Waipapa Taumata Rau
University of Auckland

AI tools for literature reviews

Using artificial intelligence ethically and effectively to augment your literature reviews

June 30th

Dr Erin Wood
Ngā Ratonga Manaaki Rangahau | Research Services
Te Tumu Herenga | Libraries and Learning Services

Today:

- Guidance on AI use
- Tools supporting literature discovery and other aspects of literature reviews
- Critical evaluation of tools to ensure best practice
- Q&A

Dr Erin Wood

PhD Biological Sciences, UOW with dietary neuroscience focus

3 years with Research Services

Specialisation into AI in scholarly communications

Question:

How have you been using AI?

Answer in the chat

Official use guidance

Institutional regulations

National guidance

e.g. AI for the Public Service

Publisher policies

authorship, disclosure, limits on uses

(Some) University of Auckland context:

- AI at the University guidance
- Generative AI Usage Standard
  view publicly on TeachWell
- Data Classification Standard
- Research Integrity Policy
- Authorship and Publication Guidelines
- Copyright policy
- Doctoral policies, such as Student Academic Conduct Statute and Third Party Editing and Proofreading of Theses and Dissertations Guidelines

Question:

What type of review are you interested in and what is it for?

Answer in the chat

Purpose of literature reviews

Give a comprehensive overview and critical analysis of existing research on a particular topic

And for you as a researcher:

- Deepen knowledge of your discipline & its practices
- Build scholarly research skills, i.e. critical analysis
- Identify knowledge gaps

Principles of good reviews

Adherence variable across review types

Unbiased

Reliable

Reproducible

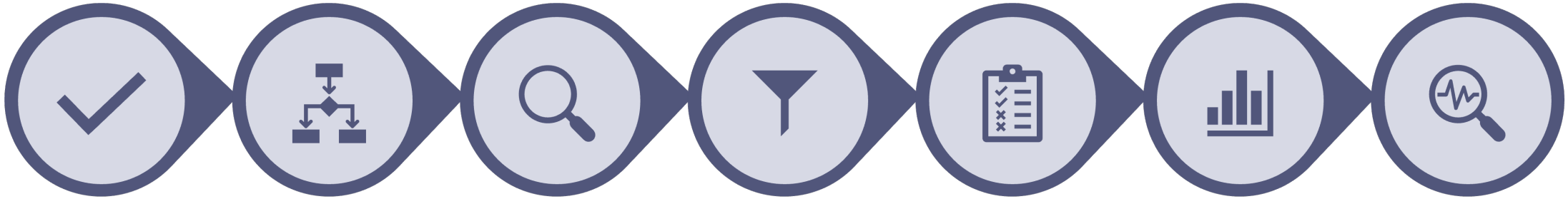
Transparent

Comprehensive

Systematic/structured

Review steps

(systematic review)



Select a topic

Develop a protocol

Develop a search strategy

Screen for studies

Appraise studies

Extract abstract data

Synthesise & interpret results

Question:

How could AI help with your literature review?

Answer in the chat

Time

Accessibility

Discover unconsidered content

Minimise human error

Make your work more discoverable

Larger processing enabled

Living reviews

Copilot, do my review!

Literature discovery

Can AI run my searches?

