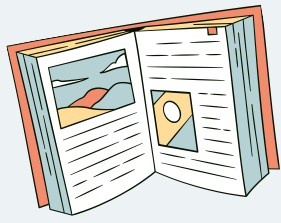


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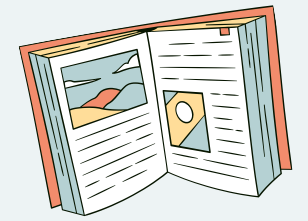
Using AI for Literature Review in 2025

By Ilya Shabanov





AI Lit Review Step 1 – Dive into a Topic with Undermind



If you have no idea about a topic, the easiest and free way to dive in is to run a deep search with **Undermind**, **Consensus**, **Scispace** or **Liner**. This will generally give you a good overview of the subject matter, even though the results might not be complete and the papers might not be the most impactful ones. However, it is a perfect starting point that can save you hours if you don't know anything about a topic.

Goal/Result: Find two or three good papers and build an understanding about the main questions and topics of your literature review.

STEP 1

Do you have any idea
about your subject
matter?

No

Use undermin.ai with
a broad question to get a
large collection of papers



 Undermind



1 23% 2017 46.6

Tree mortality across biomes is promoted by drought intensity, lower wood density and higher specific leaf area.

S. Greenwood, ..., and A. Jump
Ecology letters | Feb 21, 2017 | 399 Citations

Perfo
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acro
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rates

2 21% 2018 24.1

Climate shapes and shifts functional biodiversity in forests worldwide

Daniel J. Wiczynski, ..., and V. Savage
Proceedings of the National Academy of Sciences | Dec 24, 2018
| 162 Citations

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3 16% 2017 36.2

Structural overshoot of tree growth with climate variability and the global spectrum of drought-induced forest dieback

Show
Expl
water





AI Lit Review Step 2 - Finding Key Papers With Litmaps



Well, most AI tools struggle with prioritising papers. **Litmaps** made it its core tenet to give you the best overview of the impact of a paper. To achieve this, it utilises a visually appealing graphical display, where the most important papers are located on the top right, indicating high citation counts and recency.

Litmaps is one of the only tools where your input is a few papers and your output is more papers from the same domain. To find these papers, **Litmaps** uses the reference network, which sets it apart from AI tools that use textural similarity to discover related papers. Textual similarity is a technical concept developed by computer scientists, while references are set by the scientists who write the papers and therefore are more trustworthy.

Goal/Result: A larger set of papers fitting the scope of your literature review. Ideally, you have nearly all the papers you need. Aim at not more than 10–20 papers and prioritise new, highly cited and review papers.

STEP 2

Upload a seed paper to Litmaps and look at similar papers



Do you have any idea about your subject matter?

Yes

Grow a collection in Litmaps and pick the papers that are most recent, most cited, have the most references



Litmaps



EffortlessAcademic.com

AI Lit Review Step 3 - Picking the Right Reference Manager

Depending on whether you write with Google Docs or Microsoft Word, you should pick a reference manager. If you're working with Google Docs, Paperpile will deliver all your PDFs directly to Google Drive, making them accessible using Google's Gemini AI. If you don't use Google Docs, you can choose to use **Zotero**, because it is free and has plug-ins to analyse your papers with AI. This workflow is part of the Effortless Publishing course.

Regardless of which reference manager you picked, you need a place to store your notes and insights. **Obsidian** is the go-to tool for taking notes.

Paperpile integrates into **Obsidian** via the **Citations plugin**, and **Zotero** uses the **Zotlit plugin**.

