



# ARTIFICIAL INTELLIGENCE FOR RESEARCH

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# ARTIFICIAL INTELLIGENCE

Artificial intelligence is a wide-ranging branch of computer science concerned with **building smart machines** capable of performing tasks that typically require human intelligence.

Harkut, D. G., & Kasat, K. (2019)





- A branch of artificial intelligence that focuses on **creating new content**, such as text, images, music, or even code
- It doesn't just analyze or classify existing data; it **generates original content** based on patterns it learns from vast amounts of training data

*HARKUT, D. G., & KASAT, K. (2019)*



# LIKE AND DISLIKE

What do you like  
and do not like  
about AI?





# Myths and Realities of Generative AI in Research





## Myth 1: Generative AI Can Replace Human Researchers

**Reality:** Generative AI is a tool designed to assist researchers, not replace them.

- AI can perform **data analysis**, generate content, and provide insights, **BUT** it lacks the critical thinking, creativity, and nuanced understanding that human researchers bring to their work
- AI is best used as **a complement to human intelligence**, enhancing productivity and enabling researchers to focus on more complex tasks



## Myth 2: AI-Generated Content is Always Accurate and Reliable

**Reality:** AI-generated content can sometimes be inaccurate or misleading.

- AI models like ChatGPT, Gemini, and Perplexity rely on patterns in the data they were trained on, which can include biases and errors.
- Researchers must critically evaluate AI-generated content and cross-check information with reliable sources to ensure accuracy and reliability.



## Myth 3: AI Can Understand and Interpret Context as Well as Humans

**Reality:** AI lacks true understanding and contextual awareness.

- While AI can process and generate text based on patterns, it does not comprehend meaning in the same way humans do.
- Researchers must provide context and interpret AI outputs to ensure they are meaningful and relevant.





## Myth 4: AI Can Be Used for Any Type of Research Without Adaptation

**Reality:** Not all research tasks are suitable for AI, and some require significant adaptation.

- AI tools are most effective for tasks involving large datasets, pattern recognition, and repetitive processes.
- For research involving subjective analysis, human judgment, and creativity, AI may have limited utility and require customization to fit specific needs.

## Myth 5: AI is Free from Bias

**Reality:** AI models can inherit biases from the data they are trained on.

- These biases can manifest in various ways, affecting the fairness and objectivity of AI-generated content.
- Researchers must be observant in identifying and mitigating biases to ensure equitable and unbiased research outcomes.



## Myth 6: AI-Generated Research Outputs Do Not Require Peer Review

**Reality:** AI-generated research outputs should undergo the same rigorous peer review process as traditional research.

- Peer review ensures the validity, reliability, and quality of research findings.
- AI can assist in the research process, but human expertise is essential to evaluate and validate the results.

