

The Integration of AI Tools in Postgraduate Computer Science Studies

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BIN OTHMAN

Innovating Solutions



About Me



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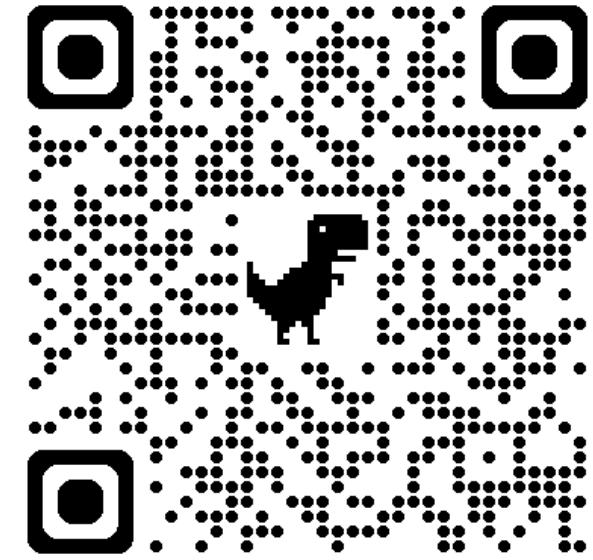
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Dr Shahizan | Lecturer, Academic Speaker & Tech Educator 🌟

Educating future leaders as a Lecturer at [Universiti Teknologi Malaysia \(UTM\)](#), with a strong passion for software development, innovation, and empowering students through dedicated supervision and impactful academic talks.

Explore my projects below, and let's collaborate on something impactful! 😊

🌐 Collaborative Workshops and Courses: Year 2025



<https://github.com/drshahizan>

Introduction

Welcome to the revolution of academic writing with AI. Explore the potential of artificial intelligence in transforming the way we analyze and understand literature. Join us on this journey of discovery and innovation.



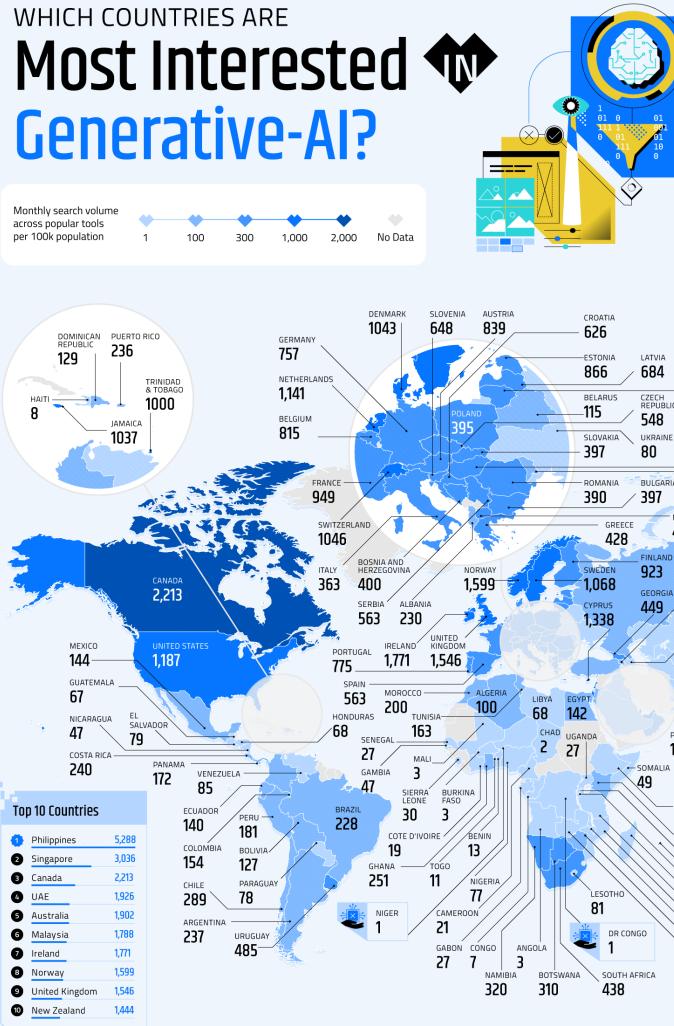
Generative AI



Generative AI

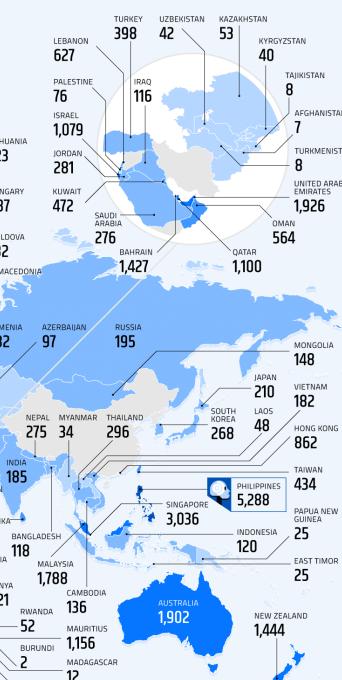
Generative Artificial Intelligence (Generative AI) refers to a branch of **artificial intelligence** that leverages advanced **machine learning techniques** to model underlying **patterns in data** and subsequently generate **novel content**. Rather than reproducing the original data, Generative AI creates **new outputs** that resemble the **source material** in **structure** and **style**. Such outputs may take the form of text, images, video, audio, or other digital media.

WHICH COUNTRIES ARE Most Interested IN Generative-AI?



Artificial Intelligence is taking the world by storm. Research by Goldman Sachs suggests that new technology has the potential to drive a 7% increase in global GDP by 2033. But which countries are most interested in this global phenomenon?

Our analysis shows that people in the **Philippines** are keenest on AI technology, with **5,288 searches** for popular generative AI tools per 100k of its population. Users in **Singapore** (3,036 searches per 100k) and **Canada** (2,213 searches per 100k) also have high levels of interest.

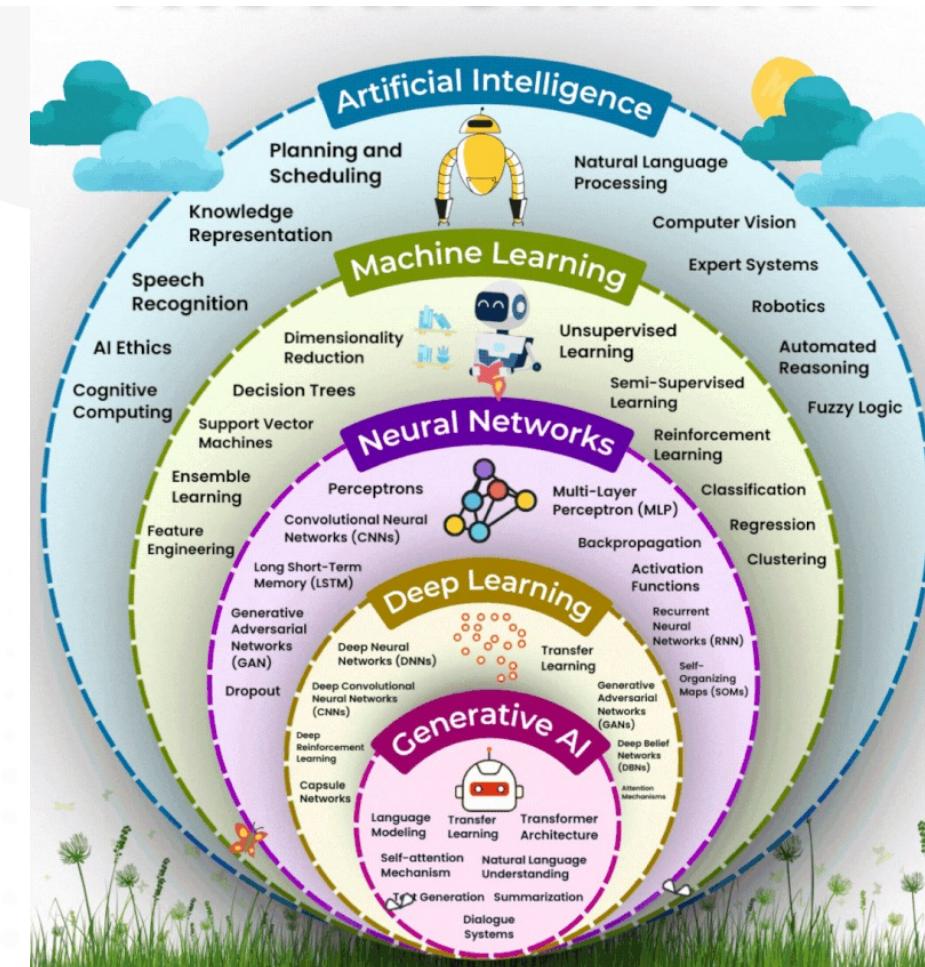


Methodology: We built a seed list of over 90 of the most popular generative AI tools across four categories (text, voice, audio, and image). We then recorded the monthly Google search volume for each in every country, and calculated the overall volume across all tools per 100k population. All search volumes were scaled up according to the search engine market share in each country, using figures from statscounter.com.

