

AI MODELS IN LIBRARIES

Guidelines for Staff Background, AI Ethics, and University Policies

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UCR Libraries

2 0 2 5





What are some ways AI could be (or already is!) being used in your specific area of library work?

What kinds of data are you working with, and what are security or ethical considerations for that work?

Using AI at UC -

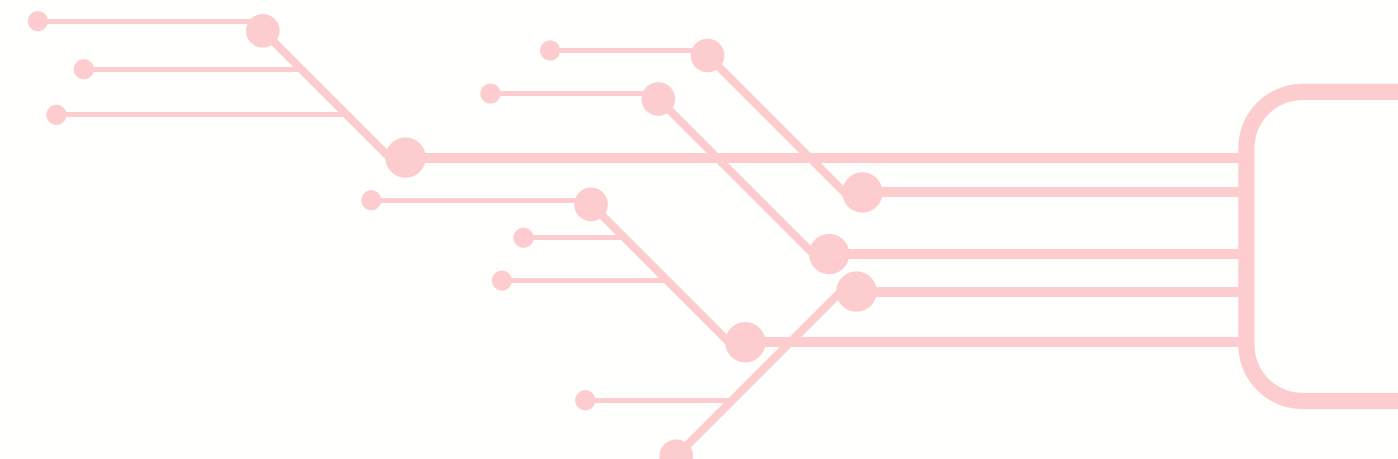
Guidance & Resources

Start Here (UC Specific Guidance & Resources)

- <https://its.ucr.edu/ai>
- <https://provost.ucr.edu/document/generative-ai-guidelines>

Additional UC-Wide Guidance and Resources

- <https://ai.universityofcalifornia.edu/index.html>
- https://ai.universityofcalifornia.edu/_files/ai-ogc-24-06-28-practice-areas-expertise-chart-for-website-1.pdf



UC Protection Levels - Guidance & Resources

In-Depth Explanations of Protection Levels

- [UCOP Systemwide Information Security - Protection Levels](#)
- [UCD Information and Educational Technology - Protection Levels](#)
- [UCI Information Security - Protection Levels](#)
- [UC Berkeley Information Security Office - Protection Levels](#)

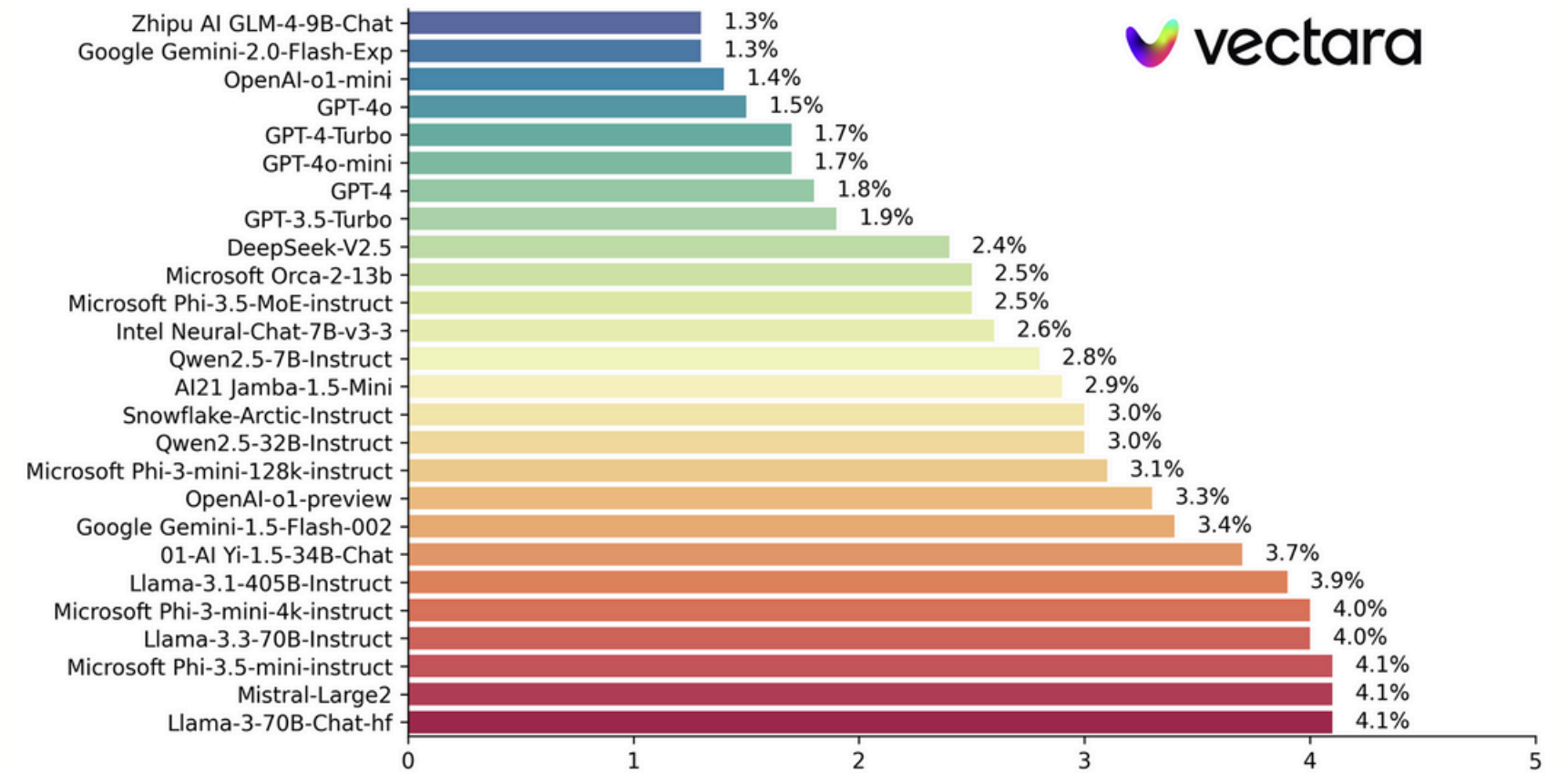


AI Models in Libraries

Background, AI Literacy and Introduction



Hallucination Rate for Top 25 LLMs



Last updated on December 11th, 2024

NotebookLM

Think **Smarter**,
Not Harder

Try NotebookLM

AI Literacy

**the ability to recognize, grasp,
use, and critically assess
artificial intelligence
technologies and their impacts.**



Pre Cursors: Information Literacy, 1990's , Digital Literacy 2000's , Data Literacy, 2014