The Ugly

Chatbots suggesting literature

Copilot, ChatGPT, Claude

- Sources often non-scholarly
- Not comprehensive
- Often fabricated

AI writing tools

Keenius, Jenni, SciSpace's AI writer

Citation suggestions based on your text input

- Not really reviewing
- High risk of bias

Creating search strategies

Copilot

ChatGPT

Claude

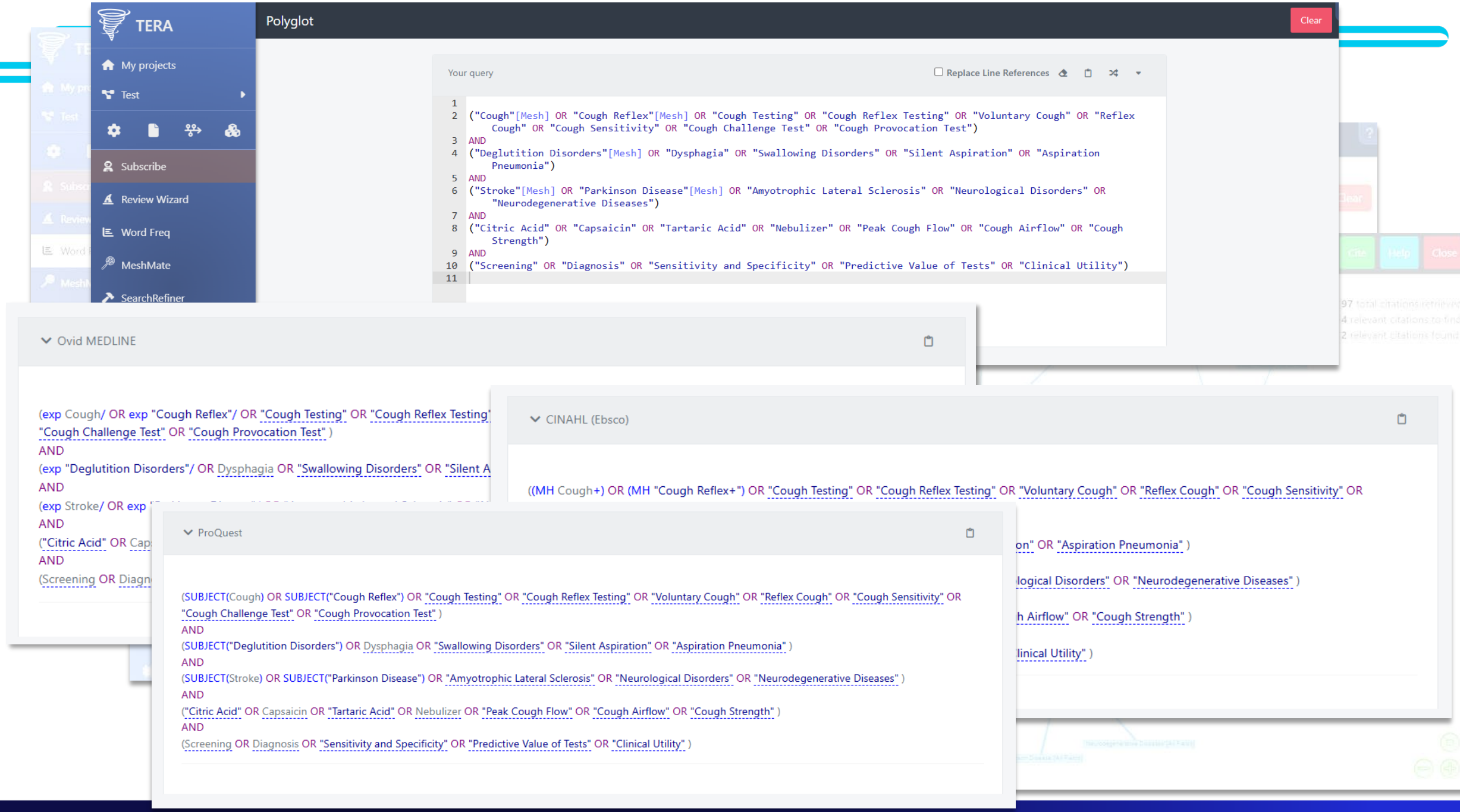
TERA

Large language models (LLMs) are not there yet

- 13% of relevant results found vs human search
- Lower precision: Sift through more results before getting a relevant hit

Clark et al., 2025

Other types of search creation support


TERA
My projects
Test
Subscribe
Review Wizard
Word Freq
MeshMate
SearchRefiner
Polyglot
Clear
Your query
Replace Line References
("Cough"[Mesh] OR "Cough Reflex"[Mesh] OR "Cough Testing" OR "Cough Reflex Testing" OR "Voluntary Cough" OR "Reflex Cough" OR "Cough Sensitivity" OR "Cough Challenge Test" OR "Cough Provocation Test")
AND
("Deglutition Disorders"[Mesh] OR "Dysphagia" OR "Swallowing Disorders" OR "Silent Aspiration" OR "Aspiration Pneumonia")
AND
("Stroke"[Mesh] OR "Parkinson Disease"[Mesh] OR "Amyotrophic Lateral Sclerosis" OR "Neurological Disorders" OR "Neurodegenerative Diseases")
AND
("Citric Acid" OR "Capsaicin" OR "Tartaric Acid" OR "Nebulizer" OR "Peak Cough Flow" OR "Cough Airflow" OR "Cough Strength")
AND
("Screening" OR "Diagnosis" OR "Sensitivity and Specificity" OR "Predictive Value of Tests" OR "Clinical Utility")
Ovid MEDLINE
(exp Cough/ OR exp "Cough Reflex"/ OR "Cough Testing" OR "Cough Reflex Testing"
"Cough Challenge Test" OR "Cough Provocation Test")
AND
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AND
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on" OR "Aspiration Pneumonia")
ological Disorders" OR "Neurodegenerative Diseases")
h Airflow" OR "Cough Strength")
linical Utility")
ProQuest
(SUBJECT(Cough) OR SUBJECT("Cough Reflex") OR "Cough Testing" OR "Cough Reflex Testing" OR "Voluntary Cough" OR "Reflex Cough" OR "Cough Sensitivity" OR "Cough Challenge Test" OR "Cough Provocation Test")
AND
(SUBJECT("Deglutition Disorders") OR Dysphagia OR "Swallowing Disorders" OR "Silent Aspiration" OR "Aspiration Pneumonia")
AND
(SUBJECT(Stroke) OR SUBJECT("Parkinson Disease") OR "Amyotrophic Lateral Sclerosis" OR "Neurological Disorders" OR "Neurodegenerative Diseases")
AND
("Citric Acid" OR Capsaicin OR "Tartaric Acid" OR Nebulizer OR "Peak Cough Flow" OR "Cough Airflow" OR "Cough Strength")
AND
(Screening OR Diagnosis OR "Sensitivity and Specificity" OR "Predictive Value of Tests" OR "Clinical Utility")