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ElectronicsHub

The Landscape of Artificial Intelligence

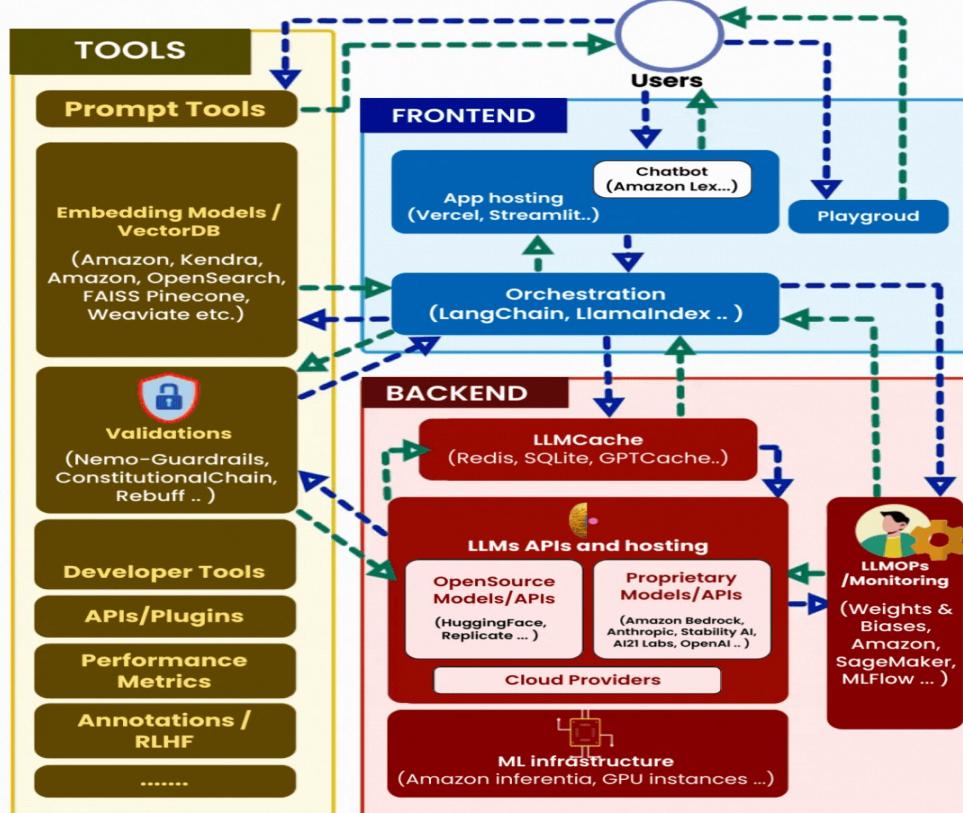




Created by:
Rocky Bhatia [in](#)

