FACTSHEET: GPT-4 PROMPTING

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What is Prompt Engineering?

Prompt engineering is the process of designing, refining, and optimising input prompts for AI language models, like OpenAI's GPT series, to elicit more accurate, relevant, and useful responses.

Common techniques

Some widely used prompt engineering techniques include:

Instruct Prompting

To obtain more accurate and relevant responses from the language model, include the context of your goal and specify the content and format you desire in the response.

```
Write a short story of 300-500 words about a group of friends
who discover a mysterious island while on a sailing trip.
Include the following elements in your story:

1. A diverse group of friends with distinct personalities

2. An unexpected storm that leads them to the island

3. A hidden treasure map they find on the island

4. The challenges they face while searching for the treasure

5. A surprising twist at the end of the story

Make sure to use descriptive language to create vivid imagery
and engage the reader's imagination. Create suspense and
excitement by building tension throughout the story.
```

Few-Shot Prompts

A few-shot prompt provides multiple examples or demonstrations of a specific task, helping the model understand the pattern and generate similar responses for new inputs.

Here's an example of a few-shot prompt for converting temperatures from Celsius to Fahrenheit:

```
Example 1: Input: 0 degrees Celsius Output: 32 degrees
Fahrenheit

Example 2: Input: 100 degrees Celsius Output: 212 degrees
Fahrenheit

Example 3: Input: 50 degrees Celsius Output: 122 degrees
Fahrenheit

Please convert the following temperature: Input: 25 degrees
Celsius Output: ?
```

By providing the AI model with several examples of the desired conversion, the few-shot prompt helps the model grasp the pattern and generate a response for the new input, which in this case would be "77 degrees Fahrenheit."

Chain-of-Thought Prompting (Prompt Chaining)

For complex reasoning tasks, this method involves guiding the language model to generate a sequence of logical reasoning steps to arrive at the final answer. Attaching "Let's think step by step" to the end of the prompt has proven effective.

Here's an example of prompt chaining:

Goal: Understand the impact of climate change on polar bears.

Instead of using a single prompt, you can break it down into a series of interconnected prompts:

```
1. First prompt: "What are the main effects of climate change
   on Earth's polar regions?"
```

```
2. Second prompt (based on AI's response): "How is the loss of
   sea ice affecting polar bears?"

3. Third prompt (based on AI's response): "What are the long-
   term consequences of climate change on polar bear
   populations?"
```

Prompt Chaining can be useful if you want the language model to explain its reasoning.

Persona/Role Prompting

Assigning a specific persona or role to the AI to guide its responses. Example:

```
 "You are an expert in [TOPIC] with 20 years of experience
helping people accomplish [GOAL]. Your task is to provide the
best advice about [TOPIC].

Always ask clarifying questions before answering to better
understand the questioner's intent.

Reply ‘I understand’ if you understand."
```

This technique helps shape the AI's responses by establishing a context and expertise level, encouraging the model to generate more accurate and relevant answers. Additionally, requiring the AI to ask questions ensures a deeper understanding of the user's needs.

Prompt Creator

This approach asks GPT to revise the prompt you want to get the best possible answer.

```
1. I want you to become my Prompt Creator. Your goal is to help
   me craft the best possible prompt for my needs. The prompt
   will be used by you, ChatGPT. You will follow the following
   process:

2. Your first response will be to ask me what the prompt should
   be about. I will provide my answer, but we will need to
   improve it through continual iterations by going through the
   next steps.
```

```
3. Based on my input, you will generate 3 sections.
   a) Revised prompt (provide your rewritten prompt. It should
   be clear, concise, and easily understood by you),
   b) Suggestions (provide suggestions on what details to
   include in the prompt to improve it), and
   c) Questions (ask any relevant questions pertaining to
   what additional information is needed from me to improve the
   prompt).

4. We will continue this iterative process with me providing
   additional information to you and you updating the prompt in
   the Revised prompt section until it's complete.
```

Prompt Templating

Prompt templating is a technique used in prompt engineering that involves creating reusable and adaptable structures or frameworks for input prompts. These templates help guide AI language models, like GPT-4, to generate desired and consistent responses across similar tasks or questions.

Prompt templates usually consist of placeholders, variables, or specific patterns that can be filled in or adapted to fit different contexts or scenarios. By using templates, developers can streamline the process of crafting prompts, maintain a consistent format for similar tasks, and easily modify prompts to suit different situations.

```
Please explain the concept of [phenomenon] in simple terms,
highlighting its key principles and importance.
```

In this simple template, **[phenomenon]** is a placeholder that can be replaced with different scientific phenomena depending on the user's query. For example, you could create prompts for various concepts by substituting the placeholder:

1. Please explain the concept of photosynthesis in simple terms, highlighting its key principles and importance.
2. Please explain the concept of gravity in simple terms, highlighting its key principles and importance.
3. Please explain the concept of evolution in simple terms, highlighting its key principles and importance.

This template allows for efficient and consistent generation of explanations across a wide range of scientific phenomena, making it a useful tool for prompt engineering.

Resources

- OpenAI Cookbook
- Learnprompting.org
- The ChatGPT Prompt Book