

# Large Language Models and Prompt Engineering

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# Agenda

- Key Questions
- Introduction to LLMs
- Applications of LLMs
- Introduction to Prompt Engineering
- Common Practices for Devising Prompts

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# Key Questions

**What is an LLM?**

**How do LLMs work?**

**What are the applications of LLMs?**

**What is Prompt Engineering ?**

**What are the broad strategies to design prompts?**

# What is an LLM?

Large Language Models (LLMs) are powerful AI models trained on massive amounts of data to learn the complex patterns and rules of human language, allowing them to perform a wide variety of tasks

## Large

Trained on **large amounts of data** and have **billions of trainable parameters**

## Language

**Deals with text data** (takes input in text and generates output in text)

## Model

Predicts the next **word/** sentence/ token

# How do LLMs work?

## Pre-training

### Data

Large corpus of  
internet data

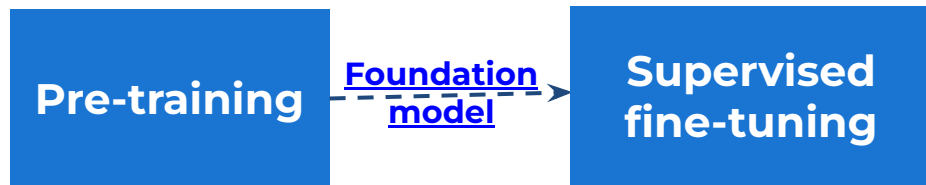
In **Pre-training**, the model builds a foundational understanding of language from a vast amount of data, allowing it to generate coherent and contextually relevant responses

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# How do LLMs work?



## Data

Large corpus of internet data

Curated high quality input - output pairs

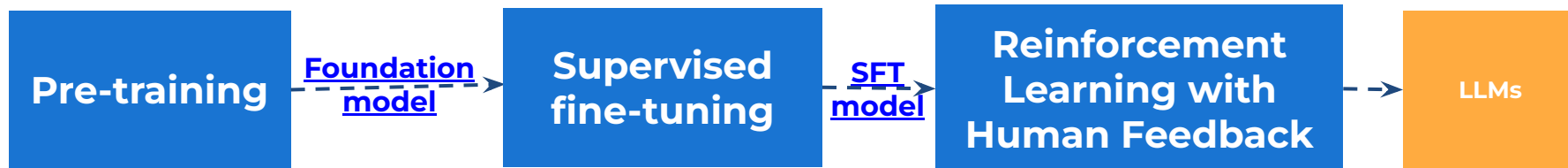
Following pre-training, the model undergoes fine-tuning to hone its capabilities for a specific task, utilizing labeled data. The model is guided by this data, refining its pre-existing knowledge and improving performance in the targeted task.

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# How do LLMs work?