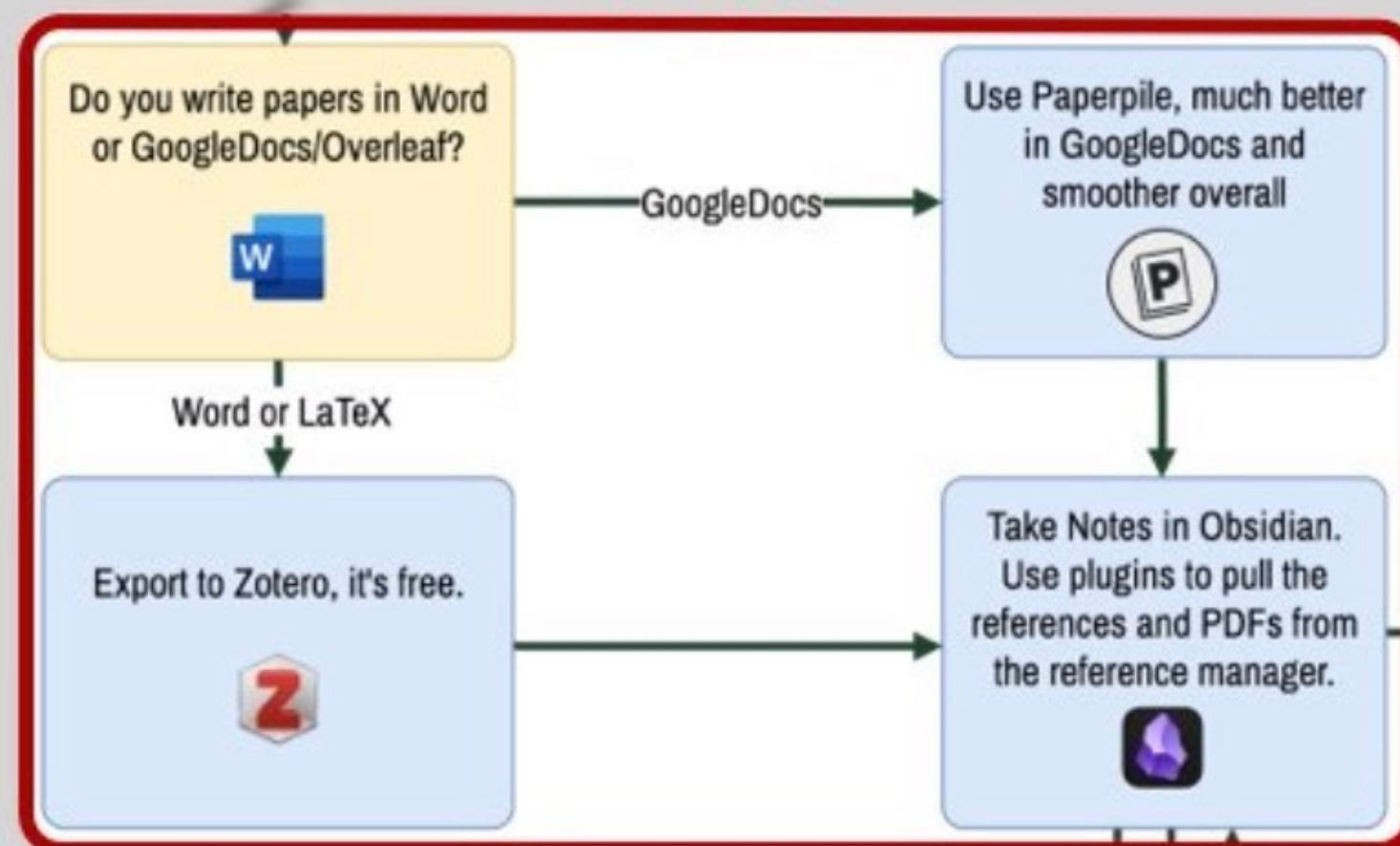
Goal/Result: A set of notes on the topics handled in the papers you have read. If you follow my system, the notes should be on topics rather than the papers themselves, which allows for building a knowledge network and fosters creativity.





Obsidian

STEP 3



Protein A - DemoVault - Obsidian v1.1.16

Protein A Protein C

Protein / Protein A

#Function/DnaRepair This seems to be the central protein for repairing UV damage in DNA.

What we know about it

If we disable Protein A - DNA damage is not repaired. Therefore Protein A is *involved* in DNA damage repair.

What it does

Protein A is a kinase that is activated in response to DNA double-strand breaks. It phosphorylates numerous downstream targets involved in DNA repair, cell cycle checkpoint activation, and apoptosis. Mutations in the gene are associated with a human genetic disorder, which is characterized by severe neurological symptoms and an increased *risk of cancer*.

