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Introduction to Writing AI Prompts

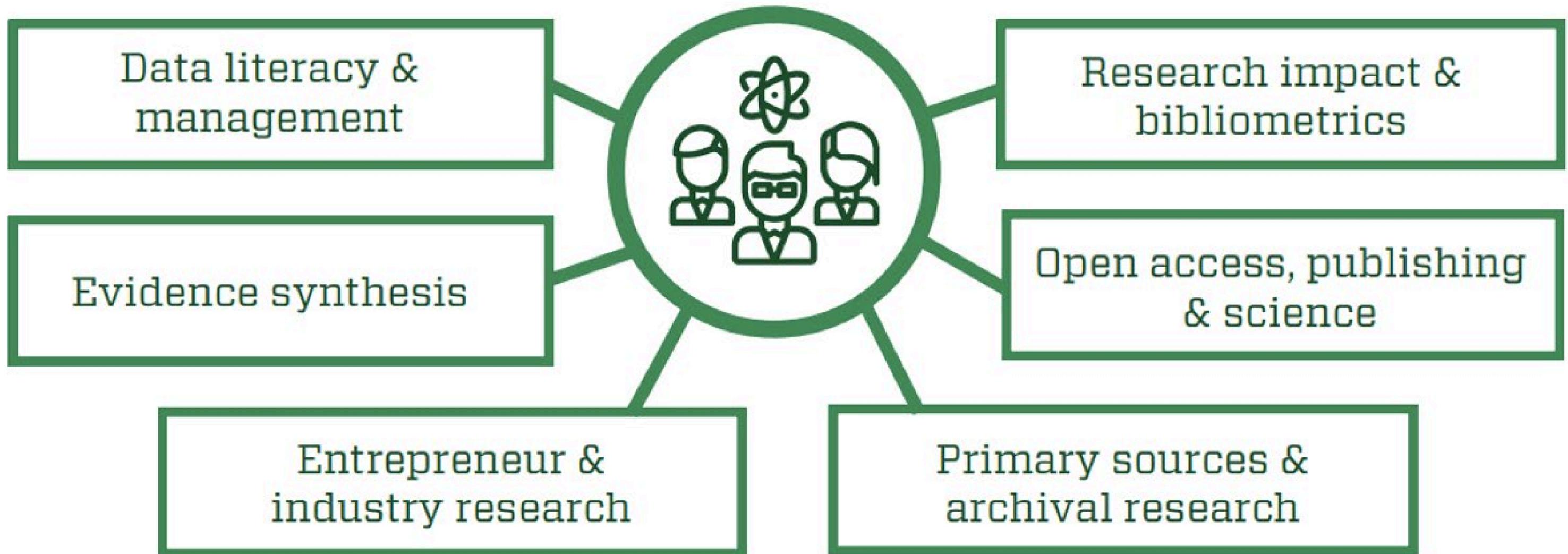
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Research & Scholarship Librarian for the Sciences