Citation mapping tools

Built on seed articles

Citation tracking

Semantic matching

Research Rabbit

Litmaps

Connected Papers

New Collection
New Category
Connect to Zotero

Uncategorized

Demostrations

+ Collection

Cough testing 16

Shared with Me

Filter Custom

Abstracts Comments

Select None Select All

Cough testing

Addington ... Rodriguez 1999 ↳ 99
Assessing the laryngeal cough reflex and the risk of developing pneumonia after stroke.
Archives of Physical Medicine and Rehabilitation
Comment

Sensitivity of the cough reflex in patients with chronic cough

Chung Chung 2006 ↳ 36
Measurement of cough.
Respiratory Physiology & Neurobiology

Falconer ... Sviriskis 2014 ↳ 4
An Investigation into the Stability and Sterility of Citric Acid Solutions Used for Cough Reflex Testing.
Dysphagia

Methods of Cough Assessment and Objectivization

Add Papers

Connections
Click to Show

16 Selected Papers

Remove from:
Cough testing

Add to Other Collection

EXPLORE PAPERS

Similar Work 1593
Earlier Work 136
Later Work 135

EXPLORE PEOPLE

These Authors 150
Suggested Authors 837

EXPLORE OTHER CONTENT

Linked Content 2

EXPORT PAPERS

BibTeX RIS CSV

PUBLIC COLLECTION

SHAREABLE LINK Copy

COLLABORATORS Edit

EMAIL UPDATES

Similar Work

Filter Relevance

Abstracts Comments

Select All

Addington ... Gilliland 1999 ↳ 184
Assessing the Laryngeal Cough Reflex and the Risk of Developing Pneumonia After Stroke An Interhospital Comparison
Stroke

Wakasugi ... Uematsu 2008 ↳ 112
Screening test for silent aspiration at the bedside.
Dysphagia

Addington ... Rekab 2005 ↳ 54
Effect of stroke location on the laryngeal cough reflex and pneumonia risk
Cough

Bickerman ... DRIMMER 1954 ↳ 153
The experimental production of cough in human subjects induced by citric acid aerosols; preliminary studies on the evaluation of antitussive agents.
The American Journal of the Medical Sciences

