

Prompt Engineering 101

"Better Input, Better Output !"



AGENDA

- WHAT IS A PROMPT?
- THE CASE FOR PROMPT ENGINEERING
- CO-STAR APPROACH
- BEST PRACTICES
- EXAMPLES OF EFFECTIVE PROMPTS
- Q & A

PROMPTOLOGY 101: WHAT EVEN IS A PROMPT ?!

Prompting: Articulate Your Wishes and Watch Them Come True!

- If you think of Gen AI as the Genie in Aladdin's lamp – your prompts are the carefully crafted wishes that guide the “Genie in the Cloud” to deliver precisely what you need.
- **Prompt:** A prompt is a **carefully crafted instruction** or question that you give to an AI model like an LLM to get a desired response.
 - It's akin to whispering your wishes to the genie – the **clearer** and more **specific** your wish (or prompt), the better the outcome.
- **LLM:** An LLM, or Large Language Model, is a sophisticated AI that has been trained on an enormous amount of textual data. It's like a “smart brain in the cloud” that understands and generates human-like text.
 - These models can comprehend text, answer questions, generate creative content, and even engage in conversation
 - Essentially, LLMs are the “genies” that interpret your prompts and try to fulfill your requests.

UNLOCKING THE MAGIC: THE CASE FOR PROMPT ENGINEERING

Better Input Better Output: Prompt engineering is crucial because the quality of the input significantly impacts the quality of the output when working with AI models like LLMs.

- ❑ **Unlocking AI's Potential:** Like a key to a treasure chest, well-designed prompts can unlock the full capabilities of AI systems.
- ❑ **Bridging the communication gap:** It helps us "speak AI" more fluently, ensuring we get the results we want.
- ❑ **Mitigating AI Hallucinations:** Well-crafted prompts can mitigate potential issue with all generative models called "AI hallucinations" where the language model generates false information which sounds true. Mitigating this issue is especially critical in fields like medicine where accuracy is paramount.
- ❑ **Efficiency boost:** Good prompts save time and resources by getting accurate results faster.
- ❑ **Customization:** It allows us to tailor AI outputs to specific needs, like adjusting the tone or style of generated content. By tailoring prompts to a particular field or task, users can get relevant results.
- ❑ **Problem-solving tool:** Clever prompting can help tackle complex issues by breaking them down into manageable parts.
- ❑ **Accessibility:** It empowers non-technical users to harness AI's power without coding skills.

CO-STAR Approach to Prompt Engineering

CO-STAR acronym can help you remember how to create effective and clear prompts that will get better responses from the AI.

- **C - Context:** Provide background information
- **O - Objective:** Clearly state your goal
- **S - Style:** Specify the desired writing style
- **T - Tone:** Indicate the appropriate tone
- **A - Audience:** Define who you're addressing
- **R - Response:** Specify desired length and format



Best Practices for Crafting Good Prompts

□ Provide Clear Objective:

- Be clear about what you want the model to achieve.
- Avoid leading questions which might bias the AI's responses.
- For example, Is it generating text, translating languages, writing different kinds of creative content, or answering your questions?

□ Be Specific:

- The more specific the prompt, the more accurate and focused the response is likely to be.
- The more details you provide, the better the model can understand your request.
- For example, instead of asking "Tell me about the solar system," a more specific prompt would be "List the planets in the solar system in order from the Sun."

□ Provide Context:

- Providing context can help the model to understand the nuances of the request and generate more relevant responses.
- For example, if asking the model to summarize a news article, include the article's text and domain in the prompt.

Best Practices for Crafting Good Prompts (Cont.)

❑ Structure Your Prompt:

- Structure your instructions well. Use headers to separate different sections of the prompt.
- This will make it easier for the model to understand what is being asked.
- For example, Separate instructions from context using separators (e.g., use ### or "")

❑ Be Clear & Concise:

- Use straightforward language for the model to easily understand and process.
- Avoid using jargon, technical terms, or complicated sentence structures.

❑ Specify desired format and style:

- If you have specific requirements for the format or style of the output, mention them clearly in your prompt.
- This could include specifying the length, tone, formality, or genre of the generated text.
- The more specific you are, the better the model can tailor its response to your preferences.

Best Practices for Crafting Good Prompts (Cont.)

Iterate till Perfection:

- Prompt Engineering is an Iterative Process. So, start with a basic prompt and refine it based on the responses.
- By iteratively refining your prompts, you can unlock the full potential of the model and achieve optimal results.

Proofread & Verify:

- Ensure your prompt is free of typos, grammatical errors, and formatting issues.
- Always double-check and validate the AI generated content.

Breakdown complicated tasks:

- Breakdown the task to smaller steps. This will make it easier for the model to understand and complete the task.
- Sometimes, by appending the words "**Let's Think Step by Step**" to the end of a question, Models try and reason the answer step by step and arrive at a better answer.

Examples of Effective Prompts

□ Before (Basic Prompt): "Explain CRISPR gene editing."

□ After (Well-Engineered Prompt):

"As a molecular biologist presenting to a group of undergraduate biology students, provide a comprehensive explanation of CRISPR gene editing. Include:

- * A brief history of its discovery
- * The key components of the CRISPR-Cas9 system
- * How the editing process works
- * Two potential applications in medicine
- * One ethical concern related to its use

Use clear, accessible language and limit your response to about 250 words. Structure your explanation with subheadings for easy readability."

Examples of Effective Prompts (Cont.)

- This well-engineered prompt:
 - **Provides context** (molecular biologist presenting to students)
 - **Specifies the audience** (undergraduate biology students)
 - **Outlines clear objectives** (5 specific points to cover)
 - **Indicates the desired tone and style** (clear, accessible language)
 - **Specifies the format** (use of subheadings) **and length** (about 250 words)

By providing these details, the prompt is more likely to generate a focused, relevant, and well-structured response tailored to the intended audience and purpose.

Start your Prompt Engineering Journey!

Key Take-aways:

- **Mix and match CO-STAR elements** as needed
- **Be specific** to get more targeted responses
- **Iterate** and **refine** prompts for better results
- **Follow the best practices** to get best results
- Consider the AI's perspective when crafting prompts
- Visualize your desired output before writing the prompt
- Always **verify critical information** from AI responses
- **Remember:** You're the star, the AI is your co-star!



ASK YOUR AI SHERPA

Any Questions?