

⚡ SUPERCHARGE ⚡
YOUR LIT REVIEW
WORKFLOW WITH
😱 ~AI TOOLS~ 🤯

Zane Billings

2024-10-03

<https://wzbillings.com/talks>



Outline

1. My journey as an AI hater
2. Zotero
3. AI tools that are actually useful
4. AI tools tier list
5. End of presentation

My journey as an AI hater

We invented the first AI-powered torment nexus!

My prompt engineering masterclass on EdX/coursera only costs \$2500

This AI-powered coffee machine will change your life!

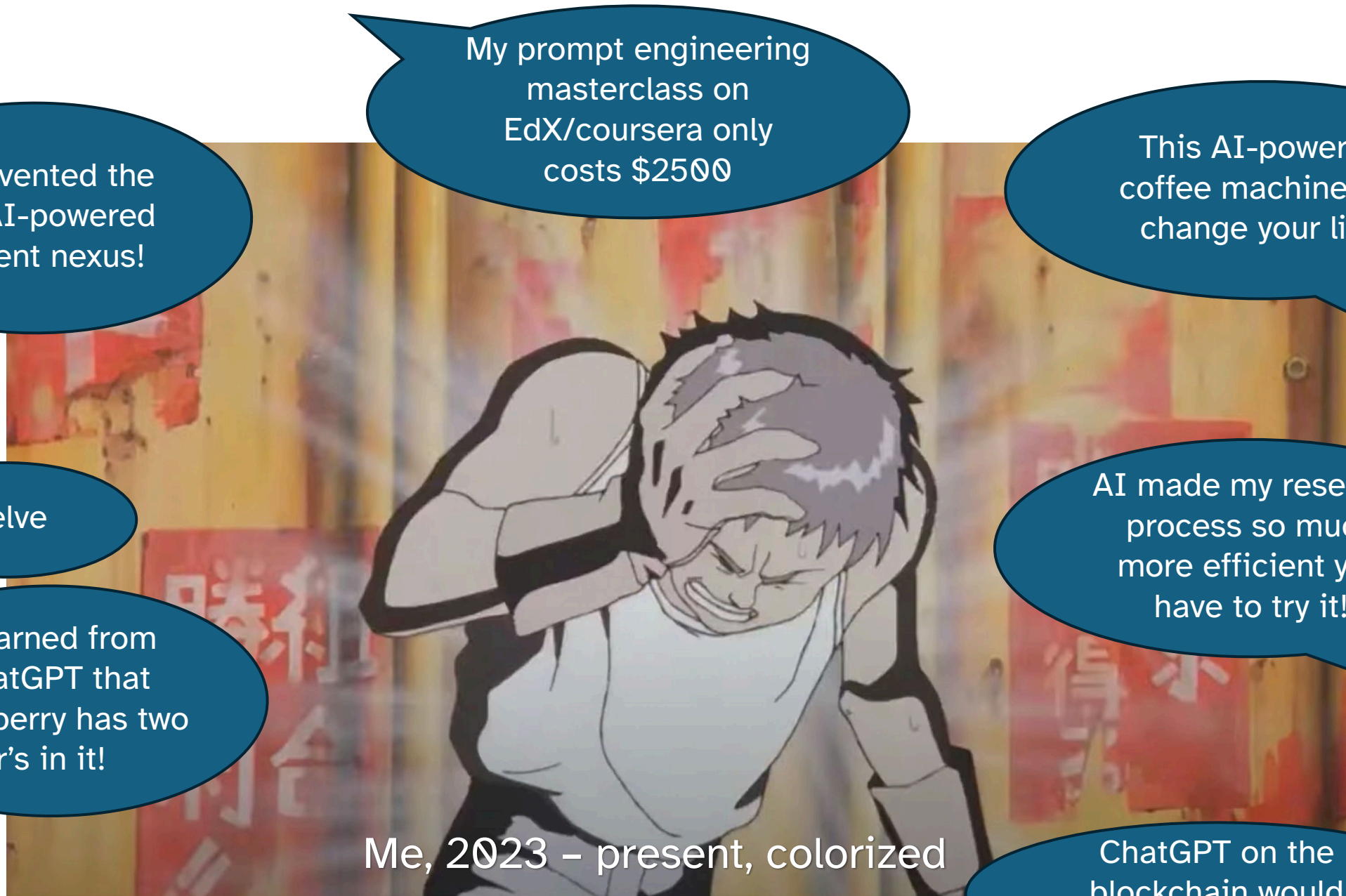
Delve

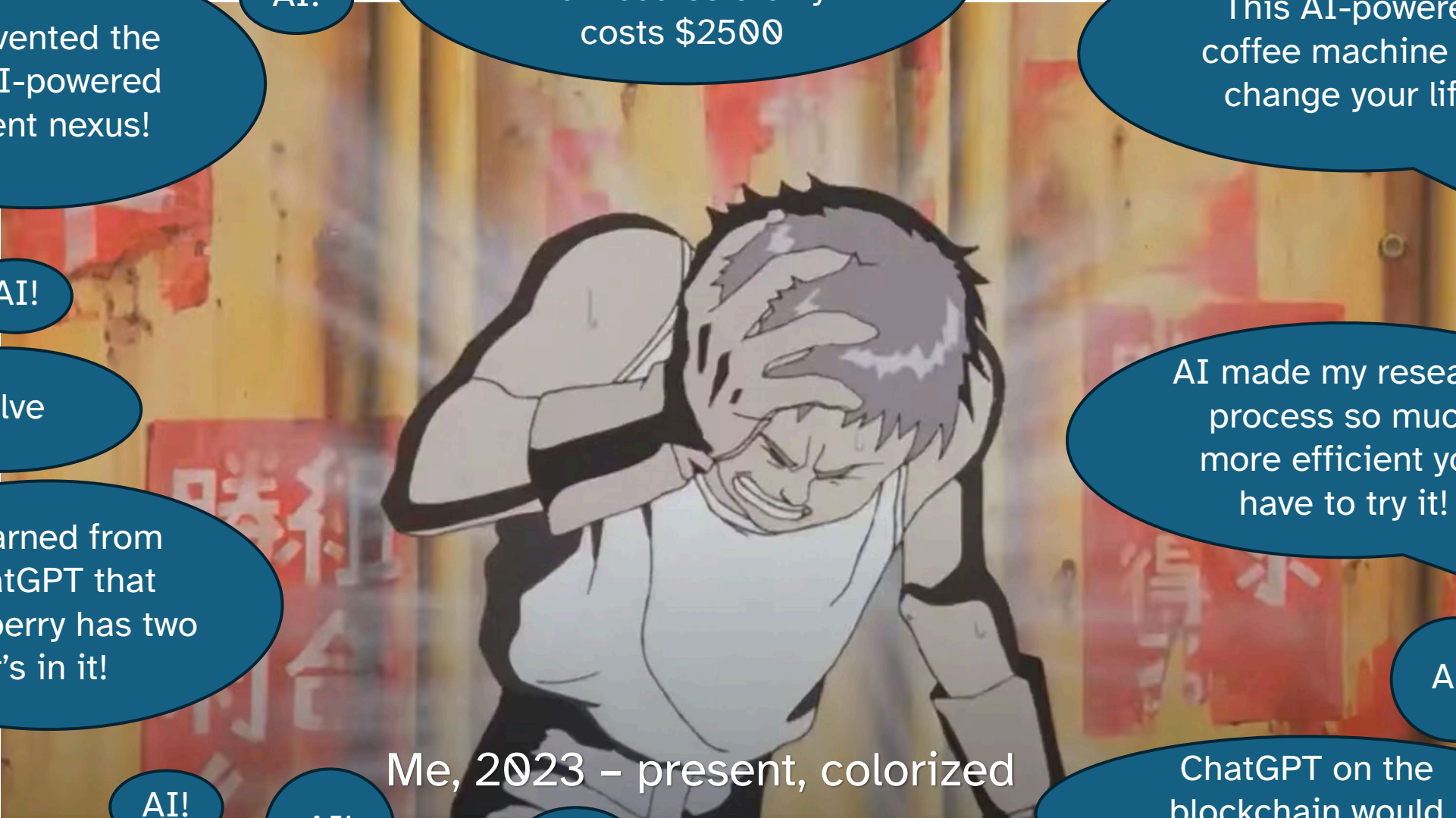
I learned from ChatGPT that strawberry has two r's in it!

AI made my research process so much more efficient you have to try it!

Me, 2023 - present, colorized

ChatGPT on the blockchain would have sigma rizz





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AI!

AI!

AI!

ChatGPT on the blockchain would have sigma rizz



AI?

AI?

AI?

AI?

AI?

AI?

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AI?

AI?

**RESEARCHERS WHEN
THEY DISAGREE WITH
A SINGLE VARIABLE
