

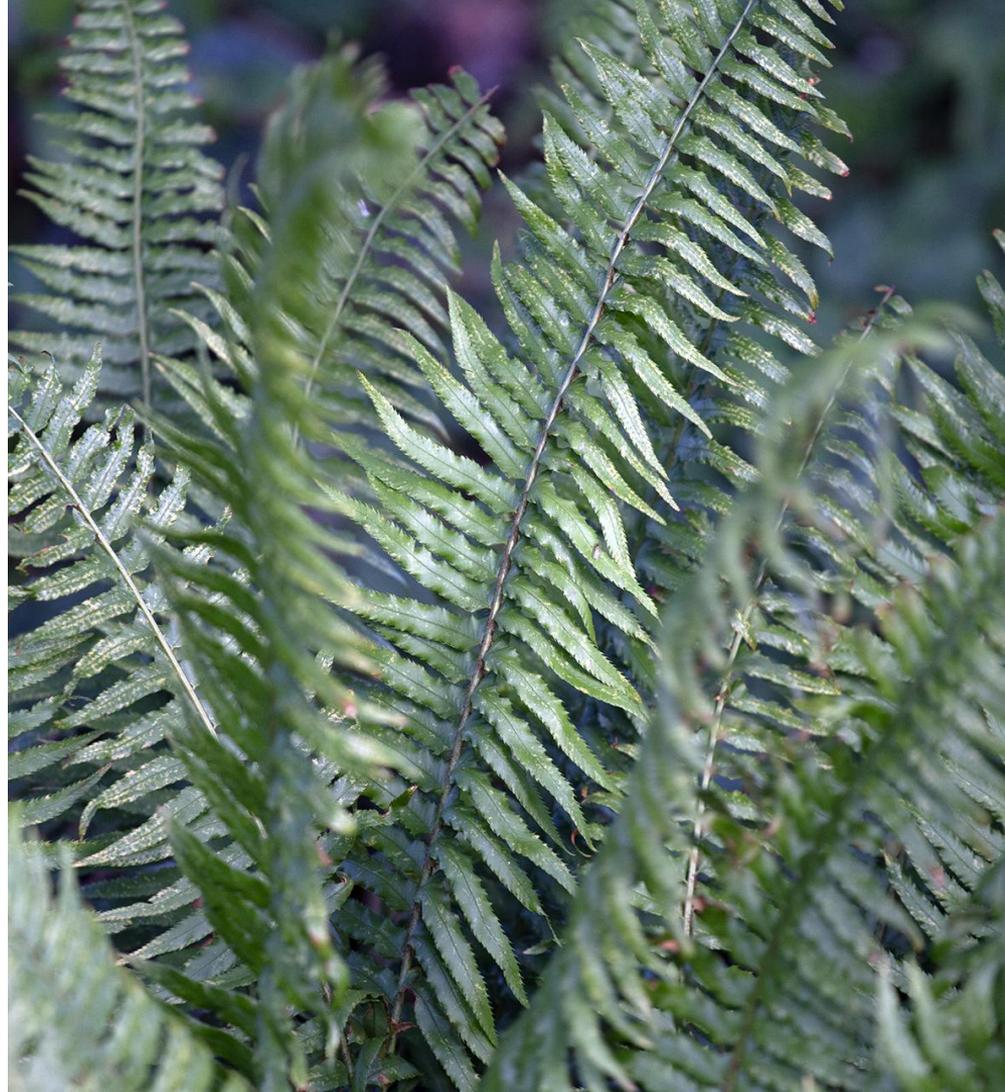


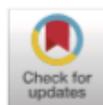
Literature Searching with Artificial Intelligence

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I acknowledge and respect the Lək̓ʷəŋən (Songhees and X̱sepsəm) Peoples on whose territory the university stands, and the Lək̓ʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day





The citation catastrophe: Propagation of AI-generated counterfeit citations in scholarship

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ARTICLE INFO

Keywords:

Citation indexes
Artificial intelligence
Citation networks
Publication ethics
Citation analysis
Research validity

ABSTRACT

Knowledge creation in the academy is built upon the research of previous scholars. This legacy scholarship is tracked in new papers through the use of citations. Citations of prior work in academic papers create a network of related scholarship that serves as a firm foundation for successive work. However, the authors of this paper document examples of “counterfeit citations”, almost certainly created by Large Language Models, which represent academic work which does not actually exist. The authors track the propagation of these example counterfeit citations in the literature and discuss the damage they cause, means of measuring comparative value in affected citation databases, and potential remediation of this problem moving forward.