My thoughts

Is it actually connected to [Protein B](#)

#Disease/Cancer

- __Authors
- __Calendar
- __Media
- __Papers
- __PDFs
- __Templates
- __Zotero
- MS Word Notes
- Protein
 - Protein A
 - Protein B
 - Protein C
 - Protein D
 - Protein E
- textgenerator
- BioDiversity
- crown transparency
- Disease Cancer
- DNA Repair MOC
- forest health
- Forest Resilience
- Global Land Use
- Kinases



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AI Lit Review Step 4 - Reading and Understanding Papers

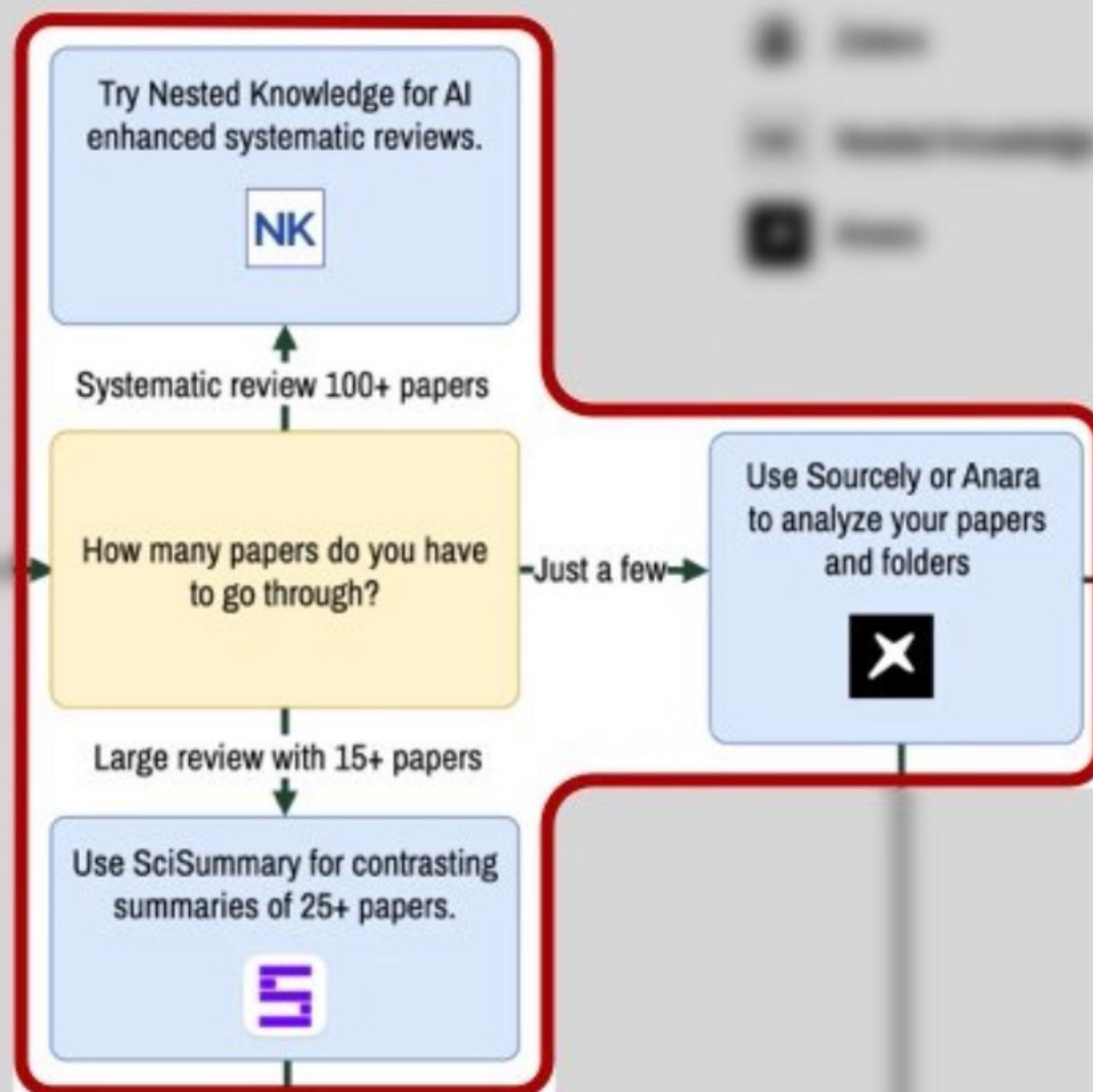


AI can greatly accelerate the process of skimming papers by creating outlines and summaries. The real strength comes if you create summaries on sets of papers rather than single PDFs. Two tools are noteworthy for this step. **SciSummary** allows you to create contrasting summaries or analyse papers in bulk regarding a specific topic. Here is a review of **SciSummary**. **Anara**, on the other hand, goes deeper into each paper, allowing you to find related references to text passages and create a note collection on your papers.

Working with papers in the scope of a systematic review is usually a bad use case for AI, because in a systematic review, your search procedure needs to be reproducible. AI search, however, is always somewhat random. **Nested Knowledge** tries to solve that by merging AI and keyword-based searches for large systematic literature reviews.

Goal/Result: reading the papers that you have found and creating notes on them. Fostering a deep understanding of the subject matter and using AI to answer questions regarding the papers.

STEP 4



SciSummary

{NESTED}
KNOWLEDGE

Anara



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Private Team

135% 1 of 25

MECHANISM OF NUCLEAR

sum which can be realized by capture of a neutron of zero angular momentum, and we shall obtain

$$\sigma_f = \pi k^2 T_{\nu} (T_{\nu}/T) (2\pi/\hbar) \times \begin{cases} 1 & \text{if } i=0 \\ 0 & \text{if } i>0 \end{cases} \quad (40)$$