IN YOUR REGRESSION MODEL**



imgflip.com

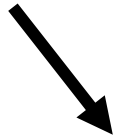
**RESEARCHERS
WHEN YOU SAY
YOU USED AI MODELS**



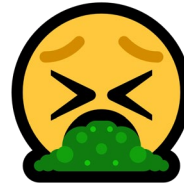
My journey as an AI hater



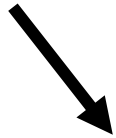
My journey as an AI hater



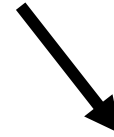
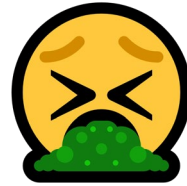
DALL-E 2



My journey as an AI hater



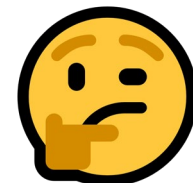
DALL·E 2



ResearchRabbit



Elicit



AI ethics

AI ethics

- LLMs like ChatGPT, etc., **are trained on stolen material.** Using LLMs to write scientific papers is plagiarism.

AI ethics

- LLMs like ChatGPT, etc., **are trained on stolen material.** Using LLMs to write scientific papers is plagiarism.
- All AI tools are developed using data from the internet and **results must be critically evaluated for systemic bias.**

Writing = Thinking

Writing = Thinking

AI has benefits in speeding up repetitive tasks, but you should never let any tool replace the process of writing and discovery for you.