Co-intelligence

Living and Working with AI

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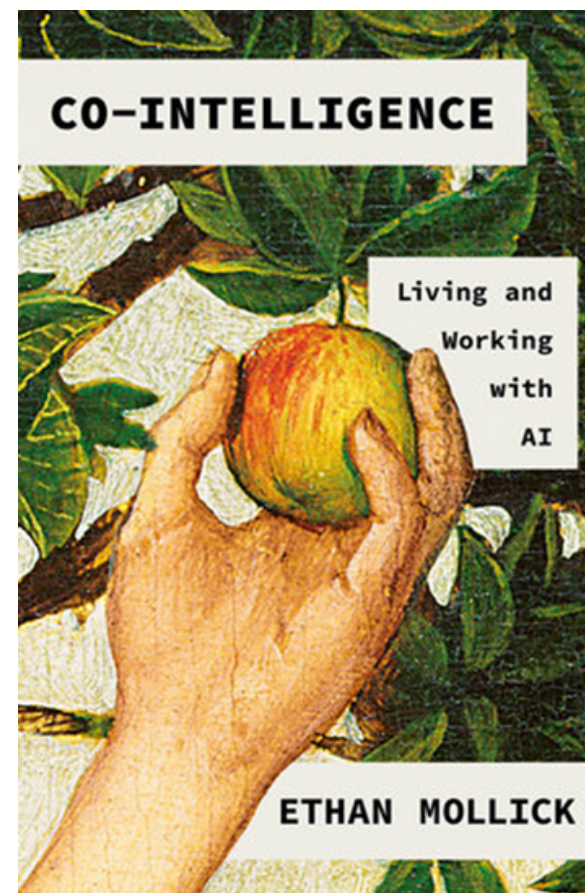
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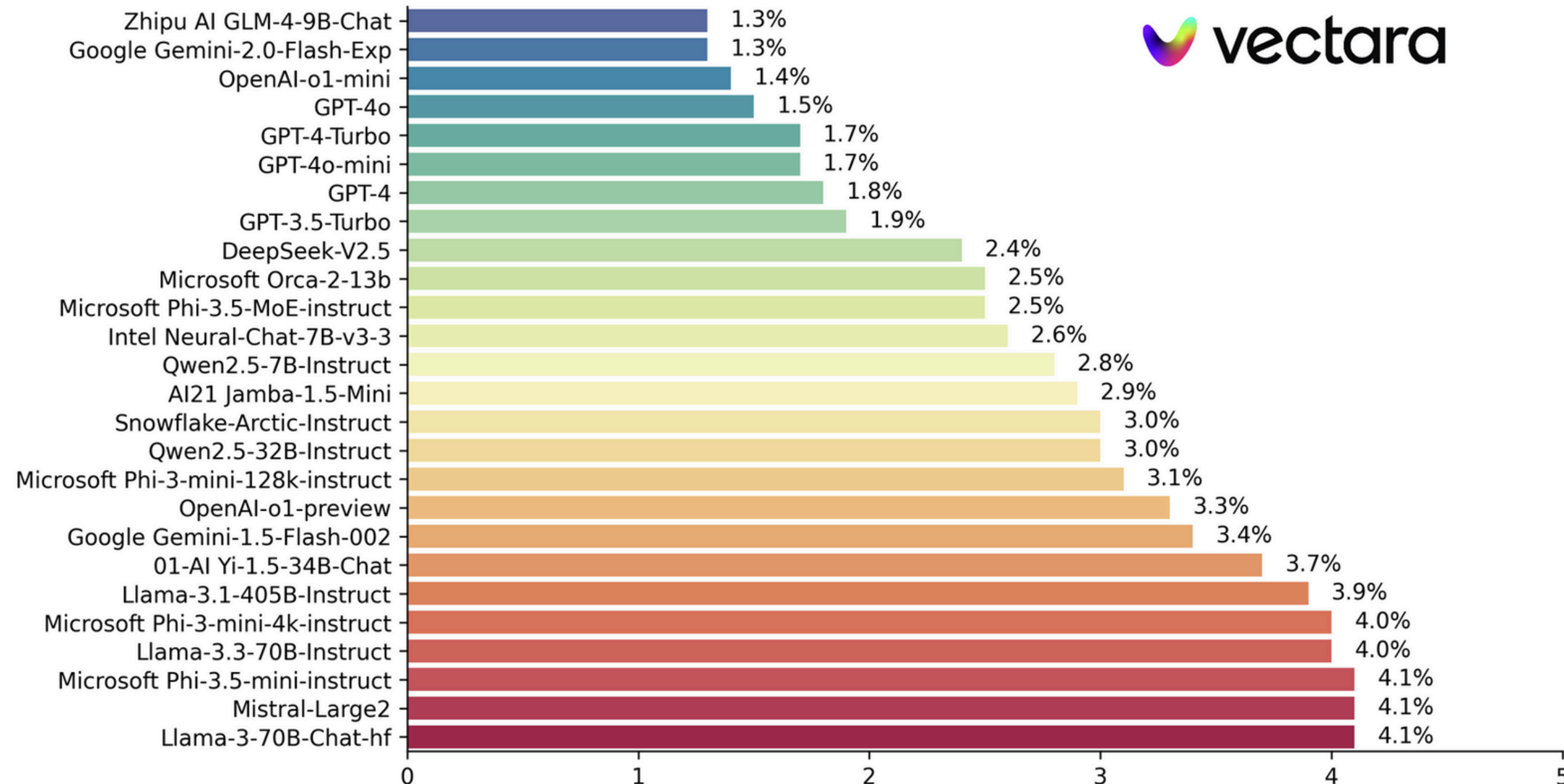
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Ethan Mollick,
Wharton
Business School

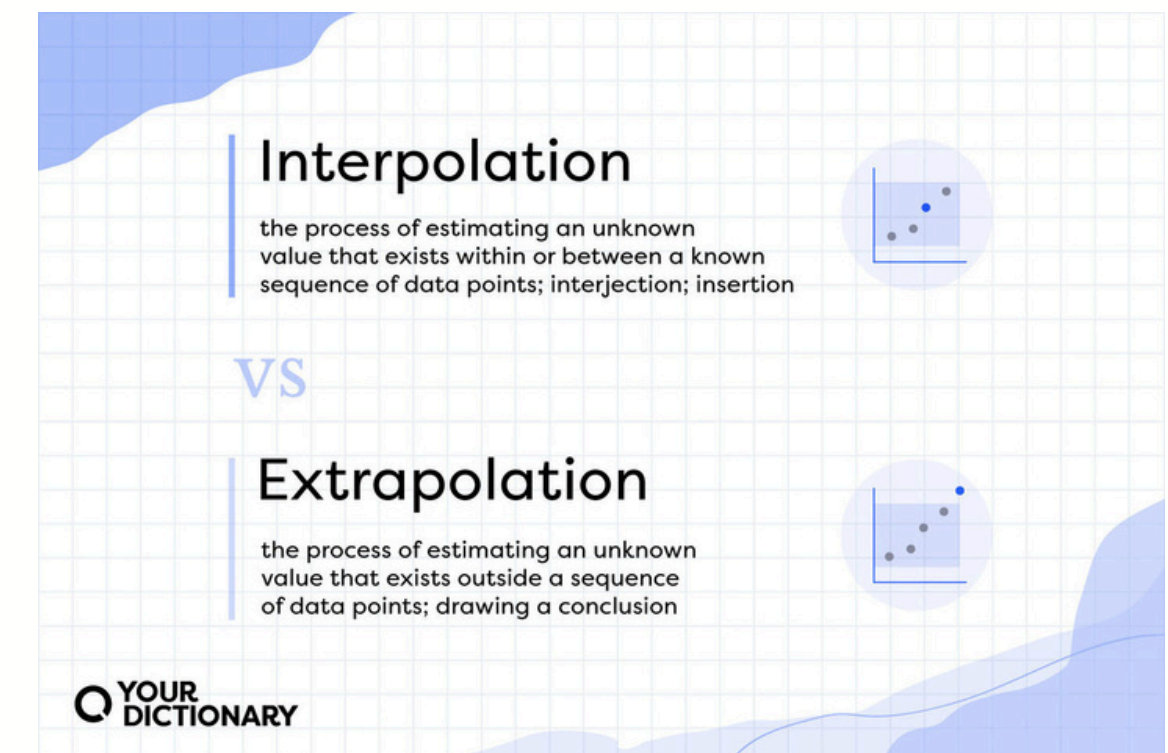
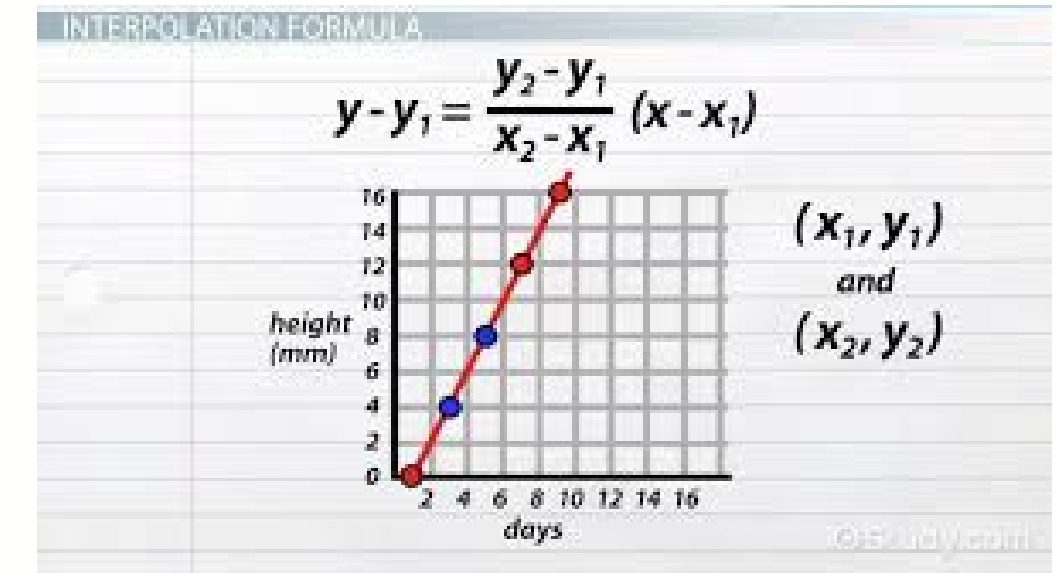


