

Strategic use of Generative AI

Alexander Botzki and Bruna Pierreck

<https://shorturl.at/3vLsH>



Image generated by copilot-AI, image generator



Primary considerations

VIB Policy

VIB wants:

1. To stimulate the responsible use of genAI
2. You to be fully aware of the strengths but also the limitations of genAI
3. You to perform the necessary verification and quality control
4. You to refrain from the use of genAI in a way that may lead to the disclosure of confidential or personal information

See practical guideline on the responsible use of genAI tools

Discover the whole document on kb.vib.be

Home

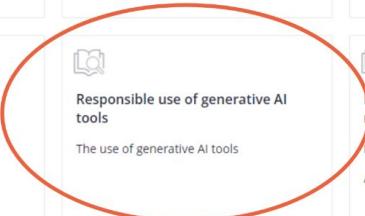
René Custers

Feed Tasks Apps & Websites Reports People Publications Help Knowledge Base My Place

Responsible research & integrity

All Collections > Responsible research & integrity

Search article Search



Authorship
VIB authorship guidelines

Research misconduct
Research misconduct policy and procedures

Image manipulations
VIB guidelines on acceptable image manipulations

Conflicts of Interest
VIB Conflict of Interest policy

Responsible VIB Research
Responsible VIB Research

Responsible use of generative AI tools
The use of generative AI tools

Research integrity training and resources
Mind the Gap
Additional research integrity resources

Science Issues

Wellbeing Issues

Issues related to national & union law

Some practical guidelines



Practical guideline on the responsible use of generative artificial intelligence tools

The responsible use of generative artificial intelligence (genAI) tools:

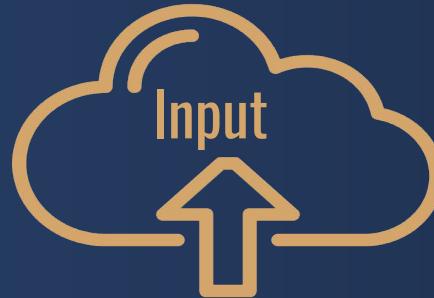
- Requires a high level of awareness on the limits on the quality, correctness, accuracy, and currentness of the output, and on the need to perform appropriate verification.
- Must avoid that confidential, proprietary and personal information are processed in a way that could lead to the inadvertent or deliberate disclosure, sharing, theft or loss of these types of information.

The table below gives an overview for a number of genAI tools of whether they can be safely used for confidential, proprietary or personal information. When it is indicated that the tool is not allowed for confidential, proprietary and personal information, they can of course still be used for non-confidential, non-proprietary and non-personal information.

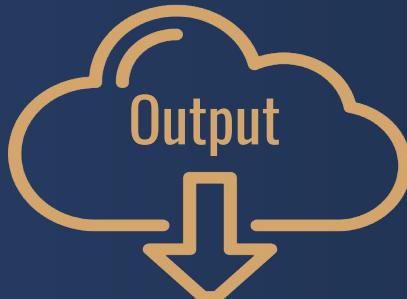
GenAI tool	Version	Application	Allowed for confidential, proprietary and personal information?	Remarks
ChatGPT	3.5	Text generator, feedback provider, ...	NO	It is advised not to use this version for confidential, proprietary and personal information, even when one has opted out for 'improve the model for everyone' and opted for a 'temporary chat'.
ChatGPT	4	Text generator, feedback provider, designer, multimedia developer, data analysis, ...	NO	It is advised not to use this version for confidential, proprietary and personal information, even when one has opted out for 'improve the model for everyone' and opted for a 'temporary chat'.
	40	Text generator, feedback provider, designer, multimedia developer, data analysis, ...	NO	It is advised not to use this version for confidential, proprietary and personal information, even when one has opted out for 'improve the model for everyone' and opted for a 'temporary chat'.
	4 Enterprise	Text generator, feedback provider, designer, multimedia developer, data analysis, ...	YES	Data are not used for training purposes and the tool offers sufficient security guarantees.
MS Copilot	in Edge or via copilot.microsoft.com	Idea generator, advanced search engine, writing assistant, multimedia developer, feedback provider, ...	YES	But only in case you use the tool with authentication via the VIB or university email address.
	Web app	Idea generator, advanced search engine, writing assistant, multimedia developer, feedback provider, ...	YES	But only in case you use the tool with authentication via the VIB or university email address.

Considerations

before we start



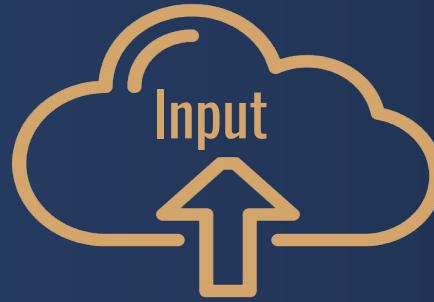
Be careful



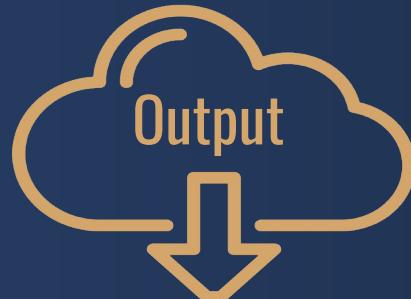
Considerations

before we start

- Upload files like PDFs
- Copy & paste information
- Enter something new into the LLM interface



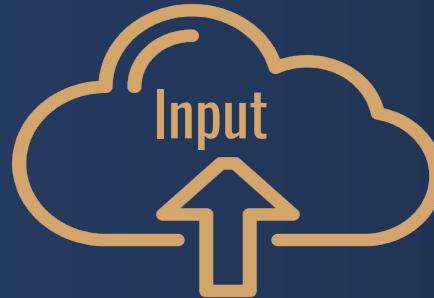
Be careful



Considerations

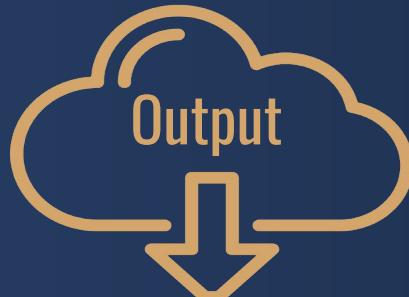
before we start

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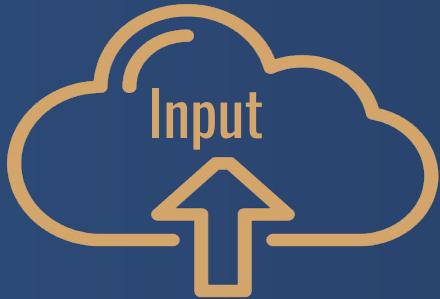
Be careful

- Reading content created by AI
- Using content created by AI in own works
- Adapt content created by AI



Considerations

About input



- Non-Open Access Content

Many publishers have policies that restrict the uploading of their content, even if some might argue it falls under “Fair Use.”

- Confidential Information

Information that is subject to a non-disclosure agreement or classified.

- Unpublished material

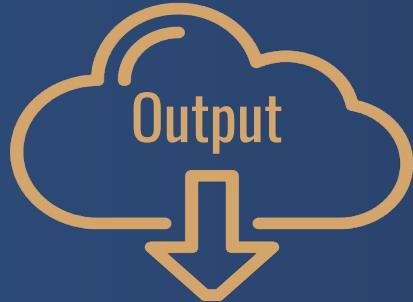
A peer reviewer using e.g. Copilot to summarize or better understand the material they are reviewing.

Considerations

About output

Content may

- be incomplete
- contain errors
- be misleading or inaccurate
- exhibit biases
- have intellectual property concerns



Recent headlines before we start

EDITORIAL

Can Researchers Write their Articles by Artificial Intelligence?

Mondal, Himesh; Mondal, Shaikat¹

Author Information 

Journal of Applied Sciences and Clinical Practice 4(3):p 165-167, Sep-Dec 2023. | DOI: 10.4103/jascp.jascp_44_23 

Ethical Concerns about Using AI-Generated Text in Scientific Research

4 Pages • Posted: 20 Mar 2023

> Account Res. 2024 Mar 22:1-17. doi: 10.1080/08989621.2024.2331757. Online ahead of print.

AI vs academia: Experimental study on AI text detectors' accuracy in behavioral health academic writing

Andrey A Popkov ¹ ², Tyson S Barrett ¹

Dimensions of the writing process

Depth

Ideas, sources, analysis, variety and range
of language

Flow

Smooth expression, clear connection, fluency

Accuracy

Precise spelling, grammar, punctuation,
citations formatting

AI use in the writing process

Increasing AI

Human writing

Human-in-the-Loop
Writing

Machine-in-the-loop
Writing

Synthetic Writing

- Individual perspective pieces
- Cultural analysis
- Subject-specific evaluation
- Philosophical discussion
- Essay feedback
- Creation of educational material
- Tools language acquisition
- Guidance on thesis work
- Low-stake assignment feedback
- Early drafts
- Enhanced peer review
- Prompts for discussions
- Analysis reports
- Formatting citations
- Articles summaries

Adapted from: Knowles, A. M. (2024). Machine-in-the-loop writing: Optimizing the rhetorical load. *Computers and Composition*, 71, 102826. <https://doi.org/10.1016/j.compcom.2024.102826>
<https://moxylearn.ai/blog/how-to-use-ai-for-academic-writing-a-step-by-step-guide>



AI-assisted literature discovery and analysis

- Develop a search strategy
- Flavors of literature search tools
- Screen and triangulate your results
- Organize selected literature into a matrix
- Analyse to identify patterns & gaps
- Synthesise and write
- Revise

Easy start:
AI excels for search strategies

LLMs excel at certain questions

Unfamiliar concepts

What are the key trends in the development of sustainable flow cytometry devices?