Tools for lit review

Zotero intermission (not AI)



<https://www.zotero.org/>

Zotero intermission (not AI)



- The most important tool for any lit review is your **reference manager.**

Zotero intermission (not AI)



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- **Zotero** is free, open-source, and works with open data formats.

My Library

- blogs
- Epidemiology
 - CDRs
 - Immunology
 - Influenza**
 - antigenic distance
 - clinical
 - diagnostics
 - Flu Burden
 - Meta
- Methodology
- Misc/Old
- searches-sort
- sort these
- to-read
- My Publications
- Duplicate Items
- Unfiled Items
- Trash

Group Libraries

- Bayesian-Censoring
- Flu-Vaccine-Immunology
- FluA_Vac_HDSD
- handelgroup
 - AI-ML-with-mechanistic-models
 - antibody-decay-kinetics
 - censored-missing-data-approach...
 - CoP - flu
 - CoP-VE
 - data-source-papers
 - cowling-data
 - DRIVE-data

* human norovirus *antibody
 *Antibody Formation *Blood Group Antigens
 *booster *histo-blood group antigen
 *human intestinal enteroids *immunogenicity
 *neutralization *norovirus *Norovirus
 *Norovirus/immunology *persistence
 *randomized controlled trial *safety *tolerability

Filter Tags

Title	Creator	Year	Date Added	Cit...
> Preexisting subtype immunodominance shapes memory B cell recall respons...	Abreu et al.		6/9/2021, 4:06:54 PM	ab...
> Influenza Virus: Tracking, Predicting, and Forecasting	Ali and Cowling	2021	12/6/2022, 8:51:27 AM	ali...
> Human Influenza A Virus Hemagglutinin Glycan Evolution Follows a Temp...	Altman et al.	2019	4/11/2023, 8:51:50 AM	alt...
> Defining and Manipulating B Cell Immunodominance Hierarchies to Elicit ...	Amitai et al.	2020	4/11/2023, 8:51:50 AM	a...
> Immune history profoundly affects broadly protective B cell responses to...	Andrews et al.	2015	4/11/2023, 8:52:42 AM	an...
> A single residue in influenza virus H2 hemagglutinin enhances the breadt...	Andrews et al.	2022	4/11/2023, 8:51:50 AM	an...
> Original antigenic sin priming of influenza virus hemagglutinin stalk antib...	Arevalo et al.	2020	4/11/2023, 8:51:50 AM	ar...
> Earliest infections predict the age distribution of seasonal influenza A cas...	Arevalo et al.	2020	4/11/2023, 8:51:14 AM	ar...
> Rapid Responses to 2 Virus-Like Particle Norovirus Vaccine Candidate Formu...	Atmar et al.	2016	12/10/2021, 12:24:38 AM	at...
> Persistence of Antibodies to 2 Virus-Like Particle Norovirus Vaccine Candidat...	Atmar et al.	2019	12/10/2021, 12:23:46 AM	at...
> An Exploratory Study of the Salivary Immunoglobulin A Responses to 1 Dose...	Atmar et al.	2019	12/10/2021, 12:25:21 AM	at...
> Comparison of Microneutralization and Histo-Blood Group Antigen-Blocking ...	Atmar et al.	2020	12/10/2021, 12:25:32 AM	at...
> Antibody response to the BNT162b2 vaccine in maintenance hemodialysi...	Attias et al.	2021	4/11/2023, 8:51:50 AM	att...
> Recognition of influenza H3N2 variant virus by human neutralizing antibo...	Bangaru et al.	2016	4/11/2023, 8:51:50 AM	ba...
> Variable influenza vaccine effectiveness by subtype: a systematic review a...	Belongia et al.	2016	4/11/2023, 8:53:23 AM	be...
> Optimising Vaccine Dose in Inoculation against SARS-CoV-2, a Multi-Fact...	Benest et al.	2021	4/11/2023, 8:51:50 AM	be...
> Immunogenicity of chimeric haemagglutinin-based, universal influenza vir...	Bernstein et al.	2019	4/11/2023, 8:52:42 AM	be...
> Evaluating reduced effectiveness after repeat influenza vaccination while ...	Bi et al.	2023	4/11/2023, 9:01:08 AM	bi...
> Influenza surveillance using data from a telemedicine centre	Blozik et al.	2012	11/2/2023, 10:02:36 PM	bl...
> Prevalence of Antibodies against Seasonal Influenza A and B Viruses in C...	Bodewes et al.	2011	4/11/2023, 8:51:14 AM	bo...
> Seasonal influenza vaccine in immunocompromised persons	Bosaeed and Ku...	2018	4/11/2023, 8:49:04 AM	bo...
> Variation in the human immune system is largely driven by non-heritable i...	Brodin et al.	2015	4/11/2023, 8:51:03 AM	br...
> A recommended numbering scheme for influenza A HA subtypes	Burke and Smith	2014	4/11/2023, 8:51:50 AM	bu...
> Structural Consequences of Antigenic Variants of Human A/H3N2 Influenz...	Burke	2023	11/2/2023, 10:30:37 PM	bu...
> Impact of age and pre-existing immunity on the induction of human antibody...	Carlock et al.	2019	6/9/2021, 4:06:14 PM	ca...
> Safety and immunogenicity of investigational seasonal influenza hemaggl...	Carter et al.	2019	4/11/2023, 8:52:24 AM	ca...
> National, Regional, and State Level Outpatient Illness and Viral Surveillance	CDC	2021	6/25/2021, 5:11:19 PM	flu...
> H5N1 Update: Two Human H5N1 Cases in Cambodia	CDC	2023	4/11/2023, 8:51:50 AM	cd...
> Effectiveness of 2008-09 trivalent influenza vaccine against 2009 pandemi...	Centers for Dise...	2009	11/2/2023, 10:30:34 PM	ce...
> Should Sex Be Considered an Effect Modifier in the Evaluation of Influenz...	Chambers et al.	2018	4/11/2023, 8:51:03 AM	ch...
> Safety and immunogenicity of high-dose quadrivalent influenza vaccine in...	Chang et al.	2019	4/11/2023, 8:49:04 AM	ch...
> Influenza Infection in Humans Induces Broadly Cross-Reactive and Protect...	Chen et al.	2018	8/15/2022, 8:50:09 AM	ch...
> Influenza and COVID-19: What does co-existence mean?	Chotpitayasuno...	2021	11/2/2023, 10:02:36 PM	ch...
> Towards identification of immune and genetic correlates of severe influenza ...	Clemens et al.	2016	8/2/2021, 10:44:07 AM	cle...
> Repeated Vaccination May Protect Children From Influenza Infection	Cobey	2018	4/11/2023, 9:01:08 AM	co...
> Immune history and influenza virus susceptibility	Cobey and Hens...	2017	4/11/2023, 8:52:42 AM	co...
> Immunogenicity of a half-dose of adjuvanted 2009 pandemic H1N1 influe...	Coleman et al.	2012	4/11/2023, 8:49:04 AM	col...
> A new approach to estimate vaccine efficacy based on immunogenicity d...	Coudeville et al.	2010	11/2/2023, 10:30:34 PM	co...
> Relationship between haemagglutination-inhibiting antibody titres and cli...	Coudeville et al.	2010		
> Airborne transmission of influenza: implications for control in healthcare ...	Cowling	2012		
> Comparative epidemiology of pandemic and seasonal influenza A in hou...	Cowling et al.	2010		