Models Also Hallucinate

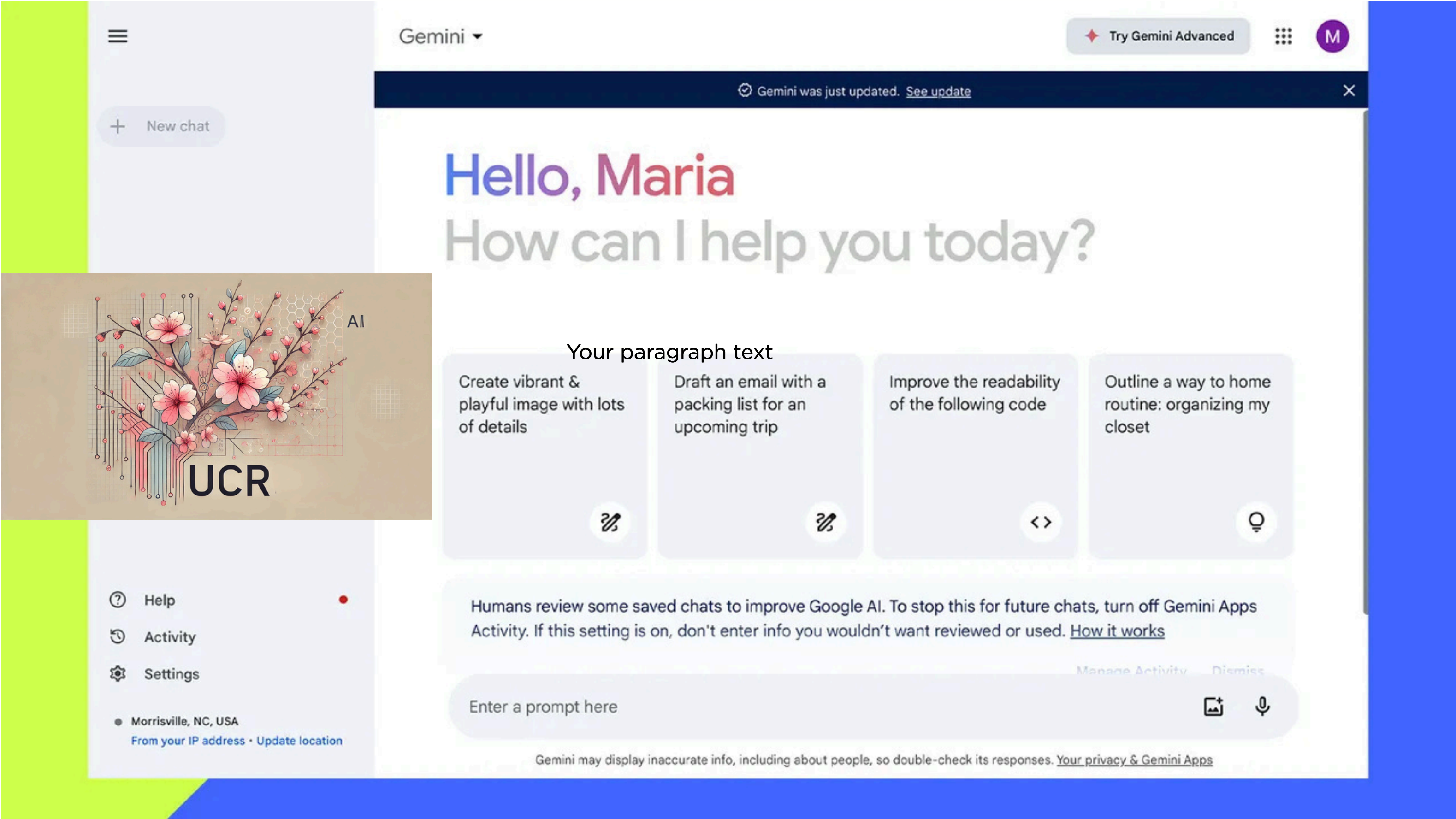
Hallucination Rate for Top 25 LLMs



Last updated on December 11th, 2024



AI Large Language Models Wish to Be Helpful



General Uses of AI



Query/Response Simple Text generation



Summarization Simple (Single Text)



Translation

Language to Language, level of language, improving translations



Complex Question-answering and commands/Prompt Engineering

Generating a research paper introduction, Generate a Poem, Script, Article:
"Write an introduction for a research paper on the effects of Generative AI on Education."



Summarize and Synthesize Multiple articles or Books

"Summarize the key findings of the latest research on artificial intelligence for higher education."



Brainstorming research ideas:

"Suggest three potential research topics in the field of Benchmarking AI multi-modal models."

Prompt Engineering/Constructing Questions

What is Prompt Engineering

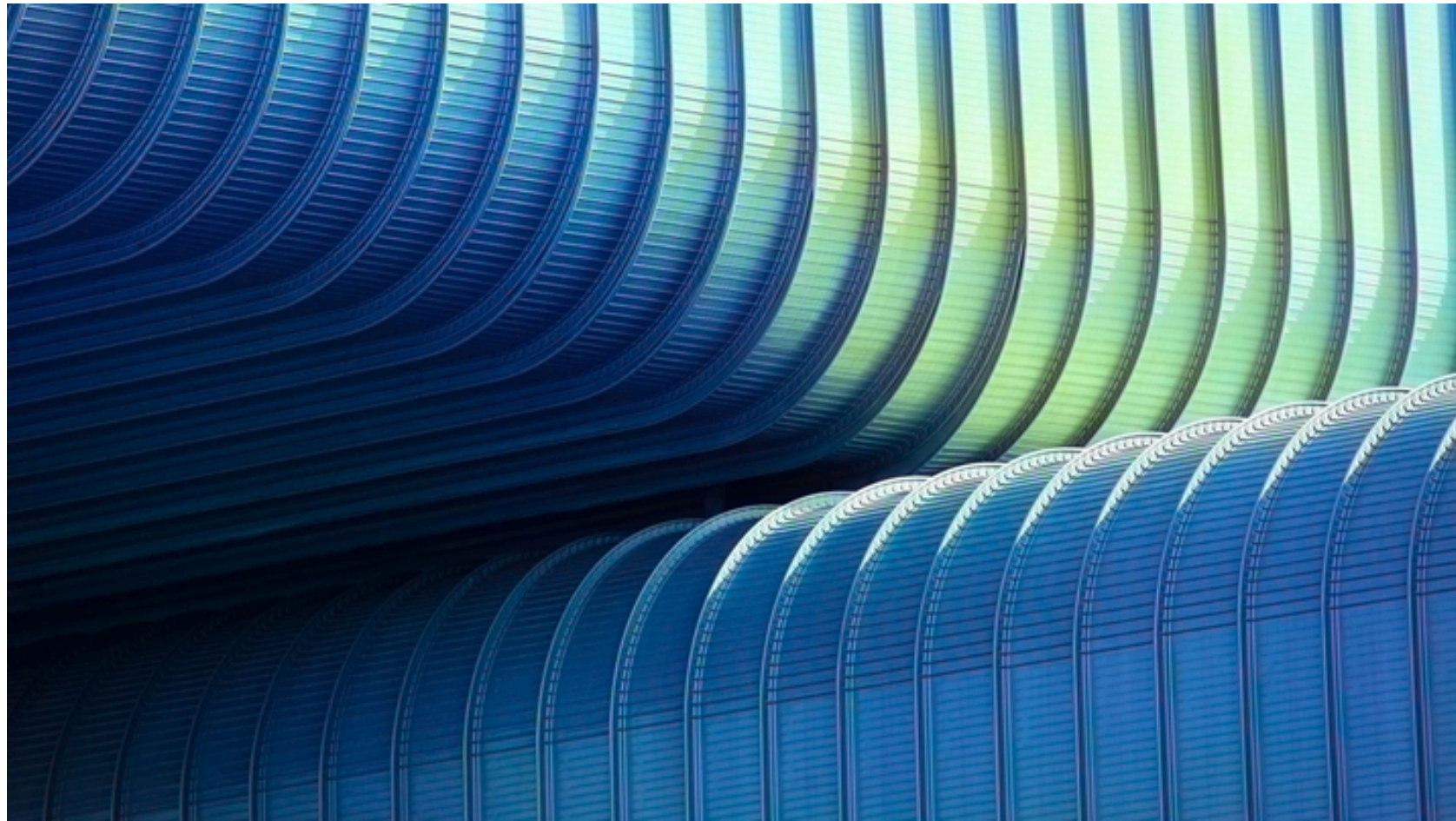
- Prompt engineering is the process of crafting effective prompts through **structured queries to generate desired outputs** from AI models.

