AI generativa a supporto della formazione: l'evoluzione del training!

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Disclaimer

Image of "Try this at home" with warning symbol. Cartoon style, digital art, high resolution.

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What is prompt engineering?

Prompt engineering is a **technique** used to **guide the behavior** of machine learning models, particularly language models, by carefully **crafting the input prompts** to elicit desired outputs.


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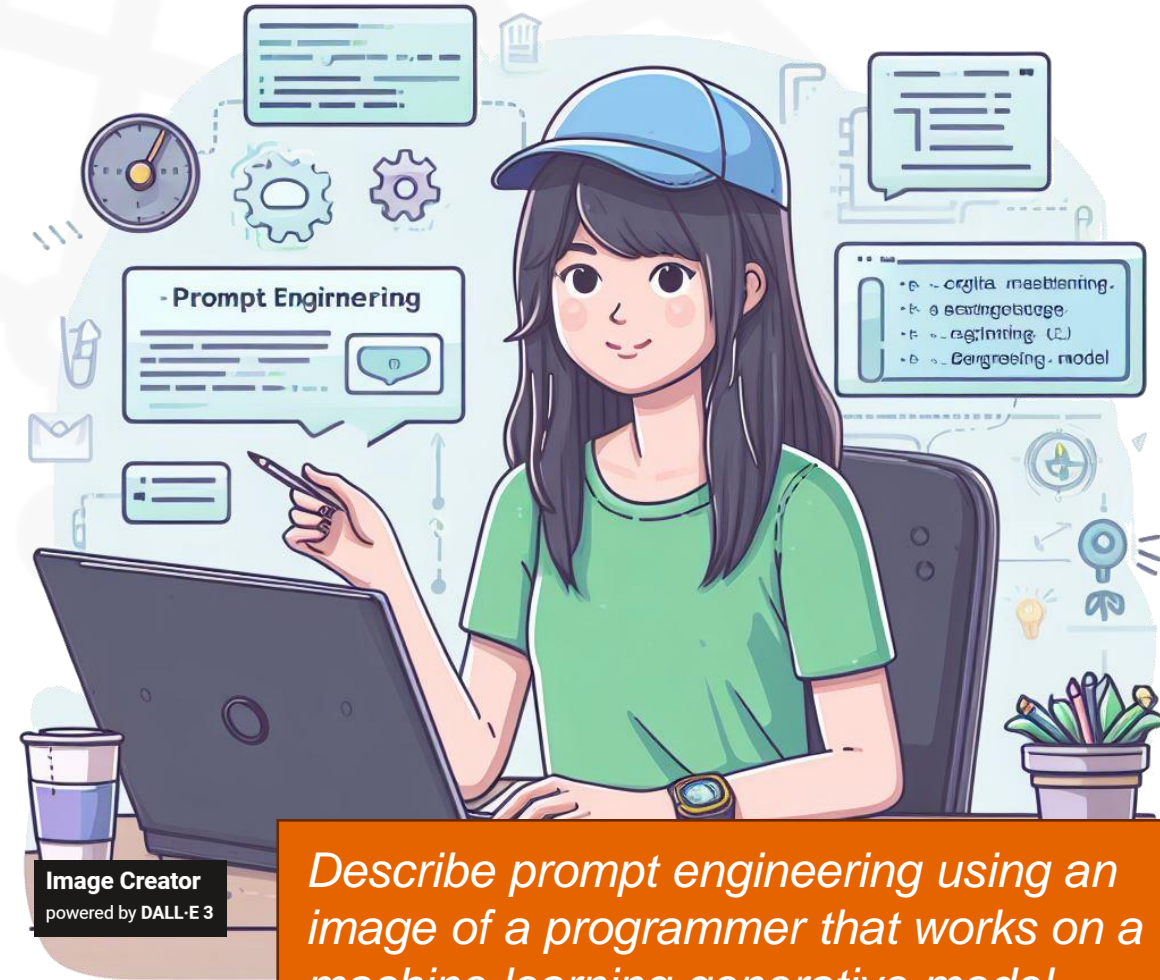
Describe prompt engineering using an image of a programmer that works on a machine learning generative model input a text. Cartoon style, Digital art, High resolution
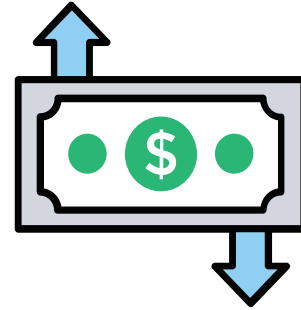
Importance of prompt engineering
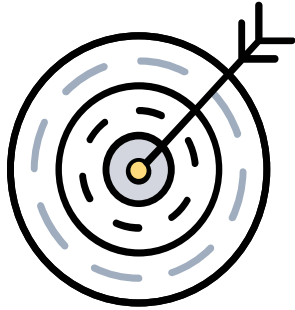
Precision and Relevance

Proper prompt engineering ensures that the language model generates precise and relevant responses, obtaining useful and accurate information.
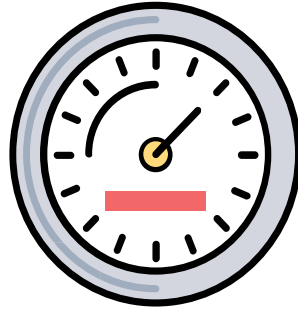
Efficiency

Users can get to the desired output faster, reducing the number of iterations and saving time and computational resources.

