# Using Generative AI for Finding Data – Part 2

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Bio of TQ?

# Agenda

**What are Generative Artificial Intelligence (Gen AI) tools**

**Caveats / Risks**

**Prompt engineering**

**Finding data and info**

**Other uses**

**Discussion**

**Resources**

# Gen AI

Generative AI can be thought of as a machine-learning model that is trained to create new data, rather than making a prediction about a specific dataset. A generative AI system is one that learns to generate more objects that look like the data it was trained on.

Zewe, Adam. (November 2023) Explained: Generative AI. *MIT News*. https://news.mit.edu/2023/explained-generative-ai-1109

# Gen AI

"Generative AI is a type of artificial intelligence that can create new data, such as text, images, code, and music. This is in contrast to traditional AI, which is more focused on tasks such as classification and prediction."

Bard (now Gemini) by Google

# Books on Bias in the machines

**Algorithms**

◦ *Weapons of Math Destruction* by Cathy O'Neil

◦ *Algorithms of the Oppressed* by Safiya Noble

**LLMs****

◦ *AI Unleashed: Navigating the Perils of Large Language Models* by Professor Michael Chen

◦ *Bias in the Machine: Understanding and Mitigating AI Discrimination* by Dr. Sarah Thompson

◦ *The Dark Side of AI: Unveiling the Risks of Large Language Models* by Dr. Raj Patel

◦ *The LLM Dilemma: Ethics and Risks in AI Language Models* by Dr. Emily Harper

*** All hallucinations*

# Caveats / Risks

o Bias / misinformation
- Many LLMs trained mostly on information on the open web
- Amplification

o Hostile takeover (a tool finds away to manipulate outcome)

o Privacy ([article](#)) and Copyright

o Lack of transparency (tools are black boxes)

o Environmental impact ([town](#))

o Jobs and Education

o Novice v. Expert

# Improvements /Uses

o Citing Sources or links to sources

o Uses in programming

o ChatBots - https://thecovky.gov/

o Wired magazine article on Gen AI in Local Government

o OCR (image of text to text)

o Data Analysis tool in ChatGPT 4o
  o https://mitsloanedtech.mit.edu/ai/tools/data-analysis/how-to-use-chatgpts-advanced-data-analysis-feature/
  o https://medium.com/@borisnikolaev_57179/chatgpt-for-data-analysis-a-beginners-guide-ab59d5ce3bce

o Video – HeyGen
  o Video tools
  o Example – video created by sharing link to site

# Prompt engineering

"Constructing queries or inputs for AI language models so as to elicit the most precise, coherent, and pertinent responses.

"The art of fine tuning the questions or commands provided to AI models in order to optimize their performance…"

# CLEAR Framework for prompts

**Concise**: brevity and clarity

**Logical**: structured and coherent

**Explicit**: clear output specifications

**Adaptive**: flexibility and customization

**Reflective:** continuous evaluation and improvement

Lo, Leo S. (2023). The CLEAR path: A framework for enhancing information literacy through prompt engineering. *The Journal of Academic Librarianship, 49*(4). https://doi.org/10.1016/j.acalib.2023.102720

# Concise

"Can you provide me with a detailed explanation of the process of data collection?"

"Explain the process of demographic survey data collection"

https://g.co/gemini/share/e325ba59b524

# Logical

*List the steps* to conduct a research survey, beginning with selecting a population and ending with data cleaning"

*Describe the steps* in writing a policy review on poverty for state government.

https://claude.ai/chat/7e304ec9-777b-4a13-951a-fc40a2e08403

# Explicit

*Instead of, "Tell me about the renewable energy,"*

**an explicit prompt** - "Provide a concise overview of the renewable energy in the United States and its use in public policy

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*Instead of "What are some data sources?",*

**an explicit prompt** - "Identify five sources for renewable energy data to support rural communities in the United States. Provide a short overview of each source."

https://chatgpt.com/share/e/673e2bc3-e760-8001-ae1b-91a7aa7853f9

# Adaptive

Start - "Discuss the impact of social media on mental health"

Adaptable prompt "Examine the relationship between social media usage and anxiety in adolescents."

Start - What are some ways to conserve water?"

Adaptive prompt, "List 10 water agency practices for conserving water and their potential impact."

https://g.co/gemini/share/f8fef2622d86

# Reflective

Always review and evaluate

# Examples of finding data

**Provide me three census acs tables that help explain poverty in New Mexico**

https://chat.openai.com/share/436f8104-32f2-42c0-aa75-0106ba8cd8d7

**what ACS 5 yr census tables help explain poverty in New Mexico?**

https://g.co/gemini/share/660f4d2bb86f

**what reports from the department of homeland security cover immigration?**

https://chat.openai.com/share/227fbf8d-bef9-46c6-8514-a2cc33561318

**Price elasticity example from FRED**

https://chat.openai.com/share/86244ebe-9223-4b37-8403-b8e3bc7fa975

# Examples of finding data

**Can you provide a comma-delimited table of latitude, longitude, and city name for 10 cities in the northern New Mexico?**
Gemini and ChatGPT

**You are gis analyst - using usgs data, create a comma-delimited list of earthquakes since November 12, 2024 00:00:00 (UTC) that have a magnitude 5.0 or greater. Include latitude, longitude, magnitude, date, and nearest location.**
https://chatgpt.com/share/e/673f8bbb-c8c8-8001-9a3d-7a3cccf9de68