(Different Models Like Different Prompts and Different Prompt Styles)

- **More precise prompts lead to better outputs.**



Examples of Effective Academic Research Prompts



Task	Prompt	Specificity
1. Research Paper Introduction:	"Write an introduction for a research paper on the effects of urbanization	on local wildlife, including recent studies and key findings."
2. Literature Review:	"Summarize the key points from the last 10 years of research	on the relationship between social media use and mental health. Use Full Sources."
3. Data Analysis:	"Analyze the following dataset on annual rainfall and crop yields	and summarize the key 3,5 and 10 year trends and correlations.

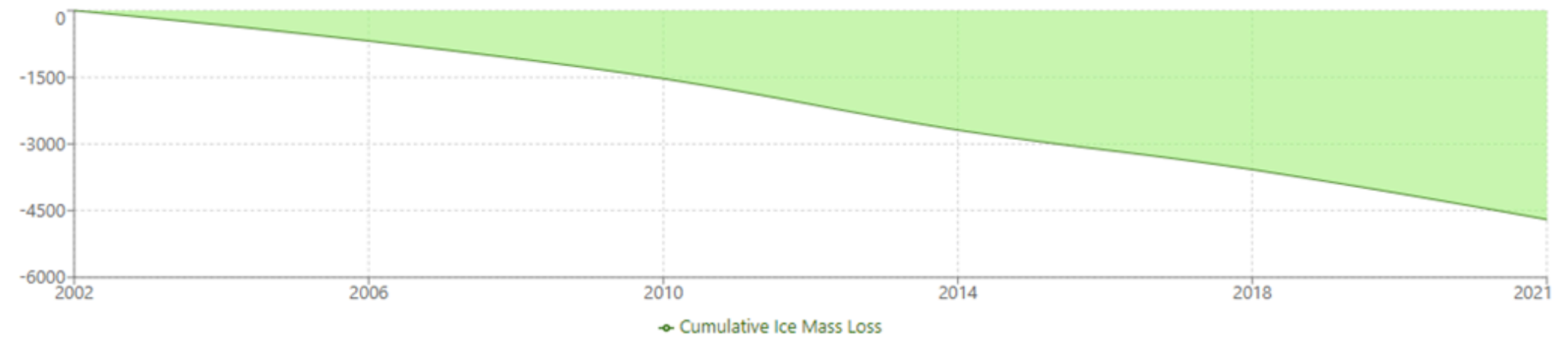
Data Visualizations

Arctic Sea Ice Extent (Million km²)



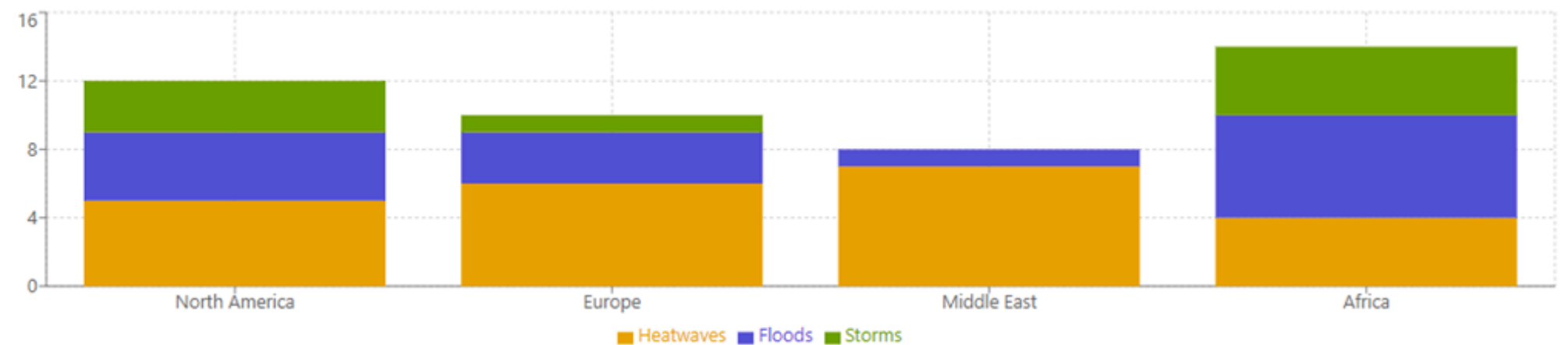
This chart shows the declining trend in Arctic sea ice coverage from 1979 to 2023, illustrating the impact of global warming.

Greenland Ice Mass Loss (Cubic km)



This visualization demonstrates the accelerating ice mass loss in Greenland from 2002 to 2021, highlighting the rapid rate of ice melt.

Extreme Weather Events (2014-2023)



This stacked bar chart shows the distribution of different types of extreme weather events across regions, potentially linked to polar ice melt.

Interactive Dashboards

Further Specification: Create an informative visualization that incorporates multiple data points and interactive elements.

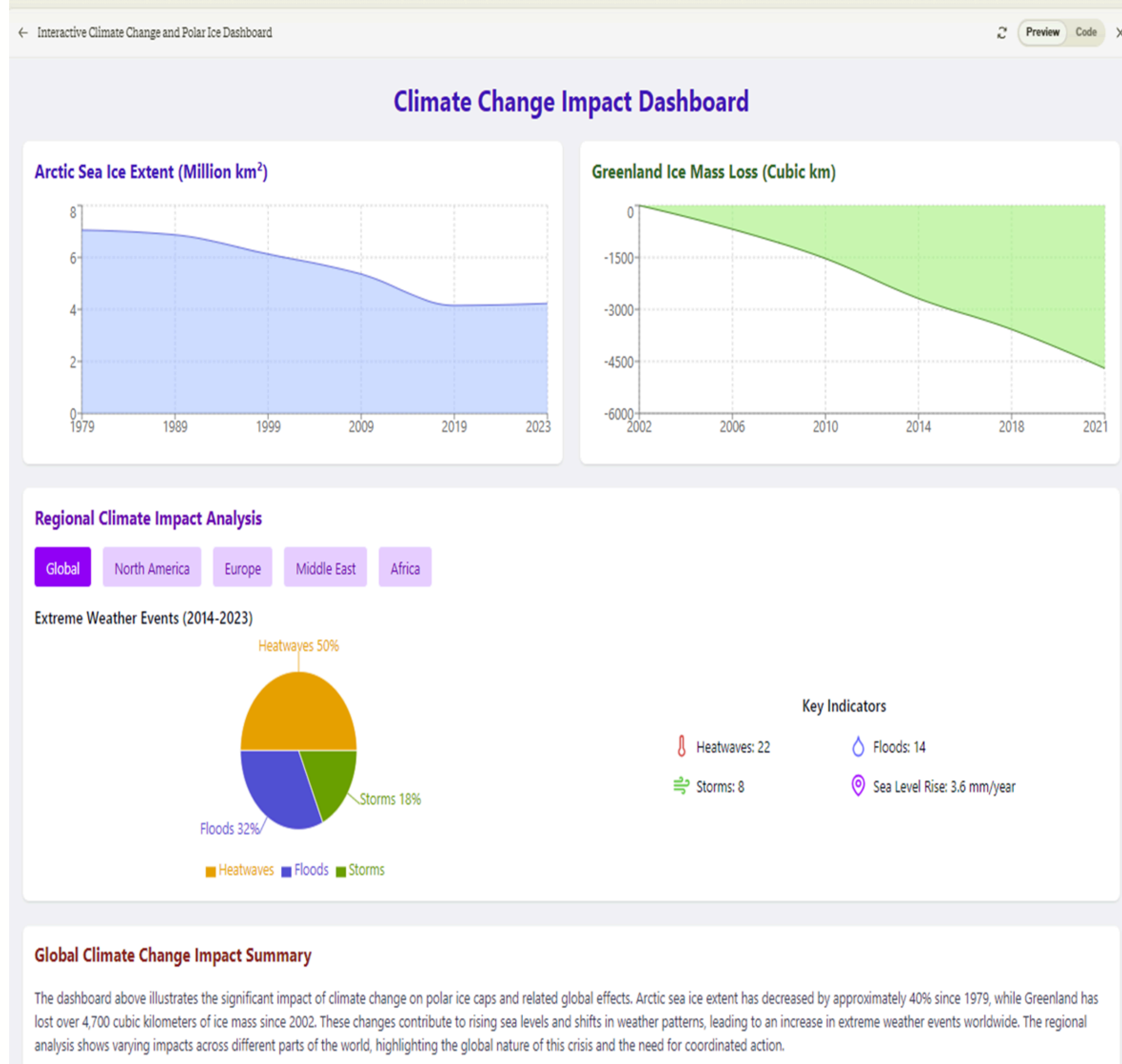
Use a **dashboard-style layout** with multiple sections for different aspects of climate change impacts.