Miles ... Huckabee 2013 ↳ 71

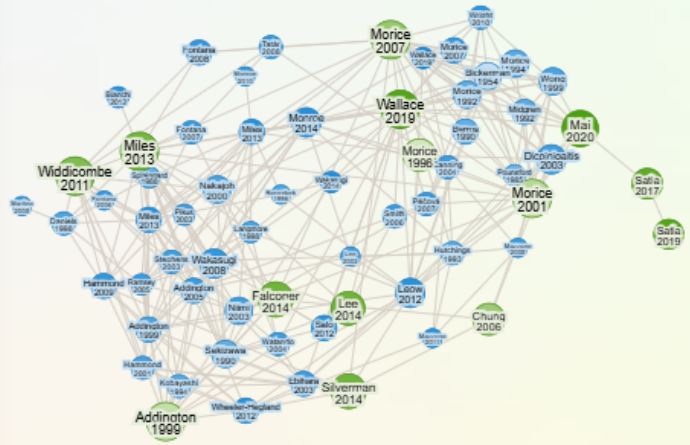
Connections
Click to Hide

Connections between your collection and 50 papers

Graph Type: Network Timeline

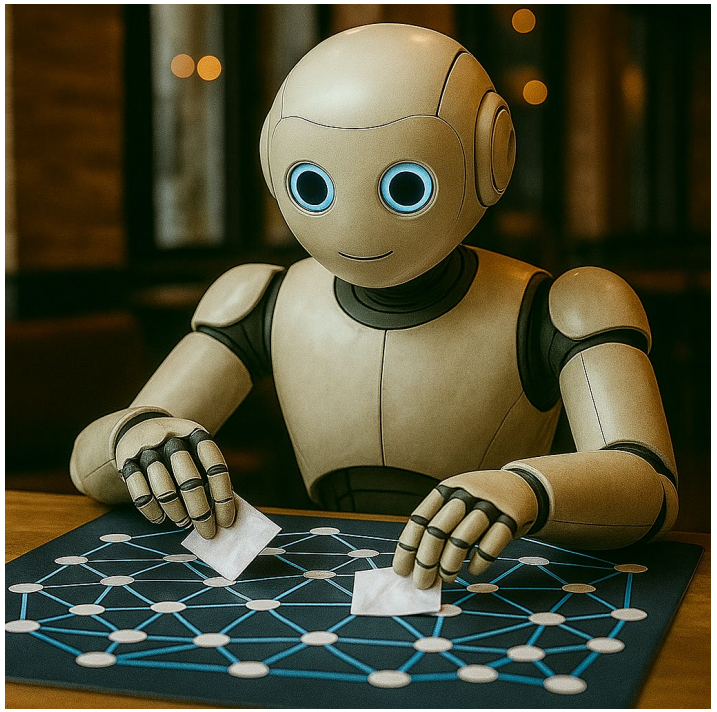
Labels: First Author Last Author

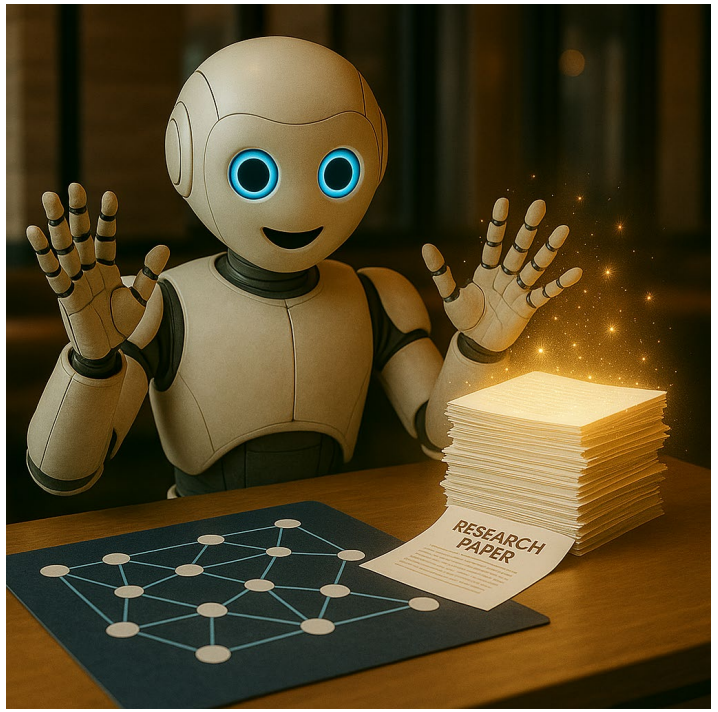
Filter these items



Zoom Out Fit All Zoom In

Semantic search





Academic search engines

Elicit

SciSpace

Consensus

Semantic Scholar

Scopus AI

Clarivate Research Assistants

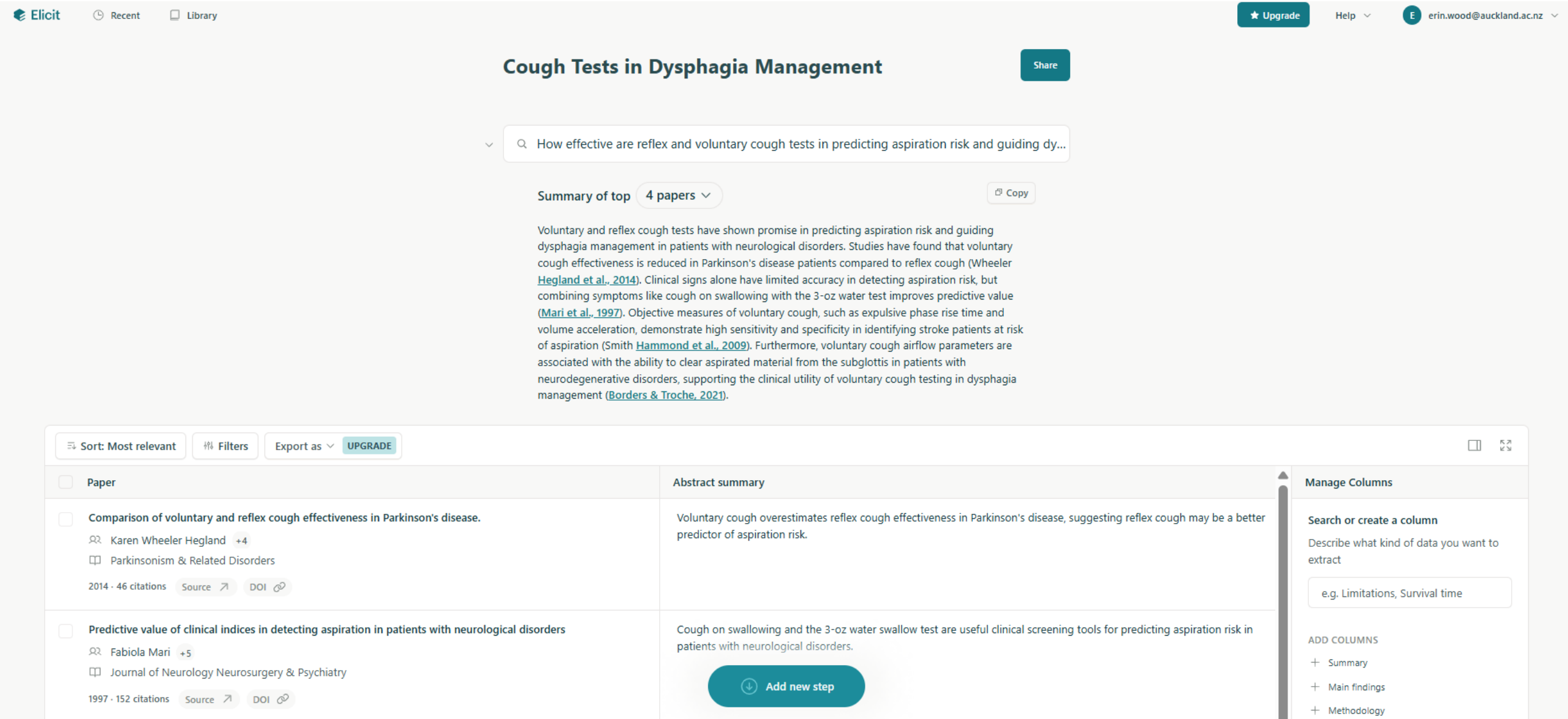
Dimensions AI

Natural language question input

Semantic matching and/or create keyword search(es)

Retrieval Augmented Generated (RAG) - creates a text answer summary from top results

How effective are reflex and voluntary cough tests in predicting aspiration risk and guiding dysphagia management in patients with neurological disorders?