Cost Reduction

Minimizing the need for additional computational resources or human intervention to refine or correct model can lead to significant cost savings in large-scale deployments.

Enhanced User Experience

For applications with end-user interaction, effective prompt engineering can significantly improve user satisfaction enhancing the overall user experience.

Word vs Token

Tokens are **units of text** that the model reads and processes.

A token can be as **short as one character** or as **long as one word**, depending on the language and the tokenization process.

Models	Context	Prompt (Per 1,000 tokens)
GPT-3.5-Turbo	4K	€0.0015
GPT-3.5-Turbo	16K	€0.003
GPT-4	8K	€0.029
GPT-4	32K	€0.058

GPT-3

Many words map to one token, but some don't: indivisible.

Unicode characters like emojis may be split into many tokens containing the underlying bytes: 👊🏿

Sequences of characters commonly found next to each other may be grouped together: 1234567890

Clear   Show example

Tokens   **Characters**
64   252

Many words map to one token, but some don't: indivisible.

Unicode characters like emojis may be split into many tokens containing the underlying bytes: ������

Sequences of characters commonly found next to each other may be grouped together: 1234567890

TEXT   TOKEN IDS

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Best practices: Clarity and Specificity

The prompt should be clear and specific to reduce ambiguity in the AI's responses.

The more precise the prompt, the more likely it is to yield accurate and relevant results.

Poor prompt:
"Tell me about space."

Improved prompt:
"Provide a detailed summary of the key milestones in human space exploration, focusing on the Apollo moon landings."

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Create an image for a slide about best practice explanation. Cartoon style, digital art, high definition

Best practices: Contextual Information

Including relevant context within the prompt can help the AI understand the request better and provide more informed answers.
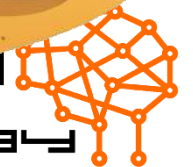
Poor prompt:
"How do I fix it?"

Improved prompt:
"What are the steps to troubleshoot a home Wi-Fi network that's not connecting to the internet, assuming the router and modem have been restarted?"

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Best practices: Instructional Prompts

Sometimes prompts are formulated as instructions, telling the AI what type of information or format is expected in the response, such as asking it to answer in the form of a list, a summary, or an explanation.
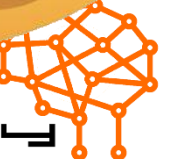
Poor prompt:
"JavaScript array."

Improved prompt:
"Explain how to use the `map` function in JavaScript to convert all strings in an array to uppercase."

Best practices: Iterative Refinement

Prompt engineering often involves an iterative process where the user refines their prompts based on the AI's responses to improve the quality of subsequent interactions.

Initial prompt:
"I'm seeing an error when I try to run my code."

Refined prompt:
"I'm getting a 'SyntaxError: unexpected EOF while parsing' in Python when I try to define a function. Here's the code snippet where the error occurs. What's causing this, and how can I fix it?"

Best practices: Creative Use of Examples

Including examples within the prompt can guide the AI towards the style or type of content desired.
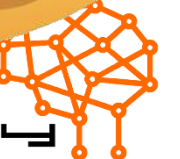
Poor prompt:
"Write a poem."

Improved prompt:
"Write a four-stanza poem about autumn, using metaphor to liken the changing leaves to the process of transformation in life."

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Best practices: Chain of Thought

For complex problems, prompts can be designed to encourage the AI to "show its work" or walk through a problem **step-by-step**, which is known as a chain-of-thought prompting.
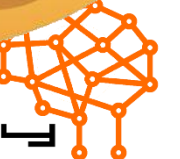
Poor prompt:
"What's the largest country?"

Improved prompt:
"List the top five largest countries by land area and explain why each country has such a large landmass compared to others."

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Best practices: Zero-Shot, Few-Shot, and Many-Shot Learning

These terms refer to the number of examples provided in the prompt.

Zero-shot learning means the AI receives no examples.

Few-shot learning includes a handful of examples to guide the AI.

Many-shot learning provides a larger set of examples to further educate the AI on the task at hand.

Zero-shot learning prompt:
"Classify the sentiment of the following sentence: 'I just received my order, and everything is perfect!'"

Few(Multi)-shot learning prompt:
"Given these examples where *I love sunny days'* is positive, *'I hate traffic'* is negative, and '*I have a car*' is neutral, classify the sentiment of the following sentence: *'This movie was a great way to spend the evening'*."

Best practices: Leading words

Use specific words or phrases at the beginning of a prompt to steer the model's response in a particular direction or pattern.

By carefully choosing these words, you can signal to the model the **tone**, **format**, or **context** you're expecting in the response
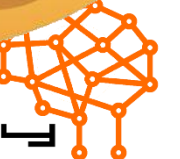
Poor prompt:
"Get the names of employees."

Improved prompt:
"Write a T-SQL query to select the full names of all employees from the 'Employee' table, ordered by last name in ascending order. SELECT …"

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Demo

Create an App Service workshop: from zero to hero!!

A female developer that shows her code in a demo. Cartoon style, Digital art, High resolution

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Sometimes how you ask things is more important than the things themselves!

Thanks!
Questions?

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aka.ms/maxlinkedin

A session of questions and answers after a session in a technical conference. Cartoon style, digital art, high resolution

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