As someone new to Digital Education, I believe these tools and methods could be beneficial. Could you provide an overview?

Which stakeholders should be engaged in establishing an eco-team at a research-performing organisation?

LLMs excel at certain questions

GENERATE KEYWORDS | SEARCH STRING SUGGESTIONS | TOPIC SCOPING

Possible prompt

As a sociologist researching collaboration among scientists in biology labs, provide me with 10 keywords for an academic literature search.

Follow-up prompts

What search string could I use in PubMed or a library database to find relevant literature? Give an example for each of the options.

Identify 5 specific topics in this area for further exploration. Create an additional search string for PubMed.

Activity

GENERATE KEYWORDS | SEARCH STRING SUGGESTIONS | USE TOOL | TOPIC SCOPING

<https://copilot.cloud.microsoft.com>

Possible prompt

As a sociologist researching collaboration among scientists in biology labs, provide me with 10 keywords for an academic literature search.

Follow-up prompts

→ What search string could I use in Google Scholar to find relevant literature?

Use the suggested search string in Google scholar and evaluate the results.

→ Identify 5 specific topics in this area for further exploration.

AI-assisted literature review

- Develop a search strategy
- Flavors of literature search tools
- Screen and triangulate your results
- Organize selected literature into a matrix
- Analyse to identify patterns & gaps
- Synthesise and write
- Revise

AI Assistance in Library tools

Access provided by Universiteit Gent ?

 JSTOR Alexander Botzki

All Content Images Advanced Search

inclusive learning resources Browse ▾ Workspace

Back to results Educational visions / CHAPTER 4 Accessible Inclusive Learning:...

BOOK CHAPTER OPEN ACCESS

CHAPTER 4 Accessible Inclusive Learning: Foundations

Tim Coughlan, Kate Lister, Jane Seale, Eileen Scanlon, Martin Weller
Educational visions: The lessons from 40 years of innovation, 2019, pp. 51-74 (24 pages)

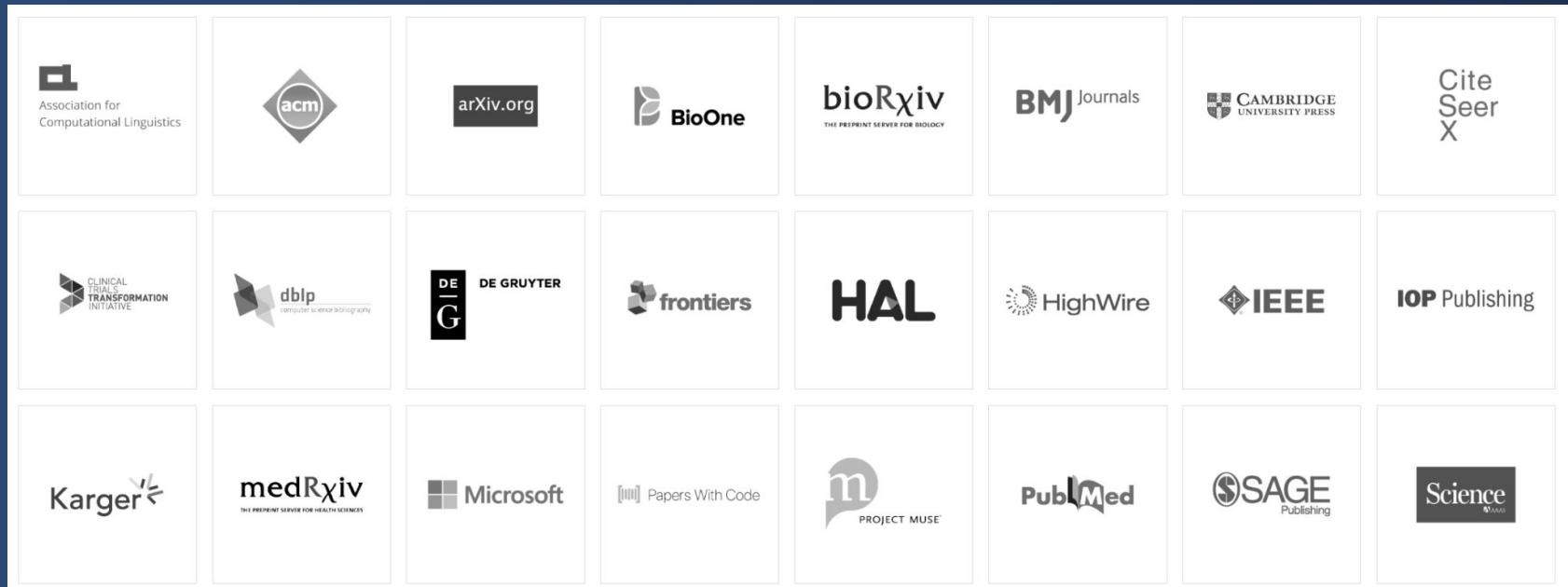
<https://www.jstor.org/stable/j.ctv11cvx2s.8> Cite Share Save Download



<https://www.jstor.org>



Semantic Scholar: a corpus for AI models in academia



Chatbots for Literature Discovery



Do hours worth of reading in minutes

Discover latest papers published till October 2023

Literature Review

Ask Questions on PDF

Extract data

Paraphraser

Search or ask a question



Where knowledge begins

Ask anything...

Focus Attach

Pro



Find research papers. Get answers.

Ask a research question



Activity

- Open your browser and surf to <https://perplexity.ai>
- Open another tab and surf to <https://scholar.google.com>

Question to address:

How to make training events and material more findable, accessible, interoperable and re-usable?

List practical recipes to make training events and material more findable, accessible, interoperable and re-usable.

How do you need to change the question to get more concrete answers?

Try to come up with concrete practical recipes which would help you how to do it.

Document your process and evaluate what are useful approaches for both tools.

Interrogate new tools that have a chatbot

- Ask the tool or Perplexity about the new tool
- What can you do for free and what can you do with paid accounts?
- What are the data sources the tools are using?
- What models is the tool relying on?
- What other things will this tool do?

Summarise

Alerts

Citation connected to Zotero

etc.



AI tools for Literature Discovery

Litmaps

Discover the world of
Scientific Literature

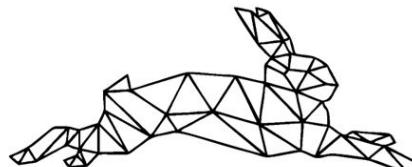
Search by keyword, author, DOI, Pubmed ID or arXiv ID

CONNECTED PAPERS

Explore academic papers
in a visual graph

Search by keywords, paper title, DOI or another identifier

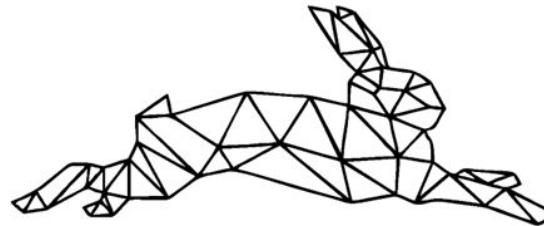
Build a graph



ResearchRabbit

Reimagine Research

We're rethinking everything:
literature search, alerts, and more



ResearchRabbit

www.researchrabbit.ai

VIB POLICY

“Do not use for proprietary, confidential, and personal information”

New Collection

New Category

Import Zotero Collection

Uncategorized

+ Collection

Education

Shared with Me

No collections

Filter Recency

Abstracts Comments Select All

Education

Swan ... Brookbank 2024

Making bioinformatics training FAIR: the EMBL-EBI training portal

Frontiers Bioinform.

EMBL-EBI provides a broad range of training in data-driven life sciences. To improve awareness and access to training course listings and to make digital learning materials findable and simple to use, the EMBL-EBI Training website, www.ebi.ac.uk/training, was redesigned and restructured. To provide

Putra ... Kamdi 2024

The Evolution of Quality Education: Impacts and Challenges of Using Open Educational Resources (OER) and Open Educational Practices (OEP) in the Conceive - Design - Implement - Operate (CDIO) Framework

TEM Journal

This Research examines how open educational resources (OER) and open educational practices (OEP) provide fair access to high-quality education. Using qualitative research, the author evaluates university formal education OER and OEP deployment and outcomes. This research found that OER, CDIO (Concei

Bacall ... Botzki 2023

Making Bioinformatics Training Events and Material More Discoverable Using TeSS, the ELIXIR Training Portal

Current Protocols

Many trainers and organizations are passionate about sharing their training material. Sharing training material has several benefits, such as providing a record of recognition as an author, offering inspiration to other trainers, enabling researchers to discover training resources for their personal

Add Papers

EXPLORE PAPERS

- Similar Work 637
- Earlier Work 2
- Later Work 3

EXPLORE PEOPLE

- These Authors 92
- Suggested Authors 158

EXPLORE OTHER CONTENT

- Linked Content

EXPORT PAPERS

- BibTeX RIS CSV

PUBLIC COLLECTION

SHAREABLE LINK Copy

COLLABORATORS Edit

EMAIL UPDATES

The logo for VIB (Vrije Universiteit Brussel) features a stylized orange and blue graphic element followed by the acronym "VIB" in a bold, white, sans-serif font.