Chatbots with deep research

ChatGPT's Deep Research

Google's Gemini

Perplexity

Elicit

Multiple-step, iterative processing for RAG outputs

Can restrict to "scholarly" sources

LLM with more academic language

Report back on current research on cough testing in dysphagia, summarising current tests, RCTs and good practice guidelines

Perplexity | Steps | Sources · 74

1. link.springer
link.springer.com/10.1007/s00455...
Upper Airway Sensory Testing in Dysphagia - Implications for Clinical Practice and Future...

2. onlinelibrary.wiley
onlinelibrary.wiley.com/doi/10.1111/14...
Cough reflex testing in acute stroke: A survey of current UK service provision and speech and...

3. jocmr
jocmr.org/index.php/JOCM...
Cough Reflex Testing in Dysphagia Following Stroke: A Randomized Controlled Trial

4. pubs.asha
pubs.asha.org/doi/10.1044/20...
The Influence of Cough Reflex Testing on Patient Management.

5. frontiersin
frontiersin.org/articles/10.33...

Research anything...

What information are these tools working with?

Data used

- Public metadata (titles, abstracts)
- Some full-texts
- Preprints
- General web content

Sources

- Semantic Scholar open research corpus
- Preprint servers
- Websites
- Databases

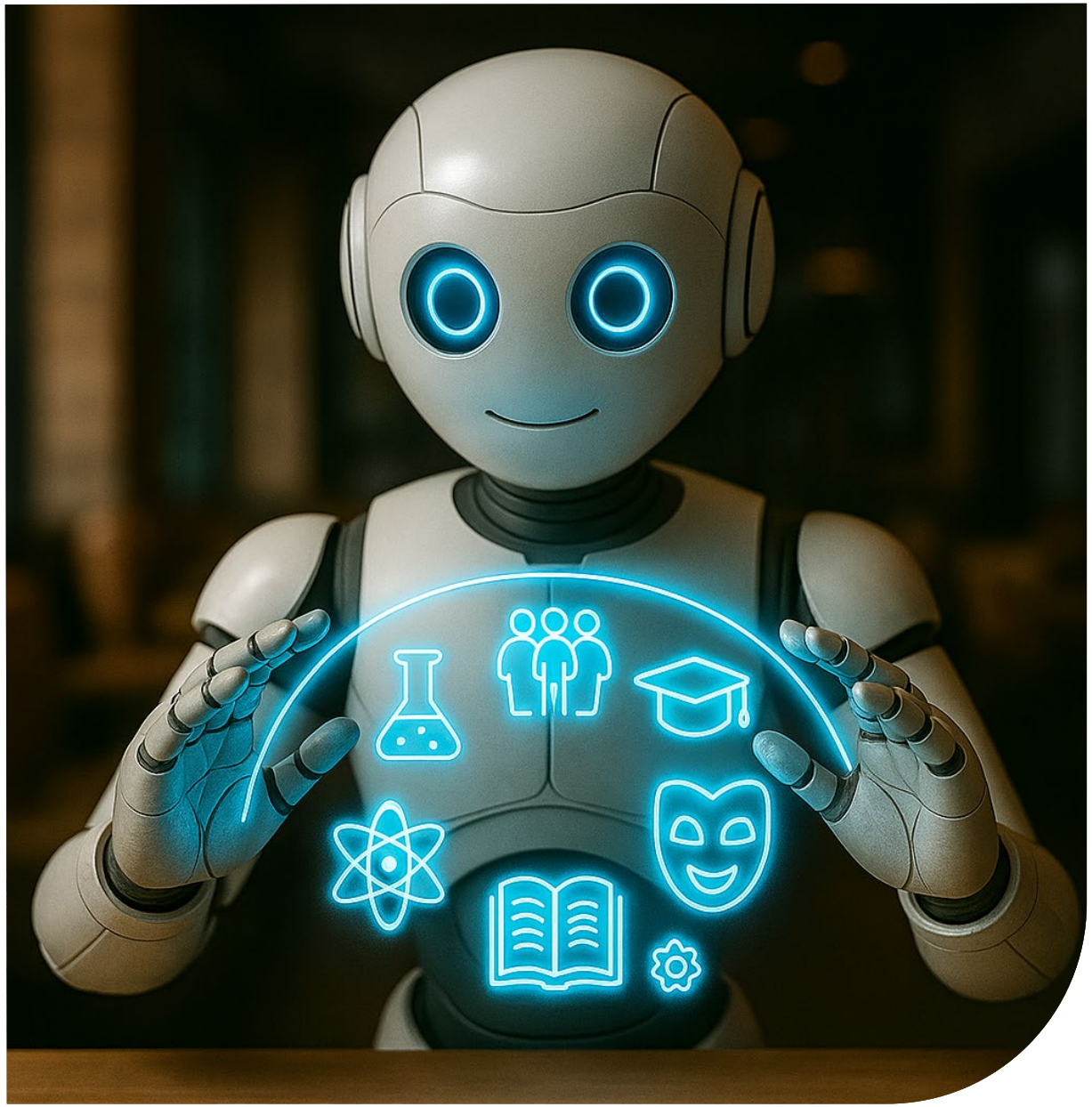
Limitations for literature discovery

Quality

Depth

Scope

What data is missing?
Can you find out?



