

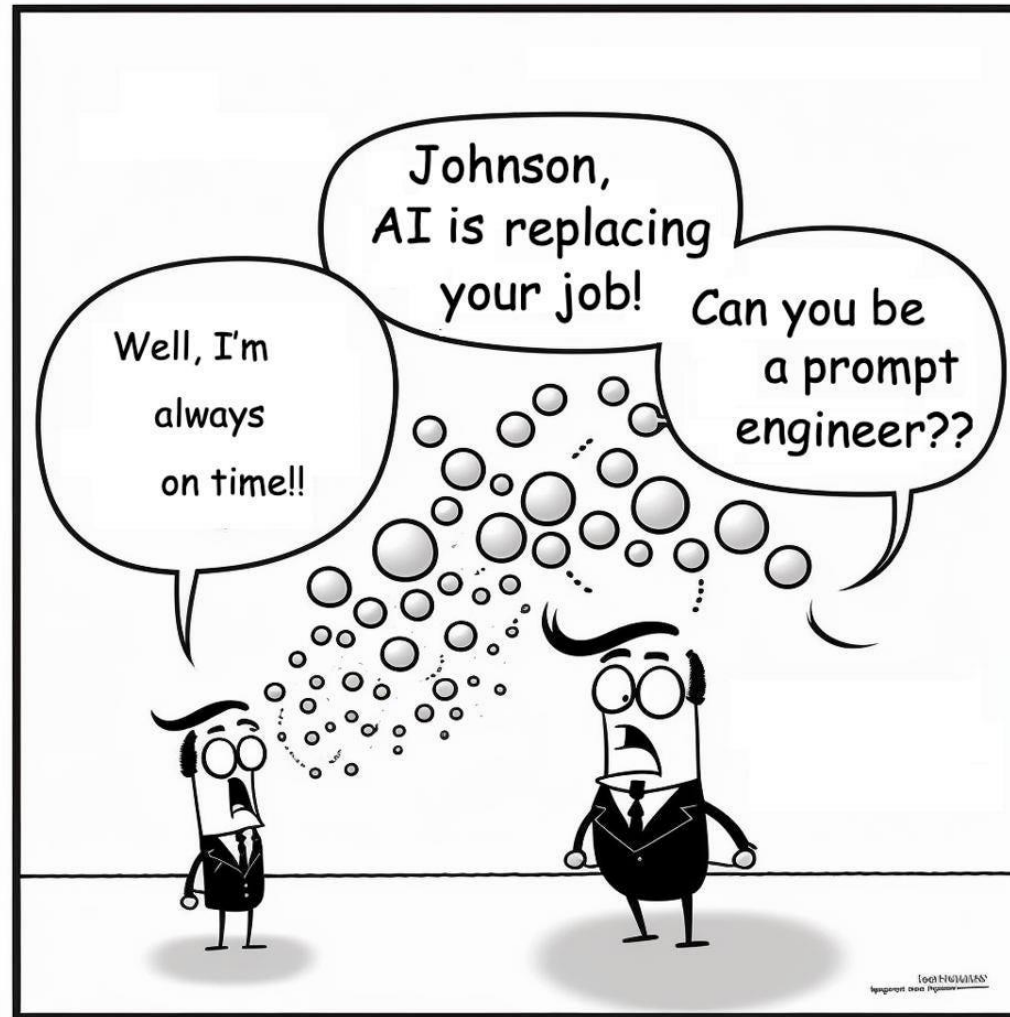
Part 3. 프롬프트 엔지니어링 개요

Prompt Engineering



Prompt Engineering

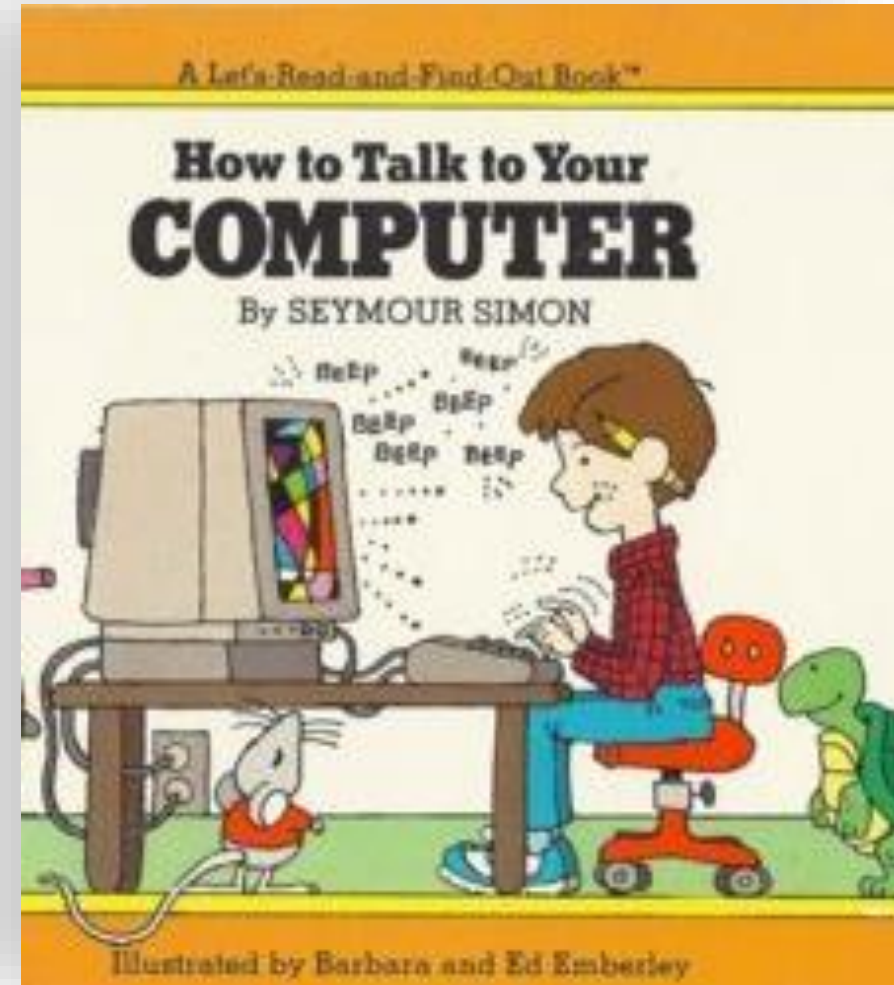




Prompt Engineering

What is it?