New Collection

New Category

Import Zotero Collection

Uncategorized

+ Collection

Education

Shared with Me

No collections

Filter Recency

Abstracts Comments Select All

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COLLABORATORS Edit

EMAIL UPDATES

The screenshot shows a digital library interface with a sidebar on the left and a main content area on the right.

Left Sidebar:

- New Collection
- New Category
- Import Zotero Collection
- Uncategorized
- + Collection
- Education (selected, indicated by a red dot)
- Shared with Me (indicated by a red dot)
- No collections

Main Content Area:

Filter: Recency
Abstracts Comments Select All

Education

Swan ... Brookbank 2024

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EMBL-EBI provides a broad range of training in data-driven life sciences. To improve awareness and access to training course

EXPLORE PAPERS

Similar Work 637

Savonen ... Leek 2023
Open-source Tools for Training Resources - OTTR.
Journal of statistics and data science education : an official journal of the American Statistical Association
Data science and informatics tools are developing at a blistering rate, but their users often lack the educational background or resources to efficiently apply the methods to their research. Training resources and vignettes that accompany these tools often deprecate because their maintenance is not prioritized by funding, giving teams little time to devote to such endeavors. Our group has developed Open-source Tools for Training Resources (OTTR) to offer greater efficiency and flexibility for creating and maintaining these training resources. OTTR empowers creators to customize their work and allows for a simple workflow to publish using multiple platforms. OTTR allows content creators to publish training material to multiple massive online learner communities using familiar rendering mechanics. OTTR allows the incorporation of pedagogical practices like formative and summative assessments in the form of multiple choice questions and fill in the blank problems that are automatically graded. No local installation of any software is required to begin creating content with OTTR. Thus far, 15 training courses have been created with OTTR repository template. By using the OTTR system, the maintenance workload for updating these courses across platforms has been drastically reduced. For more information about OTTR and how to get started, go to otrproject.org.

Add to Collection

Rockhold ... DeMets 2024
Training New DMC Members: A Call to Action.
Therapeutic innovation & regulatory science
Historically, clinical trialists developed DMC expertise and experience with "on the job training". Clinical trialists have recognized a large and growing gap between the demand and supply of trained DMC members due in part to the huge increase in ongoing clinical trials. A critical need exists to increase the supply of DMC trained clinicians and biostatisticians. Despite a rich collection of published training material, many have recommended a mentoring process to train clinical trialists and data scientists lacking DMC experience. We propose that academic, regulatory, industry and other leaders in clinical trials support including investigators lacking DMC experience as members of a DMC so that they can be trained to learn about the DMC processes during conduct of an actual trial. © 2023. The Author(s), under exclusive licence to The Drug Information Association, Inc.

Add to Collection

several benefits, such as providing a record of recognition as an author, offering inspiration to other trainers, enabling researchers to discover training resources for their personal

EMAIL UPDATES

Bottom Navigation:

Add Papers

Logo: VIB

[New Collection](#)

[New Category](#)

[Import Zotero Collection](#)

[Filter](#) Recency

Abstracts Comments

Select None Select All

Education

[Swan](#) ... [Brookbank](#) 2024
Making bioinformatics training FAIR: the EMBL-EBI training portal
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[Remove from:](#) Education

[Add to Other Collection](#)

[EXPLORE PAPERS](#)

[Similar Work](#) 687

[Earlier Work](#) 4

[Later Work](#) 3

[EXPLORE PEOPLE](#)

[These Authors](#) 126

[Suggested Authors](#) 311

[EXPLORE OTHER CONTENT](#)

[Linked Content](#)

[EXPORT PAPERS](#)

BibTeX RIS CSV

[PUBLIC COLLECTION](#)

[SHAREABLE LINK](#) [Copy](#)

[COLLABORATORS](#) [Edit](#)

[EMAIL UPDATES](#)

[Add Papers](#)

[Connections Click to Show](#)

Similar Work

[Filter](#) Relevance

Abstracts Comments

Select All

[Wilkinson](#) ... [Mons](#) 2016 ↗ 8359
The FAIR Guiding Principles for scientific data management and stewardship
Scientific Data

[Ison](#) ... [Rice](#) 2013 ↗ 215
EDAM: an ontology of bioinformatics operations, types of data and identifiers, topics and formats
Bioinformatics

[Arnaud](#) ... [Callo](#) 2017 ↗ 4206
From core referencing to data re-use: two French national initiatives to reinforce paleodata stewardship (National Cyber Core Repository and LTER France Retro-Observatory)

[Ison](#) ... [Brunak](#) 2019 ↗ 41
The bio.tools registry of software tools and data resources for the life sciences.
Genome Biology

[Hastings](#) ... [Steinbeck](#) 2016 ↗ 57
ChEBI in 2016: Improved services and an expanding collection of metabolites.
Nucleic Acids Research

[Atwood](#) ... [Gelder](#) 2015 ↗ 57
GOBLET: The Global Organisation for Bioinformatics Learning, Education and Training
PLOS Computational Biology

[Pedregosa](#) ... [Duchesnay](#) 2011 ↗ 33655
Connections Click to Hide

Connections between your collection and 50 papers

Graph Type Labels

Network Timeline First Author Last Author

Filter these items

Zoom Out Fit All Zoom In

Settings

[EXPLORER PEOPLE](#)

[These Authors](#) 957 Help

[Suggested Authors](#) 2725 Survey

[EXPLORER OTHER CONTENT](#)

[Linked Content](#) 513 Survey

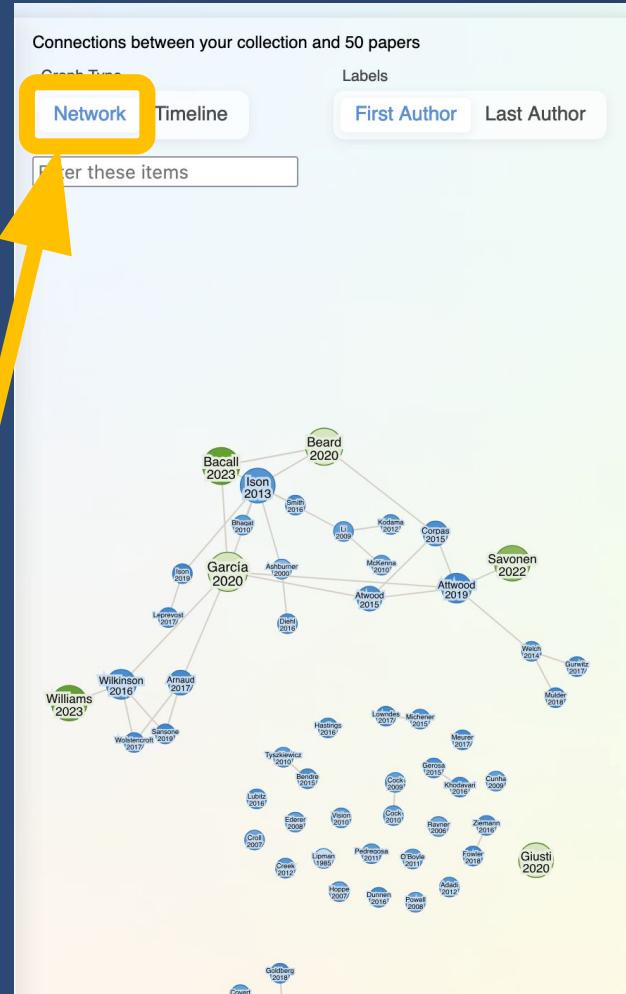
[EXPORT PAPERS](#)