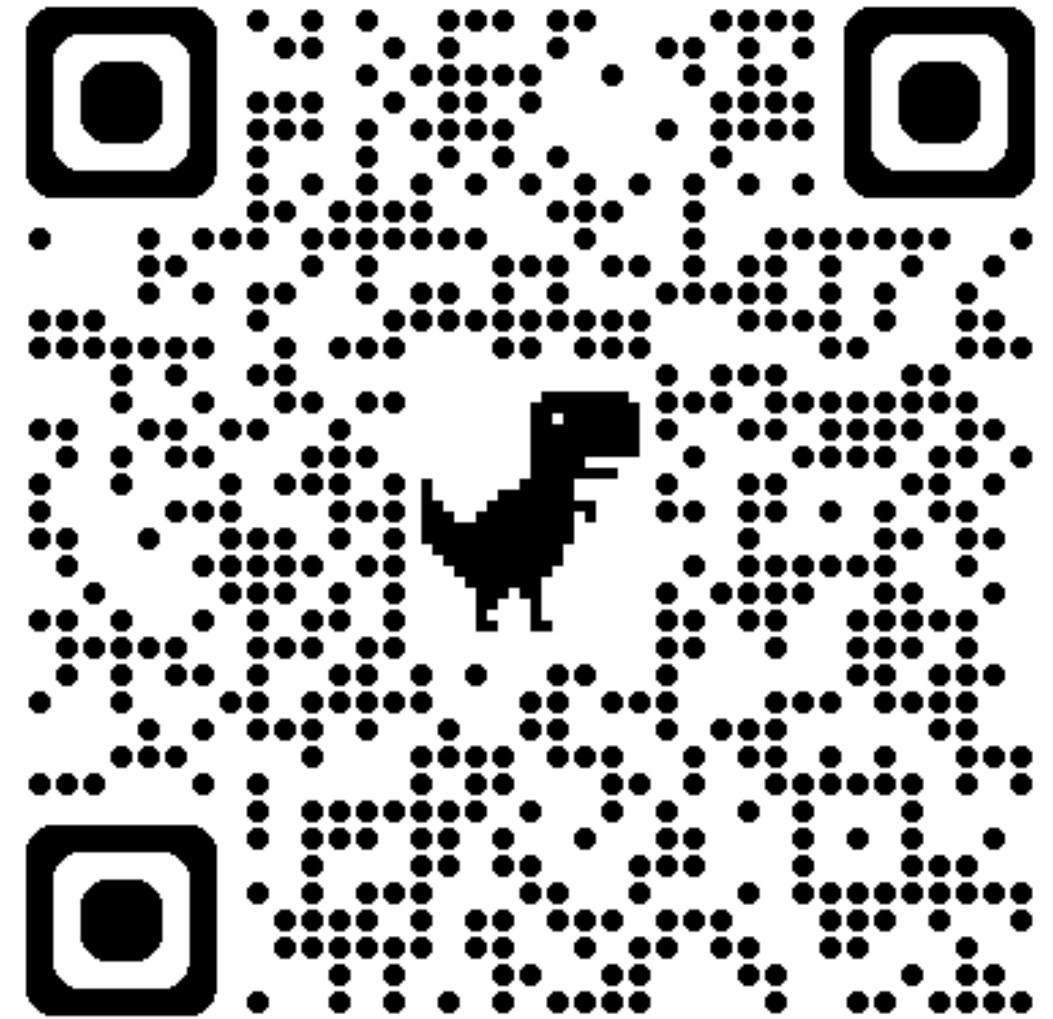


## Myth 7: Generatives AI Understand Language Like Humans

**Reality:** Generatives AI **do not understand** language; they generate responses based on patterns learned from large datasets. They lack **true comprehension** and rely on statistical correlations.

**Implications:** While they can produce human-like text, they **might not always grasp** the context as a human would.

**What APPs or AI do you  
use for research &  
writing academic  
papers?**





**Before Writing**

**While Writing**



**After Writing**

# **WRITING ACADEMIC PAPERS**

# Mind mapping

<https://www.heuristi.ca/>

- AI-powered tool for research and knowledge exploration
- Helps create interactive concept maps to organize and structure complex topics
- AI-powered concept maps: Visualize research fields
- Integrated Resources: Access Wikipedia, arXiv, Semantic Scholar, PubMed

# Finding & exploring relevant papers

<https://researchrabbitapp.com/>

- An academic research tool designed to help researchers find and explore relevant papers efficiently.
- Offers features such as personalized paper recommendations, visualization of paper connections,
- Create and manage research collections.




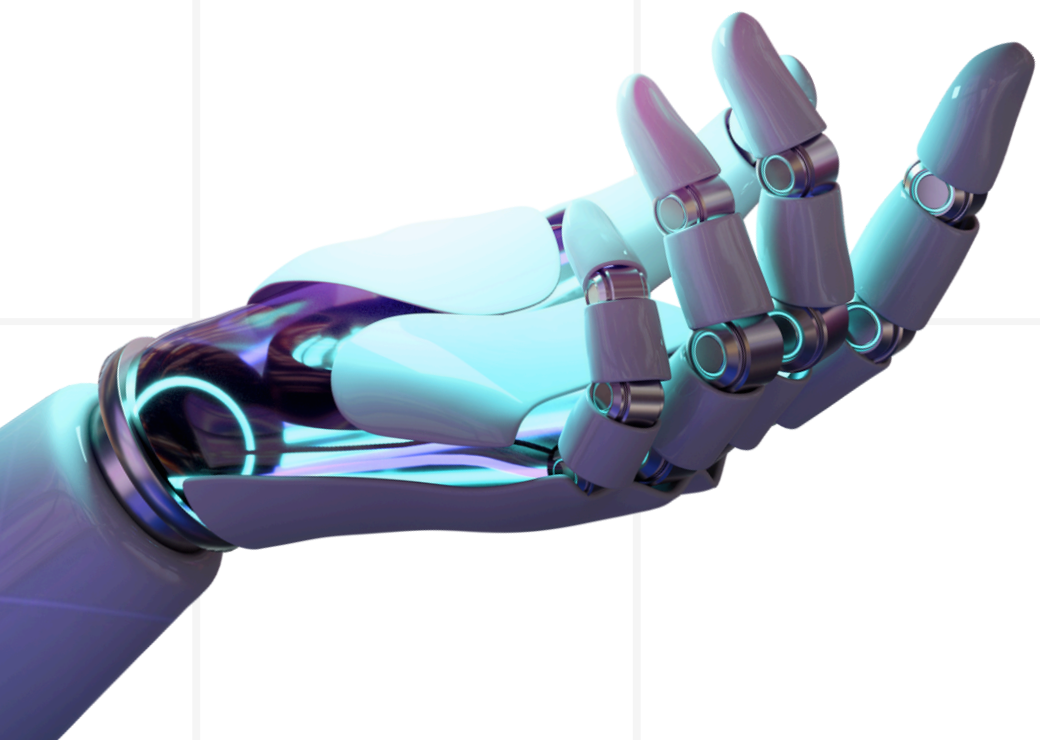
# Literature Review & more.....

