

Automation Workflow with AI



Topics

Automation Workflow
Generative AI (GenAI)
Prompt engineering
Workshop with GenAI
Workshop with use cases



Workflow ?

Series of steps taken in a specific order to complete goal
Product and business process

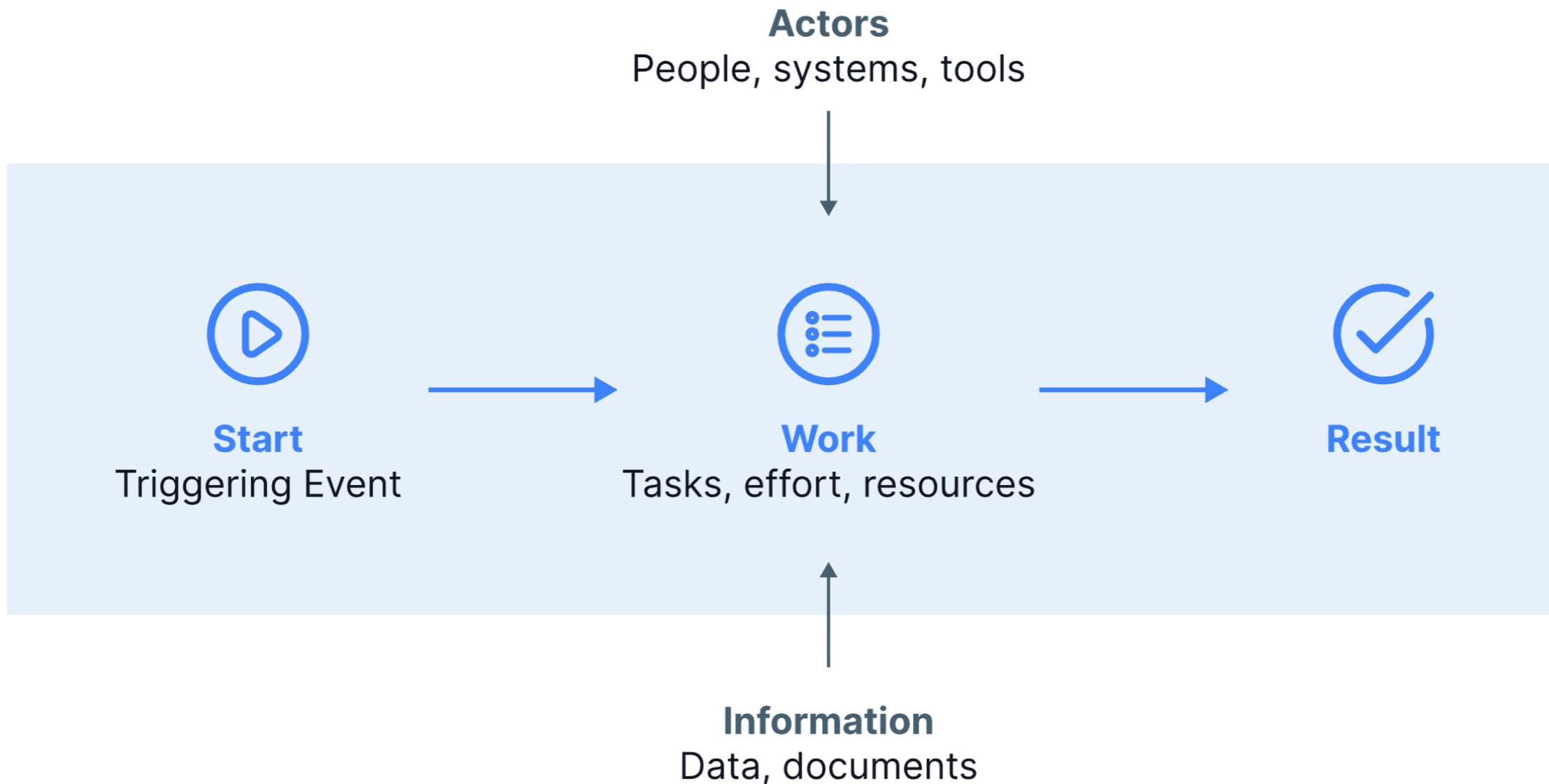
Reduce rework

More efficiency

Increase
productivity



Anatomy of Workflow ?



Key aspects of workflow ?