R learnwithrockybhatia.com
Your Gateway for Tech Learning

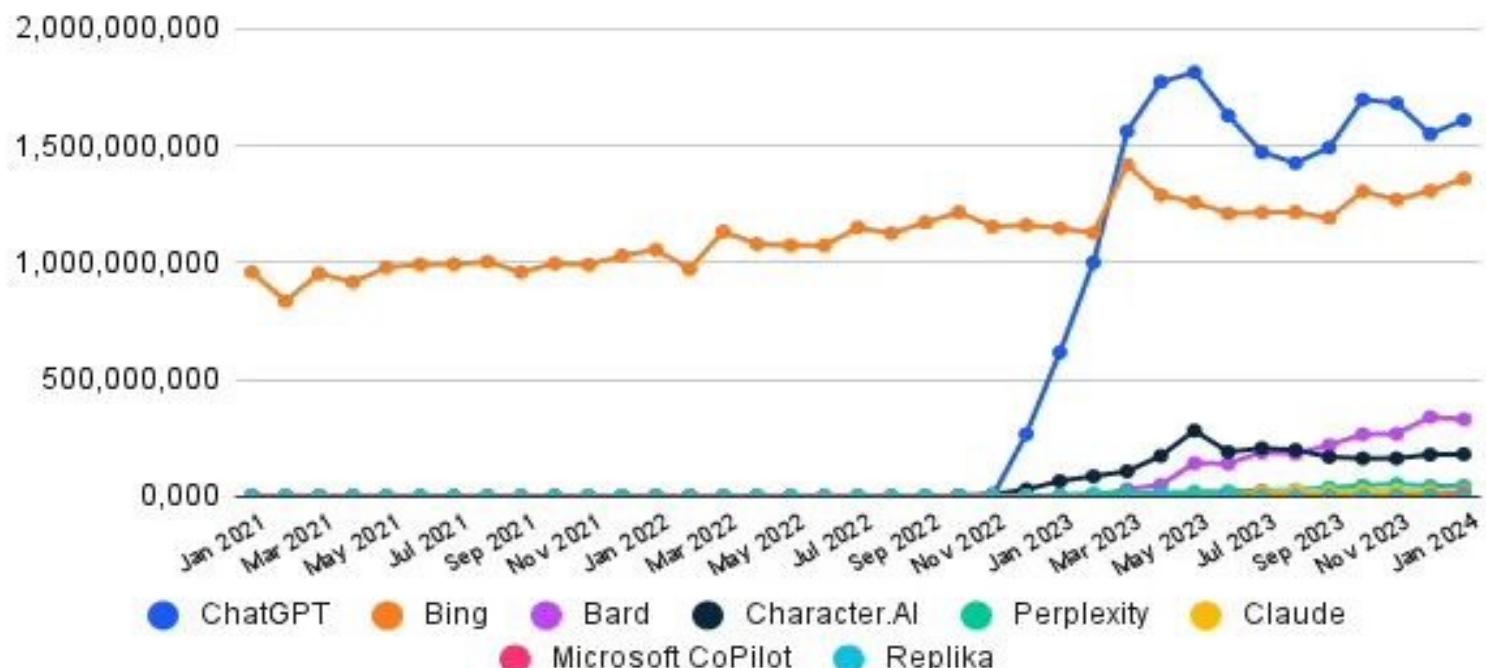
Generative AI Application Ecosystem



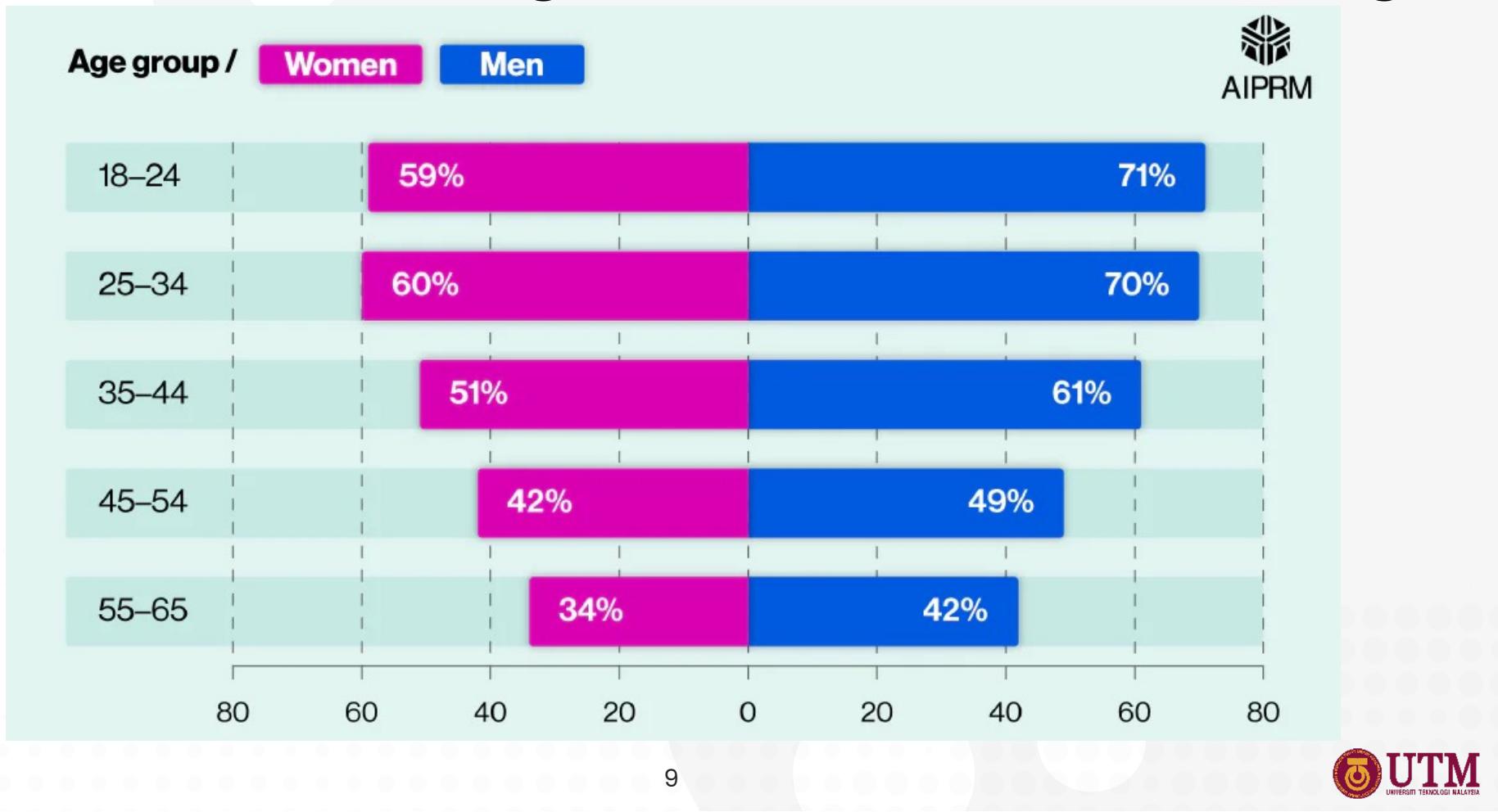
The Development of Generative AI

AI Chat

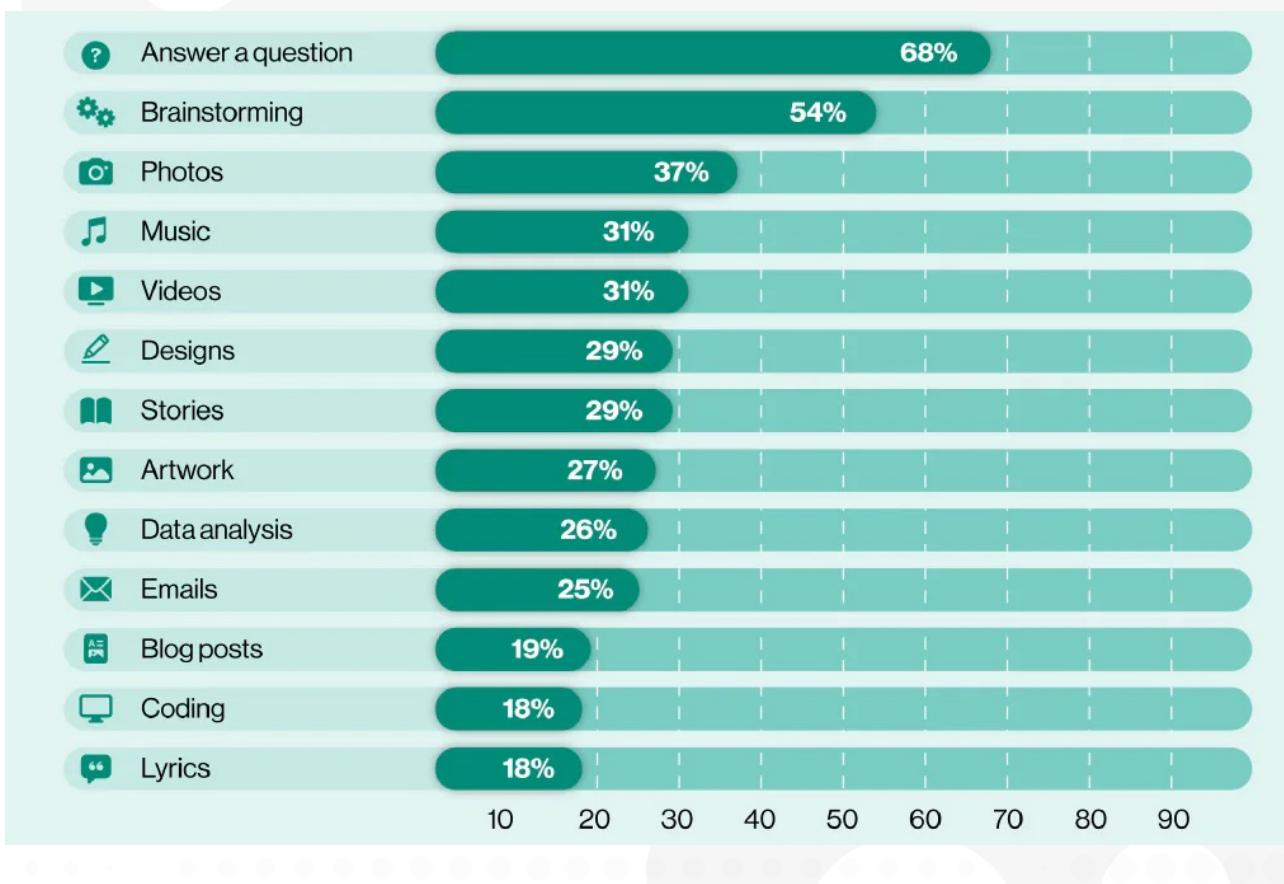
Desktop & Mobile Web Visits Jan 2024



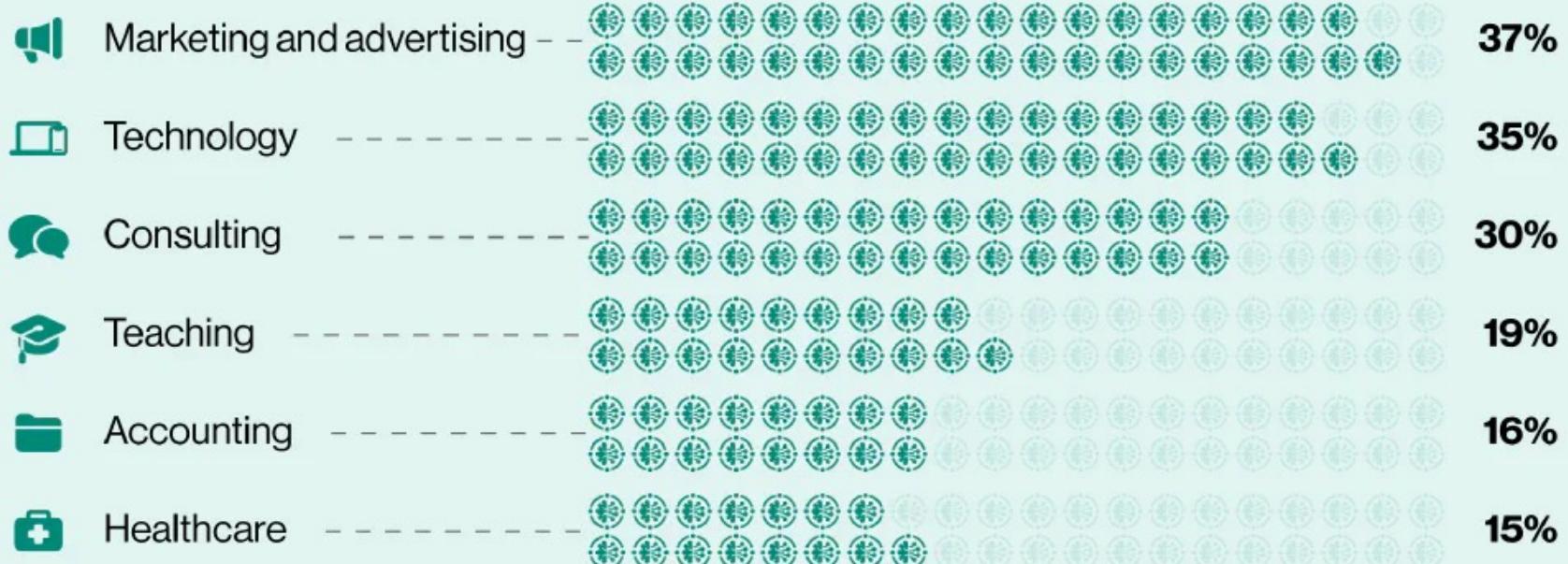
Generative AI Usage across Gender and Age



The Use of Generative AI

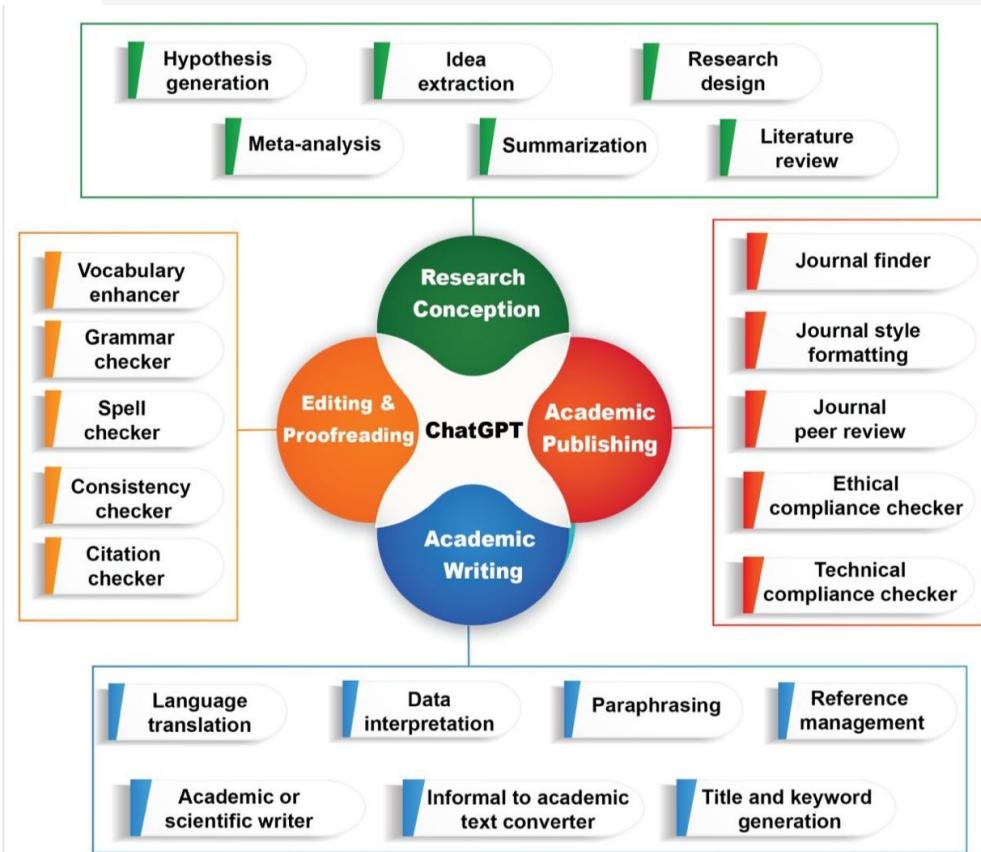


Generative AI Adoption by Industry: 2023 Statistics



Sumber: Statistica

The Application of ChatGPT in Academic Writing and Publishing



Understanding AI in Academic Contexts

1. Idea Generation

AI tools can help overcome writer's block by generating research prompts and ideas based on the topic.