BibTeX RIS CSV

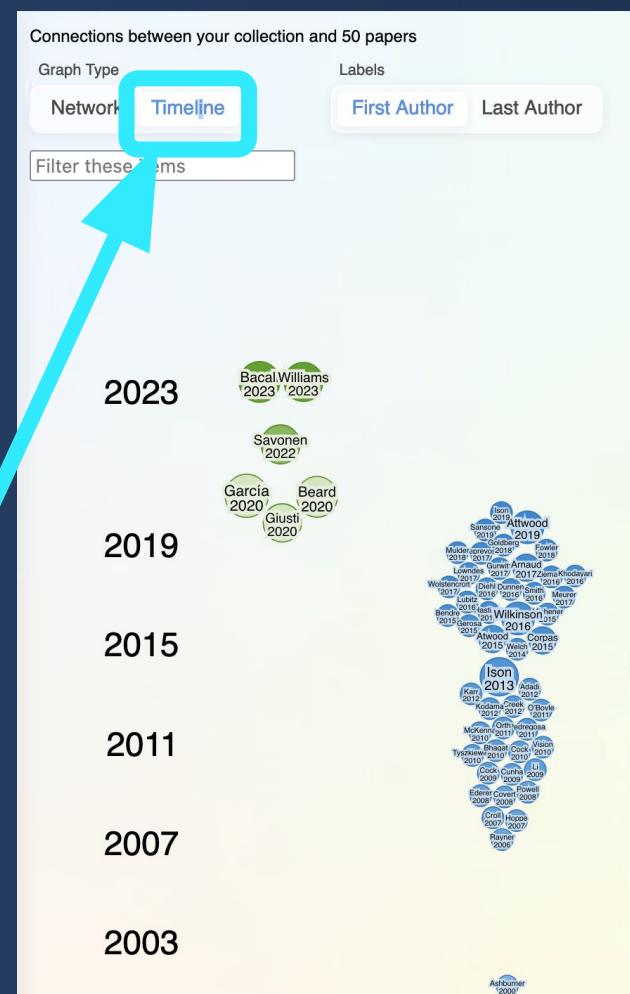
Follow

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NETWORK VISUALIZATION



TIMELINE VISUALIZATION



Cool things about Research Rabbit

- Free → ostensibly always will be
- Useful FAQs
- Book 1:1 sessions with them
- No issues with hallucinations
- No uploading full PDFs, downloading generated content
 - You can upload Zotero folder of citations & download a RR collection into a Zotero folder
 - You can export or import .bib or .ris files to Endnote, Zotero & Mendeley
- Collections are shareable

Hands-on time — ResearchRabbit.ai

- 1 — Create an account + login
- 2 — Create a **category**
- 3 — Create a **collection**
- 4 — Add a few citations/papers
- 5 — EXPLORE!



Mitigate gaps

AI Research Assistants



Literature databases

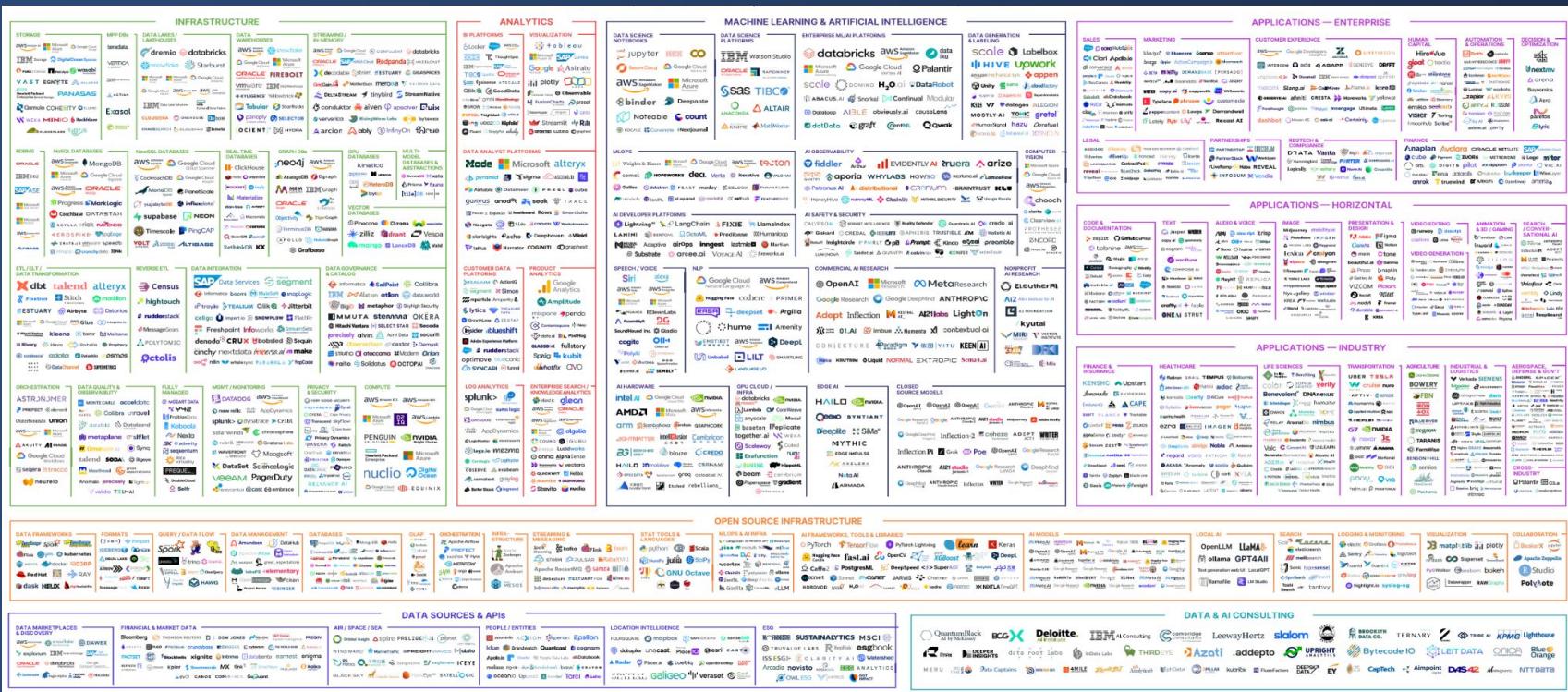


Google Scholar

AI-assisted literature review

- Develop a search strategy
- Flavors of literature search tools
- Screen and triangulate your results
- Organize selected literature into a matrix
- Analyse to identify patterns & gaps
- Synthesise and write
- Revise

Tools for summarisation



interactive version <https://mad.firstmark.com/>



Considerations

Fair use is a legal doctrine that promotes freedom of expression by **permitting the unlicensed use** of copyright-protected works in certain circumstances... notably ... **teaching, scholarship, and research.**

– US Copyright Office Fair Use Index

Check on the policies of the publishers

ASTM International Artificial Intelligence (AI) Policy

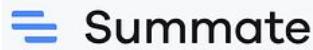
ASTM International prohibits the entry of ASTM standards and related ASTM intellectual property (“ASTM IP”) into any form of Artificial Intelligence (AI) tools, such as ChatGPT.

Additionally, creating derivatives of ASTM IP using AI is also prohibited without express written permission from ASTM’s President. In the case of such use, ASTM will suspend a licensee’s access to ASTM IP, and further legal action will be considered.

Literature summaries



Claude



CHATPDF



Different flavors of summarising tools

AI Literature
Discovery

Use their own corpus
(like SemanticScholar)



Chatbots

You upload PDF
(or copy-paste)



AI on documents

You upload PDF





Elicit

<https://elicit.com>

PRIVACY POLICY

"Any papers you upload to Elicit are private to your account"

VIB POLICY

"Do not use for proprietary, confidential, and personal information "

Short demo: look at an existing notebook

<https://elicit.com/notebook/d062b402-32db-4ef2-bdb8-d1e7c5e0804e>

SEARCH
SEMANTIC
SCHOLAR

UPLOAD PDF
ARTICLE
(e.g. via
Zotero)

Select a first step

 Find papers

Ask a research question

How to make training events and material more findable,
accessible, interoperable and re-usable?

 Extract data from PDFs

 List of concepts

00



Adding columns for additional aspects about the papers

Abstract summary			Manage Columns
<input type="checkbox"/> Paper			
<input type="checkbox"/> Making Bioinformatics Training Events and Material More Discoverable Using TeSS, the ELIXIR Training Portal F. Bacall +6 Current Protocols 2023 · 1 citation PDF DOI	The ELIXIR training portal TeSS can make bioinformatics training events and materials more findable, accessible, interoperable and reusable.		Search or create a column Describe what kind of data you want to extract e.g. Limitations, Survival time
<input type="checkbox"/> Ten simple rules for making training materials FAIR L. García-Castro +22 PLoS Comput. Biol. 2020 · 28 citations PDF DOI	The paper provides ten simple rules to make training materials more findable, accessible, interoperable and reusable (FAIR).		ADD COLUMNS + Summary + Main findings + Methodology + Intervention + Outcome measured + Limitations Show more
<input type="checkbox"/> Making bioinformatics training FAIR: the EMBL-EBI training portal A. L. Swan +8 Frontiers Bioinform. 2024 · 0 citations PDF DOI	The EMBL-EBI training portal applied the FAIR principles to make bioinformatics training more findable, accessible, interoperable, and reusable.		
<input type="checkbox"/> Open Science Training in TRIPLE Lottie Provost +5 Open Research Europe 2023 · 1 citation PDF DOI	The TRIPLE project developed training materials and a toolkit to make training events and materials more findable, accessible, interoperable and reusable.		