<https://typeset.io/>

- A platform designed to assist researchers in managing academic writing
- Literature review
- Find Concept
- ..... and more

# <https://powerdrill.ai/>

**Talk to your data, quickly gain insights**



**powerdrill**

**Swift Insights from Knowledge and Data**

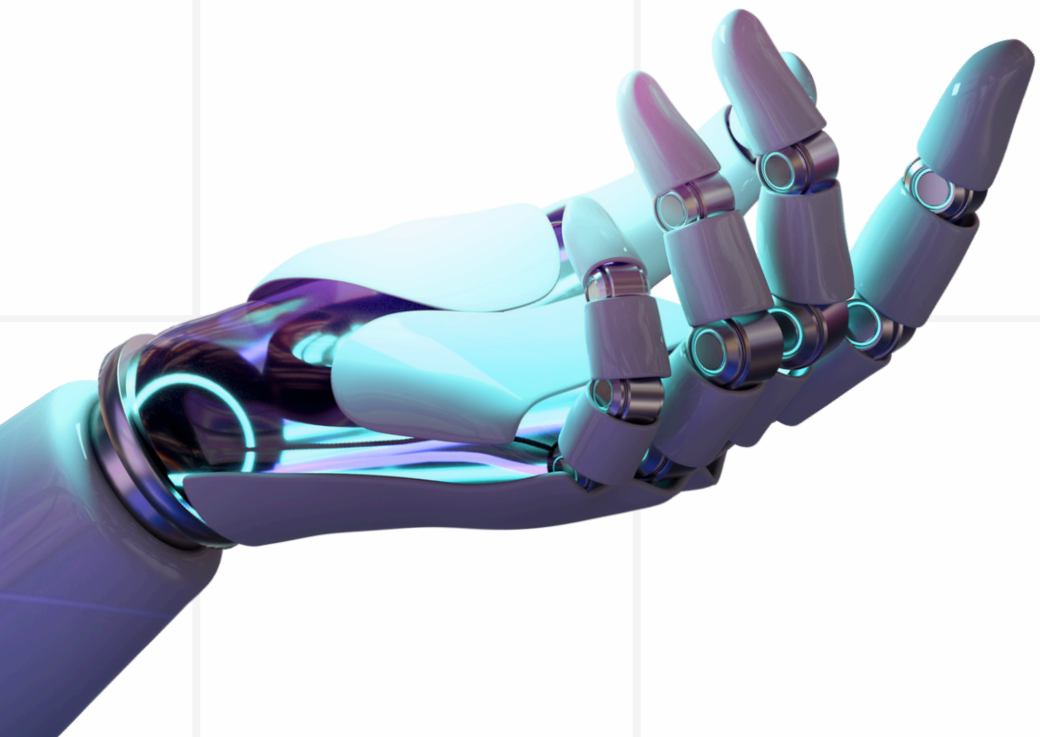
Powerdrill is an AI service centered around personal and enterprise datasets, designed to unlock the full potential of your data.

powerdrill\_ai

The image shows a social media-style card for Powerdrill. It features a dark background with a large, stylized white and purple logo consisting of three downward-pointing triangles. The word "powerdrill" is written in a white, lowercase, sans-serif font. Below the logo, there is a white section containing the text "Swift Insights from Knowledge and Data" in bold, followed by a paragraph describing the service as an AI tool for data analysis. At the bottom of this section, there is a small purple triangle icon followed by the text "powerdrill\_ai". The entire card is framed by a thick, rounded purple border.

# Some key takeaways

- Leverage AI for structure, brainstorming, and editing but **be cautious of its limitations** in factual accuracy and originality.
- Use AI ethically—**disclose** its use and **avoid** relying on it for **content generation**.
- **Critically engage** with AI tools, using them as **assistants** rather than content generators to maintain **ownership** over your academic work



# Basic Prompt (Gemini-ChatGPT)

## R-C-T-S



**Roles**

Context

**Task**

Source

**Roles;** Saya seorang mahasiswa S3, jurusan hukum Islam.

**Context;** Saya tertarik untuk meneliti tentang hukum yang mengatur harta kekayaan dan hak asuh anak pada kasus perceraian di Indonesia.

**Task;** tunjukkan saya research gap yang ada pada topik ini.



Demo

# Research Gap Finder Academic Assistant



**Your  
Ideas**

ChatGPT

Gemini

Bing

Perplexity

Friends

Professors



**THANK YOU!!**

**SOCIAL  
MEDIA**

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