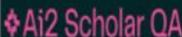


Learning objectives

1. Learn how to use AI tools effectively for literature searching
2. Identify specific use cases for a range of AI tools for literature searching and across the literature review process
3. Critically evaluate the outputs of AI tools, including assessing accuracy, relevance, and potential biases
4. Identify limitations of using AI tools for literature reviews

AI & GenAI enhanced research tools



 Literature review, extraction, analysis	 AI personal research assistant	 AI powered Academic search engine	 Literature review, extraction, analysis	 Literature review & analysis
 AI assistant for literature search	 Explore academic papers in a visual graph	 Citation-based literature mapping	 Summarize, analyze, organize your research	
 AI-assisted document analysis	 Translation	 AI writing tool	 Literature review, academic writer	 AI-enhanced mind mapping tool

<https://www.ualberta.ca/en/graduate-studies/media-library/resources-supervisors/ai-powered-literature-review.pdf>



What's the difference?

General chatbots:

ChatGPT, MS CoPilot,
Claude, Gemini, etc.

- Trained on the open web
- Designed to answer general questions
- May have fake sources

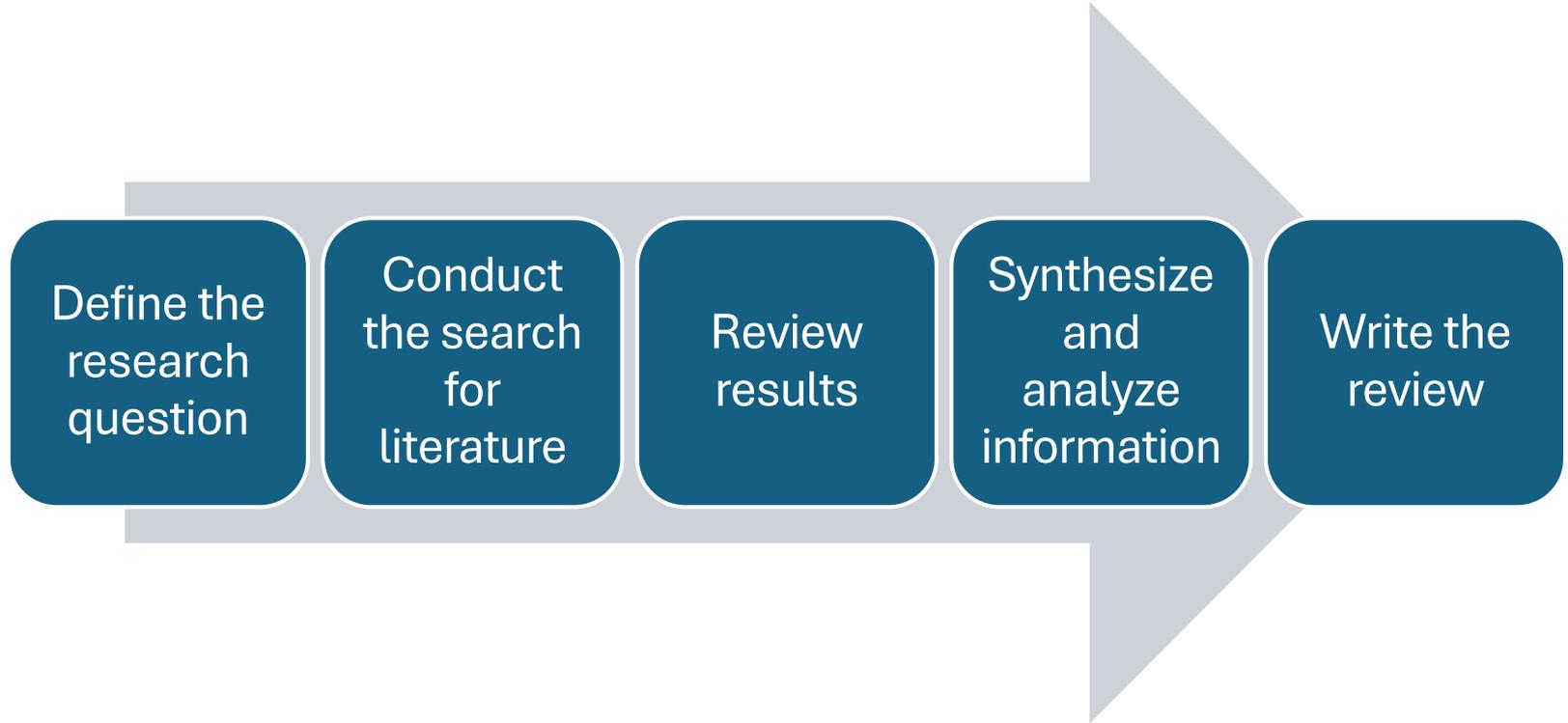
Research focused tools:

Elicit, Research Rabbit,
Undermind, Consensus, etc.

- Trained on academic sources
- Designed for research
- Use real sources



Let's review the literature review process





Where might AI fit in?

Research question

- Ideation and brainstorming with chatbot tools (CoPilot, ChatGPT, Claude, etc.)

Search and review results

- Suggest articles with LLM enhanced research tools (Research Rabbit, Elicit, Undermind, Consensus, etc.)
- Traditional tools: Library databases, Google scholar

Synthesize and analyze information

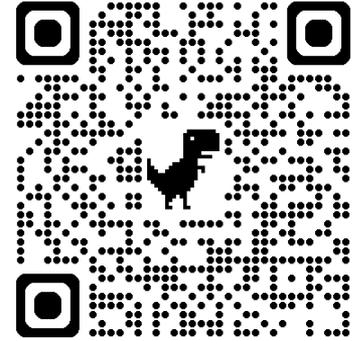
- Summarizing and chatting with sources (Notebook LM, Elicit)

Writing and citing

- Outline drafting and improving writing with chatbots (CoPilot, ChatGPT, Claude, etc.)
- Traditional tools for writing and citation management: MS Word, Google Docs, Zotero, Endnote

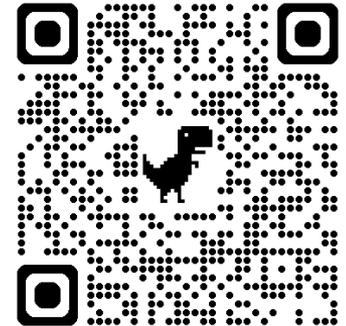


Activities



- Use your own topics
- OR use a sample research question:
 - The Impact of Remote Learning on Student Performance During the Pandemic
 - Social Media's Influence on Climate Change Awareness
 - The Ethics of AI in Academic Research
 - The Effect of Urban Green Spaces on Community Well-being

NOTE: Don't depend on AI summaries being 100% accurate!



Online Activity Guide:
https://libguides.uvic.ca/Al_LitSearch/Activities



Research Rabbit – What is it?



Price: Completely free! (paid version just has more filters)

Paper sources: Semantic Scholar, Open Alex, CrossRef

- Helps navigate and discover relevant literature
- Visually maps out connections between research papers, to help users find related work, identify trends, and explore new research areas
- Allows you to save and organize papers





Research Rabbit - Activity

- Go to researchrabbit.ai - it requires you to make an account
- Search your topic in the search bar. Then, choose an option below to create a visual graph and explore:
 - To explore a **single paper**, click on a paper you find interesting, and then pick either 'similar', 'refs', or 'cited by'
 - To explore **multiple papers** at the same time, select them using the circles on the right, and then click 'search'

The screenshot shows the ResearchRabbit web application interface. At the top, there are navigation links for 'Search', 'Library', 'Upgrade', 'Support', and 'My Research Project'. A search bar contains the query 'impact of sleep apnea on long-term health'. Below the search bar, a list of search results is displayed, each with a selection circle on the right. The results include:

- Berger, 2021**: Longer-term effects of supervised physical activity on obstructive sleep apnea and subsequent health consequences. *Scandinavian journal of medicine & science in sports*. A note below states: 'Although recent trials have shown promising benefits of exercise on obstructive sleep apnea (OSA) severity, the long-term effect of these interventions remains unknown. The aim of this study was to assess the effect of a 9-month community physical activity program on OSA.'
- Capdevila, 2008**: Pediatric obstructive sleep apnea: complications, management, and long-term outcomes. *Proceedings of the American Thoracic Society*. This entry is highlighted with an orange box.
- Jennum, 2020**: Long-term health and socioeconomic outcome of obstructive sleep apnea in children and adolescents. *Sleep Medicine*. Abstract Background: 'There is limited information about the long-term outcome of obstructive sleep apnea (OSA) diagnosed in children and adolescents for educational and social factors. Here, we estimate the long-term socioeconomic outcome and health care costs of OSA.'
- Phillipson, 1993**

On the right side, a sidebar shows details for the selected paper 'Capdevila, 2008', including a 'Save to...' button, a PDF icon, and a list of authors: 'O. Capdevila ...+2 David Gozal'. Below this, there is an 'Add note...' field and the text '10.1513/PATS.200708-138MG'. At the bottom right, a 'Dive deeper on this article' section is highlighted with an orange box, showing options for 'Similar' (913), '← 198', and '→ 433'.

Research Rabbit - Activity



ResearchRabbit Search Library

Similar to Capdevila, 2008

→ References Search inputs Results

Lumeng, 2008
Epidemiology of pediatric obstructive sleep apnea.
Proceedings of the American Thoracic Society
Pediatric obstructive sleep apnea (OSA) has become widely recognized only in the last few decades as a likely cause of significant morbidity

Marcus, 2012
Diagnosis and Management of Childhood Obstructive Sleep Apnea Syndrome
Pediatrics
OBJECTIVES: This revised clinical practice guideline, intended for use by primary care clinicians, provides recommendations for the

Marcus, 2012
Diagnosis and Management of Childhood Obstructive Sleep Apnea Syndrome
Pediatrics
OBJECTIVES: This revised clinical practice guideline, intended for use by primary care clinicians, provides recommendations for the

Redline, 1999
Risk factors for sleep-disordered breathing in children. Associations with obesity, race,

More citations ↑

← More recently published →

1 - 20 of 913

1. What does it mean when a dot has many connected lines, vs few?
2. Pick a single article. Can you find the oldest reference it has? Can you save it to a collection?
3. How can you alter the X and Y axis on the graph? Is this helpful?
4. Looking at the articles Research Rabbit found, do they seem high quality?



Consensus

Online Activity Guide:
https://libguides.uvic.ca/AI_LitSearch/Activities





Consensus – What is it?



Price: Free (limited pro/deep searches per month)

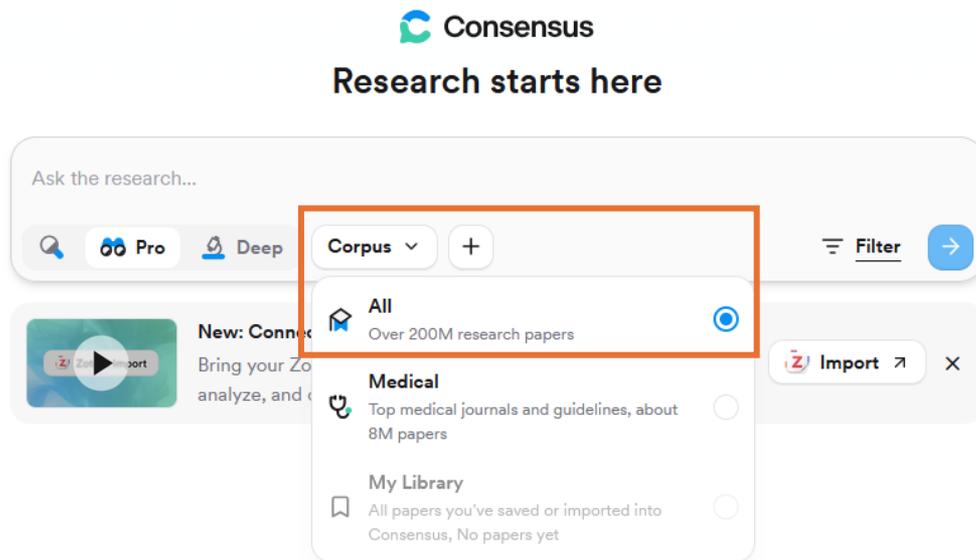
Paper sources: Semantic Scholar, Open Alex, web crawling