Beyond ‘Summary’ and ‘Main Finding’ you have many more parameters

Methodology	Summary of intro	Research gaps	Study count	Duration	Population characteristics
Intervention	Summary of discussion	Hypotheses tested	Independent variables	Statistical techniques	Participant age
Outcome	Study design	Future research	Dependent variables	Algorithms	Population sex
Limitations	Theoretical framework	Funding source	Measured variables	Software	Organism
Intervention effects	Research question	Dataset	Region	Participant count	Policy recommendations

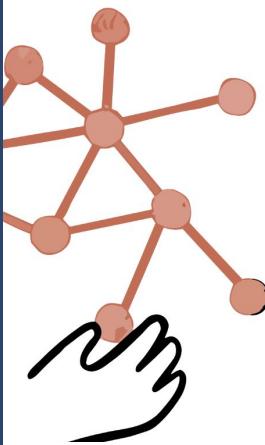
Elicit - Pros and Cons



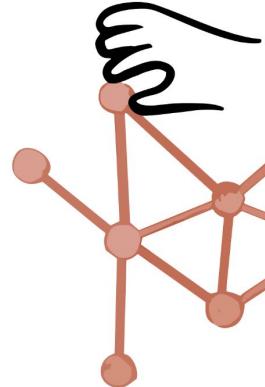
- **a versatile and adaptable tool**
- integrates with Zotero
- Supports bulk upload of PDFs
- capable of summarizing multiple papers
- promises PDF privacy



- Offers multi-dimensional analysis with the paid version
- Export functionality requires the Plus version
- Most interactions require credits
- some aspects lack transparency



Claude



<https://claude.ai>

PRIVACY POLICY

"We will not use your Inputs or Outputs to train our models"

VIB POLICY

"Currently under review "



What can I help you with today?

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Nuclear
Desert to
Evolutionar...
PDF

Can you summarize this article for a layman, using bullet points for main findings and key takeaways?



MONOGRAPH
Mètode Science Studies Journal, 10 (2020) 193-199. University of Valencia
ISSN: 274-2467.eissn: 274-9221
Submitted: 30/07/2019 Approved: 16/09/2019

FROM NUCLEAR DESERT TO EVOLUTIONARY LAB

The response of living organisms to Chernobyl's ionising radiation

GERMAN ORIZAOLA

The 1986 accident at the Chernobyl nuclear power plant in Ukraine caused the worst human-caused release of radioactive material in history. Initial forecasts considered that the area affected by radioactive contamination would be devoid of life for millennia. Three decades later, the biodiversity of the area completely recovered and all the large mammals of Eastern Europe, as well as over 200 bird species, now live in Chernobyl. The mechanisms that allow organisms to survive there are still the subject of study and controversy. There is currently no scientific consensus on the magnitude and long-term effects of radiation on the nature of the area. Thus, basic research is required in Chernobyl to understand the effects that radioactive contamination had on biodiversity there. The area is also an excellent natural laboratory for studying eco-evolutionary processes in response to human activity.

Keywords: ecology, evolution, adaptation, mutation, radioactivity, Chernobyl.

We live surrounded by radioactivity, mainly from the cosmic rays that reach the Earth and from artificially-radioactive elements contained in our planet's crust. In addition to natural radioactivity, living beings are exposed to artificial radioactivity generated by human activity. Among other uses, artificial radioactivity is used in medical testing, weapons production, and the energy processes of nuclear power plants.

Accidents such as those in Chernobyl (Ukraine) and Fukushima (Japan) power plants in 1986 and 2011 respectively, are the most notable releases of radioactive material into the environment as a result of human action.

As a result of the Chernobyl accident, a restricted Exclusion Zone of about 4,700 km² was created, within which permanent human settlement was prohibited.

This was, undoubtedly, the worst mistake in history.

Immediately after the accident, containment and cleaning work began. This was followed within 10 km radius of the nuclear plant were evacuated. In total, during the subsequent operation around 350,000 people were evacuated from areas near the plant in Ukraine and Belarus. As a result of the accident, a restricted Exclusion Zone of about 4,700 km² was created, within which permanent human settlement was prohibited. These restrictions are still in place today.

THE CHERNOBYL NUCLEAR ACCIDENT
On 26 April 1986, at 1:23 p.m., one of 4 of the Chernobyl nuclear power plant exploded during technical safety tests. Errors in the reactor's design and its handling led to the core overheating, causing

Here is a summary of the main findings and key takeaways from the article "From Nuclear Desert to Evolutionary Lab: The Response of Living Organisms to Chernobyl's Ionizing Radiation":

Main Findings:

- Contrary to initial predictions that the area around Chernobyl would be devoid of life for centuries, biodiversity has recovered and the area now hosts all major mammal species of Eastern Europe and over 200 bird species.
- Radioactive contamination levels vary greatly across the Chernobyl landscape, with only about 30% of the Exclusion Zone having high radiation currently.
- Studies on the effects of radiation on wildlife have had conflicting results, with some finding negative impacts like tumors and others finding no significant effects.
- Some research suggests potential adaptive processes may be occurring that allow organisms to cope with chronic radiation exposure.

CHAT SESSION TITLE

Ecological Recovery and Adaptation in Chernobyl's Radioactive Zones ▾

Four Legs
Good, Two
Legs Bad
Animals

PDF

Nuclear
Desert to
Evolutionary
Lab

PDF

JN

Can you tell me the similarities between these two articles, in a table? Also provide very brief summaries for each.

Similarities	<p>Article 1: "Four Legs Good, Two Legs Bad: Animals Return to the Chernobyl Exclusion Zone"</p>	<p>Article 2: "From nuclear desert to evolutionary lab: The response of living organisms to Chernobyl's ionising radiation"</p>
Focus on Chernobyl's wildlife	<p>Both articles discuss the surprising recovery and thriving of wildlife in the Chernobyl Exclusion Zone decades after the nuclear disaster.</p>	<p>Both articles focus on the ecological recovery and adaptation of various species in the Chernobyl Exclusion Zone following the 1986 nuclear accident.</p>
Challenges in assessing radiation impacts	<p>Both articles acknowledge the difficulties and controversies in accurately assessing the long-term impacts of radiation on Chernobyl's wildlife.</p>	<p>Both articles highlight the complexities and challenges in studying the effects of radiation on living organisms in the Chernobyl area.</p>
Potential for adaptation and evolution	<p>Both articles suggest the possibility of organisms adapting and evolving in response to the chronic radiation exposure in Chernobyl.</p>	<p>Both articles discuss the potential for organisms to develop adaptive mechanisms and evolutionary processes to cope with the radioactive contamination in Chernobyl.</p>

Key Points:

- In these post-nuclear landscapes, nature has begun to reassert itself, with plants and animals returning to the abandoned areas. However, the landscape remains radioactively contaminated.
- The author analyzes how writers like Kate Brown, Svetlana Alexievich, and Katarzyna Boni depict this "vengeful nature" reclaiming the devastated environments.
- The article discusses concepts like Timothy Morton's "dark ecology" and the idea of these zones as "hyperobjects" - massive, distributed phenomena that defy human comprehension.
- The author also explores the notion that these exclusion zones have become a kind of "accidental reserve" for endangered species, even as the environments remain heavily radioactive.
- The article highlights the difficulty of representing the post-nuclear landscape and the inadequacy of human language to capture the scale and complexity of the ecological transformations.

 Copy  Retry  

Claude can make mistakes. Please double-check responses.



Porównania 1 (31), 2022
DOI: 10.14746/por.2022.1.5

KAMILA GIEBA
Uniwersytet Zielonogórski

Mimowolne rezerwaty. Literatura niefikcyjna wobec krajobrazów stref nuklearnych

W lipcu 1945 roku na pustyni w amerykańskim stanie Nowy Meksyk wybuchła pierwsza bomba atomowa. Był to test broni jądrowej pod kryptonimem Trinity. Pod wpływem wyemitowanego przez bombę ciepła pustynny piasek stopił się i przybrał postać zielonkawego szkła – nowego, sztucznego minerału, który nazwano trynititem¹. Tym samym rozpoczęło się nieodwracane przeobrażenie środowiska na skutek działania wyzwolonej przez człowieka promieniotwórczości. Już w sierpniu tego samego roku dwie kolejne bomby – Little Boy i Fat Man – zrzucono na japońskie miasta, Hiroszimę i Nagasaki. W kolejnych dekadach trwał wyścig żródłowy, w ramach którego światowe superpotocarstwa testowały nuklearną bronę. Jednocześnie naukowcy pracowali nad pokojowym wykorzystaniem energii atomowej, np. w elektrowniach jądrowych. W niniejszym artykule pomijam jednak przypadki testów jądrowych, a skupiam się na awariach w obiekciach przemysłowych, w wyniku których utworzono

¹ Po katastrofie czarnobylskiej powstał kolejny sztuczny mineral, którego źródłem była radioaktywność. W spoczynających pod Arką ruinach reaktora nr 4 w Czarnobylskiej Elektrowni Jądrowej znajduje się czarnobilit składający się głównie z uranu i krzemianu cyrkonu. Czarnobilit zlokalizowany m.in. w tzw. Stopie Słonia – w korium, czyli zastygłej mieszaninie paliwa jądrowego i materiałów pochodzących z elementów konstrukcji reaktora.



Let's work on an example together

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PRIVACY POLICY

"We **do not currently use user-uploaded data for training** purposes, either internally or externally with OpenAI. Other users are not able to access uploaded data without the explicit consent of the original uploader."