## Data

Large corpus of internet data

Curated high quality input - output pairs

Ranking of prompt responses on quality

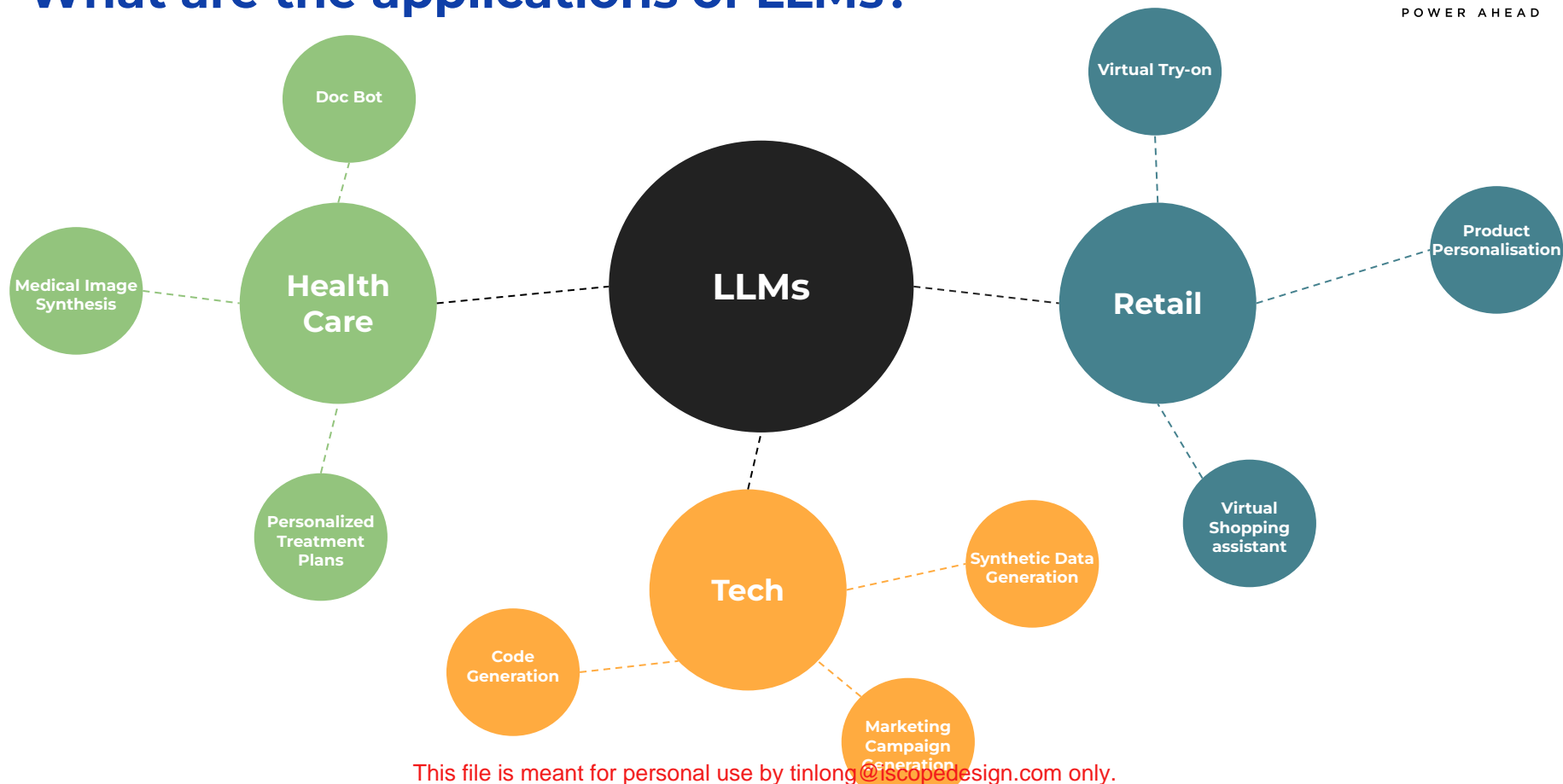
Following fine-tuning, the model gets feedback from people or simulations to get better. It gives responses, and people or algorithms check them. Good feedback helps the model learn and improve its answers

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# What are the applications of LLMs?