251 items in this view

Zotero intermission (not AI)



- The most important tool for any lit review is your **reference manager**.
- **Zotero** is free, open-source, and works with open data formats.
- Contains tools for importing search results, deduplication, and exporting bibliographies.

<https://www.zotero.org/>

Zotero intermission (not AI)



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- **Zotero** is free, open-source, and works with open data formats.
- Contains tools for importing search results, deduplication, and exporting bibliographies.
- Web capture, Word integration, BibTeX support

<https://www.zotero.org/>

1.

PubMed article page showing the title "Approaches to handling missing or "problematic" pharmacology data: Pharmacokinetics" and authors "Dauki, 1 Mohamed A. Badawi, 1 Silvia M. Illamola, 3 Mingqing Chen, 1 and Diane R. Mould^{2,5, 1}". The page includes a search bar, a "Log in" button, and a "Saving to My Library" dropdown menu. The article details include the journal "CPT Pharmacomet Syst Pharmacol", volume 10(4), pages 291-308, and the DOI "10.1002/psp4.12611". The page also features a "Search in PMC" button, "OTHER FORMATS" (PDF 979K), "ACTIONS" (Cite, Collections), "SHARE" (Twitter, Facebook, LinkedIn), and "RESOURCES" (Similar articles, Cited by other articles, Links to NCBI Databases).

3.

Lorem ipsum odor amet, consectetur adipiscing elit. Donec sapien suscipit suscipit lectus orci massa erat. Feugiat commodo arcu aliquet nam, ullamcorper feugiat orci rhoncus. Viverra penatibus porta dolor habitasse ex at taciti consequat integer. Scelerisque placerat sit euismod dictum euismod nam et. Euismod netus adipiscing dui erat senectus cubilia dapibus parturient molestie. Malesuada sit pulvinar vivamus mi pellentesque. Dignissim mollis facilisi gravida facilisi sagittis neque facilisi semper. Litora ridiculus phasellus enim morbi platea libero¹.

4.

1. Irby DJ, Ibrahim ME, Dauki AM, et al. Approaches to handling missing or "problematic" pharmacology data: Pharmacokinetics. *CPT Pharmacomet Syst Pharmacol*. 2021;10(4):291-308. doi:10.1002/psp4.12611

2.

Zotero application interface showing a citation list with the entry "Irby et al., 2021" and a text area containing the same placeholder text as in block 3. The interface includes a menu with options like "Add/Edit Citation", "Add/Edit Bibliography", "Insert Note", "Refresh", "Unlink Citations", and "Document Preferences".

