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# AI Literacy

Tutorial of the Philosophy and Psychology Library

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Except logo  
and pictures

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## Exercise: What can AI be used for?





## Exercise: What can AI be used for?



Source: <https://pixabay.com/de/photos/betrieb-op-saal-operation-1807543/>



Source: <https://pixabay.com/de/photos/verwischen-diagramm-rechner-daten-1853262/>



Source: <https://pixabay.com/de/photos/weizen-feld-sonnenuntergang-2391348/>

## AI Act

- The new EU AI law, officially known as the AI Act, represents the world's first comprehensive legislation for artificial intelligence. The purpose of the law is to regulate the development and use of artificial intelligence within the EU to ensure that AI systems are safe, transparent, traceable, non-discriminatory, and environmentally friendly (EU AI Act, European Commission, 2023).
- Risk-based approach: strong regulation for high-risk technologies (e.g., self-driving cars) and less for lower-risk technologies (e.g., deposit return machines).
- There are also areas within educational institutions that fall under high-risk systems, meaning that universities must ensure their AI systems are safe before they are deployed.

## Is the use of AI allowed within academic processes?

- There is no simple answer for the question of how AI is used in education – at the University of Vienna, it's use is neither generally allowed nor prohibited.
- For example, students in translation studies work with translation AI.
- Even word processing software now contain small AI-based everyday helpers.
- AI cannot replace students' skills and knowledge, as AI results must always be verified.
- The decision on whether and how to use AI tools lies with instructors and examiners and is made according to each specific field.

[AI in studies and teaching \(univie.ac.at\)](https://univie.ac.at)

## Is it allowed to use AI in academic settings?

- Transparency is particularly important. Instructors specify which tools are allowed before classes or exams – a challenging task given the multitude of tools available.
- It is important to consider that **developments are rapid**, and this presentation should be understood as a starting point

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## If the professor does not address it, what should be done?

- To ensure clarity, the question of how to handle AI tools is best addressed in the first class session or before the exam.

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## Sensible use of AI

- Do not blindly rely on the results: Since text generators create their responses based on statistical probabilities, information and references may sometimes be fabricated.
- Additionally, AI cannot critically question its training data and thus sometimes reproduces biases in the form of stereotypical, distorted, and discriminatory representations (Pohlmann et al., 2022).
- Eloquence is often associated with intelligence – don't be misled by well-formulated texts!
- ChatGPT and similar tools are text generators, not search engines: when using them, keep in mind that these tools were trained on a limited knowledge base and may not include current knowledge (e.g., ChatGPT's knowledge base is up to 2023).

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## Sensible use of AI

- Most AI tools do not comply with the GDPR (General Data Protection Regulation) and use user input as training data – one should carefully consider what information is entered into the system and generally avoid using personal data. To set up a ChatGPT account, users must provide their name, date of birth, and phone number (or log in with a Google account).
- Evaluation of source quality – most tools do not allow pre-definition in terms of source quality, such as the timeliness of results or the impact factor of a journal.
- Therefore, it's essential to use various search strategies to gain a comprehensive perspective. This includes not only simple searches but also cross-checking information from different sources, verifying the reputation of sources, and considering expert opinions.

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## Sensible use of AI

- AI tools can make work processes easier and faster. However, to assess the quality of AI results and revise them, if necessary, one must have the necessary skills themselves.
- No matter how AI tools are used in studies, you are responsible for the results – so always review the generated output.

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## Sensible use of AI – The Robot Test

- Developed by Wheatley and Hervieux (2020),
- It is intended to help individuals evaluate information from AI.
- **ROBOT**: Reliability, Objective, Bias, Ownership, and Type
  - **Reliability**: How reliable is the information? Is there author bias? Are only partial details provided?
  - **Objective**: What is the purpose of the AI? To inform? To persuade? To obtain financial support?
  - **Bias**: Are there ethical concerns? Are potential biases addressed?
  - **Owner**: Who is responsible for the AI? A private company, government, or researchers?
  - **Type**: What subtype of AI is it? What information system does it use?

[AI Literacy - Artificial Intelligence - Guides at McGill Library](#)

## Ethics and AI

- Historically, there have always been ethical considerations (Coeckelbergh, 2000).
- Ethics concerns what is morally good and right, not just what is technically good.
- Discussions on AI ethics include topics like safety, privacy, discrimination, and responsibility (Jobin et al., 2019; Hagendorff, 2020).
- There are controversies surrounding the design and regulation of AI technologies.

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## Ethics and AI

- Overarching Ethical Challenges:
  - The change in human self-perception and relationships with the world through AI systems
  - Generative AI systems influence human self-understanding and communication
  - The use of AI systems in higher education alters the understanding of what it means to be human and of education
- Educational Institutions and AI:
  - Universities must reconsider their purpose and role in relation to AI systems
  - The use of generative AI, such as Chat-GPT, requires clarification of educational goals at both the institutional and disciplinary levels
  - Educators and students must collaboratively find answers to these questions.