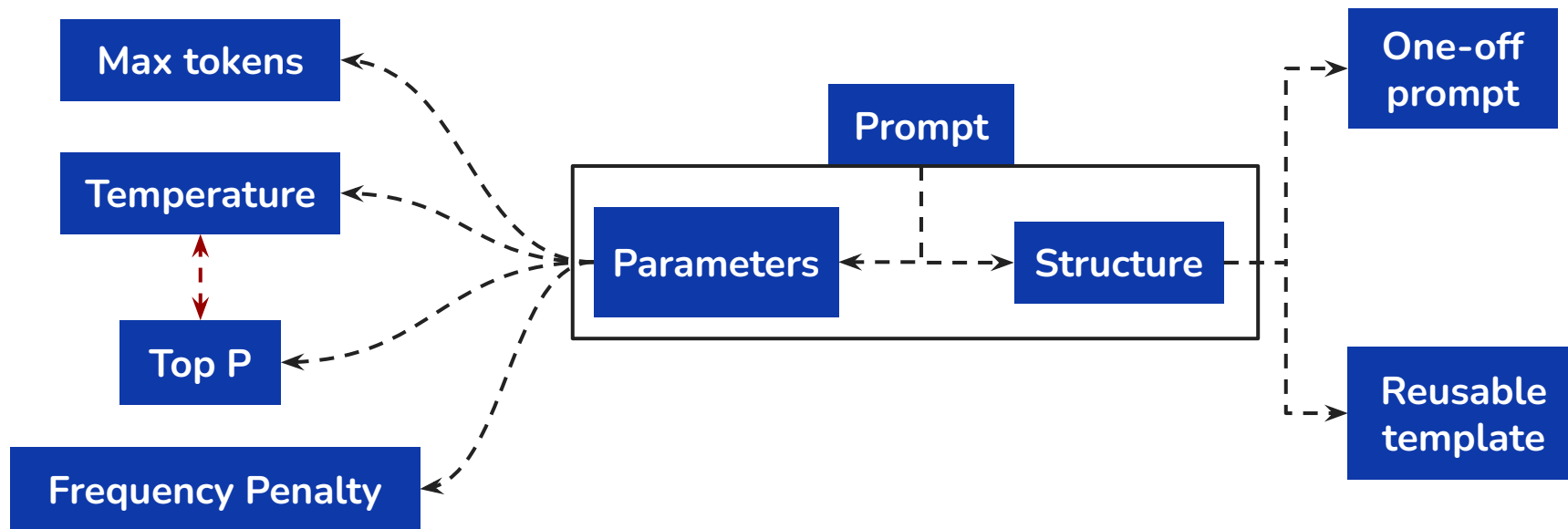




# What is Prompt Engineering?

**Prompt** = Specific set of instructions sent to a LLM to accomplish a task

**Engineering** = Iteratively deriving a specific prompt for the task



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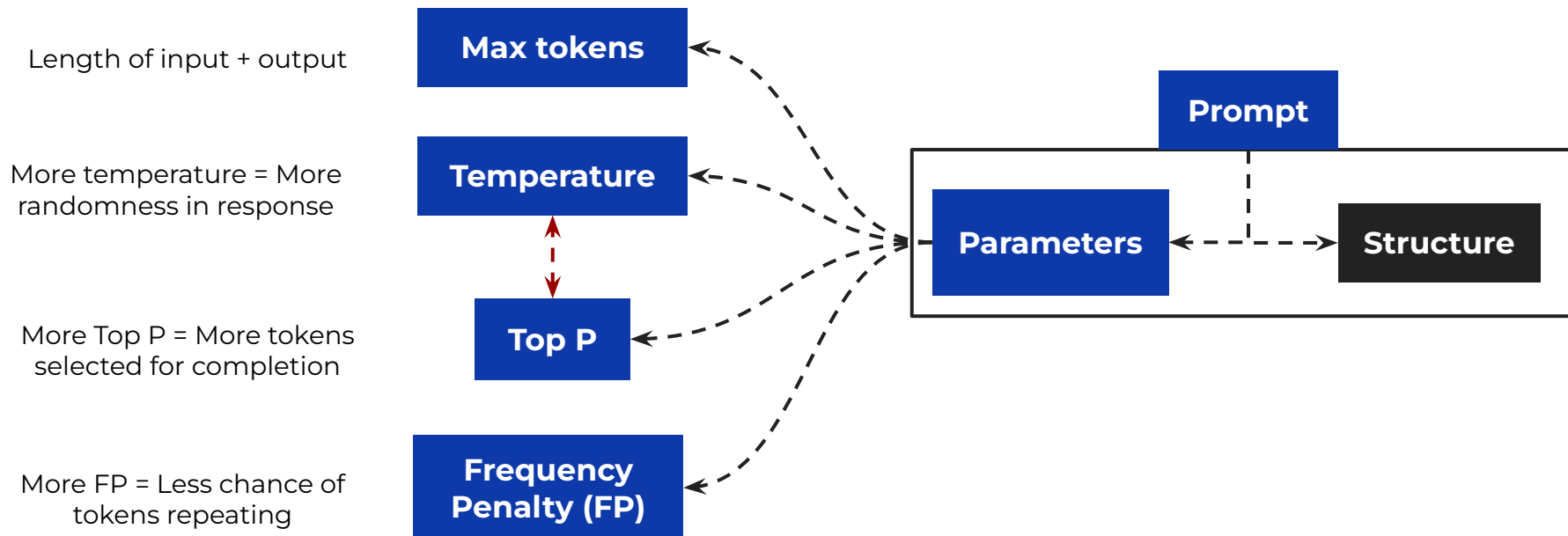
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# What is Prompt Engineering?

**Prompt** = Specific set of instructions sent to a LLM to accomplish a task

**Engineering** = Iteratively deriving a specific prompt for the task



# What are the broad strategies to design prompts?

- 1** **template based prompts** Translate this sentence from french to english: <sentence>
- 2** **fill in the blank prompts** The first person to walk on the moon was \_\_\_\_
- 3** **multiple choice prompts** Here is a business scenario and list of constraints - given <A>, <B>, <C> are possible solutions, which is the optimal solution and why?
- 4** **instructional prompts** Write me a sales pitch - 300 words - tone should be neutral - focus on ABC - address this first - talk about the price in the end
- 5** **iterative prompts** Start with a broad question / prompt and progressively work to refine it and bring out a detailed answer
- 6** **ethically aware prompts** Exception Handling to avoid answering certain questions / correcting the user when the input is biased or socially inappropriate

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