$$\sigma_c = \pi k^2 T_{\nu} (T_{\nu}/T) (2\pi/\hbar) \times \begin{cases} 1 & \text{if } i=0 \\ 0 & \text{if } i>0 \end{cases} \quad (41)$$

On the other hand, if λ becomes essentially smaller than R , the nuclear radius (case of neutron energy over a million volts), the summation will give

$$\sigma_f = \frac{\pi k^2 \sum_{\nu} (2J_{\nu}+1) T_{\nu}}{(2\pi+1)(2\pi+1)} (T_{\nu}/T) (2\pi/\hbar) = \pi k^2 T_{\nu}/T \quad (42)$$
$$\sigma_c = \pi k^2 T_{\nu}/T \quad (43)$$

The simple form of the result, which follows by use of the equation (37) derived above for T_{ν} , is of course an immediate consequence of the fact that the cross section for any given process for fast neutrons is given by the projected area of the nucleus times the ratio of the probability per unit time that the compound system react in the given way to the total probability of all reactions. Of course for extremely high bombarding energies it will no longer be possible to draw any simple distinction between neutron emission and fission; evaporation will go on simultaneously with the fission process itself, and in general we shall

fast neutrons from the beam from fission in question ordinary to other nuclear resonance characterizing the producing energy.

The above the activation corresponds $\lambda = \hbar^2/2mR^2$. If we attend nanosecond level, the cross twice this; other hand compared to

2

we should exact reason even greater several clearly obtain section of

STEVE

In what ways do the energy requirements

ANARA

The energy requirements for fission show between uranium and thorium:

Critical Energy Differences

Uranium has multiple stable isotopes with energies, while thorium shows a more uniform requirement pattern. The critical fission energy is approximately 6 MeV.

Neutron Energy Considerations

The cross-section for fission varies significantly these elements based on neutron energy. particularly U235, fission can occur with thermal (energy) neutrons, achieving cross-section

Understanding the Impact of Nuclear Energy

Find citations...