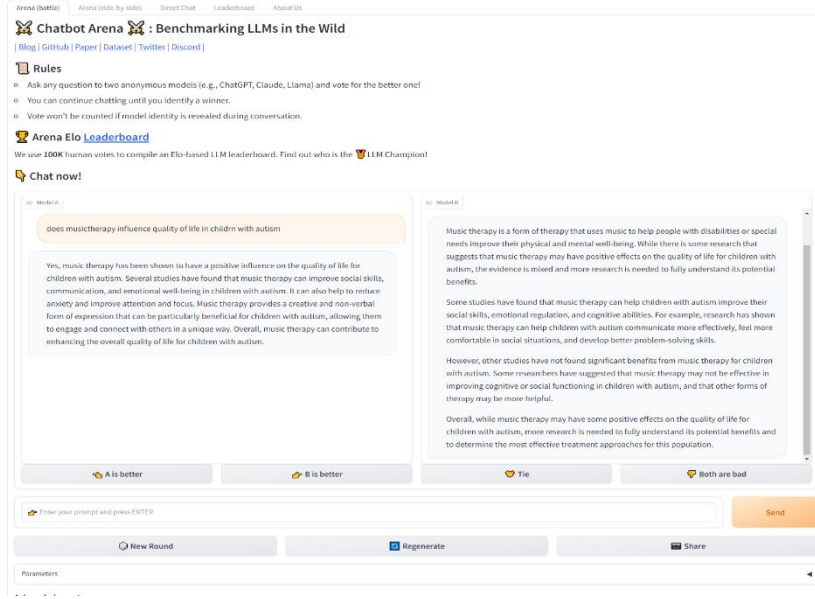
## AI neutrality

- Data used to train AI is often biased.
  - In the case of Chat-GPT, for example, the political orientation of the system was analysed by prompting the model to answer questions from a political orientation test. It was found that Chat-GPT generally exhibited a left-leaning political orientation (Rozado, 2023). This is relevant because it shows that Chat-GPT – and all other AI models – cannot be considered neutral. In this context, the predictions of such systems must also be viewed critically.
- AI is generally NOT neutral!
- The goals and intentions of the developers always play a role.
- Neutrality depends on the development, training, and use of the AI, and requires transparency!

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## Side note – AI Training

- Chatbot Arena ([Link to Chatbot Arena](#)): Chatbot Arena is an open-source research project developed by members of LMSYS and UC Berkeley SkyLab. It collects human feedback to evaluate Large Language Models (LLMs) in real-world scenarios.



**Chatbot Arena: Benchmarking LLMs in the Wild**

**Rules**

- Ask any question to two anonymous models (e.g., ChatGPT, Claude, Llama) and vote for the better one!
- You can continue chatting until you identify a winner.
- Vote won't be counted if model identity is revealed during conversation.

**Arena Elo Leaderboard**

We use 100K human votes to compile an Elo-based LLM leaderboard. Find out who is the **LLM Champion!**

**Chat now!**

Model A: does music therapy influence quality of life in children with autism

Model B: Music therapy is a form of therapy that uses music to help people with disabilities or special needs improve their physical and mental well-being. While there is some research that suggests that music therapy may have positive effects on the quality of life for children with autism, the evidence is mixed and more research is needed to fully understand its potential benefits.

Some studies have found that music therapy can help children with autism improve their social skills, emotional regulation, and cognitive abilities. For example, research has shown that music therapy can help children with autism communicate more effectively, feel more comfortable in social situations, and develop better problem-solving skills.

However, other studies have not found significant benefits from music therapy for children with autism. Some researchers have suggested that music therapy may not be effective in improving cognitive or social functioning in children with autism, and that other forms of therapy may be more helpful.

Overall, while music therapy may have some positive effects on the quality of life for children with autism, more research is needed to fully understand its potential benefits and to determine the most effective treatment approaches for this population.

A is better | B is better | Tie | Both are bad

Enter your prompt and press ENTER | Send

New Round | Regenerate | Share

Arena Elo Full Leaderboard

Total #models: 64. Total #votes: 299816. Last updated: Feb 15, 2024.

Contribute your vote at [chat.lmsys.org!](#) Find more analysis in the [notebook](#).

Rank	Model	Arena Elo	95% CI	Votes	Organization	License	Knowledge Cutoff
1	<a href="#">GPT-4-1106-preview</a>	1254	+5/-5	38745	OpenAI	Proprietary	2023/4
2	<a href="#">GPT-4-0125-preview</a>	1253	+10/-8	6308	OpenAI	Proprietary	2023/4
3	<a href="#">Bard_(Gemini_Pro)</a>	1218	+8/-7	10313	Google	Proprietary	Online
4	<a href="#">GPT-4-0314</a>	1191	+6/-6	20430	OpenAI	Proprietary	2021/9
5	<a href="#">GPT-4-0613</a>	1164	+5/-6	32941	OpenAI	Proprietary	2021/9
6	<a href="#">Mistral_Medium</a>	1152	+5/-7	17847	Mistral	Proprietary	Unknown
7	<a href="#">Claude-1</a>	1150	+7/-5	19017	Anthropic	Proprietary	Unknown
8	<a href="#">Qwen1.5-72B-Chat</a>	1147	+8/-8	5204	Alibaba	Qianwen LICENSE	2024/2
9	<a href="#">Claude-2.0</a>	1132	+6/-8	12753	Anthropic	Proprietary	Unknown
10	<a href="#">Gemini_Pro_(Dev_API)</a>	1122	+7/-7	9024	Google	Proprietary	2023/4
11	<a href="#">Claude-2.1</a>	1120	+6/-4	27723	Anthropic	Proprietary	Unknown
12	<a href="#">Mixtral-8x7B-Instruct-v0.1</a>	1120	+5/-6	18410	Mistral	Apache 2.0	2023/12
13	<a href="#">GPT-3.5-Turbo-0613</a>	1118	+5/-5	36704	OpenAI	Proprietary	2021/9
14	<a href="#">Gemini_Pro</a>	1115	+9/-9	6958	Google	Proprietary	2023/4
15	<a href="#">Yi-34B-Chat</a>	1111	+7/-8	7734	01 AI	Yi License	2023/6