How to give commands to AI
New way to coding





DALL-E

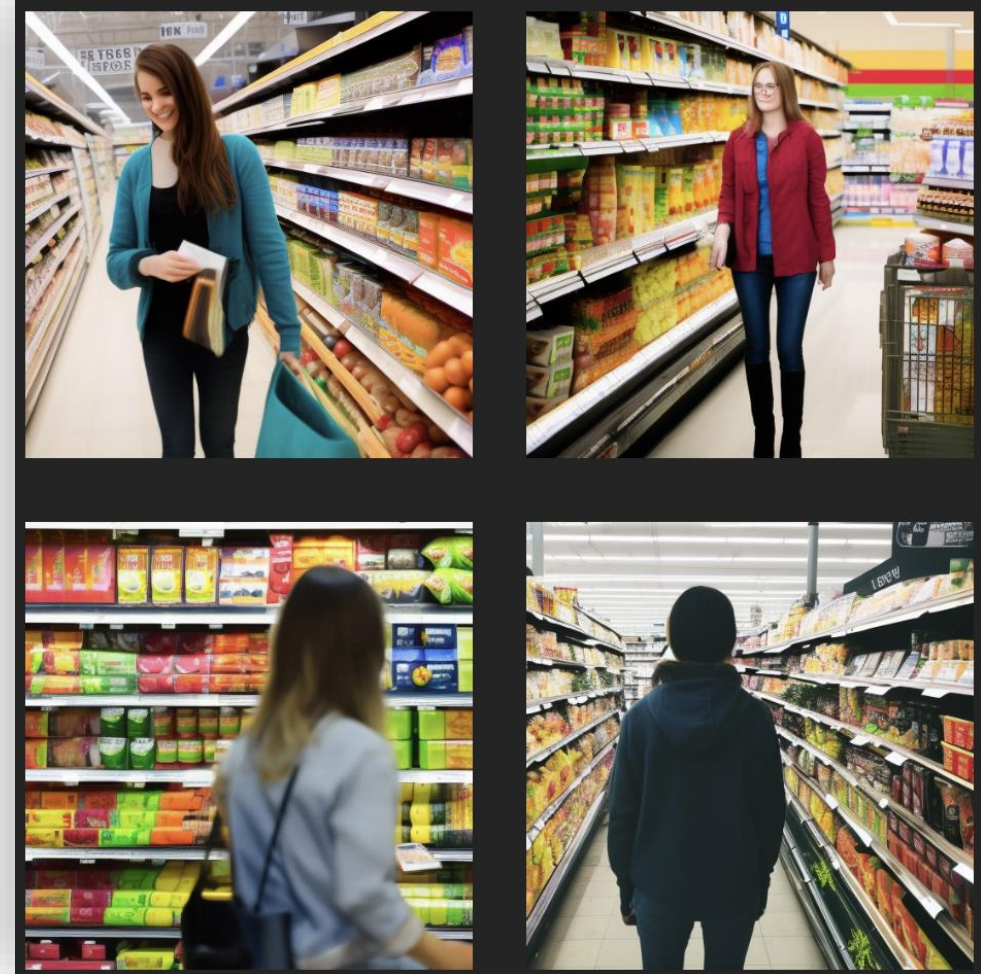
Prompt Engineering

Frame

- A person in a Grocery Store

Subject

Style



DALL-E

Prompt Engineering

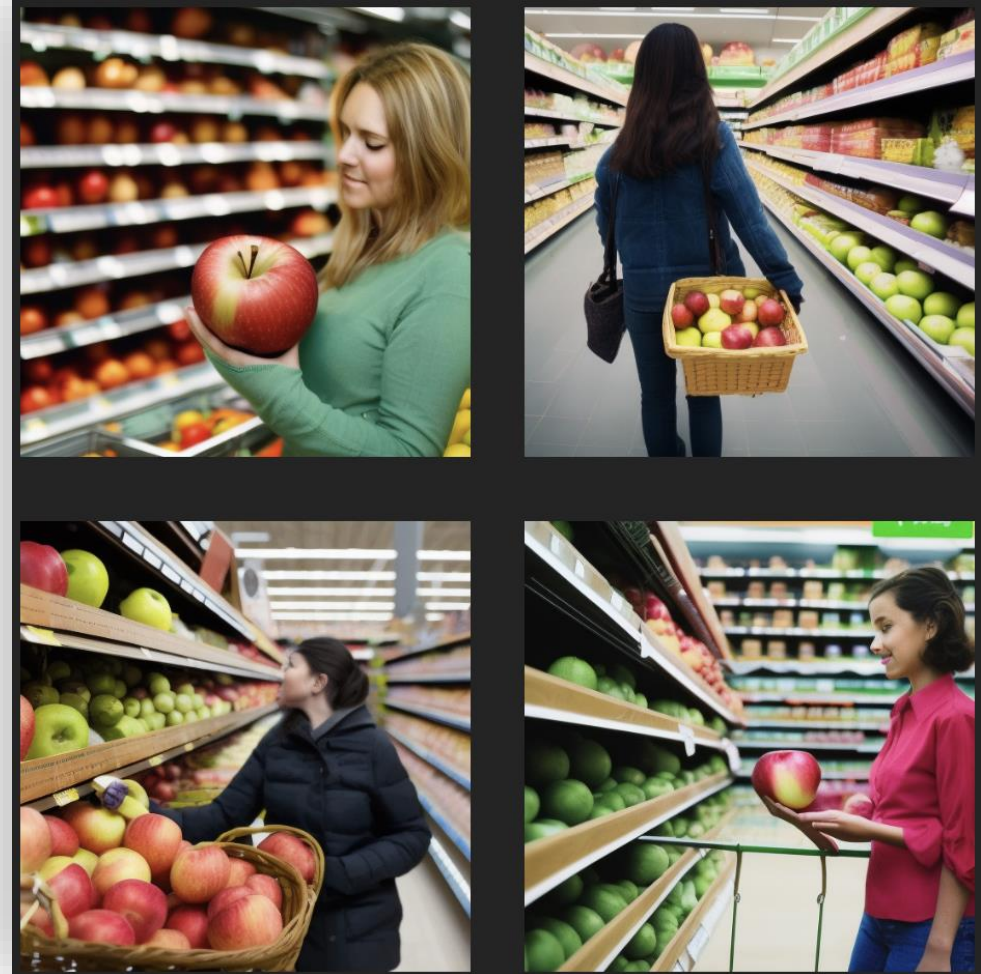
Frame

- A person in a Grocery Store

Subject

- A woman pick an apple

Style



DALL-E

Prompt Engineering

Frame

- A person in a Grocery Store

Subject

- A woman pick an apple

Style

- In Van Gogh style



DALL-E

Prompt Engineering

Final Prompt

“

A person in a Grocery Store.
A woman pick an apple.
In Van Gogh style

”



LLM

Prompt Engineering

- **Zero-shot**
- One-shot learning
- Few-shot learning
- Chain of Thought
- Zero Shot Chain of Thought

Zero-shot

The model predicts the answer given only a natural language description of the task. No gradient updates are performed.

- | | | |
|---|-----------------------------------|--------------------|
| 1 | 영어를 한국어로 번역해줘 | ← task description |
| 2 | It's a beautiful day => | ← prompt |

LLM

Prompt Engineering

- Zero-shot
- **One-shot learning**
- **Few-shot learning**
- Chain of Thought
- Zero Shot Chain of Thought

One-shot

In addition to the task description, the model sees a single example of the task. No gradient updates are performed.

- | | | |
|---|---|--------------------|
| 1 | 영어를 한국어로 번역해줘 | ← task description |
| 2 | This is an apple => 이것은 사과입니다 | ← example |
| 3 | It's a beautiful day => | ← prompt |

Few-shot

In addition to the task description, the model sees a few examples of the task. No gradient updates are performed.

