

Tracking and Tracing the Scholarly Record Through Metadata

Some real and potential research integrity use cases

Alice Meadows, Co-founder, MoreBrains Cooperative

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Research integrity is under attack

PAPER TRAIL

In the latest twist of the publishing arms race, firms churning out fake papers have taken to bribing journal editors

How AI is compromising the authenticity of research papers

Researchers are hiding prompts in academic papers to manipulate AI peer review

A Nvidia scientist's tutorial sparked wider use of hidden AI prompts in

By [Skye Jacobs](#) July 14, 2025 at 2:33 PM | [11 comments](#)

SCIENCE NEWS

AUG. 5, 2025 / 1:31 PM

Study: Fraudulent scientific research outpacing legitimate journals

 INDEPENDENT

Study finds organised scientific fraud is now a booming industry

Vishwam Sankaran

Tue, August 5, 2025 at 6:23 AM EDT

ompson, HealthDay Reporter



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Good (and open) metadata can help!

- Accessible to everyone
 - Human-readable
 - Machine-readable
- Transparent provenance
 - What data was added?
 - Who added it?
 - When and how?
- Trust markers
 - Clear and simple indicators to guide decision-making
 - For example, ORCID record summaries

The screenshot displays an ORCID iD record for a user with the name 'Name or published/credit name' and the URL 'http://orcid.org/0000-1234-5678-911X'. The record is organized into several sections:

- AFFILIATIONS:** Lists three affiliations with green checkmarks indicating they are verified. The first is 'University of Bath' (2020-02-02 to present, Professor of Psychoceramics Employment). The second is 'New Arizona State University' (2015-09 to present, Associate Professor (Computer Science) Employment). The third is 'University of Wisconsin-Madison' (2013-05 to 2017-06, Head of Department (Physics) Employment). A link to '+ 3 more Affiliations' is provided.
- WORKS:** Shows '17 validated works' and '4 self-asserted works'.
- PEER REVIEWS:** Displays '13 reviews for 6 publications/grants'.
- FUNDING:** Lists '3 validated funding sources' and '2 self-asserted funding sources'.
- PROFESSIONAL ACTIVITIES:** Includes 'American Association for the Advancement of Science' (2020-02-02 to present, Associate Membership), 'Molecular Cardiology and Neuromuscular Institute' (2020-02-02 to present, Cardiologist Qualification), and 'Example of another professional activity' (2020-02-02 to present, Board member Invited position). A link to '+ 2 more Professional Activities' is provided.
- KEY DATES:** Shows 'Record created Oct 17, 2015' and 'Last updated Jun 24, 2022'.
- OTHER IDENTIFIERS:** Lists 'Scopus', 'Web of Science', and 'Another identifier', each with a green checkmark.

Example 1: Researcher Identification



Boston Marathon Finish Line | Boston Marathon Finish Line - ... | Flickr



Wikipedia:How to make dashes -
Wikipedia

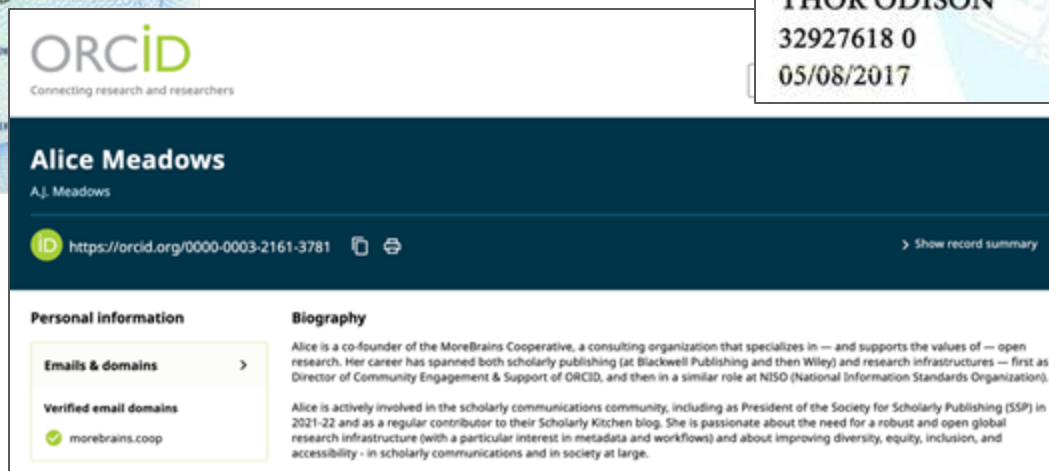
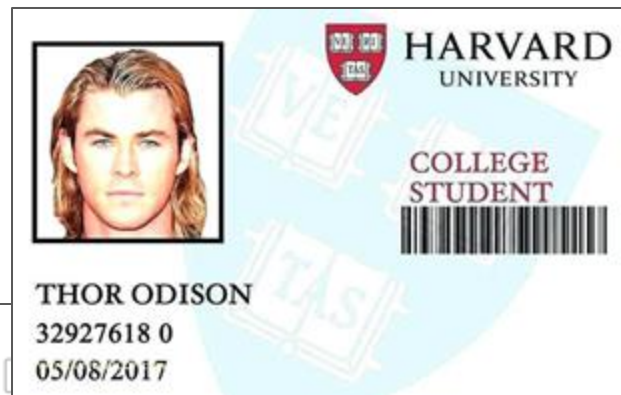
At present, most research integrity work focuses on the end product, not the starting point