## Creating AI citations

- Discourse at APA:
  - ChatGPT chat results are not retrievable, and the same answer is never given twice.
  - They are treated like algorithm outputs and must be cited accordingly.
  - It is important to specify how tools were used.
  - Problem: Which sources do the answers refer to? ChatGPT is not the primary source of the information!
  - Details on the exact citation format can be found under [How to cite ChatGPT \(apa.org\)](#).
- Information on other citation formats is available on the [Central European University website](#).

## AI literacy

- It includes the ability to:
  - Critically evaluate AI technologies
  - Communicate and collaborate effectively with AI
  - Use AI as a tool online, at home, and in the workplace (Long & Magerko, 2020)

# Selected AI Tools

## AI Tools

- Note on usage: The tools are continuously being developed, so changes to the user interface, functions, pricing structure, and terms of use may occur at any time.

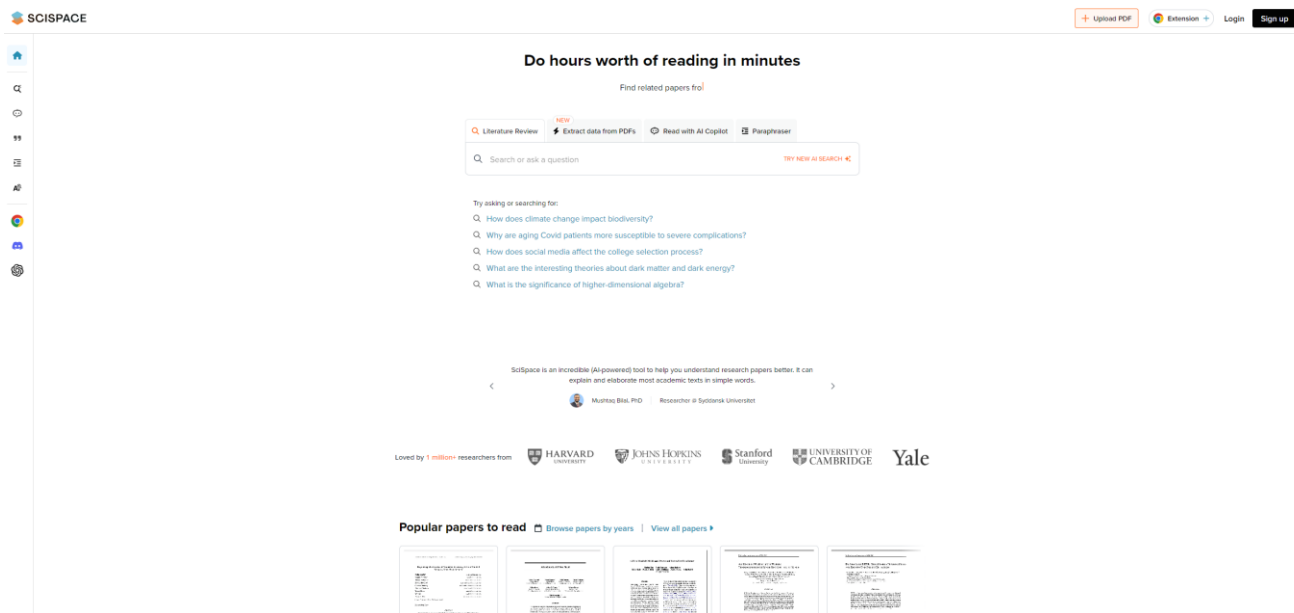
## Side note: Semantic Scholar

- Many of the tools presented below rely on Semantic Scholar
- An academic search engine developed by the “Allen Institute for AI”.
- It uses machine learning and natural language processing to search, analyse, and categorize articles from various fields.
- Features include automatic article summarization, identification of key terms, and citation analysis to help researchers find relevant information for their work.

## Side note: Semantic Scholar

- The platform searches a wide range of sources, including both open-access articles and those that are behind paywalls or accessible through subscriptions.  
Semantic Scholar can access licensed content by partnering with publishers to access their databases.
- It is important to note that Semantic Scholar may not be able to access every single paywalled article, especially if they are not included in the databases indexed by Semantic Scholar or if no agreements have been made with the publishers.