- | | | |
|---|---|--------------------|
| 1 | 영어를 한국어로 번역해줘 | ← task description |
| 2 | This is an apple => 이것은 사과입니다 | ← examples |
| 3 | I am a boy => 나는 소년입니다 | |
| 4 | You are a girl => 나는 소녀입니다 | |
| 5 | It's a beautiful day => | ← prompt |

LLM

Prompt Engineering

- Zero-shot
- One-shot learning
- Few-shot learning
- **Chain of Thought**
- Zero Shot Chain of Thought

Chain of Thought Prompting

Input

Q: Roger has 5 tennis balls. He buys 2 more cans of tennis balls. Each can has 3 tennis balls. How many tennis balls does he have now?

A: Roger started with 5 balls. 2 cans of 3 tennis balls each is 6 tennis balls. $5 + 6 = 11$. The answer is 11.

Q: The cafeteria had 23 apples. If they used 20 to make lunch and bought 6 more, how many apples do they have?

Model Output

A: The cafeteria had 23 apples originally. They used 20 to make lunch. So they had $23 - 20 = 3$. They bought 6 more apples, so they have $3 + 6 = 9$. The answer is 9. ✓

LLM

Prompt Engineering

- Zero-shot
- One-shot learning
- Few-shot learning
- Chain of Thought
- **Zero Shot Chain of Thought**

(d) Zero-shot-CoT (Ours)

Q: A juggler can juggle 16 balls. Half of the balls are golf balls, and half of the golf balls are blue. How many blue golf balls are there?

A: **Let's think step by step.**

(Output) *There are 16 balls in total. Half of the balls are golf balls. That means that there are 8 golf balls. Half of the golf balls are blue. That means that there are 4 blue golf balls. ✓*

LLM

Prompt Engineering

- Zero-shot
- One-shot learning
- Few-shot learning
- Chain of Thought
- Zero Shot Chain of Thought
- Self Consistency
- Meta-Reasoning over Multiple Chains
- Generated Knowledge Prompting
- Synthetic prompting

- Automatic Prompt Engineer (APE)
- Active-Prompt
- Directional Stimulus Prompting
- MRKL
- ReAct Prompting
- PAL (Program-Aided Language Models)
- Multimodal CoT
- Graph Prompting
- Prompt Ensembling
- ART (Automatic Reasoning and Tool-use)
- Self Evaluation
- Self Refine
- Automatic Prompt Engineer

LLM

Prompt Engineering

- 답변을 위해 필요한 적절한 컨텍스트 제공
- 원하는 결과를 추출을 위한 프롬프트 작성
- 원하는 포맷의 출력을 위한 프롬프트 작성

Reasoning chain #1

Q: What is Brad Peyton's occupation?

A: Brad Peyton is a film director.

Q: What is seismology?

A: Seismology is the study of earthquakes.

Q: Do film directors need to know about earthquakes?

A: No, film directors do not need to know about earthquakes.

Reasoning chain #2

Q: What did Brad Peyton direct?

A: Brad Peyton is a Canadian film director.

...

Q: What is San Andreas about?

A: San Andreas is a film directed by Brad Peyton, about a massive earthquake caused by the San Andreas Fault.

Reasoning chain #3

Q: What is Brad Peyton's occupation?

A: Brad Peyton is a film director, writer, and producer.

Q: What do film directors have to know?

A: Film directors have to know a lot of things.

Q: Is seismology one of the things that Brad Peyton has to know?

A: No.

Multi-Chain Reasoning (MCR)



Answer: Brad Peyton is a film director, writer, and producer. Seismology is the study of earthquakes. San Andreas is a film directed by Brad Peyton, about a massive earthquake caused by the San Andreas Fault.

So the final answer is: Yes.



프롬프트 🖐 엔지니어링 🖐

프롬프트 엔지니어링은 실험적 방법론에 기반하여,
**한 번 그럴듯한 결과를 내는 것이 아닌, 원하는 결과를 정확히 의도한대로
항상 일관성 있게 내도록 만드는 것**

프롬프트 엔지니어링이라고 하는 대부분의 예시는
블라인드 프롬프팅, 혹은 프롬프트 라이팅이라고 함

결과와 평가 설계가 없어, 결과의 일관성, 정확성을 보장할 수 없음 → 기도하며 운에 맡김?

예) ChatGPT 사용법, 프롬프트 템플릿, Top 10 ChatGPT 프롬프트...

프롬프트 🙌 엔지니어링 🙌

소프트웨어는 만드는 기간보다 유지보수 기간이 훨씬 더 길다

소프트웨어 개발에 있어 가장 중요한 것은,
다른 사람이 해당 소프트웨어의 목적을 이해하고 수정할 수 있도록 만드는 것
목적과 목표를 잘 정의하는 것과, 재현성을 위한 회귀 테스트가 중요함