2. Writing Assistance

AI can provide real-time suggestions for structure, content, and clarity to improve the quality of academic papers.

3. Citation and Referencing

AI assists in formatting citations and references accurately, adhering to academic standards like APA, MLA, and Chicago styles.

4. Grammar and Style Correction

AI-powered tools help in correcting grammar and enhancing the writing style to meet scholarly standards.

5. Literature Review

AI can aid in conducting literature reviews by finding credible sources, articles, and relevant data.





Understanding AI in Academic Contexts

6. **Data Analysis:** Machine Learning techniques enable AI to analyze data and provide personalized research recommendations.
7. **Outline Creation:** AI tools can create detailed outlines, organizing thoughts and structuring content for clear and coherent writing.
8. **Plagiarism Check:** AI systems can scan academic work to ensure originality and proper attribution of sources.
9. **Research Paper Composition:** Researchers can use AI to compose books, research grants, and articles for scholarly journals.
10. **Human-AI Collaboration:** Studies on human-AI interactions in academic writing investigate how researchers collaborate with AI tools during the writing process.

AI Tools in Literature Review

- Automated Searching:** AI tools can quickly search through databases and find relevant literature based on keywords and topics.
- Data Extraction:** They can extract key information such as methodologies, results, and conclusions from a large number of documents.
- Analysis and Synthesis:** AI can analyze the extracted data to identify trends, patterns, and gaps in the literature.
- Summarization:** These tools can provide concise summaries of individual papers or entire bodies of work.
- Reference Management:** AI can help organize and manage citations and references efficiently.
- Predictive Trends:** AI tools can predict future research trends by analyzing citation networks and publication patterns.



Indexed Journal

An indexed journal refers to a scholarly journal that is included in a **bibliographic database** or **index**.



Scopus®

IET Inspec

Compendex



publons

EBSCO



INDEXED IN
DOAJ



Google
Scholar



Semantic Scholar

ULRICH'S WEB™
GLOBAL SERIALS DIRECTORY



AI TOOLS FOR SCIENTIFIC RESEARCH



Razia Aliani
@RaziaAliani

AI-POWERED SEARCH ENGINES

Semantic Scholar-Free	SciSpace-\$20/month (Free plan available)	Consensus-Free	Scite-\$20/month (\$120/year)	Scinapse-\$39/month (Free plan available)	Lumina-\$20/month (Free plan available)	Elicit-\$12/month, \$120/year (Free plan available)	Search Smart-Free	The Literature (biomed only) Free
R Discovery (mobile app)-\$12/month, \$72/year	System* System Pro (biomed only)-\$12/month, \$99/year	Undermind-\$20/month (Free plan available)	OpenScholar-Free	OpenRead-\$5/month (Free plan available)	Keenious-\$120/year (Free plan available)	Sourceley-\$9/month (Free plan available)	STORM Storm-Free	Evidence Hunt (biomed only)-\$120/year (Free plan available)

AI-POWERED WRITING & READING ASSISTANTS

Jenni-\$20/month	Paperpal-\$119/year (Free plan available)	Writewise-\$11.6/month, \$95.8/year	Yomu-\$7/month or \$7/pay-as-you-go	Scholarity-\$9.99/month, \$99/year (Free plan available)	JSTOR AI Research Tool - Limited availability	SciSpace Copilot-\$20/month (Free plan available)
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CHATTING WITH PDF

NotebookLM-Free	SciSummary-\$4.99/month	Anara-\$20/month, \$144/year (Free plan available)	ChatPDF-\$12.99/month (Free plan available)	Lateral-\$14.99/month, €120/year (Free plan available)	AskYourPDF-\$144.99/year (Free plan available)	Humata - \$1.99/month (.edu email), \$9.99/month (Free plan available)
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LITERATURE MAPPING

Research Rabbit-Free	Inciteful-Free	Dimensions-Free	Litmaps-\$12.50/month, \$120/year (Free plan available)	Connected Papers - \$5/month, \$36/year (5 free graphs)
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GENERATIVE AI APPS

ChatGPT-\$20/month (GPT-4), Free GPT-3.5	Claude-\$20/month (Claude 3 Opus), Free Claude 3 Sonnet	Google Gemini-\$20/month (Advanced), Free Gemini	Microsoft Copilot-\$20/month (Copilot +), Free Copilot	Pi-Free	Perplexity-\$20/month (Free plan available)
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PRESENTATION MAKING TOOLS

Gamma-\$96/year (Free plan available)	Decktopus-\$14.99/month (Free plan available)	myRA-\$5/analysis (Free plan available)	Julius-Julius - €18.60/month
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THEMATIC ANALYSIS

AudioPen-\$159 for 2 years (Free plan available)	Peer Reviewer GPT-Free	Napkin AI-Free	Map This - \$50/year (Free plan available)
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DATA ANALYSIS

MindMeister-Free	Notion-Free	Notion AI-Free	Notion AI-Free
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MIND MAPPING AND VISUAL NOTETAKING

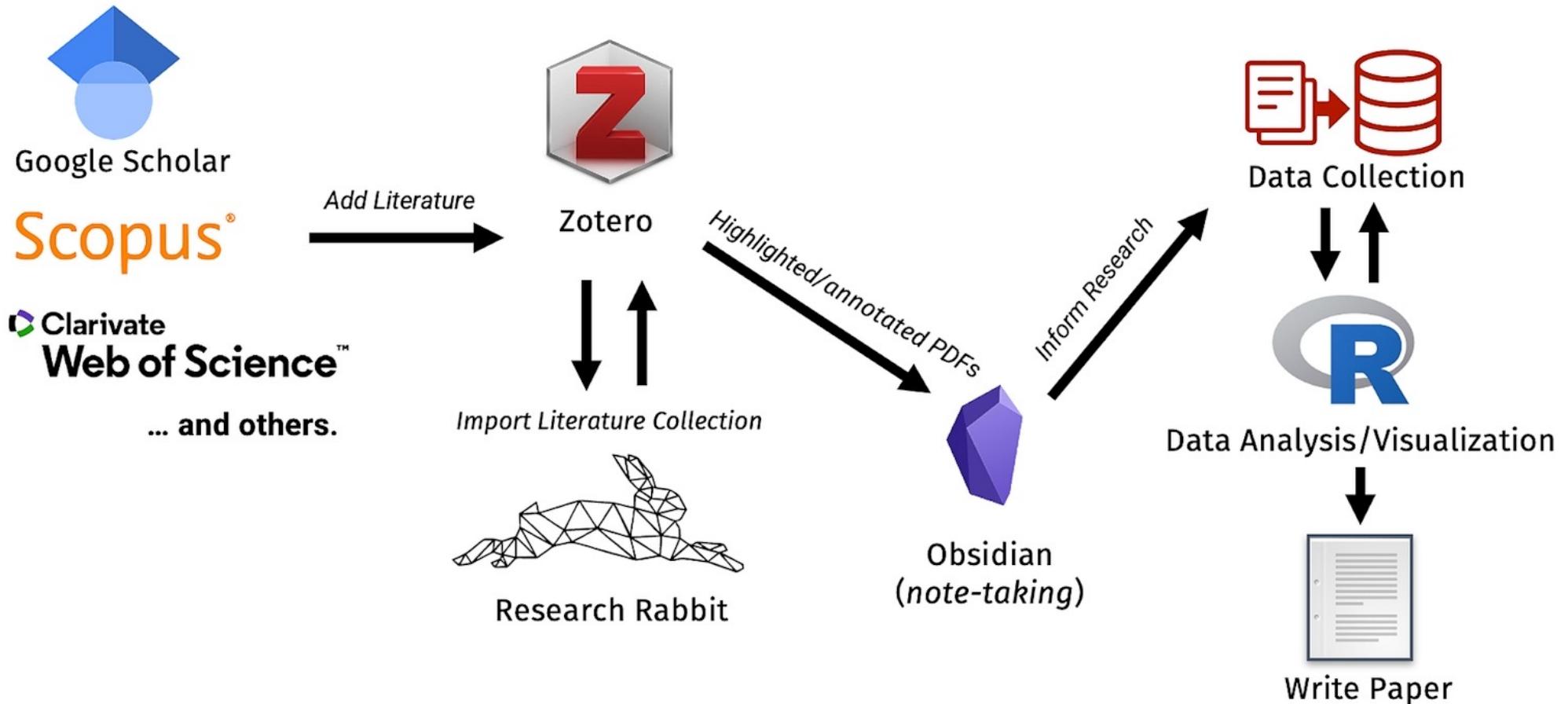
(NOT AI POWERED)	(NOT AI POWERED)
ClioVis-ClioVis-\$6.99/month	PaperPile-\$36/year