This reaction is highly exothermic

High-Performance Superconducting Next-Generation Nuclear Reactor

Václav Dostál

2006 • 336 citations • DOI: 10.1016/j.nuceng.2006.01.001

Investigation of an international nuclear energy research program based on nuclear and

AI Lit Review Step 5 - Synthesising Insights And Notes

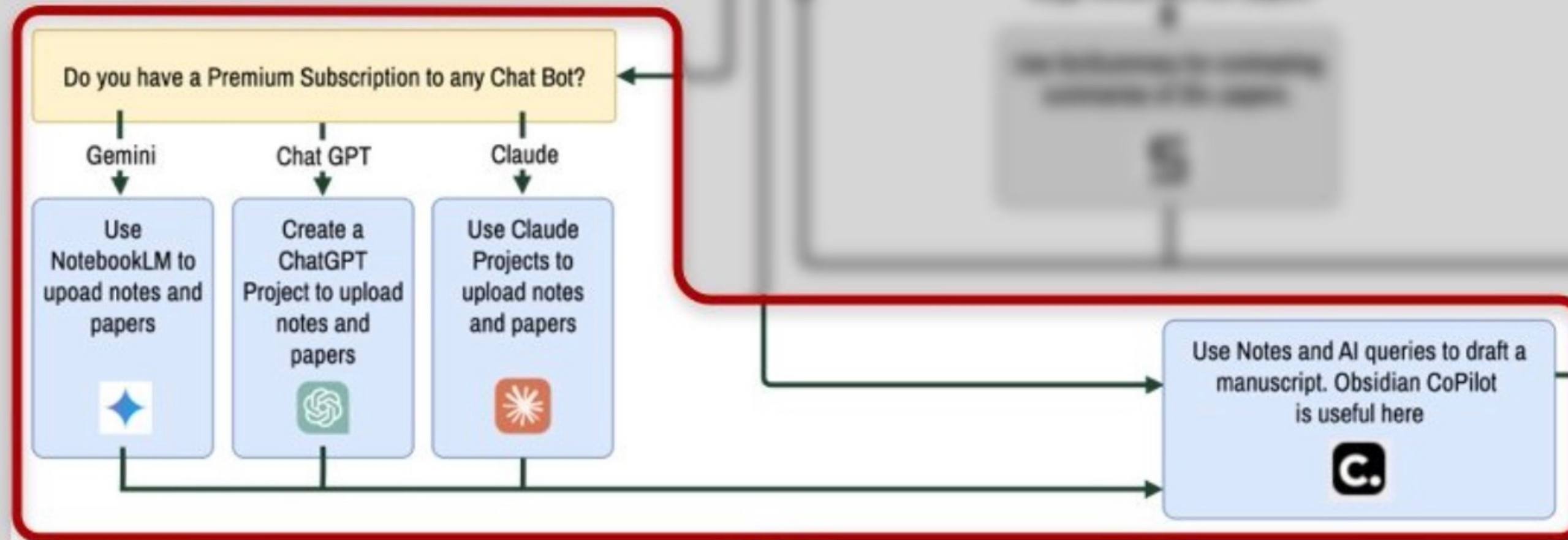
Once you have built an understanding around your topic, your goal is to synthesise these ideas into a coherent narrative, pointing out the gaps. Treat AI here more as a search engine rather than a synthesis engine. The synthesis happens in your mind, while you can leverage AI to quickly ask questions to the collection of PDFs and notes that you have aggregated. There are generally many ways to do this:

- 1.If you have little notes but many PDFs, try **Notebook LM** to synthesize information and generate mind maps, podcasts, presentations, or timelines directly from your source PDFs. If you have a **Notebook LM** subscription, you can also use **Google's Gemini**, which perfectly integrates into **Google Docs** creating a powerful writing assistant.
- 2.If you have written many notes in **Obsidian**, use **Obsidian's** Co-Pilot plugin, which brings AI directly into your notes and can create new notes as well as synthesise existing notes.
- 3.**ChatGPT** also recently introduced a feature called "Projects", which allows you to upload up to 25 PDFs or notes and query them using AI with customised instructions. This can be a powerful way to write a discussion section for your paper.

Goal/Result: Creating a narrative for your literature review based on the papers you have read and using an eye to help fill in the gaps.