VIB POLICY

"Not officially screened but do not use for proprietary, confidential, and personal information"



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Manually specify metadata to create a reference. Full text can be attached later.

Web importer

Save PDFs and capture web pages directly to your Petal library.

Can you summarize this paper for me, with main points and key take aways?

Pages Outline

Back to library

Making Bioinformatics Trai



Page 1



Page 2



Making Bi and Mater TeSS, the I

Finn Bacall,^{1,2} Ai Carole Goble,^{1,2} C

¹Department of Coi Kingdom

²ELIXIR-UK, Norv

³Institut Français de

⁴ELIXIR-FR, Instit

⁵VIB Technology T

⁶ELIXIR-BE, VIB,

⁷Corresponding aut

Published in the B

Many traine material. Sharin of recogniti searchers to improving th the bioinform for using the l TeSS provide mation and c rials. For trai searching an how to manu lowing these

The paper "Making Bioinformatics Training Events and Material More Discoverable Using TeSS, the ELIXIR Training Portal" outlines protocols for enhancing the discoverability of bioinformatics training events and materials through the ELIXIR online training registry, TeSS. The main points and key takeaways from the paper are as follows:

1. FAIRness of Training Events and Materials: The paper emphasizes the importance of increasing the Findability, Accessibility, Interoperability, and Reusability (FAIR) of training events and materials. It recommends using metadata schemas from Schema.org to add struc pages, n ➤ Continue generating

Export Reset English (US)

Oct 22, 2021

Can you summarize this paper for me, with main points and key take aways?

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PROMPT

How is the FAIRness of training material measured?

The FAIRness of training material is measured by the extent to which the material complies with the FAIR principles, which stand for Findable, Accessible, Interoperable, and Reusable. The paper emphasizes the importance of increasing the FAIRness of training materials to make life science resources more discoverable [1.1].

It suggests that adding structured metadata to web pages using metadata schemas for structured data from the collaborative project Schema.org greatly facilitates the process of making training events and materials more FAIR [1.2].

Furthermore, the paper highlights the use of Bioschemas specifications to enrich training resources, allowing for more efficient sharing of structured metadata like prerequisites, target audience, and learning outcomes, which contributes to the FAIRness of the materials [1.3].

If you need further details on the specific metrics used to measure FAIRness, the paper does not explicitly mention them.

PROMPT

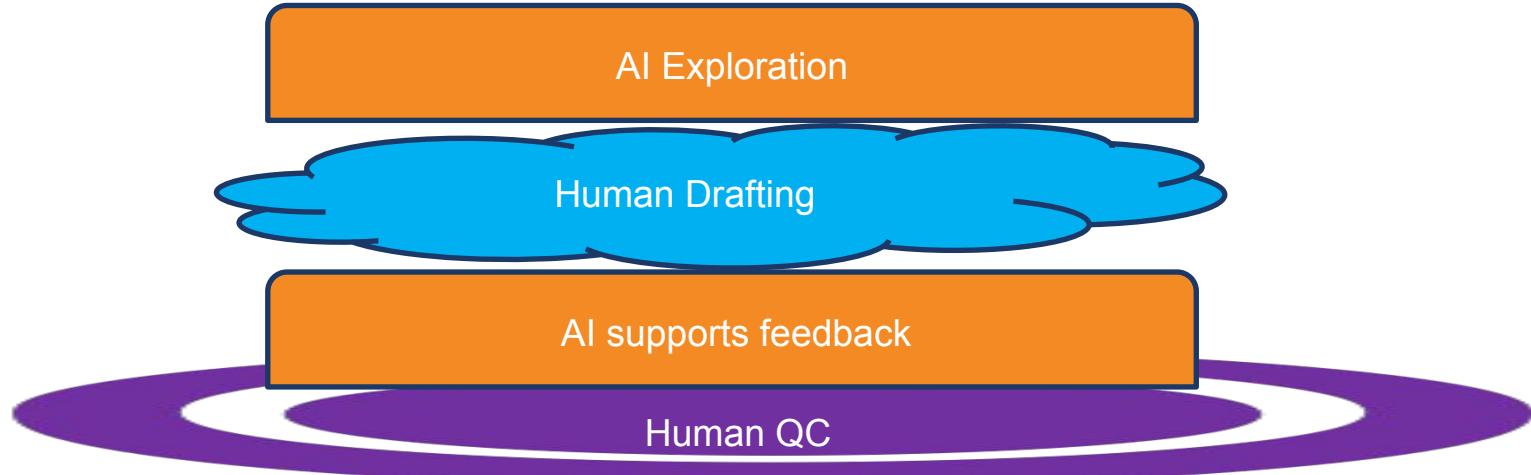
How can you implement the Bioschemas annotation for training events?

You can implement the Bioschemas annotation for training events by manually or automatically registering training resources in the ELIXIR Training eSupport System (TeSS). The paper provides detailed protocols for both methods. For manual registration, it is important to describe and annotate training resources using relevant controlled vocabularies, taxonomies, thesauruses, or ontologies to reduce ambiguity and facilitate discovery and retrieval of information [1.1].

For automatic registration, the paper recommends using the recently released specifications for Course, CourseInstance, and TrainingMaterial to collect structured metadata, which are community-endorsed standards used in the automatic collection of training resources [1.2].

These standards offer guidance to content providers on how to enrich their training resources to allow for more efficient sharing of structured metadata like prerequisites, target audience, and learning outcomes [1.2].

HITL Writing – “AI” sandwich with human quality control



Story telling – write and illustrate an article

The qualities of a good research report

The preliminary phase: purpose, audience and contents

Structuring a research report

Parts of a research report

Proposal writing

Writing the research report or proposal

Visual appearance

Academic posters

We recommend our courses on

[Scientific writing](#)

[Show don't tell](#)

[Gimp and Inkscape](#)

Catchy titles for your grant, figure or slide

- An active title for your grant, your figure, your slide

Please now come up with five different titles for this project. Please consider the audience and make the titles in the structure of "SUBJECT VERB OBJECT". The subject should be the most important element of the project, something that is unique to this project. The verb should be in ACTIVE form, i.e. the title should be a statement, and be as specific as possible. Please provide five titles that are as diverse as possible so that we have a range to choose from.

1. Express only one idea or subject in your title.

2. Put an important word first in the title.

3. The title should be a statement, i.e. include a verb.

4. A title should be the fewest possible words that accurately describe the content of the paper (the recommended length is 10 - 12 words).

5. Use simple word orders and common word combinations.

6. Be as descriptive as possible and use specific rather than general terms (specific drug name rather than just the class of drug).

7. Write names in full, avoid using abbreviations and acronyms.

8. Use key words which highlight the main content of your manuscript and can be understood, indexed, and retrieved by a database search.

Feedback on your drafts

Flow-level details (check on approaches)

- Structure and organization
- Coherence and cohesion
- Argumentation and support
- Integration of research

Accuracy-level details (Grammarly)

- Grammar and syntax
- Punctuation and spelling
- Word choice
- Formatting and style

Feedback on your drafts

The MEAL Plan is a structured approach to writing and feedback that stands for:

- **Main Idea:** The central argument or point of the paragraph.
- **Evidence:** Supporting details, facts, or data that back up the main idea.
- **Analysis:** Explanation of how the evidence supports the main idea.
- **Link:** Connection to the next paragraph or overall thesis.

Abstracts

If you use GenAI to edit the style, tone, or format of your drafts:

- Consult specific journal, publisher, or funder guidelines
- Be prepared to describe in Acknowledgments or Methods section
- Save your original draft, prompts, and AI outputs

Graphical abstracts



Graphical Abstract

Optimization Prompt

"I am working on a scientific graphical abstract and need your expertise as a senior scientist with extensive experience in enhancing the intuitiveness of such visuals. Begin by providing an initial assessment of the current strengths and weaknesses of the graphical abstract. Then ask me which specific elements of the schematic I am most concerned about improving. Then, Analyze the layout and offer step-by-step guidance on how to optimize the positioning of objects, visual clustering of related elements, and separation of unrelated elements. Provide specific advice on creating a visual storyline that efficiently communicates the scientific message from start to finish. Consider the use of colors to link related data and differentiate distinct data groups. I will upload the schematic; ensure your suggestions are tailored precisely to it and avoid generic advice. Guide me through each step, focusing on meta-level improvements to ensure the message is as clear as possible. Please take a deep breath, think deeply and intensely and do this step by step.

Example

<https://wires.onlinelibrary.wiley.com/doi/full/10.1002/widm.1550>

Graphics – mindmaps from PDFs

1. Upload the PDF downloaded from <https://doi.org/10.1080/02602938.2024.2386662> to Claude.
2. create a Mermaid code visual based on the themes addressed in the attached article.
3. Copy the resulting code to <https://mermaid.live/edit>

Dealing with Data

Quantitative Research

<https://github.com/vibbits/introduction-to-generative-ai.git>

We use <https://posit.cloud>

We work in groups of 3-4 persons



Data Set for Today

The Excel file is in the folder exercises of the github repo.

Order ID: Order you signed up

Sold on: When you signed up

Role: What you said you were [recoded]

MailingList: Are you on it? [created]

Let's get started!