Should you use AI for searching?

Methodological considerations

- Comprehensiveness
- Biases
- Reliability (information & the tool)
- Transparency
- Reproducibility

Suggestions on when/how to use AI

When the required rigour is lower

Where outputs have expert evaluation

Personal knowledge building

Keeping up to date

Record your use

Screening and analysis

Can AI screen my results?

Can AI then extract data from those studies?

Screening

LLMs

Covidence

Rayyan

ASReview Lab

TERA

Potential for LLMs

Potential to lend consistency and reduce subjectivity

[Cao et al., 2025]

	Sensitivity (correctly includes relevant)	Specificity (correctly excludes irrelevant)
Human-only	81.7%	98.1%
otto-SR	96.7%	97.9%

Screening

LLMs

Covidence

Rayyan

ASReview Lab

TERA

ASReview LAB explained. ASReview TV 2022

Data extraction

LLMs

Elicit

ChatPDF

Potential for LLMs

Different validation studies have LLMs at or above 72% of the information extracted by human reviewers. Clark et al., 2025

Gartlehner et al., 2025

	Incorrect extractions	Major errors	Fabricated data	Time
Human-only	11%	2.7%	0.5%	125 min
Claude-assisted	9%	2.5%	0.8%	84 min

Platforms with PDF querying

Should you use AI for screening/data extraction?

Copyright infringement concerns

- Full-texts via subscription databases
- Open access content

Rights you grant when uploading full text

No undoing a share, no take-backsies

Tool terms

Elicit

Privacy for uploaded papers

Edited last month

PDFs you upload are encrypted and remain private to your account only, until you choose to delete them.

Will PDF papers I upload be "added" to the Elicit corpus?

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6. create or transmit content or information that is or could be harmful to minors;
7. misrepresent yourself or the source of any of Your Content;
8. unlawfully transmit any proprietary information or data, or any other intellectual property, without the valid consent or license from the owner;
9. use the Service to violate the legal rights of others; or

Suggestions for screening/data extraction

Stick to public data for now

Use tools that support title/abstract screening

Extract data manually

Manuscripts

Can AI do my write up?