REFERENCE MANAGERS

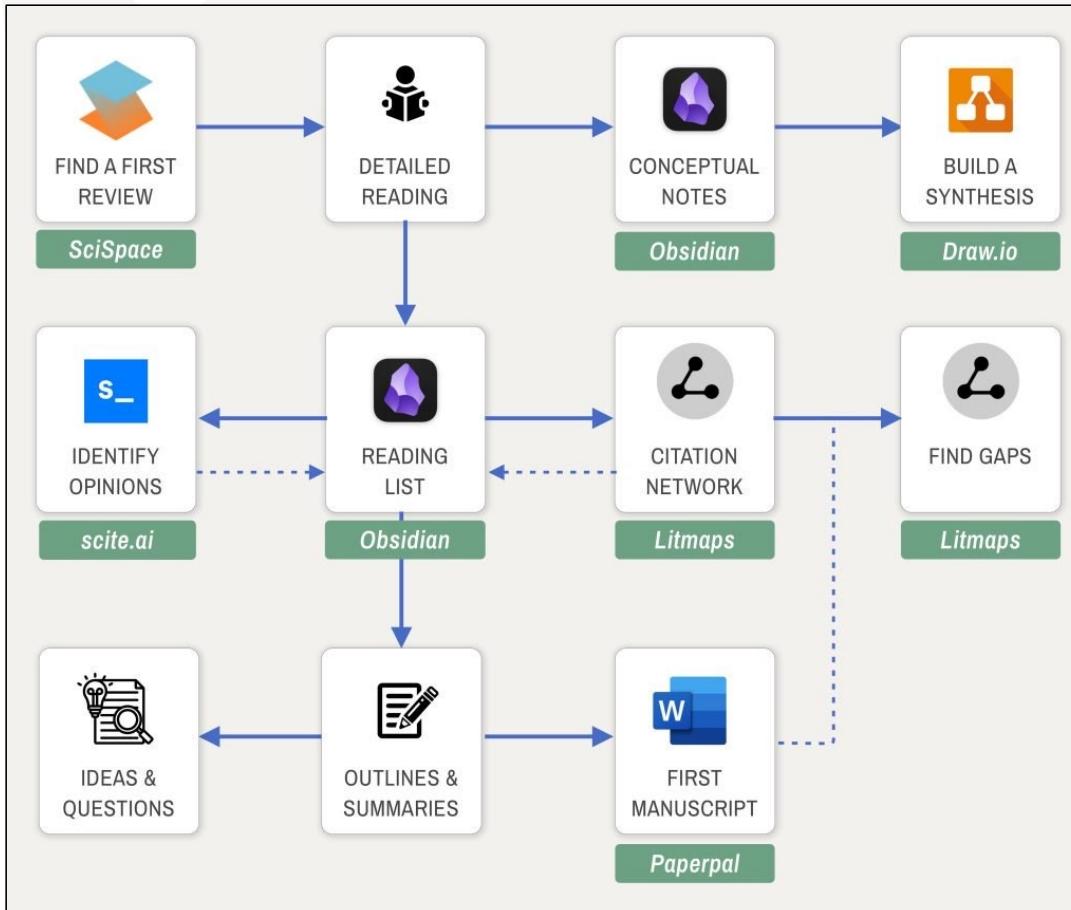
Mendeley-Free	EndNote-\$115.95/year (students)	Zotero-Free
		(Extra storage of 6GB \$60/year)

The Academic Research Workflow

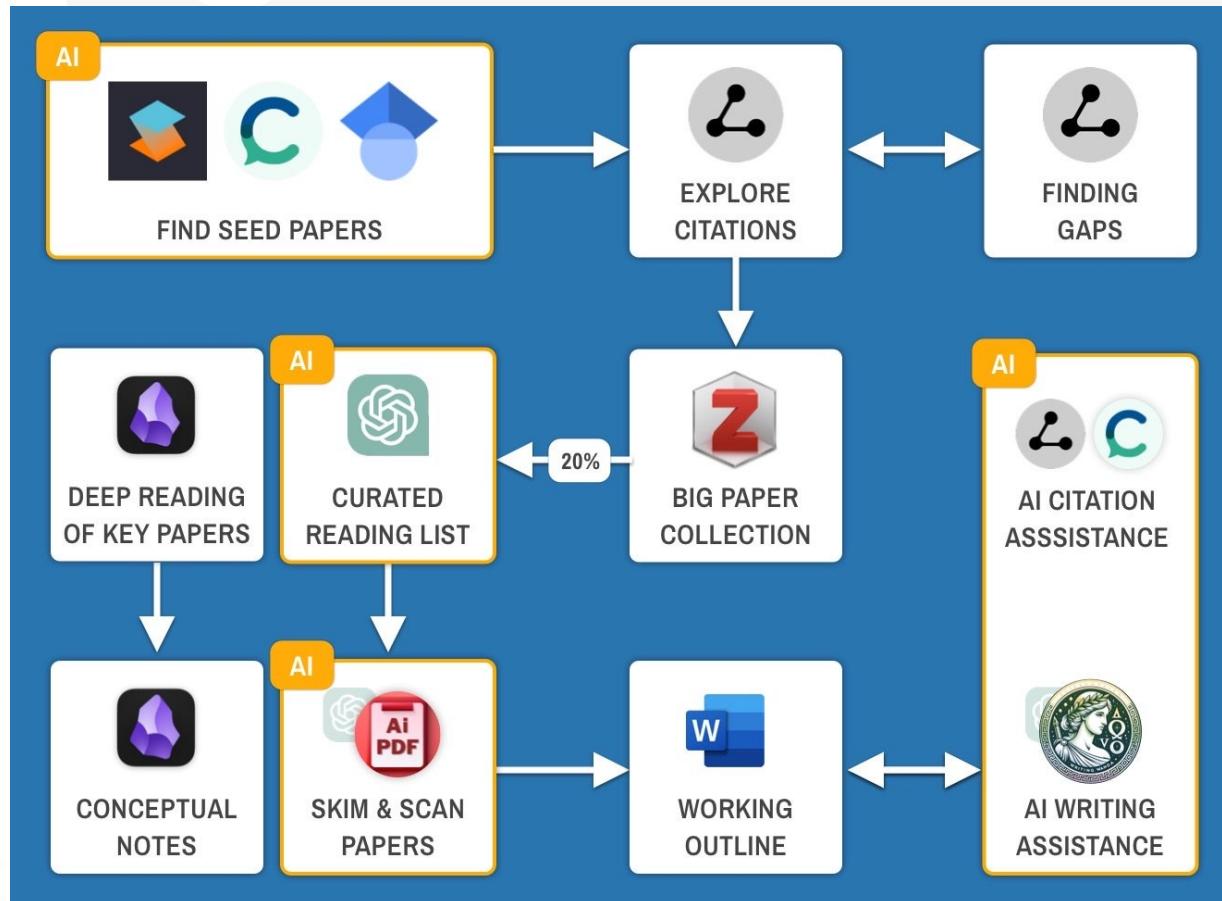
Ruben Dario Palacio, PhD



The Effortless AI Literature Review



The Effortless AI Literature Review



AI Tools

Topic	AI Tools
Generative AI	This tool is the powerhouse behind creating new, original content across various mediums, and it's pivotal in customizing user experiences by learning from data patterns.
Identifying Research Gaps	It is an analytical tool that scours the scientific literature to discover unexplored areas and provide researchers with a roadmap for breakthrough discoveries .
Paper Discovery	This tool acts as a scholarly search engine , helping users find relevant academic papers quickly and efficiently.
Paper Visualization	It transforms complex research findings into engaging, visual representations , making it easier to grasp and communicate scholarly information.
Text Summarizers	These are designed to distill lengthy documents into concise summaries , preserving key information while saving time for the reader.
Journal Matching	It aids authors by matching their manuscripts with suitable journals, ensuring a good fit based on the paper's topic and quality .
Others	This category includes a variety of specialized tools that address specific needs within the realm of applications, enhancing efficiency and innovation across diverse tasks.