- An AI-powered search engine that sources peer-reviewed studies, and creates GenAI summaries with citations
- Has a 'consensus meter' for yes/no questions, that shows you where evidence leans
- Allows you save papers, as well as 'chat' with chosen papers to compare and summarize findings



Consensus – Activity

- Go to consensus.app - it requires you to make an account
- For this workshop, click the drop-down menu and pick the Corpus option (see image)
- Search for your topic in the search bar





Consensus – Activity

1. Can you save a paper to your collection?
2. What happens when you ask consensus a 'yes or no' research question?
3. What filters are available, and how helpful are they? Can you find literature from only Canada?
4. Looking at the articles, do they seem high quality and/or relevant?

What are the health benefits of Kombucha tea?

Quick · 1 step · 10 sources

Kombucha tea is a fermented beverage rich in bioactive compounds such as polyphenols, organic acids, vitamins, and probiotics, which are believed to contribute to its health-promoting properties. Research highlights several potential benefits, including strong antioxidant activity, antimicrobial effects, anti-inflammatory properties, and the ability to modulate gut microbiota, which may help reduce systemic inflammation and oxidative stress [10](#) [2](#) [5](#) [8](#). Some studies also suggest possible antidiabetic, anticancer, antihypertensive, hepatoprotective, and hypocholesterolemic effects, though these findings are primarily based on laboratory and animal studies rather than human clinical trials [3](#) [6](#) [7](#) [9](#).

Despite these promising attributes, there is a notable lack of robust human clinical evidence supporting the health benefits of kombucha; only one empirical human study was identified in a systematic review, and most claims are extrapolated from non-human research [1](#) [3](#) [6](#). The health effects can also vary depending on the type of tea used, fermentation conditions, and the specific microbial composition of the SCOBY (symbiotic culture of bacteria and yeast) [2](#) [5](#). While kombucha is generally considered safe for most adults, its consumption is not recommended for infants, pregnant women, young children, individuals with kidney failure, or those with compromised immune systems due to potential adverse effects [6](#) [7](#).

Filter Export

GET A LIT REVIEW · What are the health benefits of Kombucha tea?

CONSENSUS METER · Does kombucha consumption improve gut microbiota diversity in humans?

Kombucha antioxidant and antimicrobial effects

Comparative health impacts of kombucha fermented from different tea types

Results

Download List Grid

1 Kombucha: a systematic review of the empirical evidence of human health benefit.

ANSWER · The nonhuman subjects literature claims numerous health benefits of kombucha, but these assertions need to be tested in human clinical trials.

SYSTEMATIC REVIEW HIGHLY CITED

2019 · 222 citations · J. Kapp et al. · *Annals of epidemiology*

2 Chemical Profile and Antioxidant Activity of the Kombucha Beverage Derived from White, Green, Black and Red Tea

ANSWER · Kombucha tea has rich chemical content and healthy properties, including organic acids, minerals, vitamins, amino

Ask a follow up...

All Pro

Filter



Your takeaways?