## AI Tools for Literature Search – Scispace



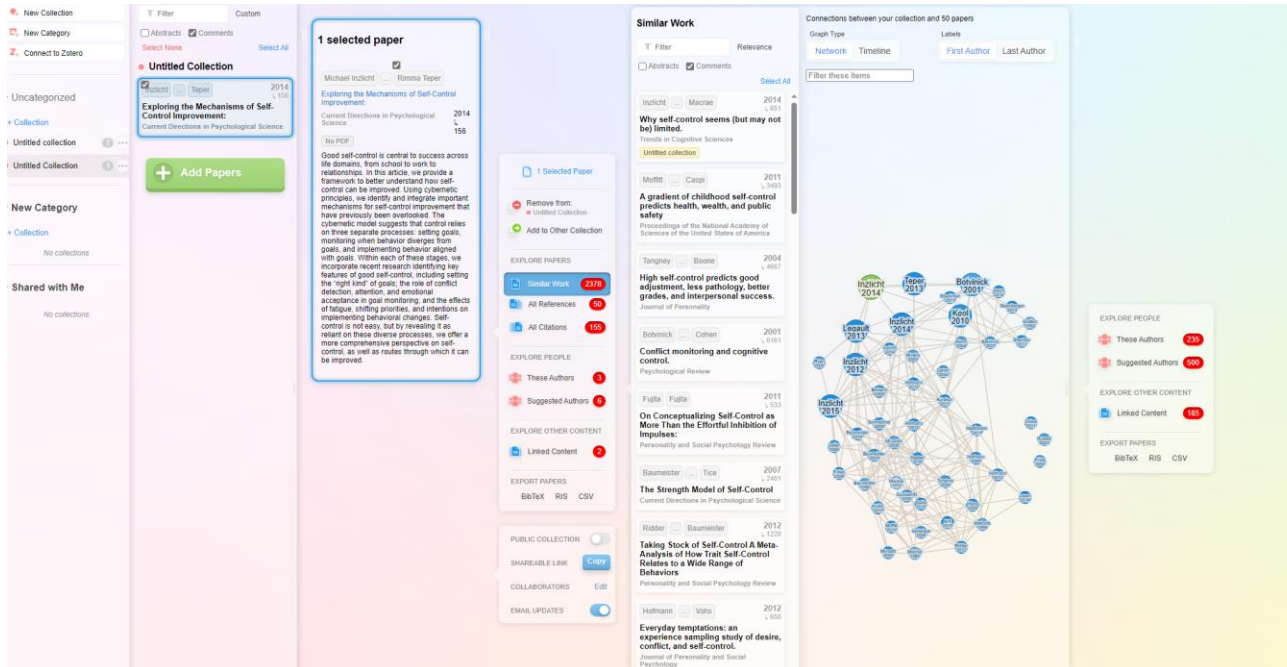
- [Link to Scispace](#)
- Web-based tool
- Easy to navigate
- No registration required
- Free version: limited questions
- Offers additional tools
- Chrome extension available
- Currently only available in English

## SciSpace – Data Sources

- SciSpace has its own extensive database of over 270 million academic papers, authors, topics, journals, and conferences.



# AI Tools for Literature Search – ResearchRabbit



The screenshot displays the ResearchRabbit interface. On the left, there are navigation options like 'New Collection', 'New Category', and 'Connect to Zotero'. The main area shows a '1 selected paper' by Michael Inzlicht and Regina Tesser, titled 'Exploring the Mechanisms of Self-Control Improvement'. Below this, there are sections for 'Similar Work' and 'Connections between your collection and 50 papers'. The 'Similar Work' section lists related papers such as 'Why self-control seems (but may not be) limited.' and 'A gradient of childhood self-control predicts health, wealth, and public safety'. The 'Connections' section features a network graph showing relationships between various papers. On the right, there are statistics for 'EXPLORE PEOPLE' (These Authors: 235, Suggested Authors: 699) and 'EXPLORE OTHER CONTENT' (Linked Content: 183). At the bottom right, there are options to 'EXPORT PAPERS' in BibTeX, RIS, or CSV format.

- [Link to ResearchRabbit](#)
- Web-based tool
- Easy to navigate
- Requires registration
- Free and unlimited
- Finds similar papers or papers that cite this paper
- Visualizes connections