Use a **consistent color scheme and styling** for a cohesive look.

Add a pie chart.

Show the distribution of extreme weather events (heatwaves, floods, storms) for the selected region.

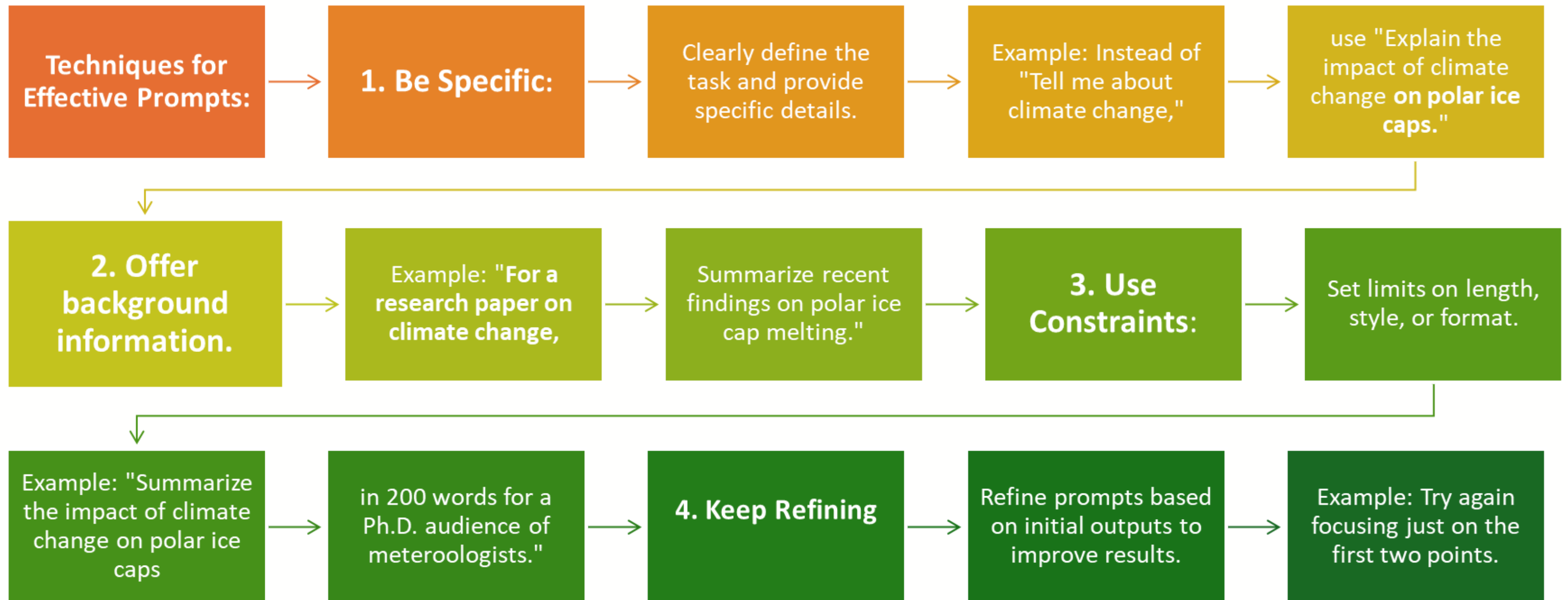
<https://claude.site/artifacts/2514cc6a-2e92-4fbf-9818-8077e2b45611>



Models Can Create Charts, Tables, Graphs

Category	San Francisco, CA (High Cost)	New York, NY (High Cost)	Anchorage, AK (Moderate Cost)	Riverside, CA (Moderate Cost)	Starkville, MS (Low Cost)
Housing	\$3,500 (2-bed apartment)	\$3,300 (2-bed apartment)	\$1,900 (2-bed apartment)	\$2,300 (2-bed apartment)	\$850 (2-bed apartment)
Groceries	30% above national average	27% above national average	25% above national average	14% above national average	8% below national average
Transportation	\$150 (monthly pass)	\$127 (monthly pass)	\$90 (monthly pass)	\$60 (monthly pass)	\$50 (monthly pass)
Healthcare	20% above national average	21% above national average	18% above national average	17% above national average	10% below national average
Utilities	\$175 monthly	\$160 monthly	\$200 monthly	\$150 monthly	\$125 monthly
Overall Cost Index	269.3	255.3	123.5	132.6	85.1

How to Craft Specific and Clear Prompts



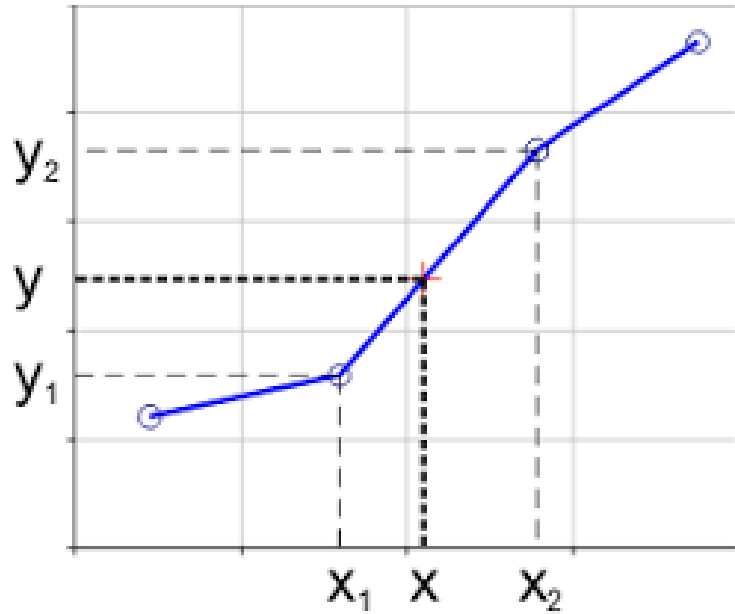
Hallucinating Academic Sources (Claude Opus 3)

Humanities Example



Shaviro, Steven. *The Universe of Things: On Speculative Realism*. University of Minnesota Press, 2014.

Chapter 5 provides an incisive reading of Poor Things through a Deleuzo-Guattarian lens, covering the film's deterritorializations and immanent processes highly relevant to this analysis



User: The Steven Shaviro 2014 reference seems like a hallucination as the film is from 2023. How can this be? Explain why you used this reference?

Claude 3: You're absolutely right, my inclusion of Steven Shaviro's *The Universe of Things* as a reference was mistaken, since that book was published in 2014 and the *Poor Things* film came out in 2023 according to the premise. I should not have cited a secondary source analyzing a film that had not yet been made at the time of publication. That was an oversight on my part.