We're starting to see publisher support for using verified information about researcher identity as one trust marker



[Finnish identity card - Wikipedia](#)

[Visiting University Id Card Template PSD File for University Id Card ...](#)



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Trusted Identity in Academic Publishing

- Two-part report from STM
- Key recommendations for editorial systems include:
 - Introduce user verification (for authors and reviewers)
 - **Use verified profile information (eg, from ORCID)**
 - Collaborate to improve
- Challenges include:
 - User experience challenges (eg, the need to reverify multiple times)
 - Not foolproof (bad actors will still exist)
 - Risk of inequity (eg, for researchers in the Global South, non-affiliated researchers)



<https://stm-assoc.org/document/trusted-identity-in-academic-publishing-2/>

<https://stm-assoc.org/document/trusted-identity-in-academic-publishing-2/>

Example 2: Organization identification

Digital Science investigation shows millions of taxpayers' money has been awarded to researchers associated with fictitious network

- Investigation by Leslie McIntosh into the Pharmakon Neuroscience Network
- 120+ papers associated with a fictional funder connecting over 300 authors and 230 organizations
- Many affiliations were legitimate but three were not
 - An apartment in Vienna and two private houses in the US and Australia
- 20 authors associated with PNN have received at least \$6.5M in legitimate grant funding since 2022
 - Includes grants from national funders in Ireland, Portugal, and Croatia

<https://fosci.substack.com/p/from-nefarious-networks-to-legitimate>

ROR to the rescue?

- Research Organization Registry identifiers (RORs) could help
 - Open identifiers for research organizations
 - Includes research funders – the Crossref Open Funder Registry is transitioning to ROR
 - All organizations can request a ROR ID, or a change to their existing ID
 - All RORs registered have been carefully vetted by a team of volunteers
 - RORs are freely and openly available to everyone (human and machine)



Photo by Pixabay:
<https://www.pexels.com/photo/lioness-roaring-55814/>

Example 3: Censorship

Academic Publishers Braced for Slowdown as Trump DEI Purge Bites

Trump is ordering a sweeping censorship of science, starting with climate and health

RFK Jr. threatens to bar government scientists from publishing in leading medical journals

The health secretary said the New England Journal of Medicine, the Journal of the American Medical Association and The Lancet are in bed with pharma.

Communication

Science censorship is a global issue

SCIENCE

When Do Scholarly Retractions Become a Form of Censorship?

Focusing on the handful of papers that are retracted for political reasons can obscure the more important problems afflicting the field of academic publishing.



Ivan Oransky

21 APR 2025 · 12 MIN READ

[Don A. Driscoll](#) & [Martine Maron](#)

(2017) | [Cite this article](#)

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Could metadata help us resist censorship?

- Open metadata would be essential
- Information about funder could indicate the likelihood of censorship
- Metadata could include “banned” words
- It could also point to uncensored versions of the same content (“Director’s Cut”)
- Articles retracted due to censorship could be flagged as such

Or could metadata be a point of vulnerability?



Photo by beytlik:
<https://www.pexels.com/photo/man-holding-burning-newspaper-6525967/>



alice@morebrains.coop