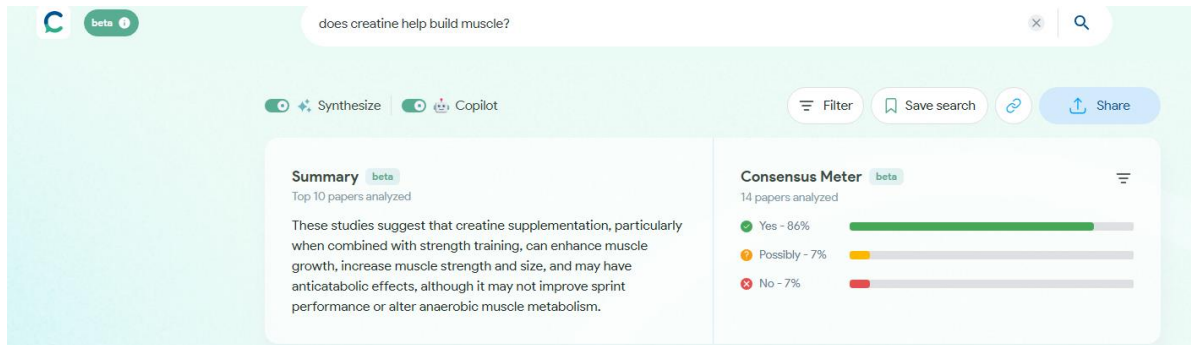
## Research Rabbit – Data Sources

- Relies on PubMed and Semantic Scholar
- The company claims that its unique database, with "hundreds of millions of scientific articles," is the second largest after Google Scholar ([ResearchRabbit - PMC \(nih.gov\)](#)).
- This means: access to databases like PubMed as well as its own database, but not transparent on the website.

## Research Rabbit

- Often no full-text file available, only abstract  
→ Importance of open science and access!
- However: a good initial overview of the current state of research

## AI Tools for Literature Search – Consensus



- [Link to Consensus](#)
- Web-based tool
- Easy to navigate
- Requires registration
- Free
- Enter a research question, then it searches for studies that answer it
- Legend showing the direction of research trends
- Beta version, English only

# Consensus

## How to search?

Consensus uses AI to find answers in research papers. The best way to search is to ask a question.



### Ask about the relationship between concepts

Does spanking impact childhood development?

What predicts success as a startup founder?

Does creatine improve cognition?



### Ask a simple yes/no question

Can zinc supplementation treat depression?

Does morning sunlight improve mood?

Do home crowds impact referee bias?



### Ask about the effects of a concept

What are the effects of gratitude practice?

What are the mental health benefits of psychedelics?

What are the effects of drug decriminalization?

## Consensus – Data Sources

- Semantic Scholar
  - *“The current source material used in Consensus comes from the [Semantic Scholar](#) database, which includes over 200M papers across all domains of science. We will continue to add more data to the product over time and our dataset is updated on a monthly cadence.”*
- Additionally uses OpenAI’s GPT-4 model to generate summaries of the results.

## What are literature mapping tools?

- Tools for Academic Work
- More specifically: Software for visualizing bibliographic data.
- Bibliometrics: The application of quantitative methods aimed at measuring academic performance → subdiscipline: Science Mapping.
  - University of Vienna: Department for Bibliometrics and Publication Strategies.

## Why should you use literature mapping tools?

- provide an overview
- find thematically similar articles
- identify trends and gaps
- refine search queries



# Connected Papers

Episodic memory and personal semantics as triggers of nostalgia: its relationships between abstraction of memory content and temporal distance

Prior works Derivative works List view Filters More

Original paper  
Episodic memory and personal semantics as triggers of nostalgia: its relationships between abstraction of memory content and temporal...  
Hiroka Iieda, T. Kusumi 2023

Reliving the Good Old Days: Nostalgia Increases Psychological Wellbeing Through Collective Effervescence  
E. Naidi, Shira Gabriel, T. Wildschut, C. Sedikides 2023

Dear old love: Effects of reflecting on nostalgic memories about ex-partners on current romantic relationship  
Ting Ai, Omri Gillath, M. Landau 2022

Nostalgic intergroup contact and intergroup relations: Theoretical, empirical, and applied dimensions.  
Rihannon N. Turner, S. Stathi 2023

The Authentic Self Is the Self-Enhancing Self: A Self-Enhancement Framework of Authenticity.  
Corey L. Guenther, Yiyue Zhang, C. Sedikides 2023

Classification of general and personal semantic details in the Autobiographical Interview  
L. Renoult, Michael J. Atkinson, N. Diamond, Carina L. Fan, N. Jayakumar, Larys... 2020

How Does Nostalgia Conduce to Global Self-Continuity? The Roles of Identity Narrative, Associative Links, and Stability  
Emily K. Hong, C. Sedikides, T. Wildschut 2021

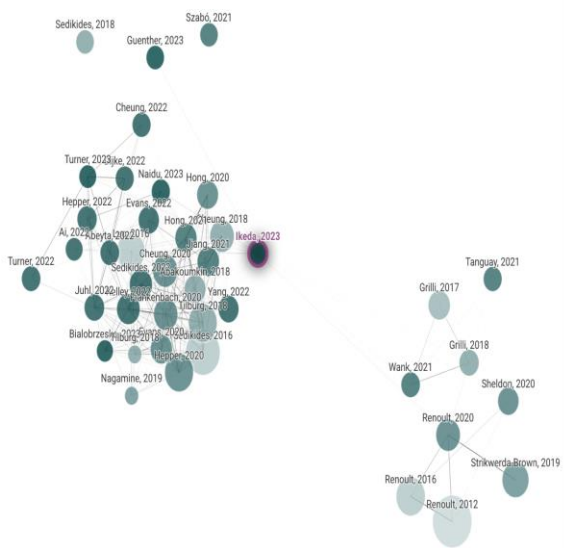
Nostalgia supports a meaningful life.  
Andrew A. Abejta, Simran Pillarsetty 2022

Mental transportation mediates nostalgia's psychological benefits  
Nicholas D. Evans, J. Reyes, T. Wildschut, C. Sedikides, Adam K. Fetterman 2020

Autobiographical memory unknown: Pervasive autobiographical memory loss encompassing personality trait knowledge in an individual with med...  
A. Wank, A. Robertson, S. Thayer, M. Verfaellie, S. Rapcsak, Matthew D. Grill 2021

Patterns of brain activity associated with nostalgia: a social-cognitive neuroscience perspective  
Ziyang Yang, T. Wildschut, Keisei Izuma, Ruzlei Gu, Yu L. L. Luo, Huijian Cai, C... 2022

You've used 2/2 free graphs this month. Log in to get 3 more.