First: how does RStudio know where your files are?

Let's ask something like: "How do I tell RStudio where it can find my files?"

Let's get started!

First: how does RStudio know where your files are?

Using the RStudio Menu

1. **Go to the “Session” menu at the top of RStudio.**
2. **Select “Set Working Directory”.**
3. Choose one of the options:
 1. **To Source File Location:** Sets the working directory to the location of the currently open script.
 2. **To Files Pane Location:** Sets the working directory to the folder currently displayed in the Files pane.
 3. **Choose Directory...:** Opens a dialog box where you can navigate to and select the desired folder.

Let's get started!

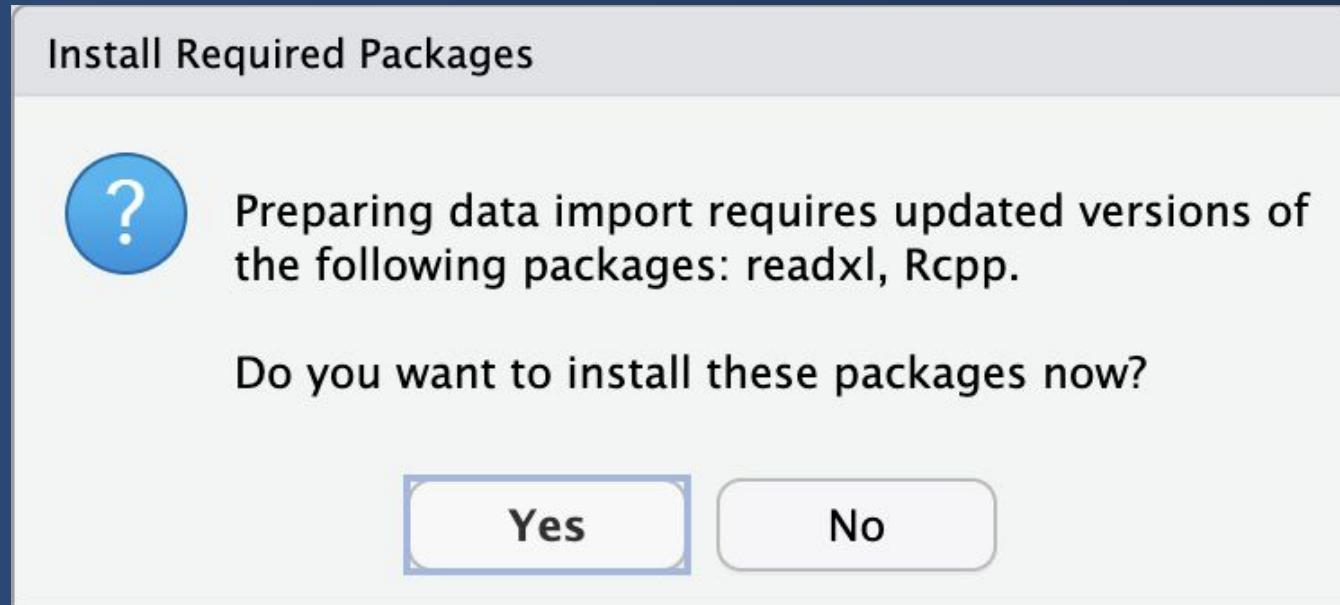
Second: Loading our first data set!

Maybe ask: “How do I load an Excel file into RStudio?”

Let's get started!

Second: Loading our first data set!

Maybe ask: “How do I load an Excel file into RStudio?”



Let's get started!

Second: Loading our first data set!

```
install.packages("readxl")
library(readxl)
data <- read_excel("path/to/your/file.xlsx")
```

What do we enter in the R session?

Let's get started!

Third: Saving our data in R's native format

Let's get started!

Third: Saving our data in R's native format

```
save.image(file = "my_session.RData")
```

What do we enter in our R session?

Or any other suggestions?

Let's explore the data!

Q: “First, the ‘Sold on’ variable in trainingTickets is in the format ‘2/8/2024 - 10:43’. Can you help me create a new variable that is the number of hours from when the first person signed up, and add that to my data frame? Please do not overwrite ‘Sold on’.”

Q: “The ‘Sold on’ variable in RegistrationDatav1 is in the format ‘2/8/2024 - 10:43’. Could you help me create a new variable that is the number of hours from when the first person signed up, and add that to my data frame? Please do not overwrite ‘Sold on.’”

1. Load the necessary libraries:

```
library(dplyr)
```

1. Convert the Sold on column to a datetime format:

```
RegistrationDatav1$Sold_on <- as.POSIXct(RegistrationDatav1$Sold_on, format =  
"%m/%d/%Y - %H:%M")
```

1. Calculate the number of hours from the first sign-up:

```
# Find the earliest sign-up time
```

```
first_signup <- min(RegistrationDatav1$Sold_on, na.rm = TRUE)
```

```
# Calculate the difference in hours  
RegistrationDatav1 <- RegistrationDatav1 %>%  
mutate(Hours_from_first_signup = as.numeric(difftime(Sold_on, first_signup, units = "hours")))
```

```
RegistrationDatav1$Sold_on <- as.POSIXct(RegistrationDatav1$Sold_on, format = '%m/%d/%Y  
- %H:%M')
```

Q: “The ‘Sold on’ variable in RegistrationDatav1 is in the format ‘2/8/2024 - 10:43’. Could you help me create a new variable that is the number of hours from when the first person signed up, and add that to my data frame? Please do not overwrite ‘Sold on.’”

1. Load the necessary libraries:

```
library(dplyr)
```

1. Convert the Sold on column to a datetime format:

```
RegistrationDatav1$Sold_on <- as.POSIXct(RegistrationDatav1$Sold_on, format =  
"%m/%d/%Y %I:%M:%S %p")
```

Two hours later I get: RegistrationDatav1\$Sold_on_datetime <-
as.POSIXct(RegistrationDatav1`Sold on`, format = "%m/%d/%Y - %H:%M")

1. Calculate the number of hours from the first sign-up:

```
# Find the earliest sign-up time
```

```
first_signup <- min(RegistrationDatav1$Sold_on, na.rm = TRUE)
```

```
# Calculate the difference in hours RegistrationDatav1 <- RegistrationDatav1 %>%
```

```
mutate(hours_from_first_signup = as.numeric(difftime(Sold_on, first_signup, units = "hours")))
```

Q: “The ‘Sold on’ variable in RegistrationDatav1 is in the format ‘2/8/2024 - 10:43’. Could you help me create a new variable that is the number of hours from when the first person signed up, and add that to my data frame? Please do not overwrite ‘Sold on.’”

1. Load the necessary libraries:

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library(dplyr)
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What happens?

1. Calculate the number of hours from the first sign-up:

```
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first_signup <- min(RegistrationDatav1$Sold_on, na.rm = TRUE)
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Q: “The ‘Sold on’ variable in RegistrationDatav1 is in the format ‘2/8/2024 - 10:43’. Could you help me create a new variable that is the number of hours from when the first person signed up, and add that to my data frame? Please do not overwrite ‘Sold on.’”

1. Load the necessary libraries:

```
library(dplyr)
```

What happens? OK - solved!

1. Calculate the number of hours from the first sign-up:

```
# Find the earliest sign-up time  
first_signup <- min(RegistrationDatav1$Sold_on, na.rm = TRUE)
```

What happens? OK - we need to rename the column or even better inspect the Excel file in the beginning and address the issue earlier.

Q: “First, the ‘Sold on’ variable in RegistrationDatav1 is in the format ‘2/8/2024 - 10:43’. Can you help me create a new variable that is the number of hours from when the first person signed up, and add that to my data frame? Please do not overwrite ‘Sold on’.”

Q: "Using R after having loaded an Excel file and trying to transform the column 'Sold on', I get this error: Unknown or uninitialized column: 'Sold_on'. What can I do?"

It sounds like there might be a mismatch between the column name you're trying to reference and the actual column name in your Excel file. Here are a few steps you can take to troubleshoot and resolve this issue:

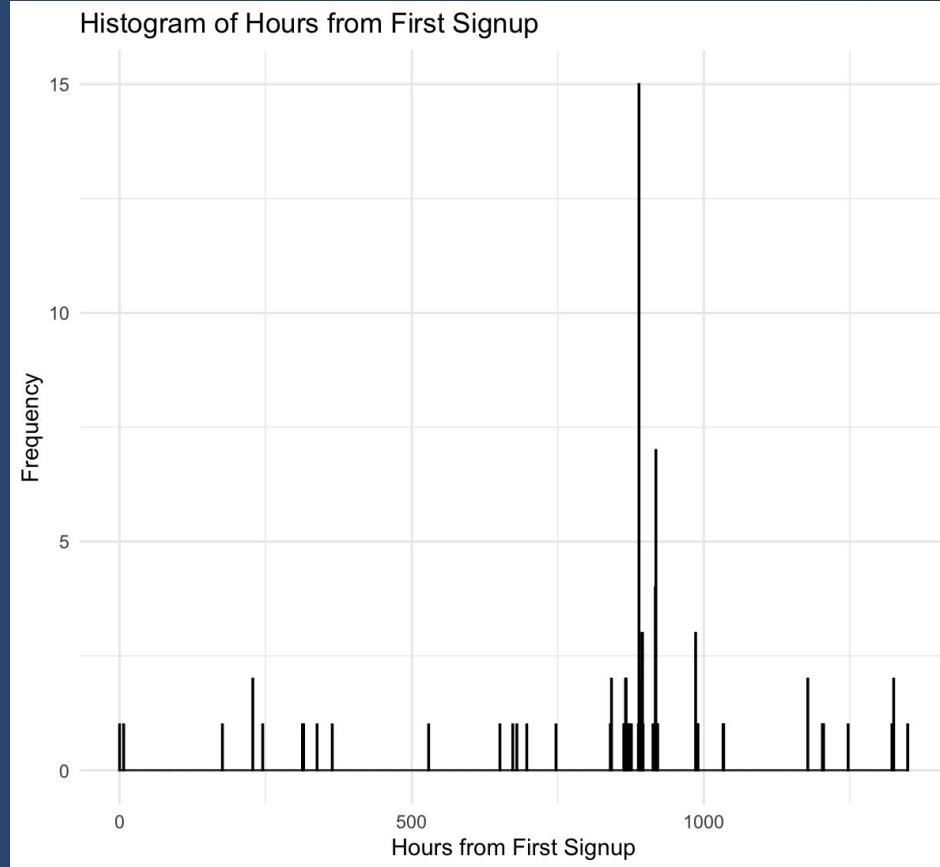
Check Column Names: Ensure that the column name in your Excel file is exactly Sold on and not Sold_on. Excel column names are case-sensitive and must match exactly.