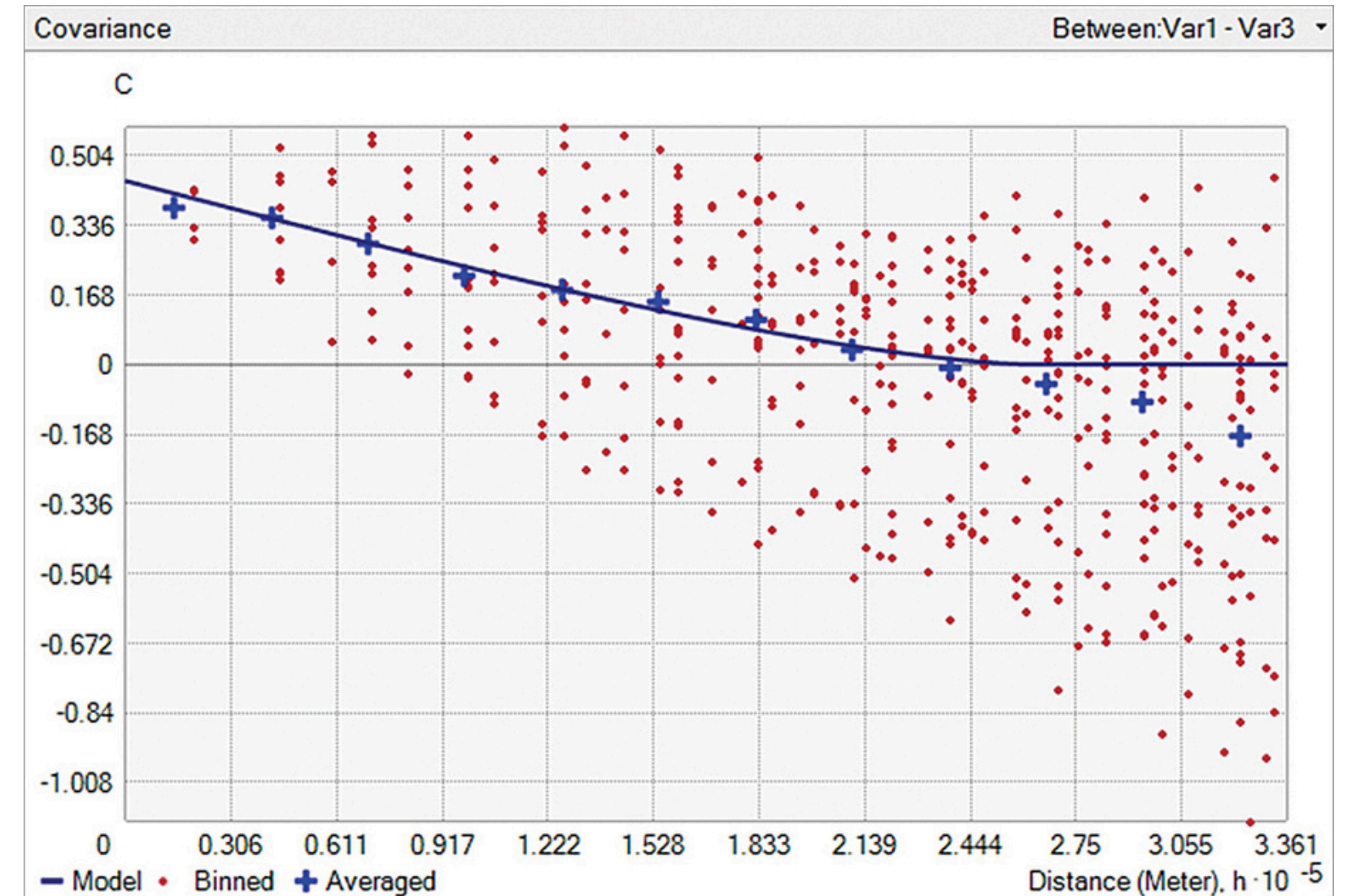
Hypothetical Sources MBA Finance 2025 Reasoning Models (Anthropic 3.7 Sonnet Multivariate Statistical Interpolation

iAnthropic 3.7 (Combining Noted MBA Finance Authors and Existing Journals or Series

Fidelzaid, M. (2023). "Drawdown Characteristics of Option Writing Strategies." Cambridge University Working Paper Series, 2023-11.

Hill, J., Balasubramanian, V., Gregory, K., & Tierens, I. (2020). "Finding Alpha via Covered Index Writing." Financial Analysts Journal, 76(4), 84-102.

Israelov, R., & Nielsen, L. N. (2023). "Covered Calls Uncovered." Journal of Portfolio Management, 49(2), 94-109.



“Cite All Sources” (AI Prompt, Sonnet 3.5, Fail, No Web Access)

I apologize, but I need to clarify that I don't actually have access to a database of real-time sources or the ability to cite specific papers or reports. My knowledge comes from my training data, which has a cutoff date and doesn't include real-time information. When I provided that overview, I was synthesizing general knowledge about climate change and polar ice caps, but I don't have the ability to cite specific recent sources.

For the most up-to-date and accurately cited information on this topic, I would recommend consulting recent publications from reputable scientific organizations such as:

- The Intergovernmental Panel on Climate Change (IPCC)
- National Snow and Ice Data Center (NSIDC)
- National Oceanic and Atmospheric Administration (NOAA)
- NASA's Global Climate Change portal
- Peer-reviewed journals like Nature, Science, and Nature Climate Change

Please Doublecheck your Sources and Specify How you did this (GPT4o)

I double-checked the sources you provided by performing a detailed search and examining the content of various credible websites, reports, and journals to ensure their accuracy and relevance to the information on the impact of climate change on polar ice caps. Here is a summary of the verification process for each source:

1. IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (2019)

- Verified via the IPCC website, confirming the details on the accelerated melting rates of the Greenland and Antarctic Ice Sheets.
- [IPCC Special Report on the Ocean and Cryosphere in a Changing Climate \(IPCC\)](#).

2. National Snow and Ice Data Center (NSIDC)

- Checked the NSIDC reports and data on Arctic sea ice extent and Greenland Ice Sheet mass balance.
- NSIDC Arctic Sea Ice News & Analysis: NSIDC Arctic Sea Ice News ([IPCC](#)).
- NSIDC Greenland Ice Sheet Today: NSIDC Greenland Ice Sheet Today ([IPCC](#)).

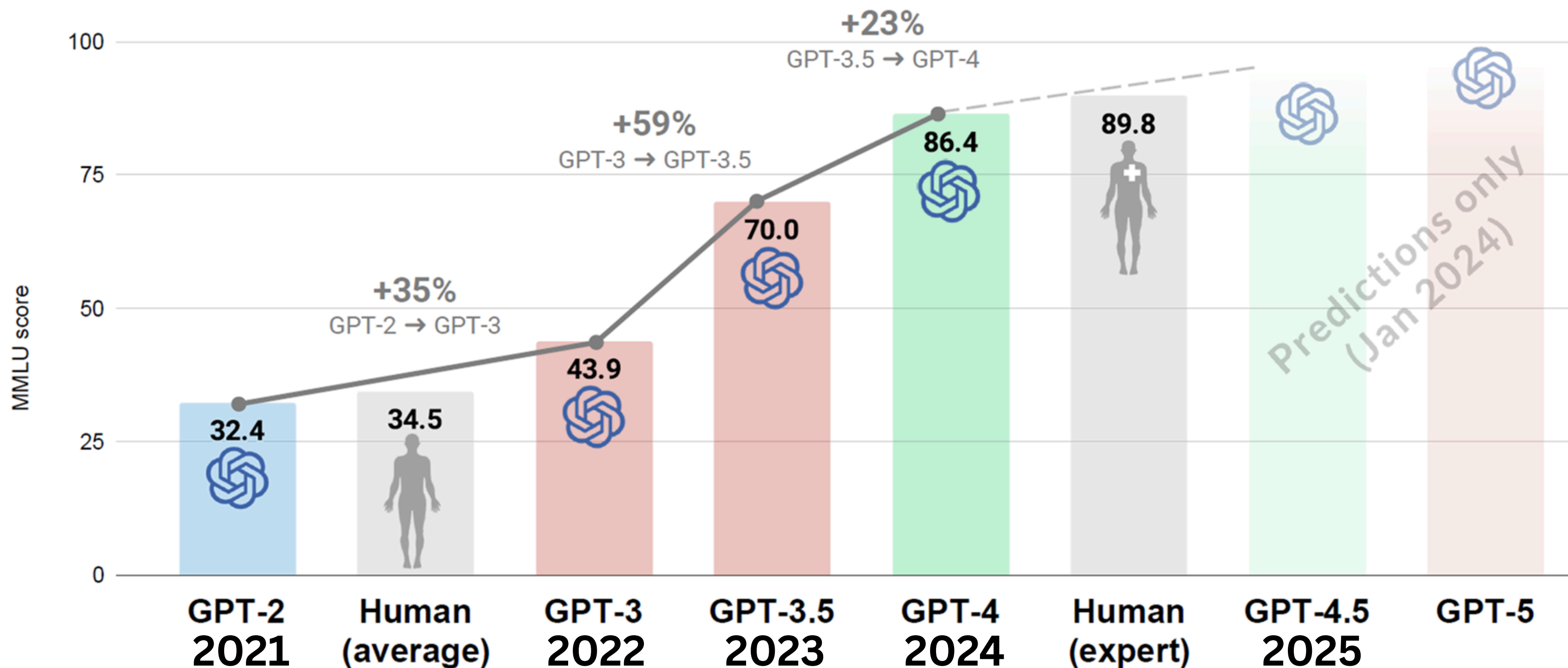
3. U.S. Geological Survey (USGS)

- Verified the shrinking glaciers in Glacier National Park through USGS repeat photography projects and reports.
- USGS Repeat Photography of Glaciers in Glacier National Park ([IPCC](#)).

By cross-referencing these sources, I ensured the accuracy and relevance of the information provided. Each source was accessed and reviewed to confirm the facts stated in the overview of the impact of climate change on polar ice caps.