**I want data on the colorado river flow into New Mexico, what three sources are good starting points**
https://g.co/gemini/share/04d259e7085a

# Some other uses

Upload a document to help with review or analysis
*New Mexico Association of Grantmakers: The Economic Impact of Nonprofit Organizations in New Mexico - BBERs*
https://claude.ai/chat/b898d265-5b19-4726-ba6d-3da30274921b

Formula help in Excel

Economic development - barbershop

# Gen AI Tools used

Gemini by Google

ChatGPT 4o by OpenAI

Claude.ai by Anthropic

Perplexity.ai

# General Resources

Gartner (2023). Gartner experts answer the top generative AI questions for your enterprise. https://www.gartner.com/en/topics/generative-ai

Neel, Seth & Chang, Peter (January 2024). Privacy issues in Large Language Models: A survey. *Arxiv,* https://arxiv.org/abs/2312.06717v4

Pavlick, Ellie (March 2023). A crash course in generative AI. *MIT GenAI Summit.* https://youtu.be/f5Cm68GzEDE

Weil, Elizabeth (2023, March 1). "You are not a parrot." *New York Magazine*. https://nymag.com/intelligencer/article/ai-artificial-intelligence-chatbots-emily-m-bender.html

Katia Savchuk, Katia (December 2023). Generative AI can boost productivity without replacing workers *Stanford: Insights*. https://www.gsb.stanford.edu/insights/generative-ai-can-boost-productivity-without-replacing-workers

Tripodi, Francesca (2023). Ms. Categorized: Gender, notability, and inequality on Wikipedia. *New Media & Society, 25*(7), 1687-1707. https://doi.org/10.1177/14614448211023772

Zewe, Adam (November 2023) Explained: Generative AI. *MIT News*. https://news.mit.edu/2023/explained-generative-ai-1109

# Education & Mapping Resources

**EDUCATION & RESEARCH**

Artificial Intelligence (AI) in Education (UNM Libraries)
https://libguides.unm.edu/AIinEducation

Davalos, J. & Yin, L. (2024, October 18) AI detectors falsely accuse students of cheating with big consequences. *Bloomberg Businessweek*. https://www.bloomberg.com/news/features/2024-10-18/do-ai-detectors-work-students-face-false-cheating-accusations

Generative AI as a Research Tool. *Brown University OTI*
https://ithelp.brown.edu/kb/articles/generative-ai-as-a-research-tool

**MAPS**

Baker, Tom (July 2023). Using generative AI to write a map description. *ESRI blog.*
https://community.esri.com/t5/education-blog/using-generative-ai-to-write-a-map-description/ba-p/1311046

Baker, Tom (August 2023). Using generative AI to create geographic data. *ESRI blog.*
https://community.esri.com/t5/education-blog/using-generative-ai-to-create-geographic-data/ba-p/1321777

Waite, Matt. (November 2024). Using AI agents and R to create map annotations [Tutorial]. *Storybench.*
*https://www.storybench.org/using-ai-agents-and-r-to-create-map-annotations/*

# Government Resource 1

Atlas of Urban AI. *Global Observatory of Urban Artificial Intelligence*. https://gouai.cidob.org/atlas/

CityLab (November 2023). Cities are ramping up to make the most of generative AI. *Bloomberg Cities.* https://bloombergcities.jhu.edu/news/cities-are-ramping-make-most-generative-ai

Doar, Sarah (July 2024). Open the Pod Bay Doors: Navigating the Intersection of Public Records and Generative AI. *Municipal Research and Services Center*. https://mrsc.org/stay-informed/mrsc-insight/july-2024/public-records-and-ai

Gross, Paige (November 2023). Generative AI is here. This is how 5 cities plan to manage its use. *Smart Cities Dive.* https://www.smartcitiesdive.com/news/artificial-intelligence-how-cities-plan-tech/699906/

Hayward, Sid (July 2024). AI and the council: Case studies and resources for local government. *Local Government Information Unit (UK)*. https://lgiu.org/blog-article/ai-and-the-council-case-studies-and-resources-for-local-government/

Muro, Mark & Liu, Sifan (September 2023). The geography of AI: Which cities will drive the artificial intelligence revolution? *Brookings Institute*. https://www.brookings.edu/articles/the-geography-of-ai/

# Government Resource 2

Teale, Chris (January 2024). Capturing AI's potential needs a 'two-way street' between the feds and states, cities. *Route Fifty.* https://www.route-fifty.com/emerging-tech/2024/01/capturing-ais-potential-needs-two-way-street-between-feds-and-states-cities/393436/

Urban AI. The power of generative AI in urban planning: Text2Maprevolution. *Medium.* https://medium.com/urban-ai/the-power-of-generative-ai-in-urban-planning-text2map-revolution-38544f02fb29

Mississippi State University: Extension (NA). Integrating generative AI tools in extension program planning and evaluation. https://extension.msstate.edu/publications/integrating-generative-ai-tools-extension-program-planning-and-evaluation

OpenGov (NA). AI for government: Tips for using ChatGPT in the public sector [Includes prompts!]. https://opengov.com/article/ai-for-government/

Zhang, Willis (March 2024). See you in the neighborhood: using Gemini to support housing assistance programs. *Medium.* https://medium.com/google-cloud/see-you-in-the-neighborhood-using-generative-ai-to-support-housing-assistance-programs-e0f35598eef3