Episodic memory and personal semantics as triggers of nostalgia: its relationships between abstraction of memory content and temporal distance  
Hiroka Iieda, T. Kusumi 2023, Memory ...

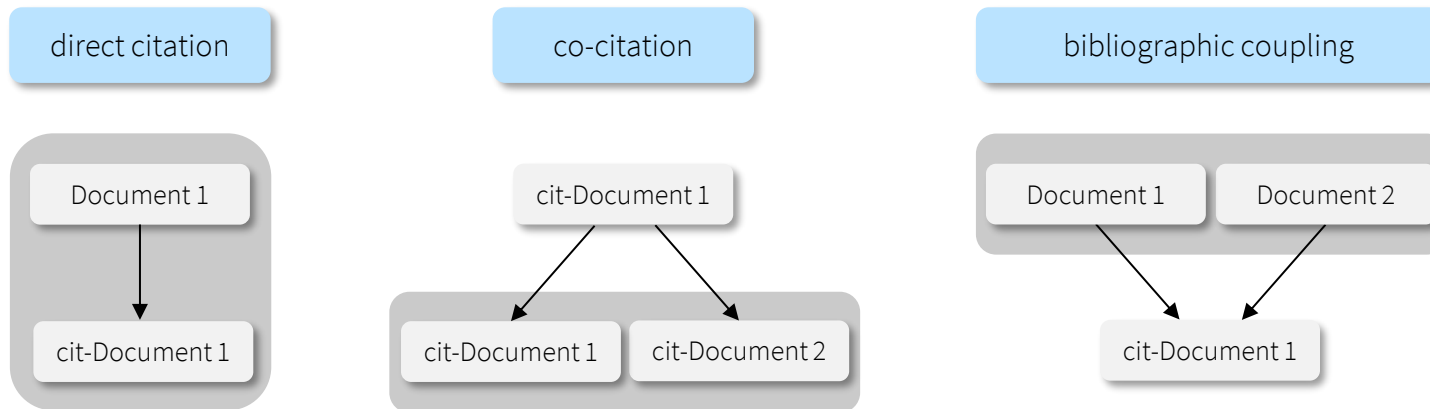
1 Citation Save

Open in: [Icons]

ABSTRACT Nostalgia, an autobiographically relevant positive emotion, is a sentimental longing or wistful affection for the past. Autobiographical memory which is one of the cognitive bases of nostalgia, includes both abstract semantic and detailed episodic memories. Recent studies have defined and classified memories that are located between semantic and episodic memory as personal semantics. Although autobiographical memory and personal semantics range over a continuum, past nostalgia research has not focused on or controlled them. In two experiments, undergraduate students retrieved episodic memory and personal semantics and rated cognitive and affective items. The intensity of nostalgia differed according to the types of memory content and temporal distance of the memory from the present. These results revealed that not only unique events but also repeated events and autobiographical facts induced nostalgia; furthermore, repeated events from both the distant and recent past (primary and high school, respectively) consistently induced relatively greater nostalgia, but in some cases, they were not significantly different from other types of memory (i.e., unique events and autobiographical facts). These findings suggest that both episodic memory and personal semantics are involved in the occurrence of nostalgia.