STEP 5



Copilot for Obsidian

The Ultimate AI Assistant for Your Second Brain

Best LLM Integration Award

Get Copilot Plus

View on GitHub



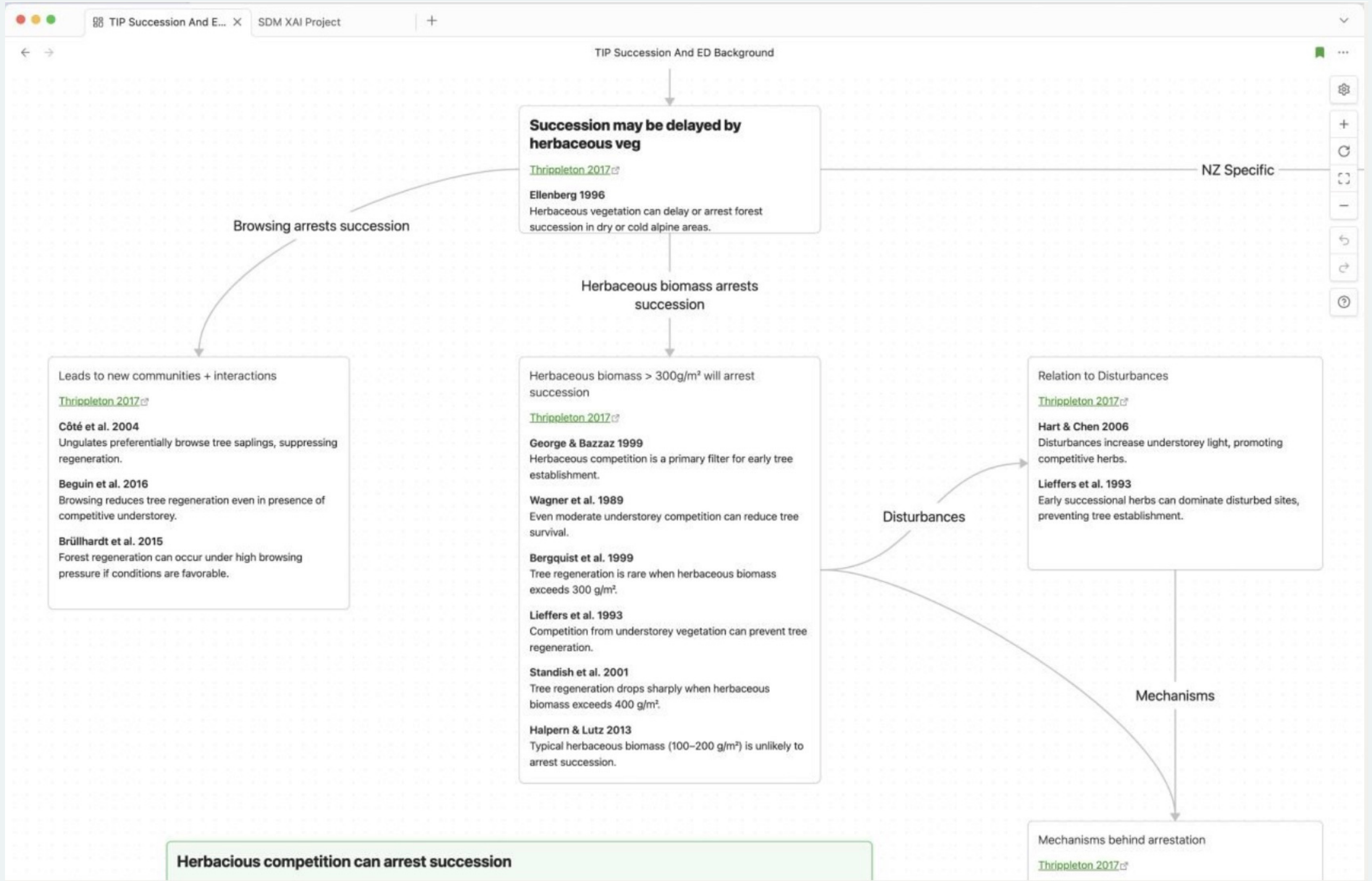
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AI Lit Review Step 6 - Writing And Polishing Manuscript