<https://www.zotero.org/>

ResearchRabbit



<https://www.researchrabbit.ai/>



ResearchRabbit

- Free web-based tool for graphically representing literature collections and finding related papers

<https://www.researchrabbit.ai/>



ResearchRabbit

The screenshot displays the ResearchRabbit interface with the following components:

- Left Panel (Search Results):** A list of search results for the query "Infection block hypothesis". The top result is "How repeated influenza vaccination effects might apply to COVID-19 vaccines" by Mark G Thompson and Benjamin J Cowling (2022). Other results include "Repeated annual influenza vaccination and vaccine effectiveness: review of evidence" (2017), "Association between the 2008–09 Seasonal Influenza Vaccine and Pandemic H1N1 Illness during Spring–Summer 2009: Four Observational Studies from Canada" (2010), "How Did the 2008–2009 Seasonal Influenza Vaccine Affect the Pandemic?" (2010), and "Protective Efficacy of Seasonal Influenza Vaccination against Seasonal and Pandemic Influenza Virus Infection during 2009 in Hong Kong" (2010).
- Center Panel (Selected Paper):** A detailed view of the top result, "How repeated influenza vaccination effects might apply to COVID-19 vaccines". It includes the authors' names, the journal title "The Lancet Respiratory Medicine", a "No PDF" button, and a summary paragraph: "Many of the current questions on the public health and research aspects of the future of COVID-19 vaccines and vaccine strategies have been topics of research and debate in the influenza vaccine literature for decades. Here, we describe how the lessons learned from the study of repeated influenza vaccinations might apply to the evaluation of COVID-19 vaccines, and the prospect of future seasonal or periodic booster vaccinations." It also features a "Comment" button.
- Right Panel (Similar Work):** A list of similar papers based on relevance. The top result is "Antibody secreting cell assay for influenza A virus in swine" (2014) by Kitikoon and Vincent. Other results include "The predicted antigenicity of the haemagglutinin of the 1918 Spanish influenza pandemic suggests an avian origin" (2001) by Gg and Fodor, "Committing the Oldest Sins in the Newest Kind of Ways—Antibodies Targeting the Influenza Virus Type A Hemagglutinin Globular Head" (2014) by Krause and Crowe, "Development of subunit vaccines against severe acute respiratory syndrome" (2008) by Du and Bj, and "Influenza vaccine immunology" (2011) by Dormitzer and Rappuoli.
- Far Right Panel (Network Graph):** A network graph titled "Connections between your collection and 50 papers". It shows a complex web of nodes representing authors and papers, with a "Filter these items" search bar and navigation controls like "Zoom Out", "Fit All", and "Zoom In".
- Bottom Panel (Actions):** A series of utility buttons including "Remove from: Infection block hypothesis", "Add to Other Collection", "EXPLORE PAPERS" (with "Similar Work" highlighted in blue and a red "154" badge), "All References", "All Citations", "EXPLORE PEOPLE" (with "These Authors" at 2 and "Suggested Authors" at 86), "EXPLORE OTHER CONTENT" (with "Linked Content"), "EXPORT PAPERS" (with "BibTeX", "RIS", "CSV"), "PUBLIC COLLECTION" (toggle), "SHAREABLE LINK" (with "Copy" button), "COLLABORATORS" (with "Edit" button), and "EMAIL UPDATES" (toggle). At the bottom, there are "Connections" (Click to Show/Hide) and "Sync to Zotero" buttons.

<https://www.researchrabbit.ai/>



ResearchRabbit

- Free web-based tool for graphically representing literature collections and finding related papers
- Bidirectional communication with Zotero

<https://www.researchrabbit.ai/>



ResearchRabbit

The screenshot displays the ResearchRabbit interface. On the left, a sidebar shows a collection named 'meta' with 10 items. A red box highlights the 'Z+ Import Zotero Collection' button. The main area shows a list of research papers, including 'Graphics and statistics for cardiology: designing effective tables for presentation and publication' and 'Who is in this study, anyway? Guidelines for a useful Table 1'. Below this, a Zotero library view is shown, displaying a list of papers with columns for Title, Creator, Date Added, and Citation key.

Title	Creator	Date Added	Citation key
Ten simple r...	Baillie et al.	12/13/2022, 12:15:0...	baillie2022
Writing a sci...	Ecarnot et al.	12/13/2022, 12:12:3...	ecarnot2015
Who is in this stu...	Eleanor Hayes-Larson et al.	8/28/2024, 12:52:20...	eleanorhayes-larso...
The Strength...	Erik von Elm et al.	8/28/2024, 9:11:06 ...	erikvonelm2007
Statistics and...	Freedman	12/13/2022, 12:37:4...	freedman1985
Ten simple r...	Friederike Ehrhart et al.	8/28/2024, 9:11:06 ...	friederikeehrhart20...
Strengthenin...	Jan P. Vandembroucke et al.	8/28/2024, 9:11:06 ...	janpvandembroucke...
Graphs, Tabl...	Lauren E. Franzblau et al.	8/28/2024, 9:11:05 ...	laurenfranzblau20...
Graphics and...	Maarten Boers and Boers	8/28/2024, 9:11:05 ...	maartenboers2018
What's wron...	McIver	1/22/2024, 11:22:58...	mciver2024
Ten simple r...	Méndez	1/8/2024, 11:44:44 ...	mendez2018
Rewriting res...	Muff et al.	12/13/2022, 12:16:0...	muff2022
A community...	Parsons et al.	12/13/2022, 12:15:0...	parsons2022
Rethinking Ta...	Ralph I. Horwitz et al.	8/28/2024, 9:11:06 ...	ralphiorwitz2021
Presenting d...	Rodrigo Pereira Duquia et al.	8/28/2024, 9:11:06 ...	rodrigopereiraduq...
The importa...	Schwartz	1/25/2023, 12:39:40...	schwartz2008
The importa...	Schwartz	1/8/2024, 12:53:10 ...	schwartz2015