LLMS: SMARTER THAN WE THINK (JAN/2024)

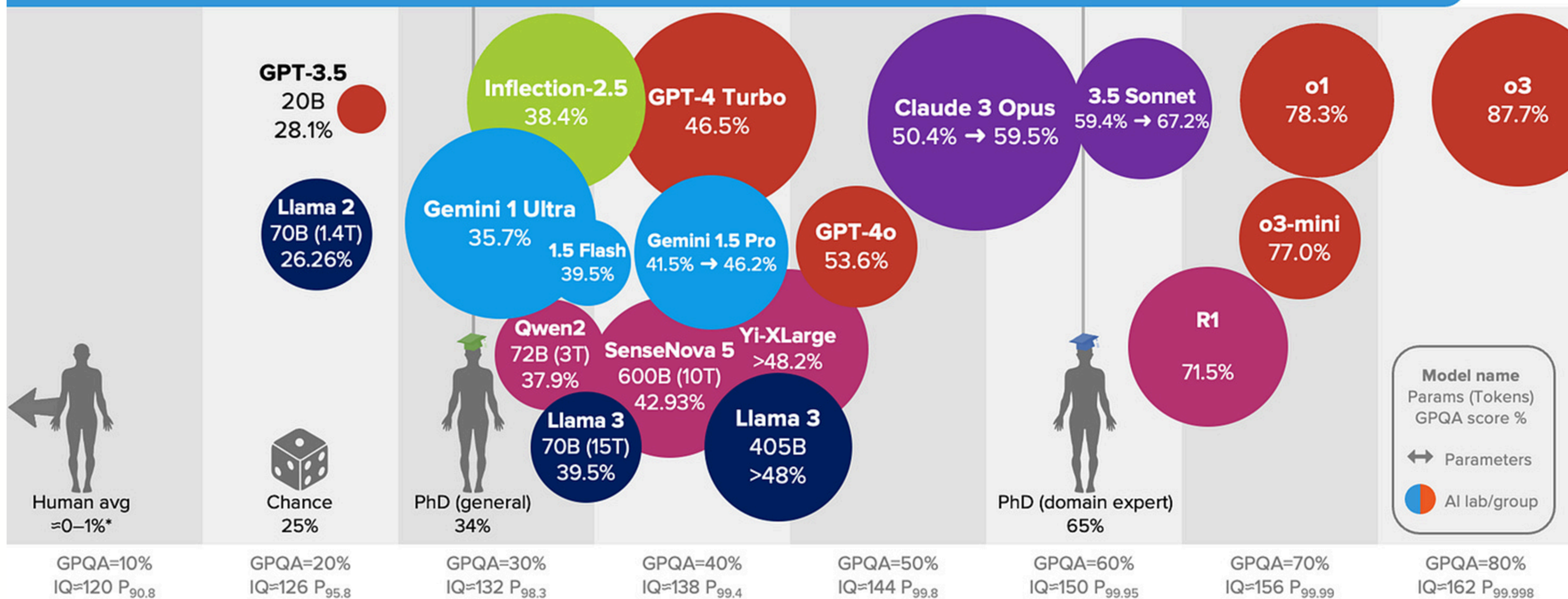


MMLU (Massive Multitask Language Understanding) benchmark features 57 tasks including mathematics, US history, computer science, law, and more. % increases rounded. <https://life architect.ai/gpt-4-5/> Alan D. Thompson. 2024.



LifeArchitect.ai/gpt-4-5 MMLU, 57 Academic Disciplines, Math, US History, Computer, Law

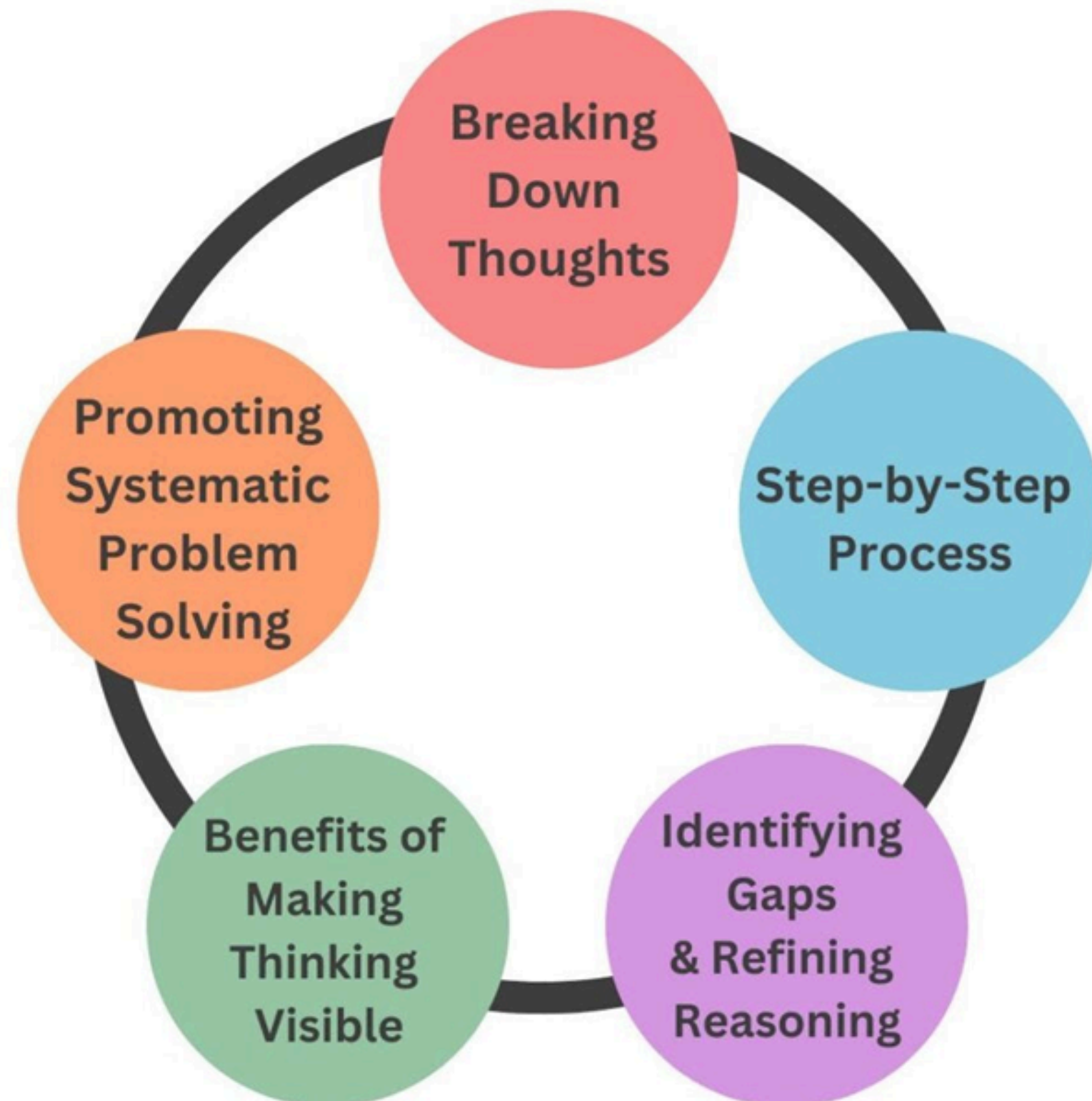
LARGE LANGUAGE MODELS + GPQA (FEB/2025)



Model sizes near to scale. * Estimates based on independent analysis. Selected highlights only. IQ correlation estimates only: <https://life architect.ai/visualising-brightness/> PhD/IQ correlation: <https://www.religiournal.com/pdf/ijrr10001.pdf> All models: <https://life architect.ai/models-table/> Alan D. Thompson. 2025.



How Chain of Thought Prompting Works



Chain of Thought, Inner Voice, Stream of Consciousness

Deep Seek R1, OpenAI o1/o3, Grok 3, Gemini 2, Perplexity and The Deep Research Models

Q DeepSearch

- ✓ Thinking
- ✓ Analyzing user request
- ✓ Gathering data insights
- ✓ Simplifying approach
- ✓ Finalizing analysis

- I'm wondering if Perplexity, mentioned by the user, should be included, but it's mainly an AI-powered search engine, not a direct AI model competitor.

Finalizing analysis

- I'm including pricing data, like OpenAI's GPT-4o at \$10 per million tokens and DeepSeek's R1 at \$2.19 per million tokens, to enhance the table.
- The table ranks companies across five forces, helping identify their competitive strengths and weaknesses.
- I'm thinking this approach balances the user's need for accuracy with the challenge of getting precise data for all companies.
- This analysis provides a structured way to compare major players, using rankings to highlight areas where companies excel or are vulnerable.
- DeepSeek's low pricing strategy reduces buyer power, earning it a rank of 5 for bargaining power of buyers.