March 25, 2025

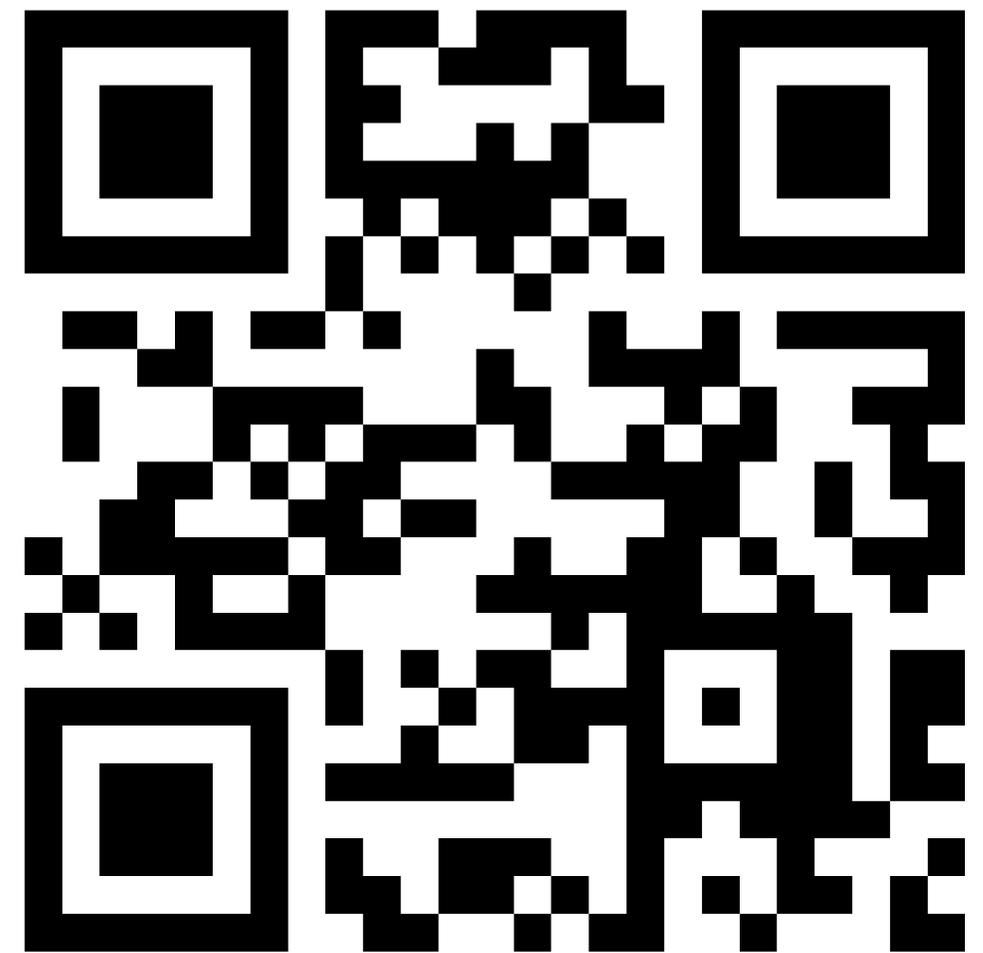
Research Support & Open Scholarship

The Libraries has pivoted to an **interdisciplinary model for research support and open scholarship** through a newly formed unit. Areas of support will include:



Research Support & Open Scholarship Workshops

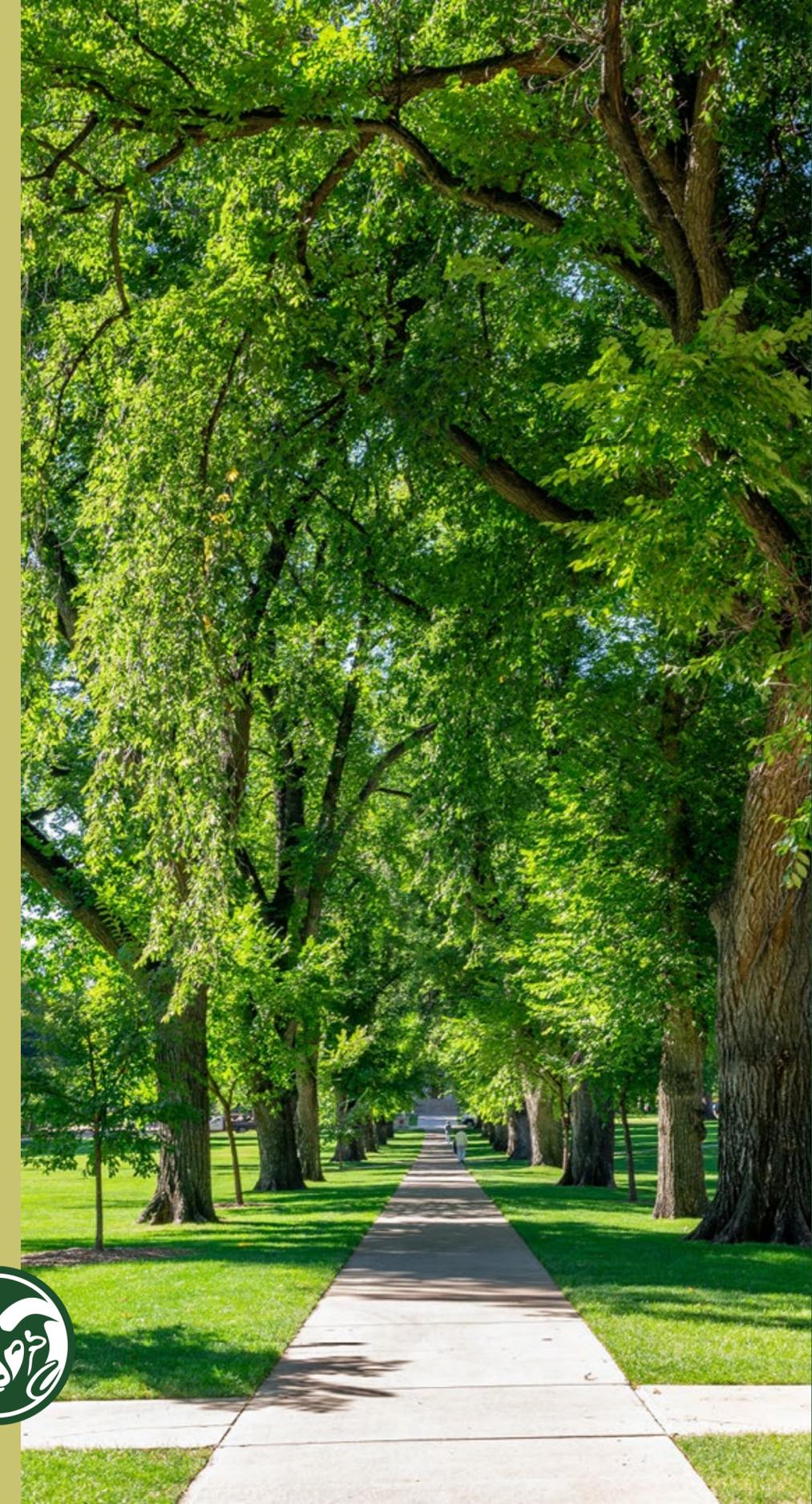
- Coding in R and Python
- Systematic Reviews
- Citation Management
- Publishing and Copyright
- Data Management and Sharing
- Reproducible Research