<https://www.researchrabbit.ai/>



ResearchRabbit

- Free web-based tool for graphically representing literature collections and finding related papers
- Bidirectional communication with Zotero
- Visualize references and citations of a given paper or all papers in collection (like Web of Science but easier to use)

<https://www.researchrabbit.ai/>



ResearchRabbit

The screenshot displays the ResearchRabbit interface with the following components:

- 1 selected paper:** A paper by Hailiang Sun and Xiu-Feng Wan, titled "Using Sequence Data To Infer the Antigenicity of Influenza Virus" (Mbio, 2013).
- 1 Selected Paper:** A sidebar with actions like "Remove from", "Add to Other Collection", "Similar Work" (906), "All References" (53), "All Citations" (82), "These Authors" (17), and "Suggested Authors" (17).
- All References:** A list of references including "MECHANISM OF ANTIGENIC VARIATION IN AN INDIVIDUAL EPITOPE ON INFLUENZA VIRUS N9 NEURAMINIDASE" (Journal of Virology, 1990) and "Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP)" (Morbidity and Mortality Weekly Report, 2004).
- Connections between your collection and 48 papers:** A network graph showing relationships between authors and papers, with nodes labeled by author names and years (e.g., Sun 2013, Liu 2016, Pan 2011).
- 1 selected paper:** A detailed view of the selected paper, including an abstract and an importance section.
- All Citations:** A list of papers citing the selected one, such as "Models for predicting the evolution of influenza to inform vaccine strain selection" (Human Vaccines & Immunotherapeutics, 2018).
- Connections between your collection and 48 papers:** A second network graph view with different filters.



ResearchRabbit

- Free web-based tool for graphically representing literature collections and finding related papers
- Bidirectional communication with Zotero
- Visualize references and citations of a given paper or all papers in collection (like Web of Science but easier to use)
- AI-powered recommendations for similar papers

<https://www.researchrabbit.ai/>



ResearchRabbit

1 selected paper

Hailliang Sun, Xiu-Feng Wan

Using Sequence Data To Infer the Antigenicity of Influenza Virus

Mbio 2013, 84

ABSTRACT The efficacy of current influenza vaccines requires a close antigenic match between circulating and vaccine strains. As such, timely identification of emerging influenza virus antigenic variants is central to the success of influenza vaccination programs. Empirical methods to determine influenza virus antigenic properties are time-consuming and mid-throughput and require live viruses. Here, we present a novel, experimentally validated, computational method for determining influenza virus antigenicity on the basis of hemagglutinin (HA) sequence. This method integrates a bootstrapped ridge regression with antigenic mapping to quantify antigenic distances by using influenza HA1 sequences. Our method was applied to H3N2 seasonal influenza viruses and identified the 13 previously recognized H3N2 antigenic clusters and the antigenic drift event of 2009 that led to a change of the H3N2 vaccine strain. **IMPORTANCE** This report supplies a novel method for quantifying antigenic distance and identifying antigenic variants using sequences alone. This method will be useful in influenza vaccine strain selection by significantly reducing the human labor efforts for serological characterization and will increase the likelihood of correct influenza vaccine candidate selection.

Similar Work

- Smith, Fouchier 2004 (1578) - Mapping the Antigenic and Genetic Evolution of Influenza Virus
- Koel, Smith 2013 (495) - Substitutions near the receptor binding site determine major antigenic change during influenza virus evolution.
- Bao, Lipman 2008 (938) - The influenza virus resource at the National Center for Biotechnology Information.
- Ia, Cox 1990 (548) - Structural basis of immune recognition of influenza virus hemagglutinin.
- Huang, Yang 2009 (42) - Co-evolution positions and rules for antigenic variants of human influenza A/H3N2 viruses
- Wiley, Skehel 1981 (1572) - Structural identification of the antibody-binding sites of Hong Kong influenza haemagglutinin and their

Connections between your collection and 47 papers

Graph Type: Network, Timeline

Labels: First Author, Last Author

Filter these items

EXPLORE PEOPLE

- These Authors: 568
- Suggested Authors: 1159

EXPLORE OTHER CONTENT

- Linked Content: 384

EXPORT PAPERS

BibTeX, RIS, CSV

PUBLIC COLLECTION (toggle off)