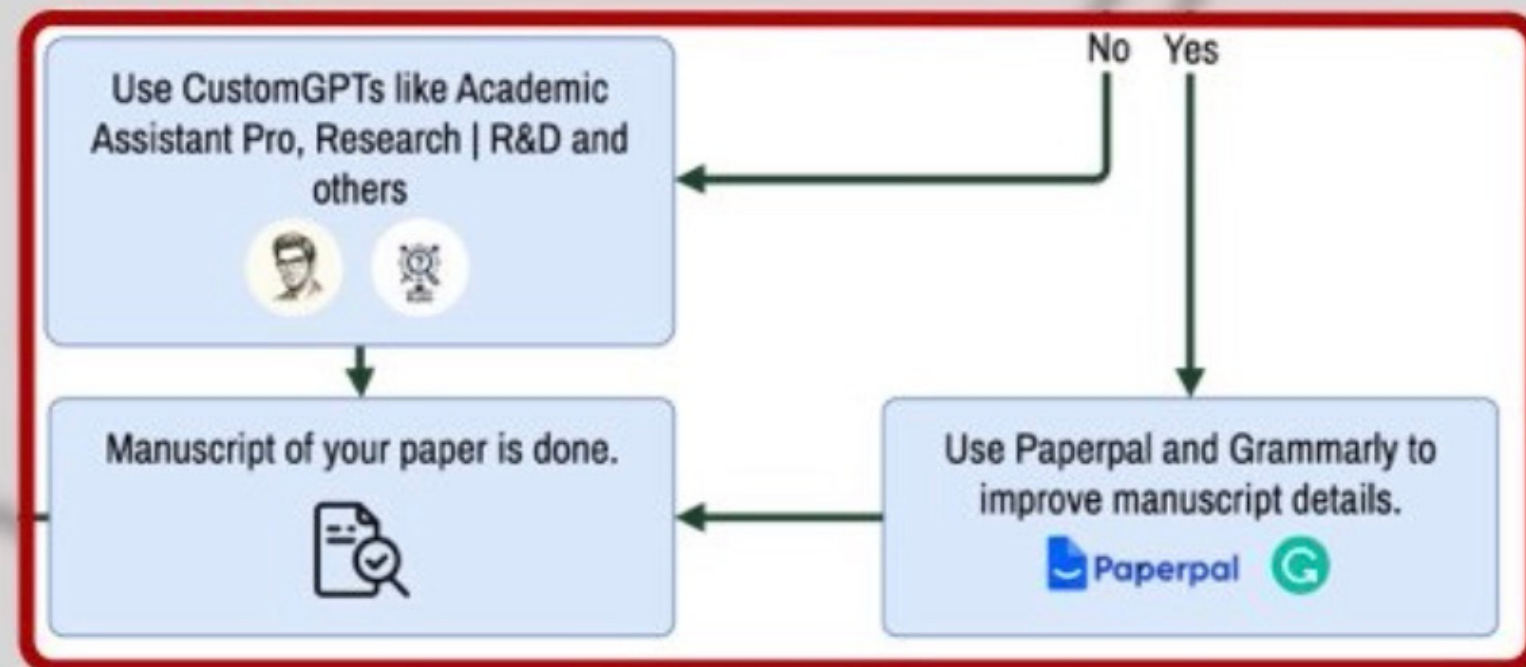
Once you have created a narrative, it's time to start writing your literature review. The easiest way to integrate AI into this process is by breaking your narrative into small statements. Each statement consists of a factual expression and a reference (e.g. "Climate change causes sea level rise (Smith 2020)"). If you assemble dozens of these statements, you can use them as the building blocks for a bigger narrative of your academic paper. Here is how it looks laid out on a mind map in my vault.

These atomic statements can also be extracted using **ChatGPT**. Once you have broken down the narrative in this way, writing up a few paragraphs of text becomes very easy. You can combine the relevant atomic statements and use **ChatGPT's Canvas** feature to iteratively improve your writing paragraph by paragraph. If you're using **ChatGPT** and you find its writing mediocre, you can train it to write in a more academic style using the writing blueprint method.

And the last step of the literature review, you can use a tool like **PaperPal** or **custom GPTs** like the Academic Assistant Pro to polish your writing and improve it to academic standards.