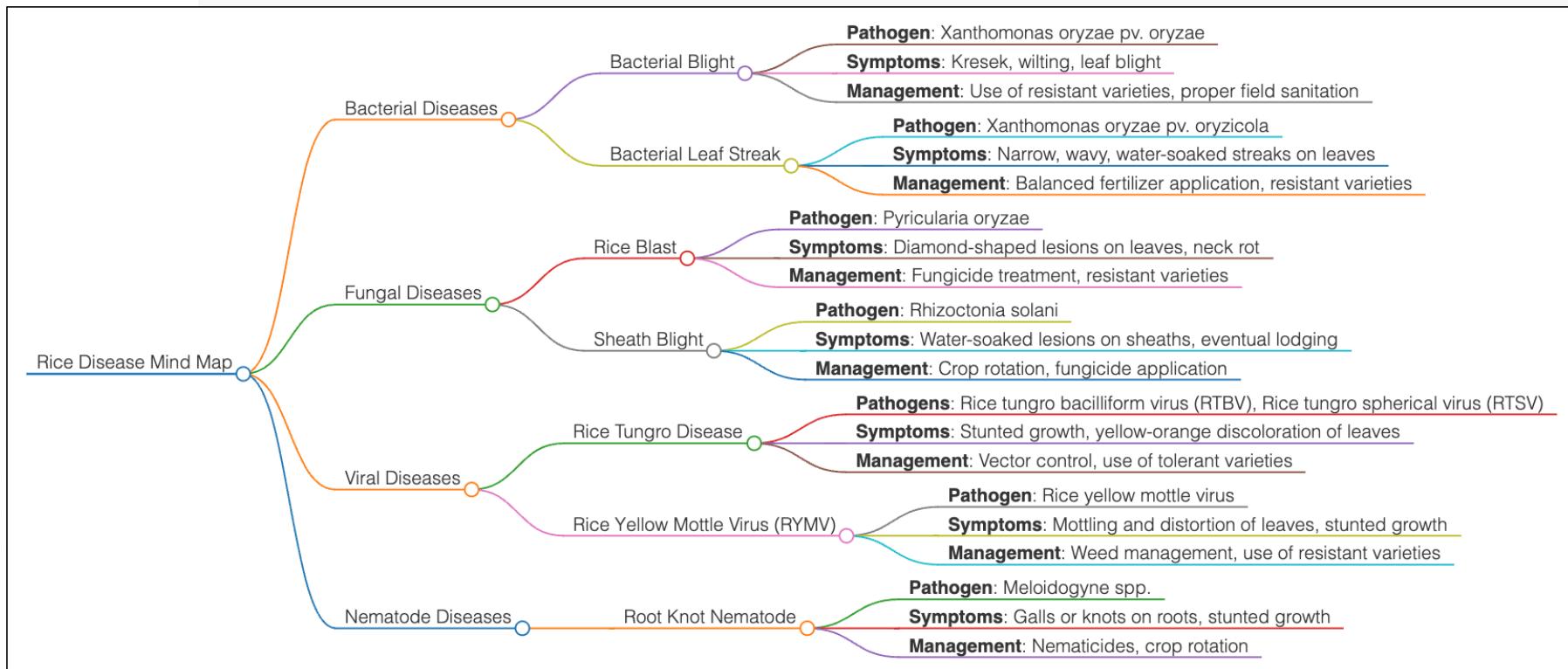


Research Gaps

Scopus AI

The screenshot shows the Scopus AI homepage. At the top left is the Scopus logo with a tree icon. At the top right are a search icon and a menu icon. Below the header is a large "Start exploring" button. Underneath are five navigation tabs: "Documents", "Authors", "Researcher Discovery", "Organizations", and "Scopus AI", with "Scopus AI" being the active tab and having a "New" badge. A main search input field contains the placeholder "What would you like to learn more about?". Below it is a "Deep research" toggle switch, which is turned on. To the right of the search field is a grey arrow button. At the bottom left is a "Conversation history" section with the text "Sign in or [create account](#) to save and revisit your conversations."

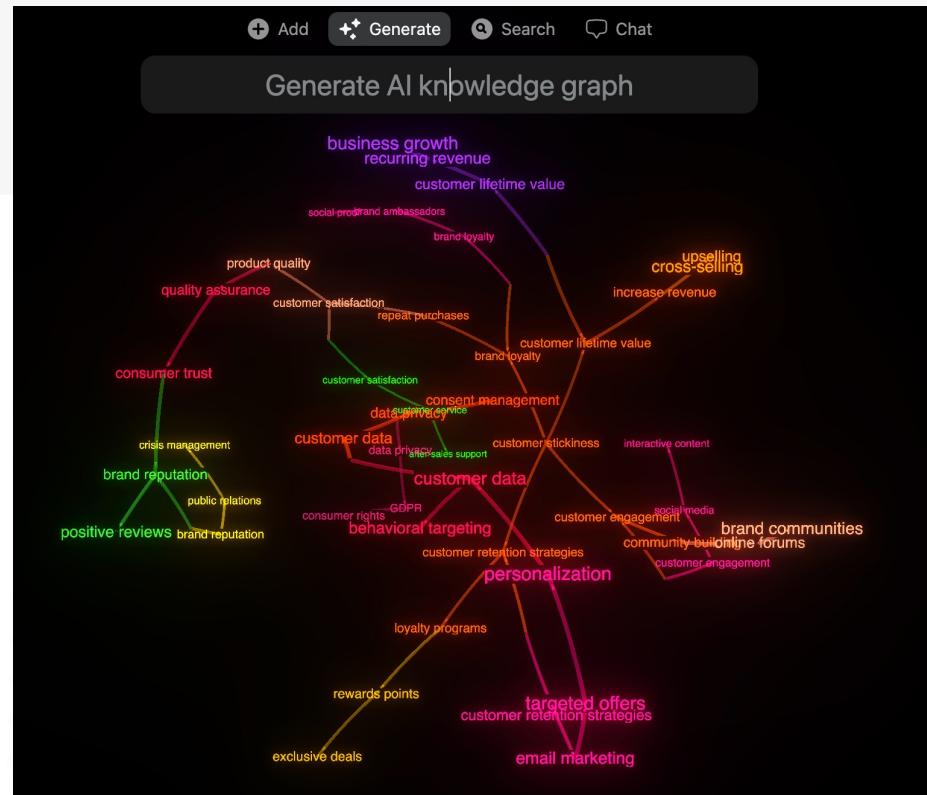
MarkMap



Markmap is a tool that visualizes markdown documents as interactive mind maps. It's useful for organizing and navigating complex information, making it easier to understand and explore the content.



Think Machine



Think Machine is a powerful 3d mind mapper with AI built in. It's the best way to visualize your thoughts and research new ideas.



SCISPACE

SCISPACE

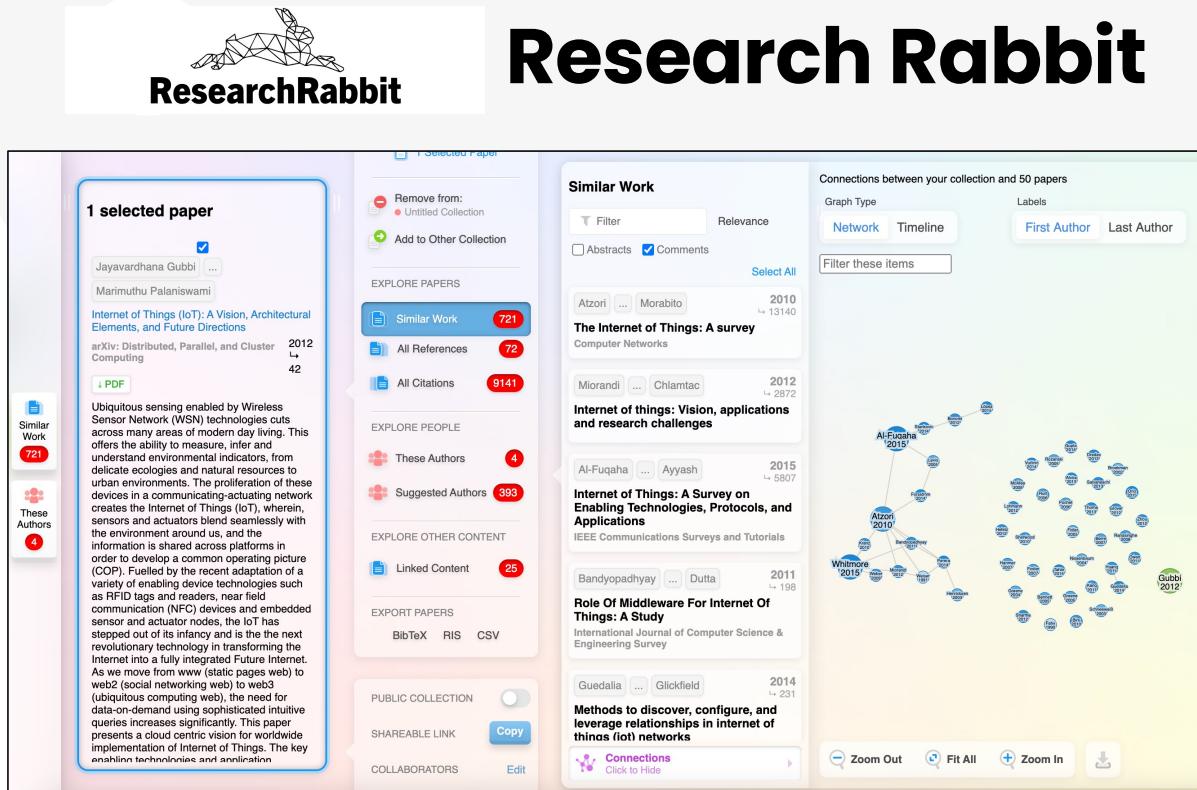
Educational pedagogy in language education encompasses various aspects such as learning styles, constructivism, digital technologies, and environmental education integration. Research emphasizes the importance of pluricultural and plurilingual competences for collaborative dialogue in language education [1]. Additionally, the analysis of learning styles and pedagogy in English highlights the significant contributions from the Social Sciences field, particularly through journal articles [2]. Constructivism plays a crucial role in shaping modern language teaching practices, especially in the digital age, by emphasizing knowledge transfer and changing teacher roles [3]. Moreover, the integration of digital technologies in language education, following pedagogical design principles like the ADDIE model, enhances the learning process and teacher information competence [4]. Lastly, environmental education integration in language learning aims to raise awareness of environmental issues and promote green pedagogy in ELT, emphasizing the need for environmental literacy programs and materials [5].