SHAREABLE LINK Copy

COLLABORATORS Edit

EMAIL UPDATES (toggle on)



ResearchRabbit

The screenshot displays the ResearchRabbit interface, which is divided into several panels. On the left, there is a 'Similar Work' panel with a list of papers, including 'Mapping the Antigenic and Genetic Evolution of Influenza Virus' (Smith, Fouchier, 2004) and 'Substitutions near the receptor binding site determine major antigenic change during influenza virus evolution.' (Koel, Smith, 2013). The central panel shows a network graph of connections between a collection and 47 papers. A red box highlights a specific node in the graph, with a red arrow pointing to a detailed view of that paper. The detailed view shows the paper 'Substitutions near the receptor binding site determine major antigenic change during influenza virus evolution.' by Björn F. Koel and Derek J. Smith (2013). The right panel shows another 'Similar Work' panel with a list of papers, including 'Structural identification of the antibody-binding sites of Hong Kong influenza haemagglutinin and their involvement in antigenic variation' (Wiley, Skehel, 1981) and 'Antigenic and Genetic Characteristics of Swine-Origin 2009 A(H1N1) Influenza Viruses Circulating in Humans' (Garten, Cox, 2009). The bottom of the interface features navigation controls for the network graph, including 'Zoom Out', 'Fit All', and 'Zoom In' buttons.




Elicit

<https://www.elicit.com/>


Elicit


- AI-powered search engine that uses NLP to parse search queries and find papers.


Elicit

 Find papers

Does vaccine mismatch affect vaccine efficacy of the seasonal influenza vaccine?



 Extract data from PDFs

 List of concepts

Elicit

- AI-powered search engine that uses NLP to parse search queries and find papers.
- Searches full text when available or abstract to generate summaries. Info is drawn only from paper to prevent certain types of hallucinations.

Elicit

<input type="checkbox"/> Paper	Abstract summary
<input type="checkbox"/> Comparing influenza vaccine efficacy against mismatched and matched strains: a systematic review and meta-analysis A. Tricco +8 BMC Medicine 2013 · 335 citations PDF DOI	Influenza vaccines can provide cross-protection against non-matching circulating strains, though vaccine efficacy is higher when the vaccine matches the circulating strains.
<input type="checkbox"/> Change in the efficacy of influenza vaccination after repeated inoculation under antigenic mismatch: A systematic review and meta-analysis. Nobuhisa Morimoto +1 Vaccine 2018 · 24 citations DOI	Repeated influenza vaccination reduces vaccine efficacy against mismatched strains in children, but not against matched strains.
<input type="checkbox"/> Influenza: Can we cope better with the unpredictable? Gael Dos Santos +2 Human Vaccines & Immunotherapeutics 2015 · 40 citations PDF DOI	Vaccine mismatch can impact seasonal influenza vaccine efficacy, but vaccination is still recommended as the preferred means of protection.
<input type="checkbox"/> Immune History and Influenza Vaccine Effectiveness J. Lewnard +1 Vaccines 2018 · 154 citations PDF DOI	Vaccine mismatch is not the only factor affecting seasonal influenza vaccine efficacy, as immune history also plays an important role.
<input type="checkbox"/> Impact of influenza B lineage-level mismatch between trivalent seasonal influenza vaccines and circulating viruses, 1999-2012. T. Heikkinen +2	Vaccine mismatch with circulating influenza B lineages has a substantial population-level impact, especially in children and adolescents.

Load more

Elicit

- AI-powered search engine that uses NLP to parse search queries and find papers.
- Searches full text when available or abstract to generate summaries. Info is drawn only from paper to prevent certain types of hallucinations.
- Attempts to find a consensus between the most relevant articles.

Vaccine Mismatch and Efficacy



Q Does vaccine mismatch affect vaccine efficacy of the seasonal influenza vaccine?

Summary of top 4 papers 

 Copy

Vaccine mismatch can significantly affect the efficacy of seasonal influenza vaccines, but cross-protection against mismatched strains is still possible. A meta-analysis found that live-attenuated influenza vaccines (LAIV) and trivalent inactivated vaccines (TIV) provided protection against both matched and mismatched strains in children and adults, respectively, although efficacy was generally lower for mismatched strains (Tricco et al., 2013). Another study revealed that repeated vaccination in children may reduce vaccine efficacy against mismatched strains compared to single-season vaccination (Morimoto & Takeishj, 2018). The unpredictability of influenza virus circulation and strain selection challenges contribute to variable vaccine effectiveness across seasons and regions (Dos Santos et al., 2015). Immune history also plays a role in vaccine effectiveness, with factors such as age group and recent vaccination status influencing outcomes (Lewnard & Cobey, 2018). Despite these challenges, vaccination remains the preferred method for protection against influenza and its complications.

You need to review **everything** that Elicit says. Use it as a search tool, not a skip-my-paper-reading tool.

Litsearchr



<https://elizagrames.github.io/litsearchr/>



Litsearchr

- R package that analyses a corpus of imported references and suggests search strings.