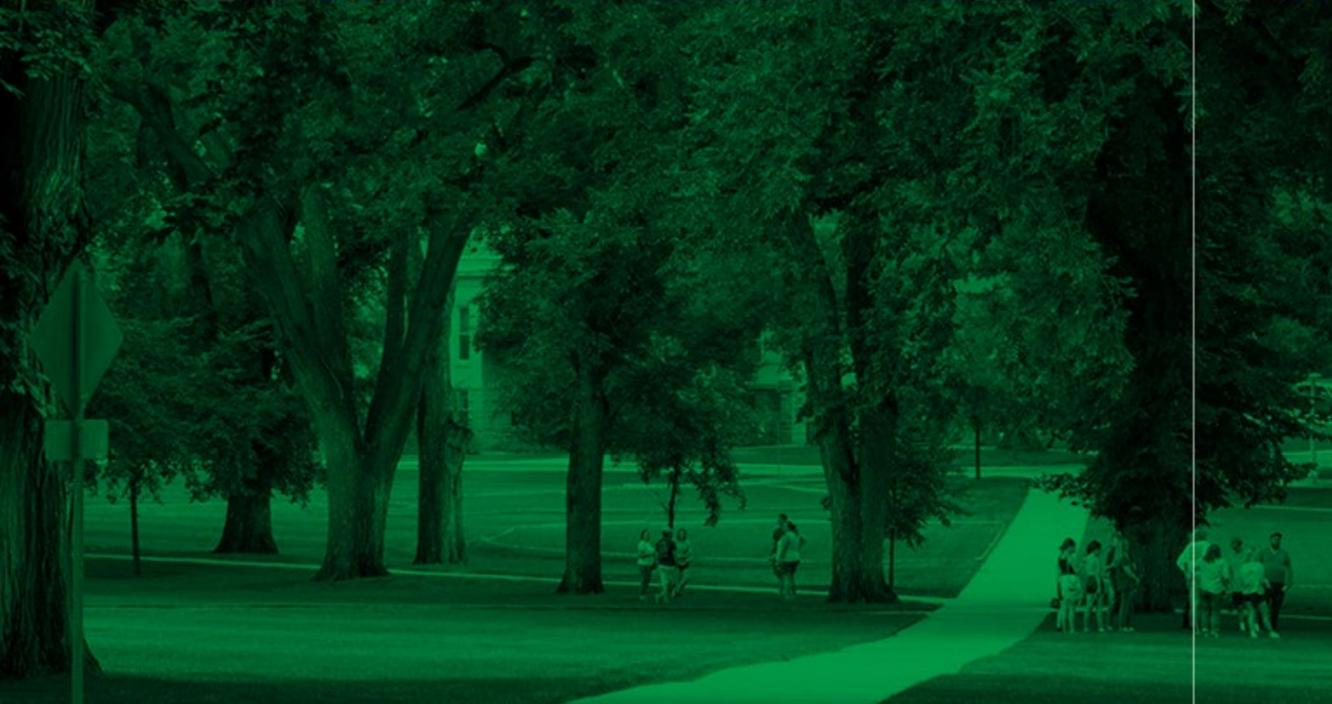
<https://col.st/ZJihN>

Today's Plan

- Brief introduction to generative AI
- Exercise 1
 - Generating a text by assigning roles and style
- Exercise 2
 - Creating a resource utilizing few-shot prompts
- Additional Resources



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A (very) brief intro to generative AI

Generative Artificial Intelligence

Is:

- Deep Learning AI trained on large bodies of text
 - (Training text is typically unspecified but may be from the internet, published books, etc.)
- Built on probability models that identify the next word token in a chain based on probability calculation
- Designed to “sound correct”

Is not:

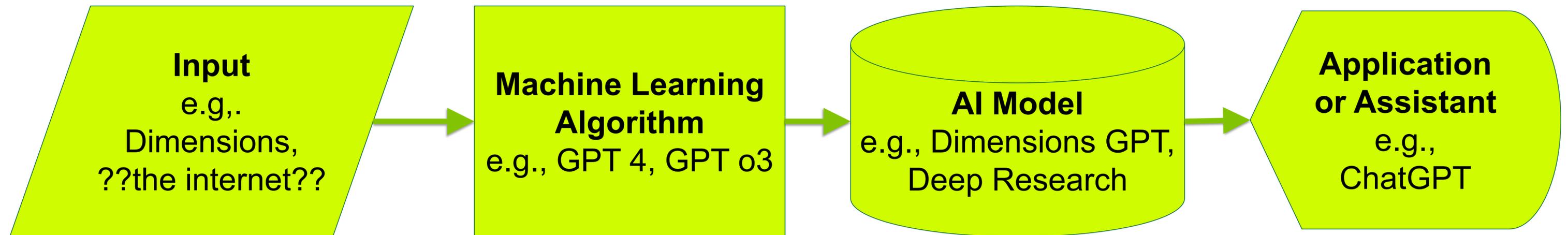
- Artificial General Intelligence
- Capable of reading/understanding text
- Designed to be accurate or truthful

When they say AI, they mean...

- every piece of software that has been influenced by artificial intelligence, no matter how tangentially
 - “smart” software they want to sell you that has nothing whatsoever to do with AI
- all software powered by machine learning algorithms (e.g. self-driving cars)
- specifically artificial general intelligence (or even artificial super intelligence)
- specifically generative AI
- AI tools including agents, assistants, and/or applications

When they say AI, they mean...

- one of these components of an AI tool:



When they say AI, they mean...

- an official definition such as:
 - noun. “The capacity of computers or other machines to exhibit or simulate intelligent behaviour; the field of study concerned with this.” ~Oxford English Dictionary
 - “Artificial intelligence is a field of science concerned with building computers and machines that can reason, learn, and act in such a way that would normally require human intelligence or that involves data whose scale exceeds what humans can analyze.” ~Google
<https://cloud.google.com/learn/what-is-artificial-intelligence?hl=en>
 - Artificial intelligence is “a system’s ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation.”
 - Kaplan, Andreas; Haenlein, Michael (2019). "Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence". *Business Horizons*. 62: 15–25. doi:10.1016/j.bushor.2018.08.004

What are prompts?