Writing with AI

AI writers

LLMs

Jenni

NotebookLM

SciSpace

Language assistance

LLMs

Grammarly

Data sharing

Disclosure & IP

Tool terms

Jenni
SciSpace

Your submissions

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Writing with AI

AI writers

- LLMs
- Jenni ai
- NotebookLM
- SciSpace

Language assistance

- LLMs
- Grammarly

Data sharing

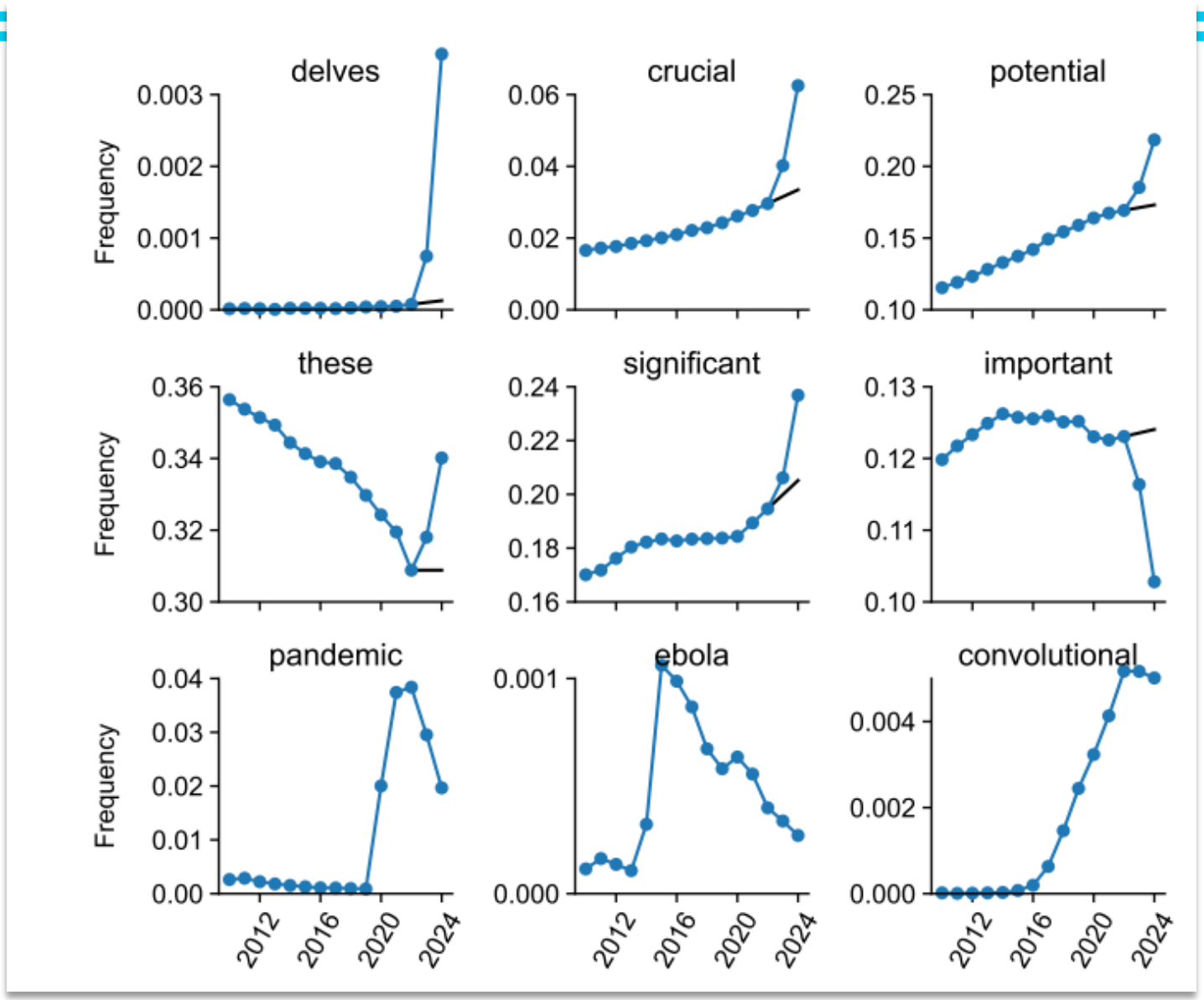
Disclosure & IP

Policy

Quality

(information vs knowledge)

AI language idiosyncrasies



Kobak et al. (2025). *Delving into ChatGPT usage in academic writing through excess vocabulary*. arXiv. https://doi.org/10.48550/arXiv.2406.07016

Contents lists available at ScienceDirect

Surfaces and Interfaces

journal homepage: www.sciencedirect.com/journal/surfaces-and-interfaces

The three-dimensional porous mesh structure of Cu-based metal-organic-framework - aramid cellulose separator enhances the electrochemical performance of lithium metal anode batteries

Manshu Zhang [a,1], Liming Wu [a,1], Tao Yang [b], Bing Zhu [a], Yangai Liu [a,*]

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[b] College of Materials & Environmental Engineering, Hangzhou Dianzi University, Hangzhou 310036, China

ARTICLE INFO

Keywords:
Lithium metal battery
Lithium dendrites
CuMOF-ANFs separator

ABSTRACT

Lithium metal, due to it
potential, is used as a n
of energy storage syste
poor safety, so lithium
the larger specific surfa
(CuMOF-ANFs) compos
mA/cm^2, the discharg
%. Li-Li batteries can
show that CuMOF-ANF
cycle stability
separator

1. Introduction

Certainly, here is a possible introduction for your topic:Lithium-metal batteries are promising candidates for high-energy-density rechargeable batteries due to their low electrode potentials and high theoretical capacities [1,2]. However, during the cycle, dendrites forming on the lithium metal anode can cause short circuit, which can affect the safety and life of the battery [8,9]. Therefore, researchers are indeed focusing on various aspects such as negative electrode structure [10], electrolyte additives [11,12], SEI film construction [13,14], and collector modification [15] to inhibit the formation of lithium dendrites. However, using a separator with high mechanical strength and chemical stability is another promising approach to prevent dendrites from infiltrating the cathode. By incorporating a separator with high mechanical strength, it can act as a physical barrier to impede the growth of chemical stability of the separator is equally important as it ensures that the separator remains intact and does not react or degrade in the presence of the electrolyte or other battery components. A chemically stable separator helps to prevent the formation of reactive species that can further promote dendrite growth. Researchers are actively exploring different materials and designs for separators to enhance their mechanical strength and chemical stability. These efforts aim to create separators that can effectively block dendrite formation, thereby improving the safety and performance of lithium-ion batteries. While there are several research directions to address the issue of dendrite formation, using a separator with high mechanical strength and chemical stability is an important approach to prevent dendrites from infiltrating the cathode and ensure safe operation of lithium metal batteries.

Several types of separators currently used in research include nanoporous polymer separators [16], ceramic composite separators

1. Introduction

Certainly, here is a possible introduction for your topic:Lithium-metal batteries are promising candidates for high-energy-density rechargeable batteries due to their low electrode potentials and high