<https://elizagrames.github.io/litsearchr/>



Litsearchr

- R package that analyses a corpus of imported references and suggests search strings.
- More for systematic reviews than casual.

<https://elizagrames.github.io/litsearchr/>



Litsearchr


- R package that analyses a corpus of imported references and suggests search strings.
- More for systematic reviews than casual.
- Allows for iterative refinement of search strategies with quantitative metrics.

<https://elizagrames.github.io/litsearchr/>


Litsearchr




Methods in Ecology and Evolution  BRITISH ECOLOGICAL SOCIETY




RESEARCH ARTICLE |  Free Access

An automated approach to identifying search terms for systematic reviews using keyword co-occurrence networks

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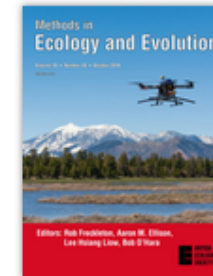
First published: 20 July 2019 | <https://doi.org/10.1111/2041-210X.13268> | Citations: 154

 SECTIONS

 PDF  TOOLS  SHARE

Abstract

<https://besjournals.onlinelibrary.wiley.com/doi/10.1111/2041-210X.13268>



Volume 10, Issue 10
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Figures References Related Information

Recommended

[Facilitating systematic reviews, data extraction and meta-analysis with the METAGEAR package for R](#)

Marc J. Lajeunesse

<https://elizagrames.github.io/litsearchr/>



1. Research team writes a naïve search to capture a set of highly relevant articles. The naïve search should be conducted in at least two supported databases and results should be exported per litsearchr guidelines.



2. litsearchr imports search results in a standardized format and removes duplicates. Each article is turned into a "bag of words" before keywords are extracted from the full set of articles to create a dictionary of possible search terms.



3. litsearchr creates a document-feature matrix using each possible term from the dictionary as features; this matrix becomes a keyword co-occurrence network. litsearchr fits a model to the network to find a cutoff in keyword importance.



4. litsearchr suggests possible search terms central to the topic of the review. The research team manually considers these keywords and sorts them into concept groups. This process can be repeated with terms that share a stem.



5. litsearchr removes redundant terms and then translates terms into user-specified languages. It then writes Boolean search strings for each language which the review team uses to conduct searches.

Multiple tutorials are available:

- https://luketudge.github.io/litsearchr-tutorial/litsearchr_tutorial.html
- https://elizagrames.github.io/litsearchr/litsearchr_vignette.html



Litsearchr

- R package that analyses a corpus of imported references and suggests search strings.
- More for systematic reviews than casual.
- Allows for iterative refinement of search strategies with quantitative metrics.
- Part of a network of R packages for systematic reviews and evidence synthesis.

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Litsearchr-verse



Related Tools and Resources

synthesisr logo synthesisr

Import, assemble, and deduplicate bibliographic data stored as RIS or BibTex formatted text files.

revtools logo revtools

Article screening for evidence synthesis using manual or visual methods.



topictagger

Tag documents with meta-data and based on user-defined ontologies or topic groups.



metaDigitise

High-throughput, reproducible extraction of data from figures.



robvis

Create publication quality risk-of-bias assessment figures.



Evidence Synthesis Hackathon

A series to bring together interested researchers, practitioners and coders to discuss and develop new Open Source technologies for evidence synthesis applications.

<https://elizagrames.github.io/litsearchr/>

Alternatives or whatever

- Similar to ResearchRabbit
 - Connected Papers: <https://www.connectedpapers.com/>
 - LitMaps: <https://www.litmaps.com/>
- Similar to Elicit
 - OpenRead: <https://www.openread.academy/>
 - Semantic Scholar: <https://www.semanticscholar.org/>
 - Consensus: <https://consensus.app/search/>
- There's definitely more of both. Beware of pricing scams.
- Litsearchr exists in an ecosystem of topic modeling for systematic reviews, which seems promising over manual search.

AI tools tier list (for lit review)

GOATed w/ the sauce	ResearchRabbit, ConnectedPapers, etc.
EGOT coded	Elicit, Semantic Scholar
A glass of warm milk	Litsearchr (good for specific tasks)
Full buffet	ChatGPT, Gemini, Bard, Claude, etc.
FLOP BEHAVIOR!!!!	Any service that does the same thing as Zotero, ResearchRabbit, or Semantic Scholar but makes you pay for it. That's a scam

Bonus ranking: 99% of productivity tools are giving Andy's boyfriend from the Devil Wears Prada

“No, the menace of AI is that it attacks where modern minds are weakest, where we have abandoned our protective armor of superstition and have no substitute defense.

Shirley Jackson, if she wrote *The Haunting of Hill House* last year, probably

Helpful references

- <https://www.techpolicy.press/challenging-the-myths-of-generative-ai/>
- <https://ludic.mataroa.blog/blog/i-will-fucking-piledrive-you-if-you-mention-ai-again/> (CW: language)
- <https://dl.acm.org/doi/10.1145/3442188.3445922>
- <https://americanlibrariesmagazine.org/2016/05/31/why-sci-hub-matters/>
- <https://www.youtube.com/watch?v=0vZGAUs-dZg>