```
# Rename the column  
colnames(data)[colnames(data) == "Sold on"] <- "Sold_on"
```

Let's go back to our original answer.

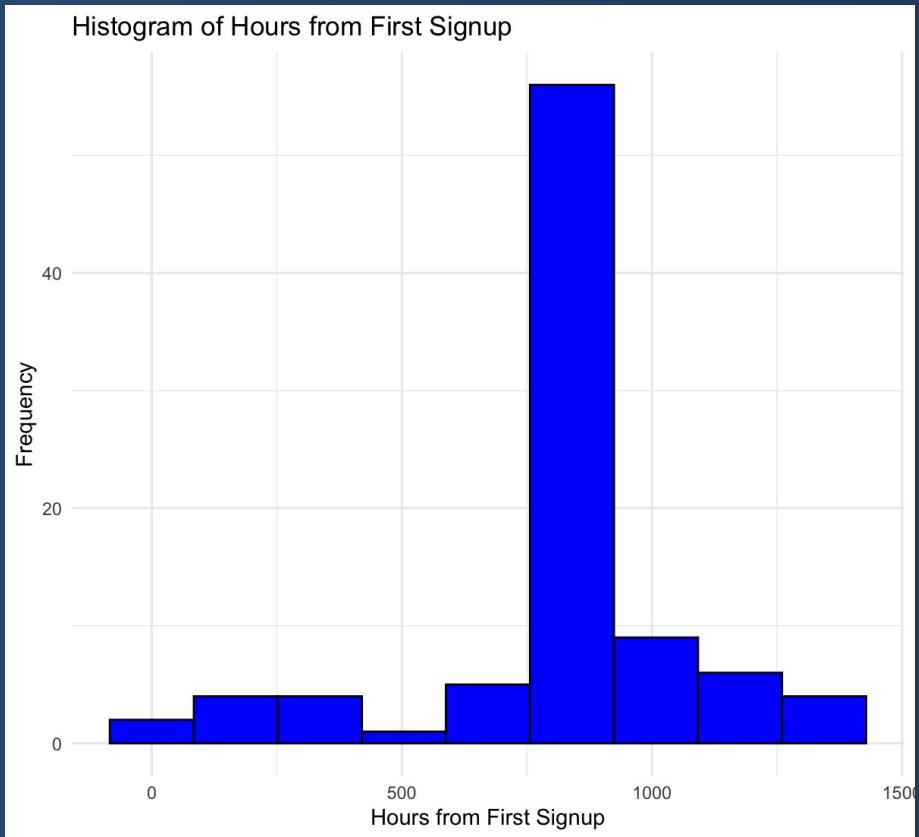
Q: "I'm attaching my original data frame again for you. Can you generate code for me to get a histogram of the new variable, HoursSinceFirst?"

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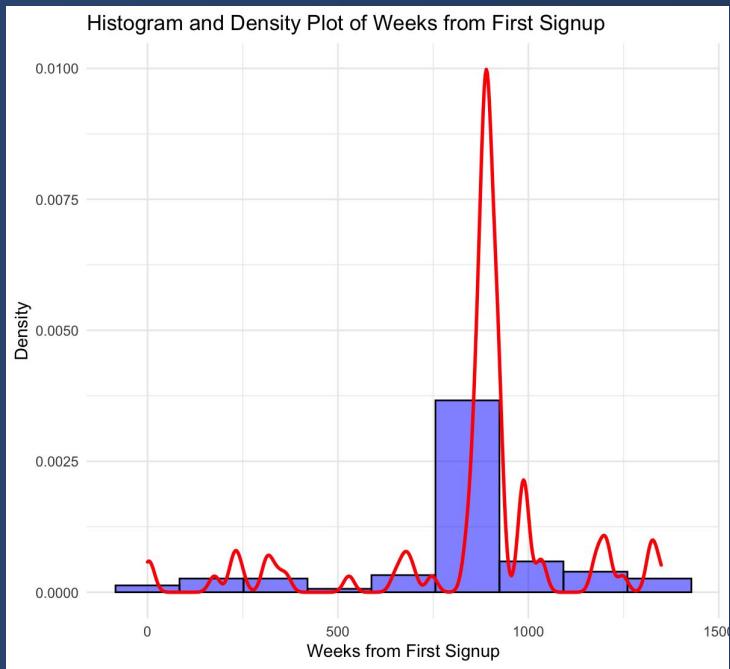
Q: "Oh, I see that there are way too many bins. Can you do it again, but grouping by week?"



Q: “What's a good way to capture the underlying density of this histogram?”

Q: "What's a good way to capture the underlying density of this histogram?"

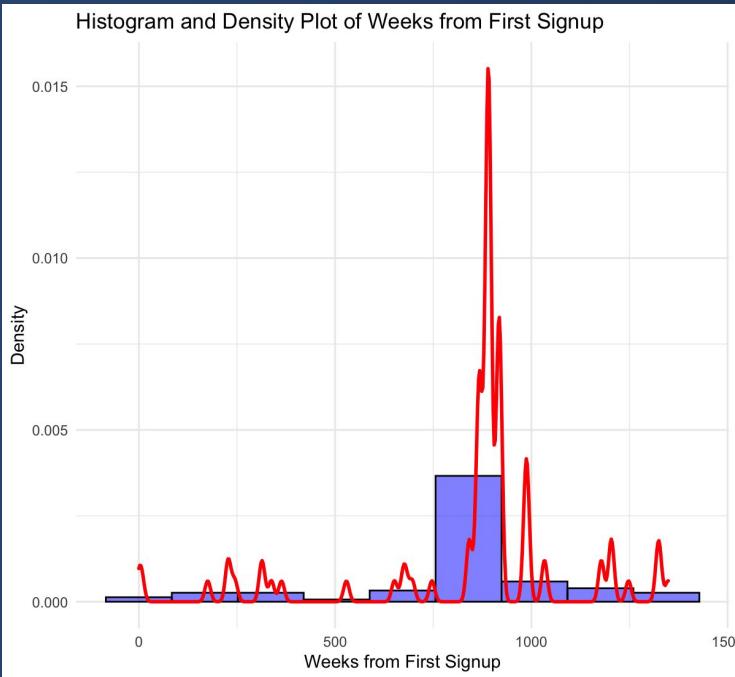
A great way to capture the underlying density of the histogram is to use a density plot. This will give you a smooth curve that represents the distribution of your data. You can overlay this density plot on your histogram for better visualization



Q: “I need it to be “wigglier”, so that it captures the ups and downs of the data better.”

Q: “I need it to be “wigglier”, so that it captures the ups and downs of the data better.”

To make the density plot “wigglier” and capture more of the ups and downs, you can adjust the `adjust` parameter in the `geom_density` function. This parameter controls the bandwidth of the density estimate. A smaller value will make the plot more sensitive to the data’s variations.



Elements to document your AI use

- Tool name and version (e.g., ChatGPT 4 Turbo)
- Time and date of usage
- Text or screenshots of prompt or query
- Generated text responses
- Follow-up queries and responses
- Name of person who queried
- Links to original chats can fail, so consider archiving them elsewhere

CANGARU Project — Standardizing Author Guidelines

Partnership between researchers and publishers including **Elsevier, Springer Nature, Wiley**; representatives from journals **eLife, Cell, and The BMJ**; as well as industry body the **Committee on Publication Ethics**.

The group hopes to release guidelines soon (before end of 2024), which will be updated annually.

Project overview: <https://arxiv.org/pdf/2307.08974>