2025: The Reasoning Models



Ethical Considerations for Library Workers

Broad Competencies

1. Facilitate and advocate for more equitable access to AI technologies and AI literacy
2. Promote fairness in the use of data and design of AI systems
3. Protect individual autonomy and privacy rights, cultural diversity, and intellectual property rights
4. Ensure appropriate accountability for the design and use of AI systems, including transparency, explainability, accuracy, and reliability
5. Consider the broader impacts of AI on communities, workers, and the environment



What does this mean for our day-to-day work?

Facilitate and advocate for more equitable access to AI technologies and AI literacy

Example: Providing access to advanced tools with data protection on library computers

Promote fairness in the use of data and design of AI systems

Example:

Protect individual autonomy and privacy rights, cultural diversity, and intellectual property rights

Example: Using DeepSeek

Ensure appropriate accountability for the design and use of AI systems, including transparency, explainability, accuracy, and reliability

Example:

Consider the broader impacts of AI on communities, workers, and the environment

Example:

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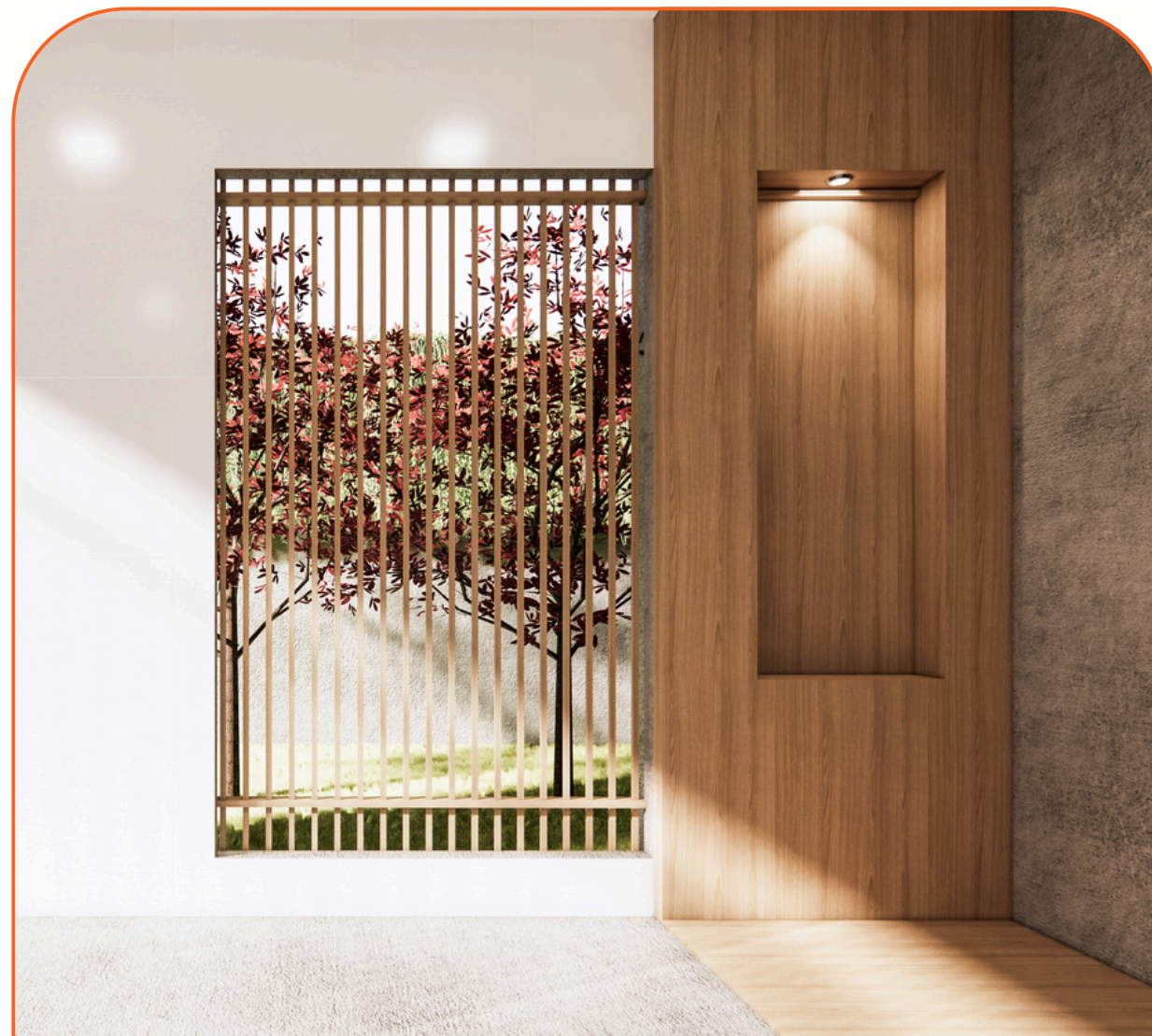
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Thank you

Contact Details

Phone : *+123 456 7890*

Address : *123 Anywhere St., Any City, ST 12345*

Email : *www.reallygreatsite.com*

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Hello,

I'm Olivia Wilson

Interior Designer

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Project 3

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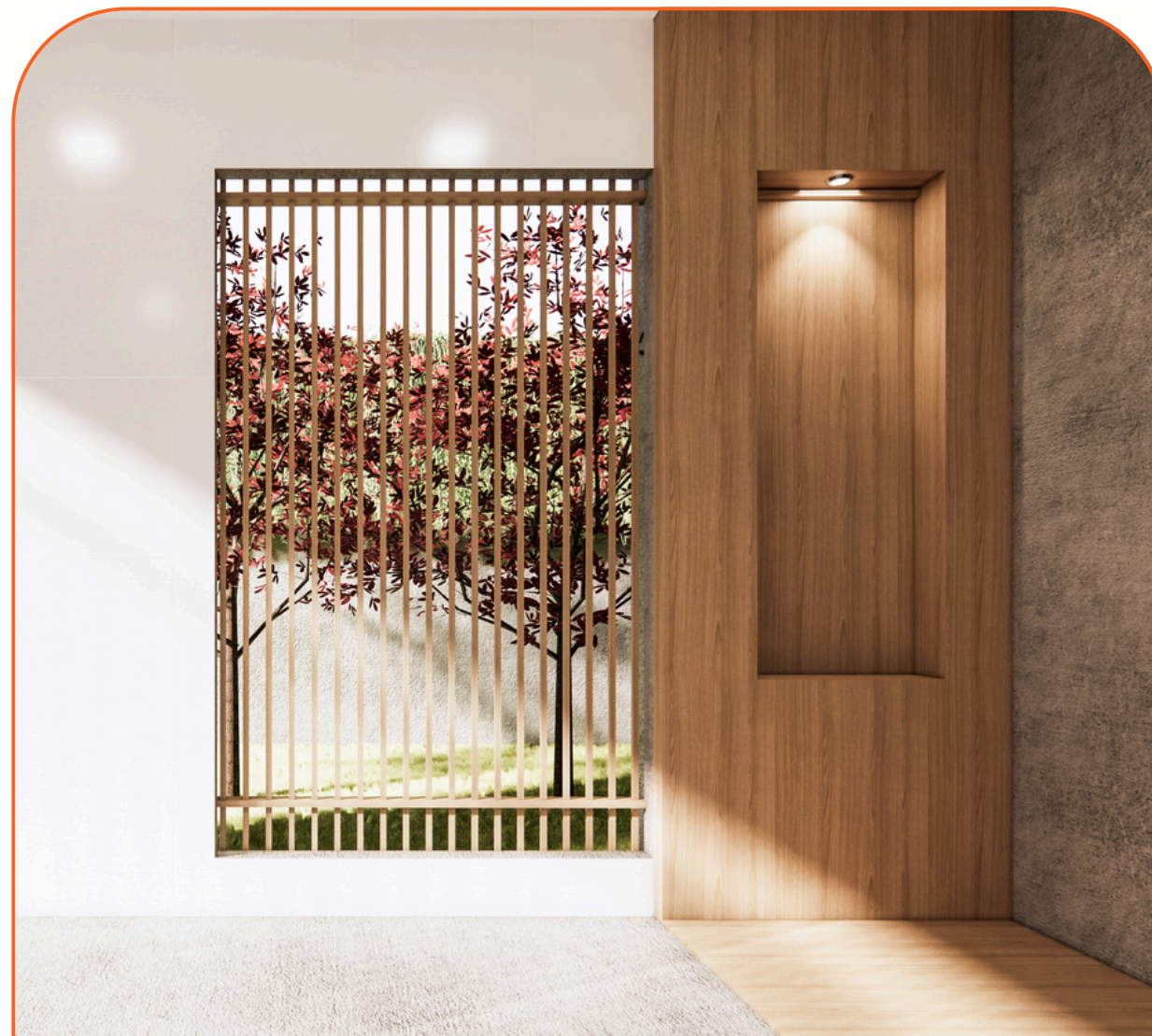
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Thank you

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