Was this helpful? Ask a follow up

Papers (10)	Insights	TL;DR
Book Chapter • DOI 107 Emotion in language education and pedagogy Kjersti Lohne 24 Apr 2023 	Language education plays a crucial role in developing pluricultural competences through emotional factors, affecting language acquisition and learning, and promoting values and critical thinking in a diverse society.	In this article, the authors analyzed studies on how affective factors and emotions influence language acquisition and learning and proposed methodological principles and practical tasks that can be applied to language education and that may ensure the learning of values, attitudes, skills, knowledge and critical thinking needed in a plurilingual and pluricultural society.

Offers AI tools for literature review, including finding new, connected papers using a visual graph.

Research Rabbit



Research Rabbit is a research discovery tool that helps you find new, connected papers using a visual graph. You can essentially create maps around metadata, which helps you not only explore similar papers but also connections between them.

scite_ Scite

A screenshot of the scite search interface. The search bar at the top contains the query "A model of factors affecting learning performance...". Below the search bar is a navigation menu with links for "Install extension!" (with a Google Chrome icon), "Assistant", "Product", "Solutions", "Pricing", "Blog", and "Log in". The main search results area shows 14,939 results found in 2.09 seconds. The results are sorted by Relevance. One result is highlighted, showing a snippet of text: "...Practically, many higher education institutions are still depending on the traditionally-based learning management systems (LMS), which actually do not use full capacity of social media for improving global participation of students in learning through collaborative learning (CL) in social environment. (Dabbagh & Kitsantas, 2011). Based on a study conducted by (Dabbagh & Kitsantas, 2011), the advent of web 2.0 has caused collaborating technologies to become mode of learning, especially for young generations; however, not many young learners take the advantages of social media in their academic performance (AP). In addition, (Greenhow, 2009) stated that a lot of learners do not actually understand the relationship between social media and their learning capabilities....". Below the snippet are details about the section (Introduction), confidence (99%), author (Waleed Mugahed Al-Rahmi¹, Mohd Shahizan Othman², Lizawati Mi Yusof³ et al.), and publication (2015 RES). There are also buttons for "View full text", "Add to dashboard", and "Cite".

Analyzes the quality and credibility of research papers. While not directly identifying gaps, Scite's analysis of existing research limitations can point researchers towards areas needing more information or investigation.

Paper Discovery



Zeta Alpha

The screenshot shows the Zeta Alpha AI search interface. At the top, there's a search bar with the query "Educational Leadership and Management". Below the search bar, the results count is displayed as "14,178 results". The main search results area shows a card for "Educational Leadership and Management" with a detailed description and three rating icons. Another card below it is for a post titled "Leadership in AI: Is Your Leadership Fit for Data Science?" by Dr. Mandar Karhade, MD, PhD, dated 22 Nov 2022. To the right of the search results, there's a "Visualization" section featuring a neural network diagram with nodes and connections, labeled "Bibliometric Index for Academic Leadership". The visualization includes several document titles such as "Three Lessons Learned on Leadership through Me", "Leadership in AI: Is Your Leadership Fit for Data", "Leadership Behaviors I've Learned from 2 Years o", "What if the Irresponsible Team", and "Successful Performance Management in the Governmen". At the bottom of the visualization section, there are statistics: "Documents: 50 | Similarity links: 401 | Groups: 4".

Zeta Alpha is the best Neural Discovery Platform for AI and beyond. Use state-of-the-art Neural Search and Generative AI to improve how you and your team discover, organize and share internal knowledge. Make better decisions, avoid reinventing the wheel, make staying in the know effortless, and make an impact with your work faster.



EvidentHunt

The screenshot shows the EvidenceHunt search interface. On the left, there's a sidebar with tabs for PICO, Category, and PubMed, with PICO selected. Below these are filters for Intervention (e.g., drug, treatment, surgery), Study type (Randomized trial, Meta-analysis, Systematic review, Clinical intervention, Rodent study), Protocol (Protocol, Other), Sort by (Impact factor), and search filters (Only search last week, Focus on cost-effectiveness). A large blue 'Search' button is at the bottom of the sidebar. The main area is titled 'Search' and shows a result for 'Symptomatic Dengue in Children in 10 Asian and Latin American Countries'. The result includes the date (24 Mar, 2016), source (The New England journal of medicine), author (M L'Azou et al), and sample size (N = 3424 Clinical Intervention). There's also a 'Show PICO analysis' link. An annotation legend at the bottom defines Population (blue), Intervention (green), Control (red), Outcome (purple), and Conclusion (teal). The abstract text discusses dengue vaccine efficacy trials across 10 countries in Southeast Asia and Latin America, mentioning 3424 healthy children aged 2 to 16 years and 6939 children aged 9 to 18 years.

EvidenceHunt is an AI-powered clinical evidence search engine that helps healthcare professionals find the latest and most relevant evidence quickly and easily. It is based on a large dataset of clinical trials, systematic reviews, and other evidence sources, and uses artificial intelligence to identify and rank the most relevant results for each search query.

The screenshot shows the Semantic Scholar website interface. At the top, there is a logo with the text "SEMANTIC SCHOLAR". Below the logo is a search bar with the placeholder "Search 217,798,411 papers from all fields of science". To the right of the search bar are buttons for "Search" and "MOI". The main content area features a profile card for "M. Othman". The profile card includes a blue circular icon with a white person symbol, the name "M. Othman", and statistics: Publications (123), h-index (22), Citations (1,850), and Highly Influential Citations (103). Below the stats are buttons for "Follow Author..." and "Claim Author Page". A note states: "Author pages are created from data sourced from our academic... show more". To the right of the profile card are four tabs: "Publications", "Citing Authors", "Referenced Authors", and "Co-Authors". Below these tabs is a search bar with filters for "Search authors, put", "Co-Author", "Has PDF", "More Filters", and "Sort by Most Influe...". There are also three filter icons: a bell, a heart, and a magnifying glass. The "Publications" section displays two research papers by M. Othman:

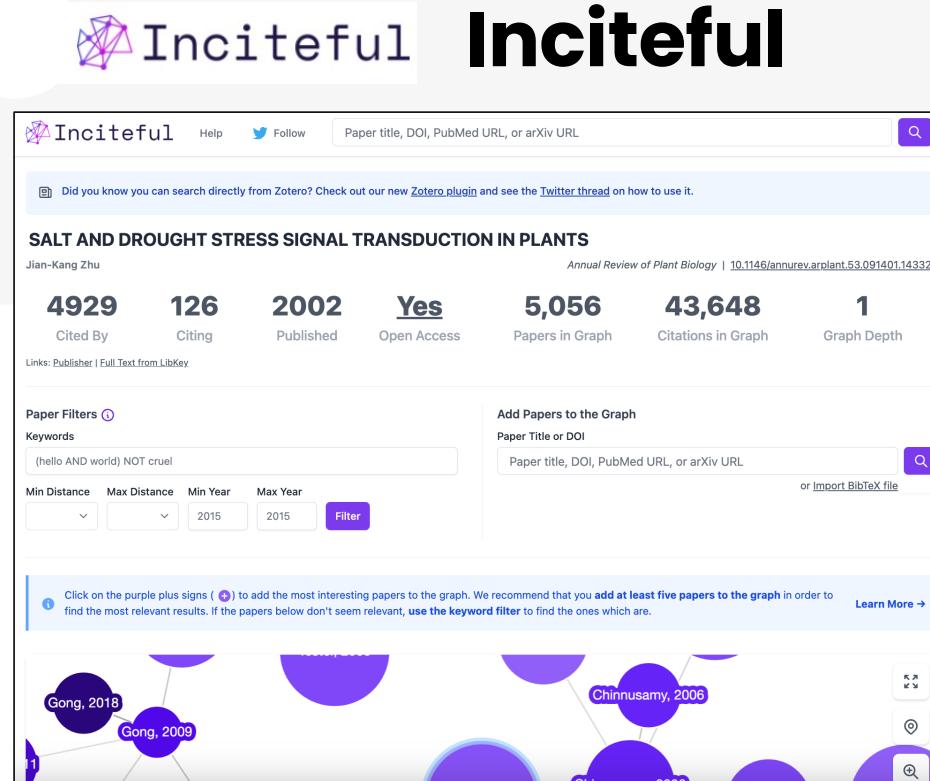
- A model of factors affecting learning performance through the use of social media in Malaysian higher education**
W. Al-rahmi, Norma Alias, M. Othman, Victoria I. Marín, G. Tur · Education, Computer Science · Comput. Educ. · 1 June 2018
163 citations, 15 reviews, PDF, Publisher, Save, Alert, Cite
- The impact of social media use on academic performance among university students: a pilot study**
W. Al-rahmi, M. Othman · Education · 2013
There is no doubt that Social media has gained wider acceptability and usability and is also becoming probably the most important communication tools among students especially at the higher level of...
Expand
151 citations, 14 reviews, PDF, Save, Alert, Cite

Below the publications, there is a "Co-Authors" section featuring a profile for L. M. Yusuf with 49 publications and 585 citations.