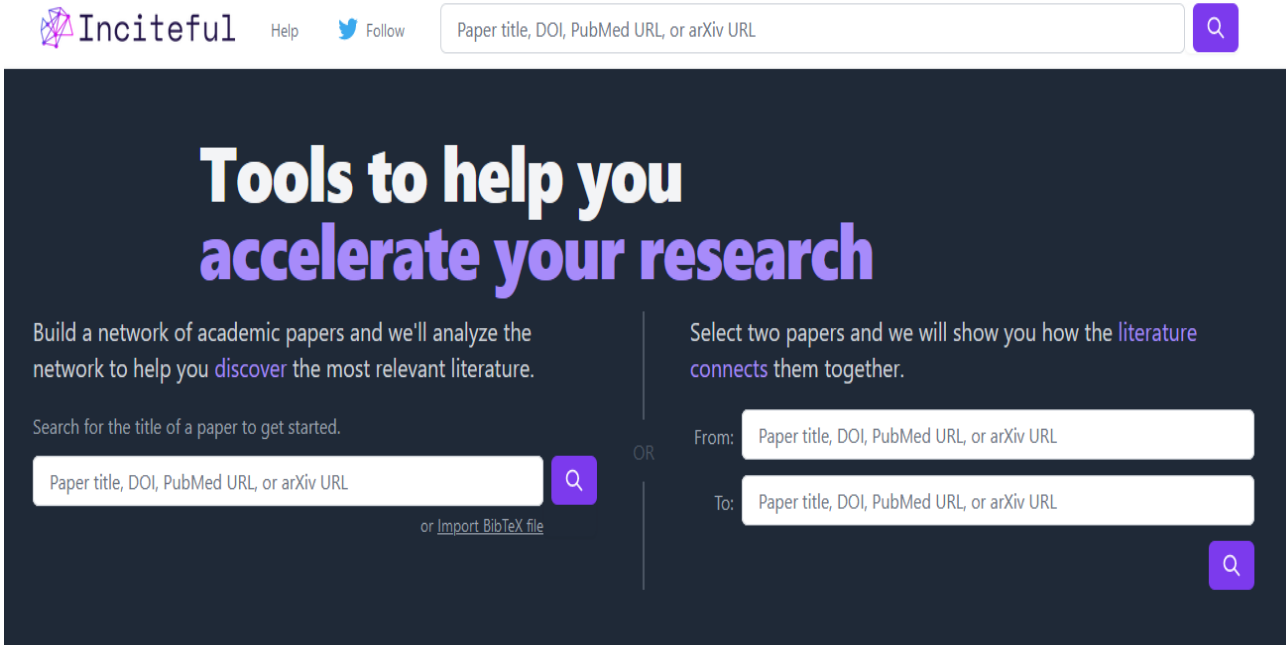
- [Link to Connected Papers](#)
- Web-based tool
- Simple structure
- Free version: 5 graphs per month
- Search based on a seed paper
- Data source: Semantic Scholar
- Export as Bibtext file

## Co-citation & bibliographic coupling



- **Citation:** An article A cites an article B.
- **Co-citation:** Two articles A and B are jointly cited by an article C.
- **Bibliographic Coupling:** Two articles A and B cite a common article C

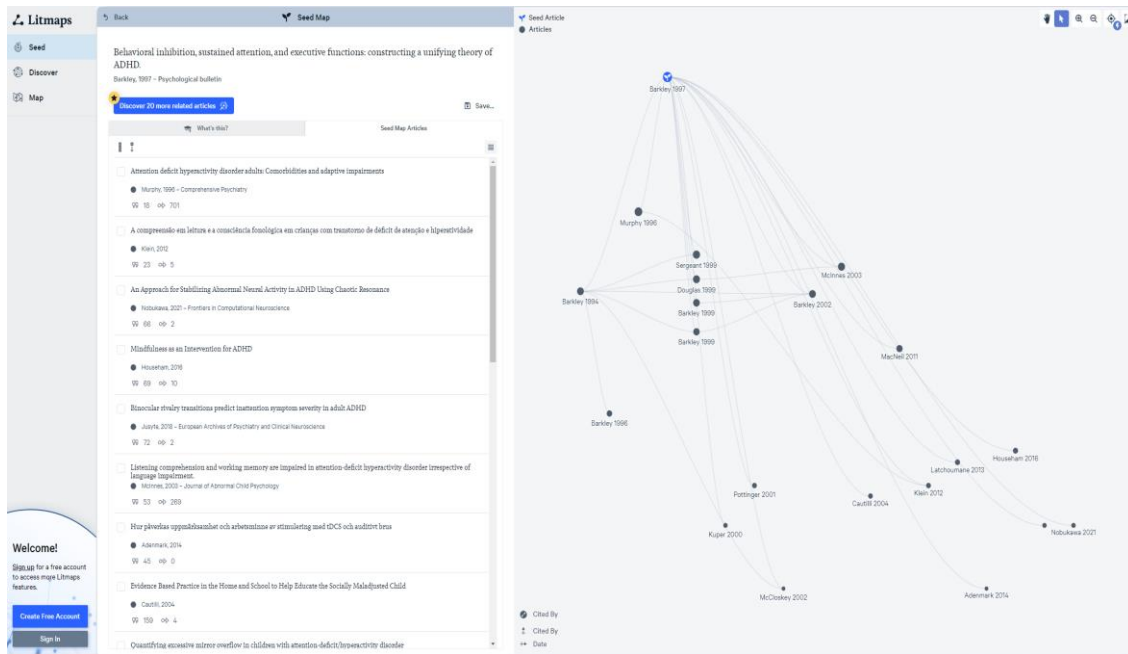
# Inciteful



The screenshot shows the Inciteful website interface. At the top, there is a navigation bar with the Inciteful logo, a 'Help' link, and a 'Follow' button with a Twitter icon. A search bar contains the text 'Paper title, DOI, PubMed URL, or arXiv URL'. Below this is a large dark blue banner with the text 'Tools to help you accelerate your research'. The banner is divided into two sections. The left section says 'Build a network of academic papers and we'll analyze the network to help you discover the most relevant literature.' and includes a search bar with the same text as the top bar and a 'or Import BibTeX file' link. The right section says 'Select two papers and we will show you how the literature connects them together.' and includes two search bars labeled 'From:' and 'To:', both with the same text as the top bar, and a search button.