- How the user interacts with the AI model
- How the model is told what to generate
- Prompt Engineering is the process of developing and optimizing prompts

Considerations for Using AI

- Know what your finished product should look like.
 - Choose your AI tool based on your goal. (Not all tools have the same strengths)
- Pay attention to the serious ethical, professional, or educational issues of how and when using AI is appropriate.
- When using generative AI in an academic setting, you have the responsibility¹ for:
 - Verification
 - Disclosure – ([new AID Framework](#))
 - Discretion

1. Generative AI in Academic Research: Perspectives and Cultural Norms. (2023). Retrieved November 11, 2024, from <https://research-and-innovation.cornell.edu/generative-ai-in-academic-research/>

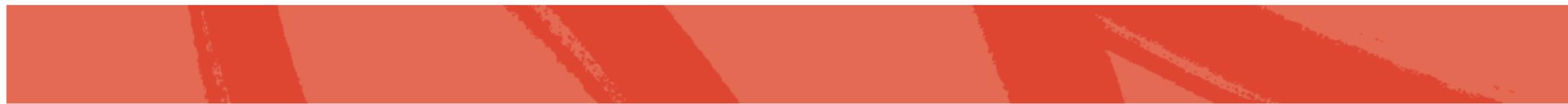
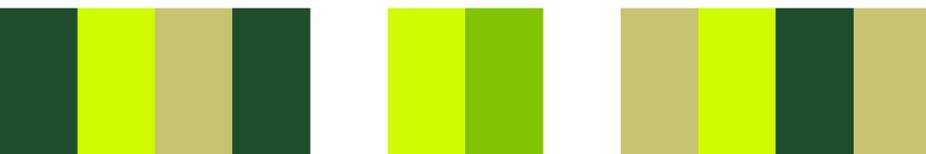
Exercise 1

Write a short piece of text such as an email or cover letter by assigning roles and specifying style



Start from the Finish

- Know what your finished text should look like.
- Step 1:
 - Work with your partner(s) to decide the following:
 - What do you need to write?
 - What criteria will determine whether a text matches that need?
 - What elements should or should not be present?
- Step 2:
 - Create and test a simple prompt to elicit the above

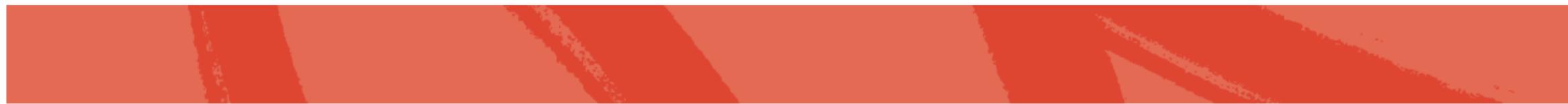
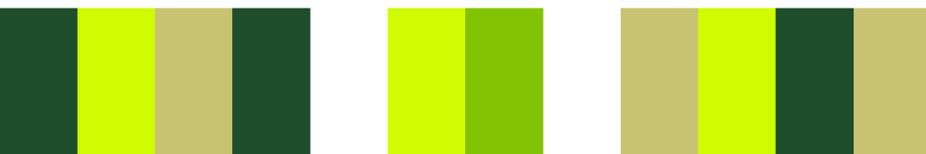


Role Call!

- Or: voice, persona, backstory, archetype, domain expertise, character, perspective, ...
- Step 3:
 - With your partner(s) brainstorm the following:
 - Who is writing this text?
 - Who is reading it?
 - What are the relevant characteristics of the author and/or reader?
 - Feel free to generate multiple roles for the author and/or reader that you can test and compare

And make it stylish

- Including tone, behavioral expectations, format, length, etc.
- Step 4:
 - Working with your partner(s), decide the following:
 - How should the text feel? What tone should it use? Should the language be formal or informal?
 - How long should it be? Should it be in paragraphs, bullet points, a chart, etc? Is this an email, a letter, a presentation?
- Step 5:
 - Try re-writing your prompt. Experiment with different roles and styles to see how it affects the result.



