1. The shady business of academic citations

Ok, this one isn't really a geospatial paper, but it's too interesting (crazy?) not to include. If you thought academic citations were a reliable measure of scientific impact, then this paper is going to make you think again.

A new study has uncovered widespread manipulation in how citations are accumulated, and it's worse than many of us suspected. Using Google Scholar data, the authors show just how easy it is to game the system, including through citation rings, AI-generated papers, and even paid citation "packages".

Here's a breakdown of what they found.

Citation counts can be engineered

The paper documents some wild examples. One scientist received 2,025 citations in a single year. This turned out to be exactly 45 citations from each of 45 different papers. Another was cited 167 times by a single paper, which itself was only three pages long but had over 200 references. And in both cases, these were *not* self-citations.

Because Google Scholar doesn't show where a paper's citations *come from*, this kind of manipulation is nearly impossible to spot through casual browsing.

Yes, you can literally buy citations

The researchers even tested this themselves.

Using a fictional Google Scholar profile, they contacted a vendor offering "citation boosting services". **For $300, they purchased 50 citations.** These citations showed up within 33 to 40 days, across five separate papers, all indexed in Google Scholar. These were all supposedly published in peer-reviewed journals, including some from major publishers like Springer and Elsevier.

The vendors refused to say which journals would be used, but some had real impact factors as high as 4.79.

AI is making the problem worse

Generative AI makes it easier than ever to produce fake papers that look convincing but offer no scientific value. The authors show that these papers can be submitted to pre-print servers and cited just like legitimate work.

Researchers could also use AI to paraphrase existing work, mask plagiarism, or insert citations to themselves or others.

Current databases are too easy to game

Google Scholar, Scopus, and Web of Science all fall short. For example:

- **They don't flag suspicious patterns,** like clusters of papers citing the same author 10 or more times.

- **They rarely moderate what gets indexe**d. Google Scholar still lists almost anything it finds online.
- **They offer very limited visibility into where citations *come from*,** which makes detecting manipulation harder.

One potential solution then, could be to look at citation density. I.e. how concentrated a scientist's citations are (i.e., how many come from a small number of sources). Another one would be to let users filter citations by source (e.g. peer-reviewed, Q1 Journal, etc.).

In any case, if you happen to know the name of these citation-boosting services, please drop me a DM (asking for a friend).