STEP 6



← Make Academic ⓘ

Make Academic

Lithium-ion batteries are currently regarded as crucial for numerous applications, including electric vehicles and renewable energy storage. However, their performance does not yet meet market demands. A significant limitation is the graphite anode, which is ubiquitously used but can only store a limited amount of lithium, thereby constraining the energy density. To address this issue, researchers have explored silicon anodes, which theoretically can accommodate substantially more lithium—nearly ten times more. Nonetheless, these anodes face significant challenges, such as expansion during charging, cracking, and rapid capacity degradation. Various strategies, including coatings and nanostructuring, have been attempted, but the results remain inconsistent, and the methods are often costly or not scalable. In our study, we investigated a novel silicon-carbon composite that we believe may mitigate these issues. The composite demonstrated commendable cycling stability, maintaining approximately 85% capacity retention over 500 cycles, which is notably superior to most existing reports. However, its performance remains somewhat unstable under high current density, and the underlying mechanism is not yet fully understood. We hypothesize that the carbon matrix enhances conductivity and buffers expansion, although some side reactions may occur, diminishing long-term stability. Compared to existing literature, our approach appears promising, yet it is evident that further research is necessary to optimize both the synthesis process and electrode design.

Copy Retry

AI content should always be reviewed ⓘ

Or try other modes

Paraphrase ✓ Make Academic Improve Fluency Simplify

30
Edit
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Research | Cite
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AI Lit Review Step 6 - Peer Review

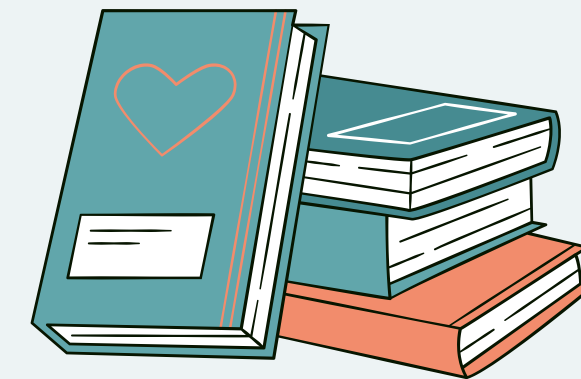


The last step of the literature review could be considered a fail-safe, where you upload your finished manuscript to AI and let it search for relevant papers and then critically peer-review your writing. The tools **PaperWizard** and **Liner** both do an excellent job at this.

Another way that you can use to check if you have found all the right references for your literature review is to upload your entire bibliography for the lit review to **Litmaps**. If you remember, **Litmaps** was designed to find papers similar to the papers you give it. If you upload your entire bibliography and it still finds relevant similar papers, we could consider those reference gaps. This is a very powerful method to check what you might have forgotten.



Summary of the AI Literature Review Process



Many tools can help you find the proper papers, synthesise information, aid in understanding while reading, peer-review your manuscript, and assist with writing parts of it. The key to using them effectively is **to treat the AI as a tool** rather than an employee. While you can expect an employee to be responsible for the outcome, AI usually has no goals of its own. But the more detailed your descriptions and objectives are, the better the job this tool can do. A large language model is nothing more than a piece of software that processes information in a sophisticated way. And just like with software, the more niche and detailed the task is, the more reliable the results. Avoid over-relying on the all-in-one solutions where you don't have to put in any effort. No effort usually means no understanding.



Problem 1: AI Struggles to Prioritise Papers In Your Literature Review

AI is often not good at prioritising papers. A peer-reviewed Q1 publication might be weighted the same as a pre-print that has not been peer-reviewed. This can compromise the output and make it less trustworthy. However, all of these tools will display the number of citations or the journal ranking in the results, allowing you to double-check.



Problem 2: The Success of Your AI Literature Review Depends on the Prompt

Large language models have been trained to fulfil users' requests and are generally very supportive. So if your prompt implies a particular theory (e.g. "Find evidence for climate change causing the loss of biodiversity"), AI will try to affirm that theory rather than give you a critical assessment of your ideas. You can always double-check this by formulating two different prompts that contradict each other and check the output. Another way is to avoid this altogether by asking very open-ended questions (e.g. "what are the effects of climate change on biodiversity").



Problem 3: Literature Review AIs won't read most papers

Reading a paper takes you time, while it takes AI computational power. Every company tries to minimise computational costs in order to maximise profits. It is part of AI's training to generate responses faster with less material. However, this can be a problem if you are looking for an exhaustive search that encompasses most or all the literature on the topic. AI companies solve it by offering different tiers of search.