Suggestions for writing

Work within policy

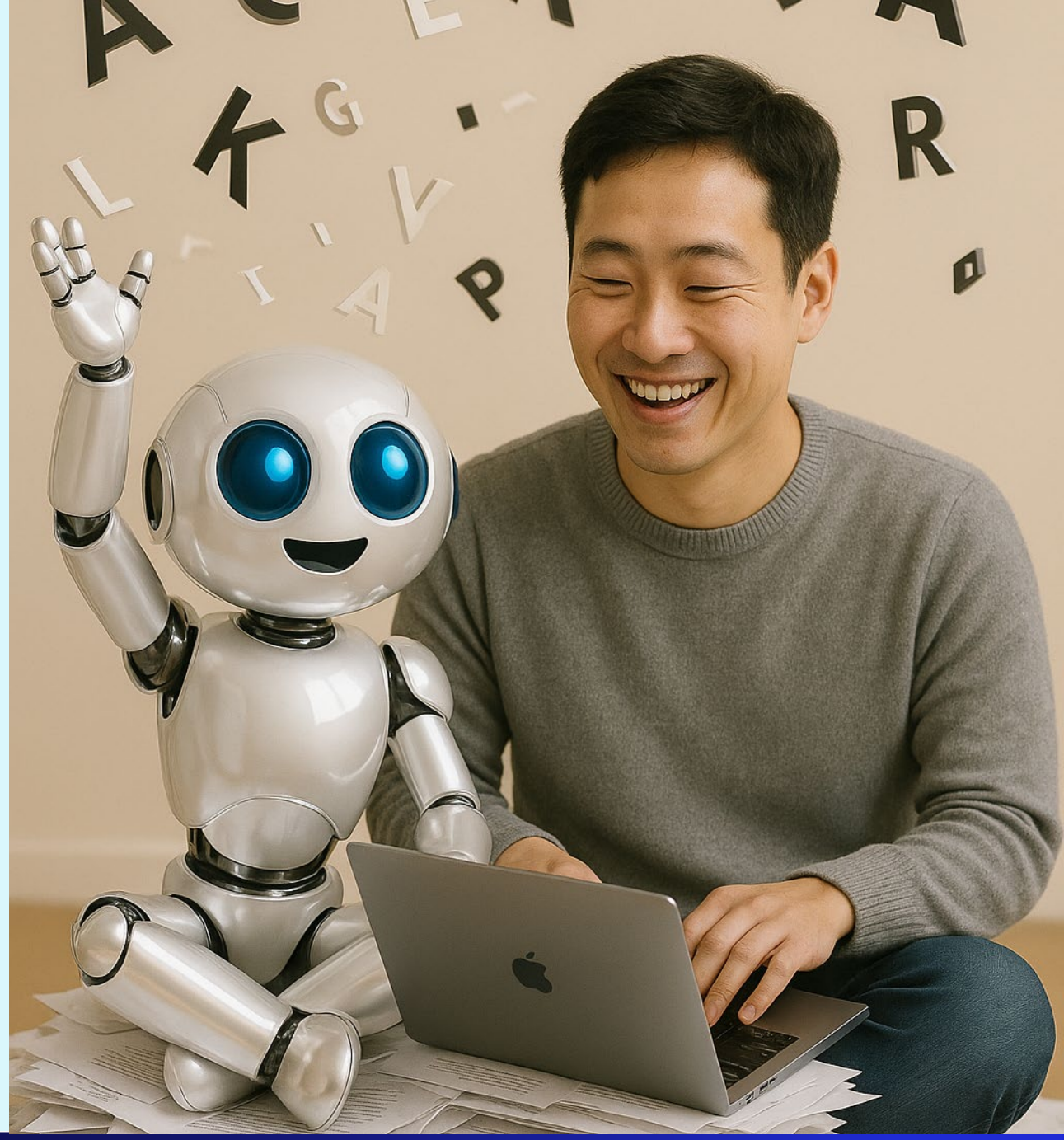
– which ones apply to your work?

Initial drafting, followed by verification and re-crafting

Revisions for language

Track and acknowledge your use

Do not share any data you need to keep private!



Summary

- AI for literature reviews is a developing space
- Augment rather than replace established practices
- Be careful with sharing content; you are responsible for ethical conduct and safe data sharing practices
- Understand what guidelines, policies and practices you need to adhere to
- Maintain transparency with documentation and acknowledgement
- Balance the cost-benefit of using tools

Ask

- Does this tool meet the needs of my review?
  - Is it comprehensive enough?
  - Will its data be of high quality and unbiased?
  - Is it rigorous enough? Has it been validated for my use case?
- What should I share with this tool?
  - How will inputs used?
  - Do I have the rights to share the data?
  - Who will see my data (and should they)?
  - Where will the data go?
  - Is it secure enough for my data?
- Can I use this tool for my application?
  - Does it align with institutional/publisher/ national policy?
- Is it worth the costs to implement?

Resources

Cochrane webinar series

Responsible AI in Evidence Synthesis (RAISE): guidance and recommendations

Aaron Tay's Musings about librarianship

Ithaka S+R. Generative AI product tracker

Cao et al. (2025). Automation of Systematic Reviews with Large Language Models. medRxiv. https://doi.org/10.1101/2025.06.13.25329541

Clark et al. (2025). Generative artificial intelligence use in evidence synthesis: A systematic review. Research Synthesis Methods, 1–19. doi:10.1017/rsm.2025.16

Gartlehner et al. (2025). AI-Assisted Data Extraction with a Large Language Model: A Study Within Reviews. medRxiv. https://doi.org/10.1101/2025.03.20.25324350

Kobak et al. (2025). Delving into ChatGPT usage in academic writing through excess vocabulary. arXiv. https://doi.org/10.48550/arXiv.2406.07016

Questions?

Access the form to:

- Provide feedback
- Download slides
- Send further questions
- Receive a Q&A summary

tinyurl.com/yseyun73

Images generated with Open AI’s ChatGPT-4o, June 2025