- [Link to Inciteful](#)
- Free, web-based tool
- Two core features
  - Paper Discovery
  - Literature Connector
- Search based on a seed paper
- Recommendation: Search with at least 5 articles
- Software output
  - Similar papers
  - Most important in the graph
  - Recent papers by the top 100 authors
  - The most important recent papers

# Litmaps

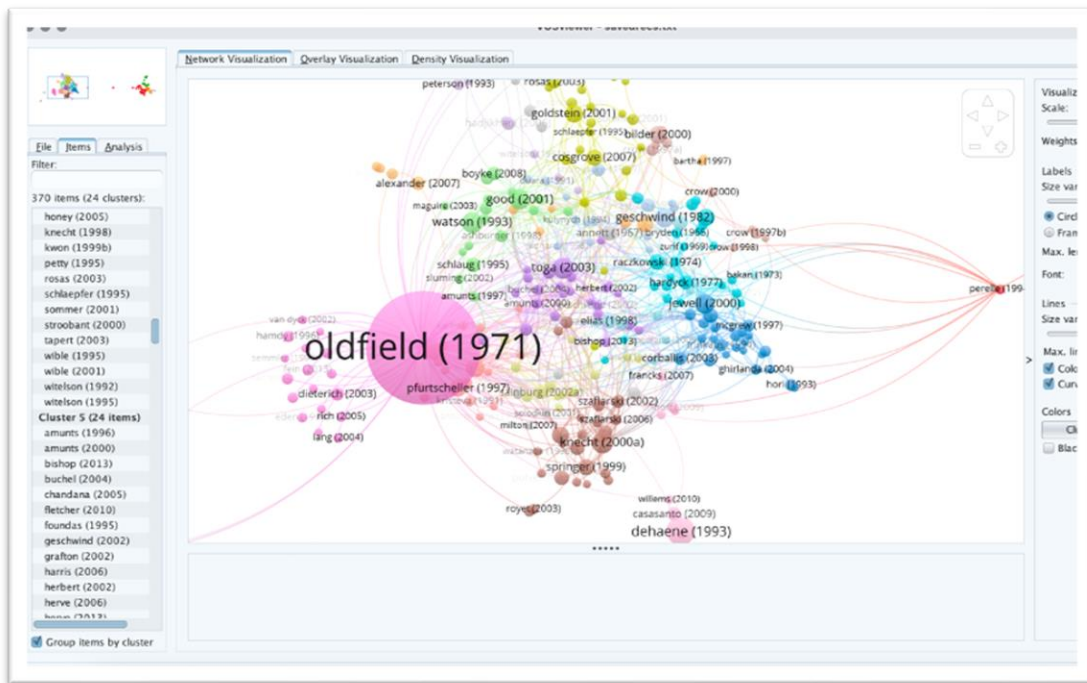


- [Link to Litmaps](#)
- Web-based tool
- Limited usage in the free version
- Strong focus on graphical representation of relationships
- Various ways to initiate a search
- Can generate networks based on multiple articles
- Can display chronological relationships
- Data sources are OpenAlex, Crossref, Semantic Scholar

## Inciteful and Litmaps – Data Sources

- OpenAlex: A free and open catalogue for scholarly works, researchers, journals, and institutions. Users can create their own academic search engines, recommendation services, and knowledge graphs with it. OpenAlex promotes open and free research and is based on an open-source codebase.
- Semantic Scholar
- CrossRef: Facilitates the discovery, citation, linking, evaluation, and reuse of research findings.
- OpenCitations: An independent infrastructure organization for open science, dedicated to publishing open bibliographic and citation-related data using Semantic Web technologies. It is also an active advocate for open citations, particularly as a key founding member of the Initiative for Open Citations (I4OC).

## VOSViewer



- [Link zu VOSViewer](#)
- Free software
- Desktop and web version
- Advanced user requirements: independent data collection, cleaning, and analysis
- Can generate networks from the following data:
  - Keyword co-occurrence
  - Bibliographic coupling
  - Co-citation
- Works with data from various sources:
  - Web of Science, Scopus, PubMed
  - File formats from reference management tools
  - APIs

## VOSViewer – Data Sources

- Various sources from databases such as Web of Science, Scopus, Dimensions, Lens, and PubMed are used to create networks like co-authorship networks, citation-based networks, and co-occurrence networks.
- Crossref, Europe PMC, and OpenAlex, as well as Semantic Scholar, OpenCitations, and WikiData, are used to create networks.

## Key Points

- The use of AI at the University of Vienna is subject to instructors, is neither generally allowed nor prohibited, and is applied on a subject-specific basis.
- Exams assess student competencies; allowed aids are defined by instructors.
- A critical evaluation of AI text generators is necessary, as results and references may be faulty.
- Data protection must be observed; users are responsible for AI-generated results and should continuously question the tools.
- Tools for literature search include Scispace, ResearchRabbit, and Consensus.
- Tools for literature mapping include Connected Papers, Inciteful, Litmaps, and VOSViewer.
- The tools have different data sources, with Semantic Scholar as well as proprietary databases and collaborations being particularly frequently represented.



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