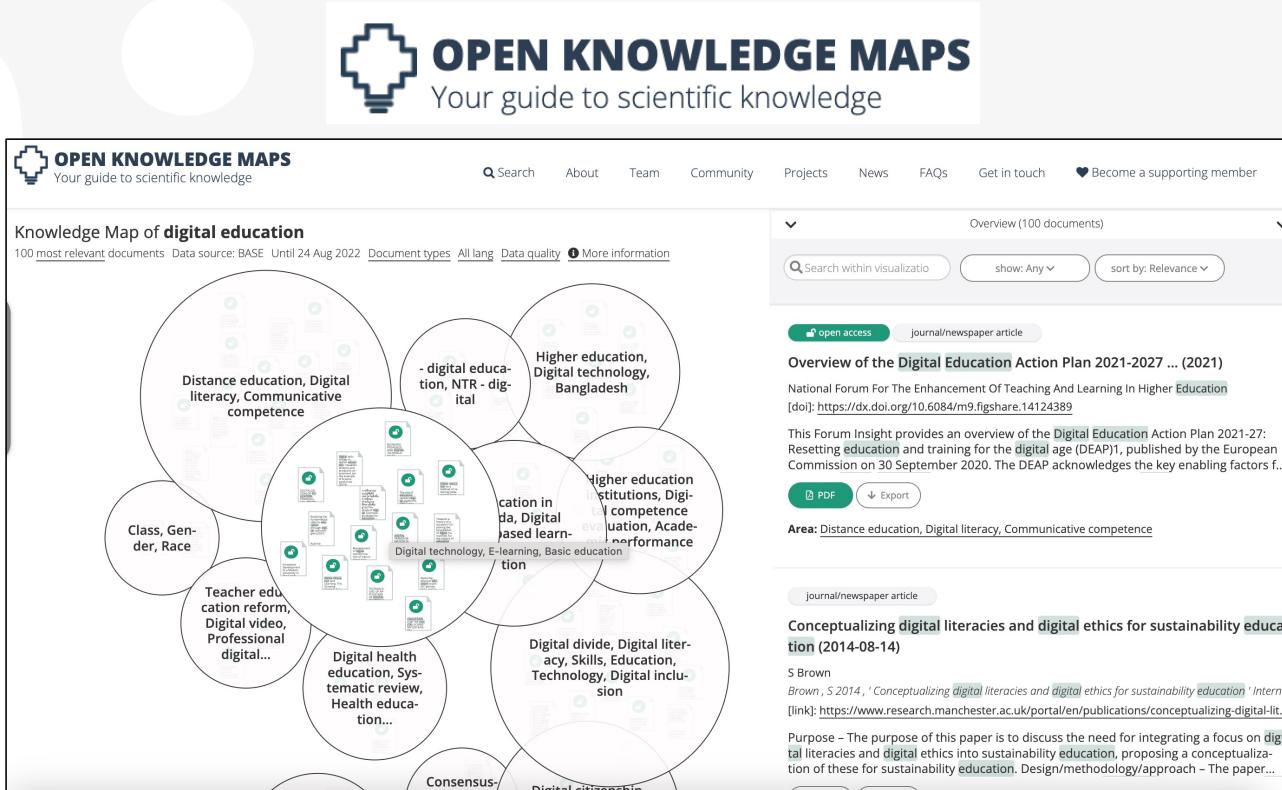
Semantic Scholar is a free AI-powered research tool that aggregates scientific literature from various fields of science, including nanotechnology and moral reasoning, and uses AI and engineering to understand the semantics of the research to help scholars discover relevant publications.



Paper Visualization

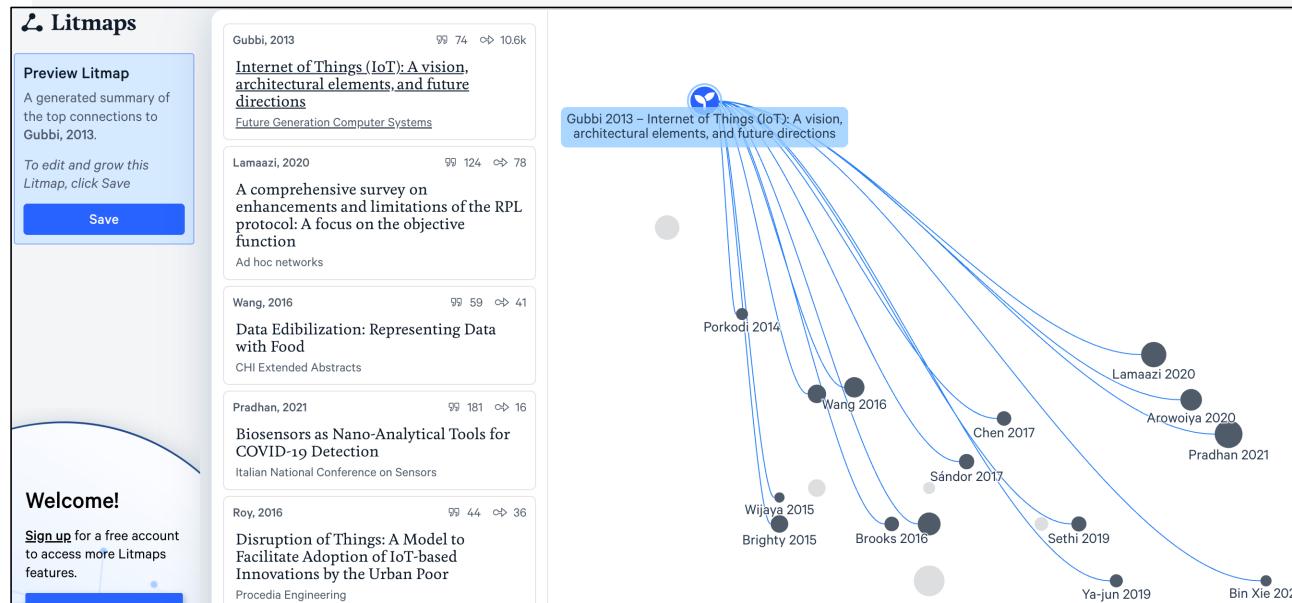


The goal of Inciteful is to give the world free tools to help you map academic literature. It can be used in a variety of ways depending on what you are trying to accomplish. Start from seed paper(s), you can have an overview on the current state of that topic. Then, by adding more seed papers or filters, you can further craft the citation graph and have a focus on your search.



Open Knowledge Maps (OKM) is an open-source platform for creating and visualizing knowledge graphs. It is based on the RDF (Resource Description Framework) standard, which makes it possible to integrate data from different sources.

Litmaps Litmaps

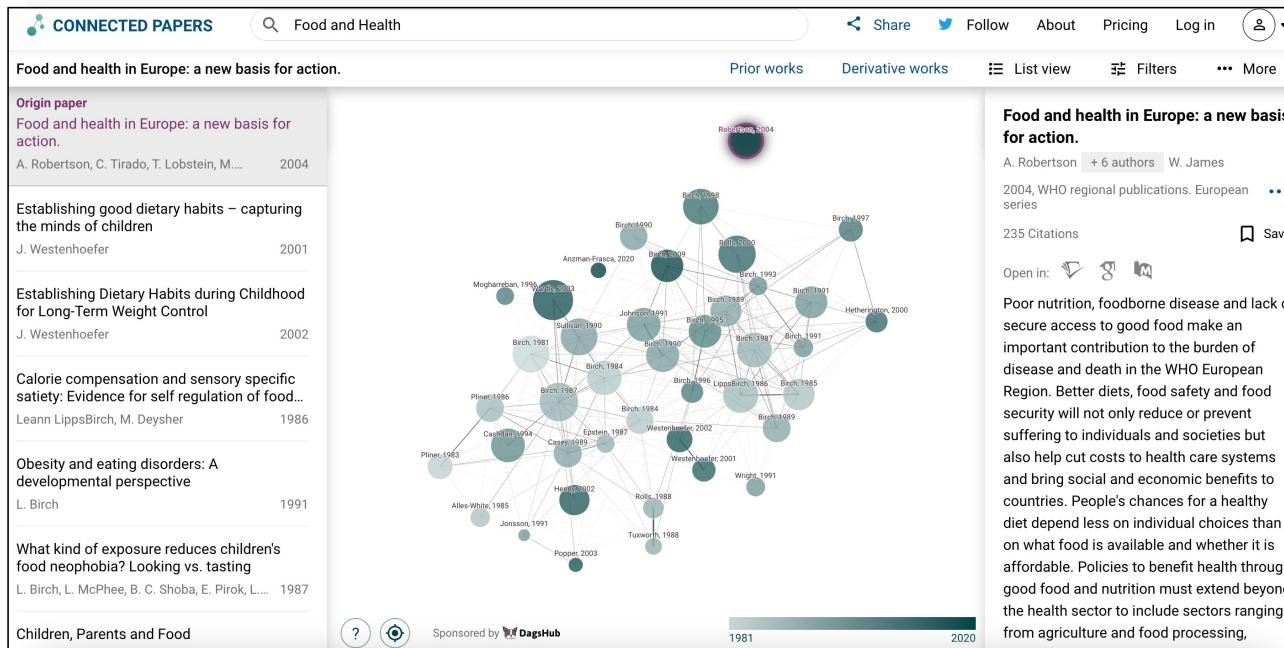


This tool creates visual maps of research topics based on AI analysis of scholarly articles. These maps can reveal under-explored areas within the topic.



CONNECTED PAPERS

Connected Papers



Free tool that allows you to visually explore the relationships between different research papers. Creates a network graph where each node represents a paper and the edges between nodes represent citations. Helpful way to find new papers that are related to the research you are already familiar with.

Question & Answer





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Kerana Tuhan untuk Manusia