulation
 - references to retracted papers
 - undeclared or not allowed use of GAI
- **Retract** immediately when indicated (much room for improvement!)
- Have clear and concrete **guidelines on GAI use**



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Ross-Hellauer T, Bouter LM, Horbach SPJM. Open peer review urgently requires evidence: a call to action. PLoS Biology 2023; 21: [e3002255](https://doi.org/10.1371/journal.pbio.3002255).
<https://doi.org/10.1371/journal.pbio.3002255>

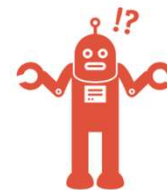
<https://www.stm-assoc.org/stm-integrity-hub/>

<https://www.irit.fr/~Guillaume.Cabanac/problematic-paper-screener>

<https://thebulletin.org/2022/01/bosom-peril-is-not-breast-cancer-how-weird-computer-generated-phrases-help-researchers-find-scientific-publishing-fraud/>

Wilkinson, Jack et al. A survey of experts to identify methods to detect problematic studies: stage 1 of the INveStigating ProBlEmatic Clinical Trials in Systematic Reviews project
Journal of Clinical Epidemiology, Volume 175, 111512
<https://www.jclinepi.com/action/showPdf?pii=S0895-4356%2824%2900268-3>

What can funding agencies do?



- Mandate **open** methods, **open** codes, and **open** data
- Demand that research institutes have good **training**, **supervision** and **quality control** installed
- Have **fair** and **open** selection procedures
- Take **quality assurance** seriously and **monitor** execution well
- Provide funds for **meta-research** (research on research)
- Have clear and concrete **guidelines on GAI use**

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Horbach SPJM, Bouter LM, Gaskell G, Hiney M, Kavouras P, Mejlgaard N, Allum N, Aubert Bonn N, Bendtsen A, Charitidis CA, Claesen N, Dierickx K, Domaradzka A, Reyes Elizondo A, Föger N, Kaltenbrunner W, Konach T, Labib K, Marušić A, Pizzolato D, Ravn T, Roje R, Sørensen MP, Taraj B, Veltri GA, Tjeldink JK . Designing and implementing a research integrity promotion plan: recommendations for research funders. PLoS Biology 2022; 20: e3001773. <https://doi.org/10.1371/journal.pbio.3001773>

www.sops4ri.eu features 130 guidelines to promote aspects of research integrity

Conclusions

- ❑ We should **use GAI responsibly** by maximizing the desirable progress it can bring, while minimizing the undesirable side effects
- ❑ **Transparency** about GAI *intentional and substantial* use **is essential** for trust in research and researchers
- ❑ GAI **doesn't change the principles and standards** of research and research integrity, but brings new opportunities and threats

**WCRI Online
Symposium**
on
Wednesday
28 May



Time (PST)	Speaker	Presentation title
09:00 - 09:05	Dr. David Moher , University of Ottawa, Canada	Welcome
09:05 - 09:20	Dr. Kyle Bobiwash , University of Manitoba, Canada	Advancing Research Integrity and Scientific Values through Indigenous Science Policy
09:20 - 09:40	Dr. Phoebe Eun Kyung Kang , Institute for the Study of University Pedagogy, University of Toronto, Canada	Whose Integrity Is It Anyway? Examining AI Guidelines and Their Implications for Research Integrity in Canadian Higher Education
09:40 - 09:55	Health break	
09:55 - 10:15	Mr. Akshay Singh , University of British Columbia, Canada	Managing Risk and Promoting Openness: a UBC Perspective on Research Security
10:15 - 10:35	Ms. Paula Saner , Research Integrity Manager at the University of Cape Town, South Africa	Connect, Collaborate, Contribute: Voices of Early Career Researchers and Professionals
10:35 - 10:50	Dr. Kelly Cobey , Meta research and Open Science Program, University of Ottawa Health Institute, Canada	How reconsidering research(er) assessment can foster research integrity
10:50 - 10:55	Dr. David Moher , University of Ottawa, Canada	Farewell remarks

Note: All times are listed in Pacific Standard Time (PST).



**WORLD CONFERENCES
ON RESEARCH INTEGRITY**