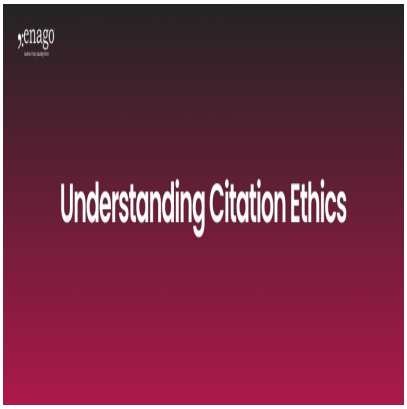

Description

Recent evaluations of generative AI show a worrying pattern: many AI systems produce plausible-looking but incorrect or entirely fabricated bibliographic references. In one multi-model study of academic bibliographic retrieval, only 26.5% of generated references were entirely correct, while nearly 40% were erroneous or fabricated.

For researchers, students, and institutional authors, this matters because literature discovery and accurate citation underpin reproducibility, peer review, and scholarly trust. This article explains what goes wrong when you rely solely on AI for literature discovery, why those failures occur, and most importantly practical, implementable workflows and checks you can use to preserve research integrity.

Benefits of using AI in literature discovery

- **Rapid ideation and scope definition**: AI can suggest search terms, identify related topics, and help outline a search strategy.
- **Time savings on routine tasks**: Summarization and screening of abstracts can reduce workload when used as an assistive tool. However, speed is not the same as validated accuracy.

These strengths make AI a useful assistant but not a substitute for rigorous literature discovery.

Risks of relying solely on AI

- **Hallucinated or fabricated citations**: Multiple domain-specific evaluations have documented substantial rates of fabricated or incorrect references from large language models. For example, a nephrology-focused evaluation found that only 62% of ChatGPT's suggested references existed and that about 31% were fabricated or incomplete.
- **Variable accuracy by topic and recency**: Hallucination rates tend to rise for newer or niche topics where the model's training data is sparse; one evaluation of chatbots found hallucination rates increased for more recent topic areas.

How AI hallucinations happen

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AI language models are pattern predictors: they generate plausible text given a prompt, but they do not “retrieve” verified bibliographic records in the way a database does. When asked for citations, models may invent titles, DOIs, or journal names that fit learned patterns. Retrieval-augmented approaches (RAG) can reduce this risk but do not eliminate it.

Practical, step-by-step workflow

1. **Use AI for brainstorming—not for sourcing**
    - Ask AI to suggest keywords, synonyms, and broader search terms to inform database queries. Verify every specific reference yourself.
2. **Search primary bibliographic databases first**
    - Perform structured searches in discipline-appropriate databases (PubMed/Medline, Scopus, Web of Science, IEEE Xplore, Google Scholar) and record your search strings and date ranges. Avoid treating AI output as a primary search result.
3. **Treat AI-recommended references as leads, not authorities**
    - If AI provides a citation (title, DOI, authors), independently verify the DOI, publisher, and full text via the relevant database or the publisher site before citing.
4. **Use a verification checklist for every new reference:**
    - Confirm DOI resolves to the correct article.
    - Verify author names, journal, volume, pages, and year in CrossRef/Google Scholar.
    - Access the abstract or full text to ensure the article supports your claim.
    - Flag any mismatch and remove fabricated or unverifiable items.
5. **Combine AI with structured, reproducible review methods**
    - For systematic reviews, document your protocol and follow PRISMA guidelines for search, selection, and reporting. This preserves transparency and mitigates propagation of AI errors.
6. **Use retrieval-augmented tools cautiously.**
    - Tools built to combine LLMs with database retrieval can reduce hallucinations but are not foolproof; continue human validation.

Common mistakes to avoid

- Copy-pasting AI-provided references into your bibliography without verification.
- Assuming an AI’s confidence equals correctness. LLMs express falsehoods convincingly.
- Skipping full-text reads and relying on AI abstracts or summaries alone. This can produce misinterpretations of methods or findings.

Next steps

As you conduct your next literature search, be sure to implement a verification checklist. If you’re preparing a systematic review, remember to register your protocol (e.g., PROSPERO, where applicable), follow PRISMA guidelines, and collaborate with a librarian or information specialist. If you need editorial or bibliographic support, check out our Literature Search and Citation Service and our AI assistant on literature discovery.

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1. Reporting Research

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