Keep in mind:

- Iterate as often as needed, but know the output will never be perfect
- Try breaking the task down into smaller steps and letting the prompts build on each other
- Negative prompting (telling the AI model not to do something) sometimes backfires
- Don't let the AI take control
 - e.g., add things you don't fully understand

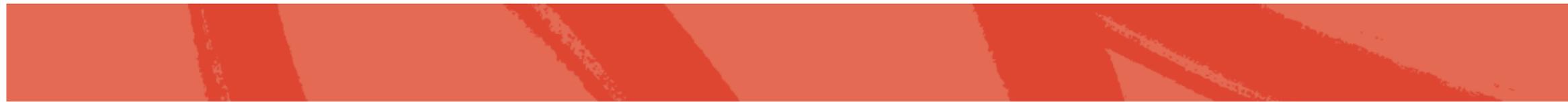
Exercise 2

Create an original recipe, workout schedule, or other tool through few-shot prompting



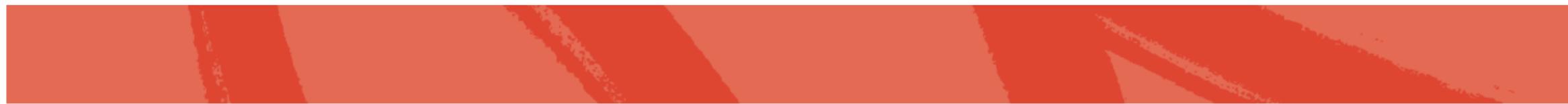
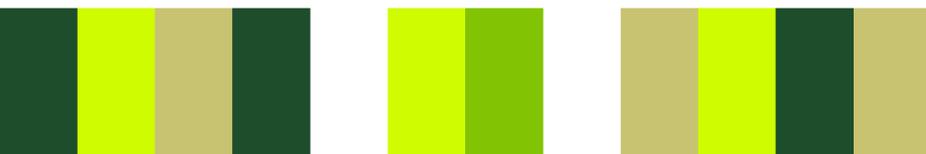
Start from the Finish, Again

- Step 1:
 - Work with your partner(s) to decide what you would like to create, then write a prompt utilizing role and style directions as appropriate.
 - Remember to choose something you are familiar with (hint: you are going to need to be able to create examples in the next step!)



Take a Shot at It

- Shot-based prompting utilizes In-Context Learning (the model learns from examples embedded in the prompt)
 - This can be one-shot, few-shot, or multi-shot depending on the number of examples included
 - We have so far been using zero-shot prompting
- Step 2:
 - Collaborate with your partner(s) to find or create some examples of what you want the AI to create
 - Write the examples yourselves
 - Direct the AI model where to look for examples
- Step 3:
 - Try it out! Refine your prompt as needed.



Supermarket AI Gives Horrifying Recipes For Poison Sandwiches And Deadly Chlorine Gas

Matt Novak Former Contributor 

FOIA reporter and founder of Paleofuture.com, writing news and opinion on every aspect of technology.



Aug 12, 2023, 01:25am EDT



Keep in mind:

- Know what your finished product should look like.

Recipe for “aromatic water mix” (according to an AI recipe generator):

- Bleach
- Ammonia
- Water

Novak, M. (2023). Supermarket AI Gives Horrifying Recipes For Poison Sandwiches And Deadly Chlorine Gas. Forbes. Retrieved November 12, 2024, from <https://www.forbes.com/sites/mattnovak/2023/08/12/supermarket-ai-gives-horrifying-recipes-for-poison-sandwiches-and-deadly-chlorine-gas/>

Additional techniques for prompts

6 strategies for getting better results:

- Write clear instructions ✓
- Provide [upload] reference text
- Split complex tasks into simpler subtasks
- Give the model time to “think”
- Use external tools
- Test changes systematically ✓



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Additional Resources

- [AI Prompt Cookbook](#) from the University of Florida
- [Student Guide to Artificial Intelligence](#) from Elon University
- [Generative AI User's Guide](#) from the Michigan Institute for Data & AI in Society
- [Generative AI in Academic Research](#) from Cornell University
- [Considerations for AI in the Classroom](#) from the University of Wisconsin Madison
- [Sentient Syllabus](#): “An initiative by academics for academics to navigate the uncharted waters of the era of Artificial Intelligence.”



Additional Resources, cont.

- AI Snake Oil by Sayash Kapoor and Arvand Narayanan
- Hugging Face (<https://huggingface.co/>)
- Find reviews of AI tools on theresanaiforthat.com
- Check GitHub for examples in Prompt Libraries and Prompt Collections
- Machine Learning Glossary from Google





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Thank you!

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Please provide your feedback

[Workshop Feedback Survey for
Introduction to Writing AI Prompts](#)



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