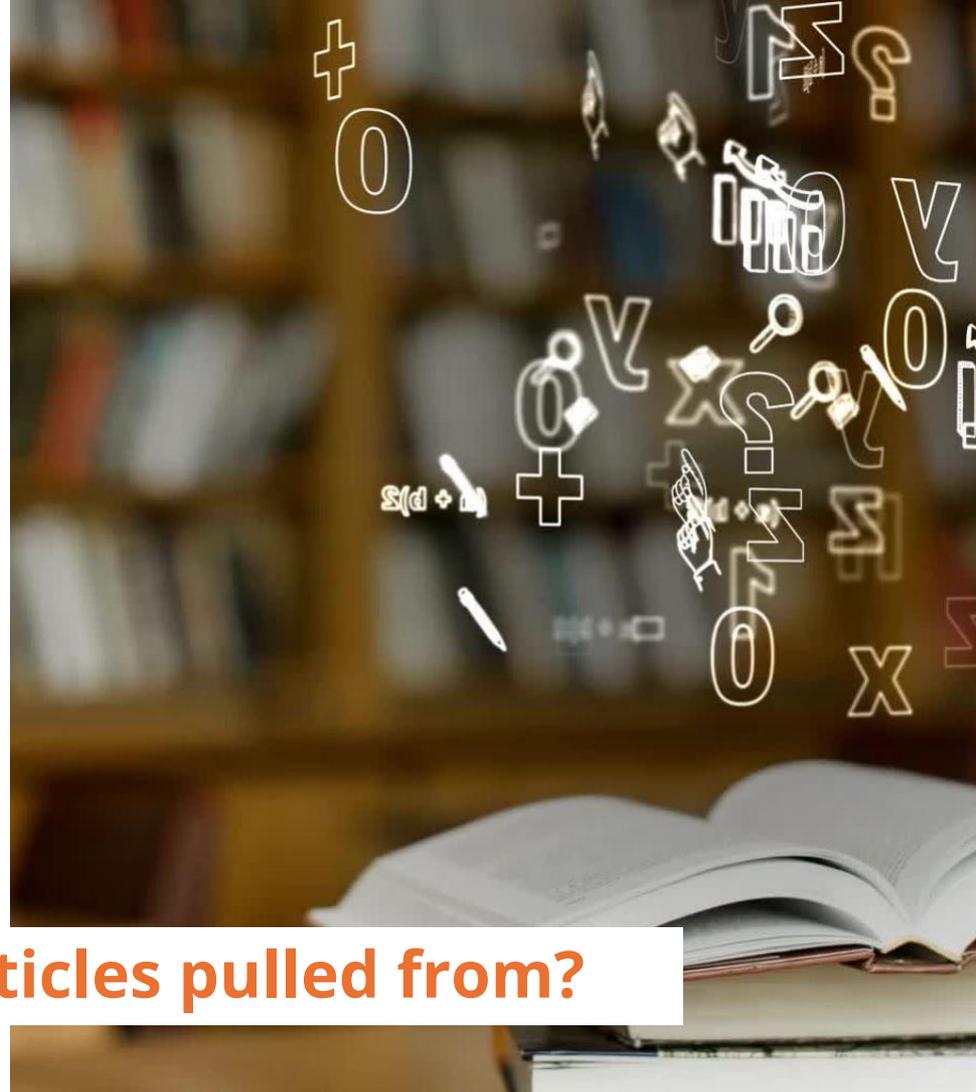


What's the difference with Library databases

- Differences in search
- Semantic analysis
- Abstractive summarization
- Generative chatbot



Where are the articles pulled from?





Evaluating quality and reliability of sources

- Ask yourself:
 - Are you finding sources on your topic?
 - Are these a complete list of results?
 - What is the level of detail of relevant information
 - Are the sources current?
 - Are summaries accurate representations of the sources?



Limitations in the research process

- Not getting beyond paywalls with "get this @ UVic"
- May struggle with under-documented subjects
- Lack of transparency and reproducibility
- Risk of generating bias or incorrect content





Considerations for ethical use

- Always question and verify the output
- Understand the tool's intended uses and the data it is trained on
- Consider the impact of using the tool
 - Academic & research integrity
 - Data privacy
 - Intellectual property
 - Environmental impact
 - Extractive nature



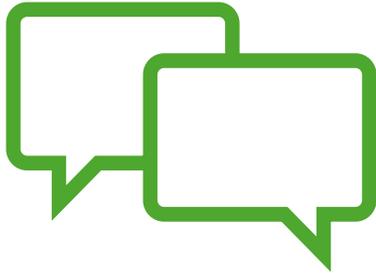
Policies & guidance

- Tri-Agency provides guidance on the use of artificial intelligence in the development and review of research grant proposals
 - Applications
 - Evaluations
- Publisher policies – Elsevier: *“Ultimately, authors are responsible and accountable for the contents of their work. This includes accountability for... carefully reviewing and verifying the accuracy, comprehensiveness, and impartiality of all AI-generated output”*
 - Increasingly requires an AI acknowledgement



Wrapping up

Can AI Tools help you with your literature search?



Questions?