Defined steps

Specific order

Clear responsibility

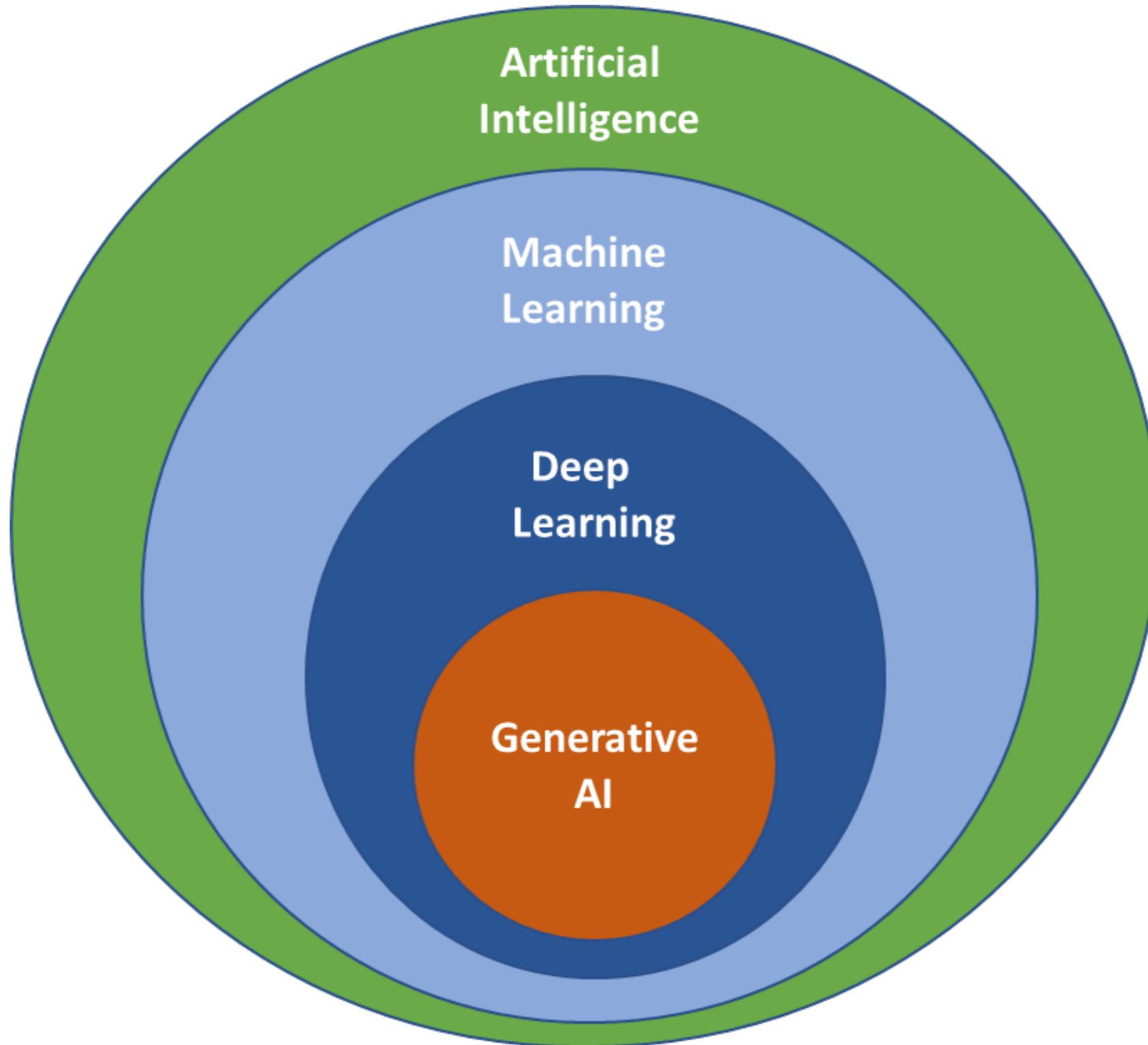
Efficiency (standardize, reduce confusion/duplication)

Automation (from manual to automated)

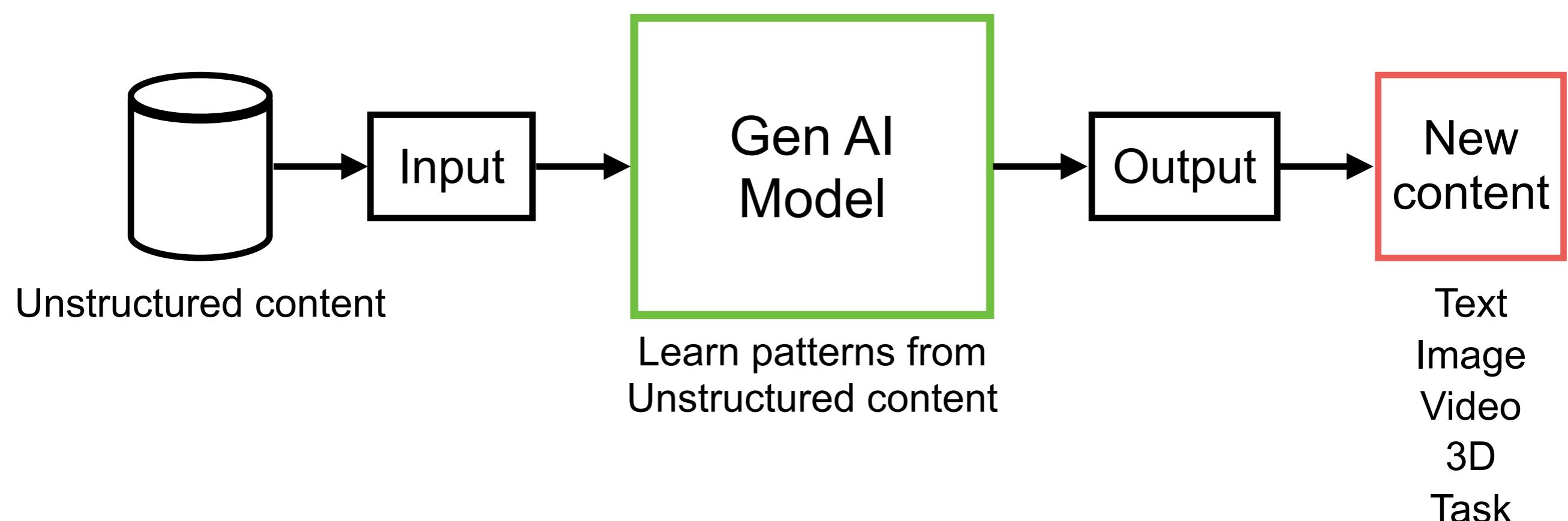


Generative AI



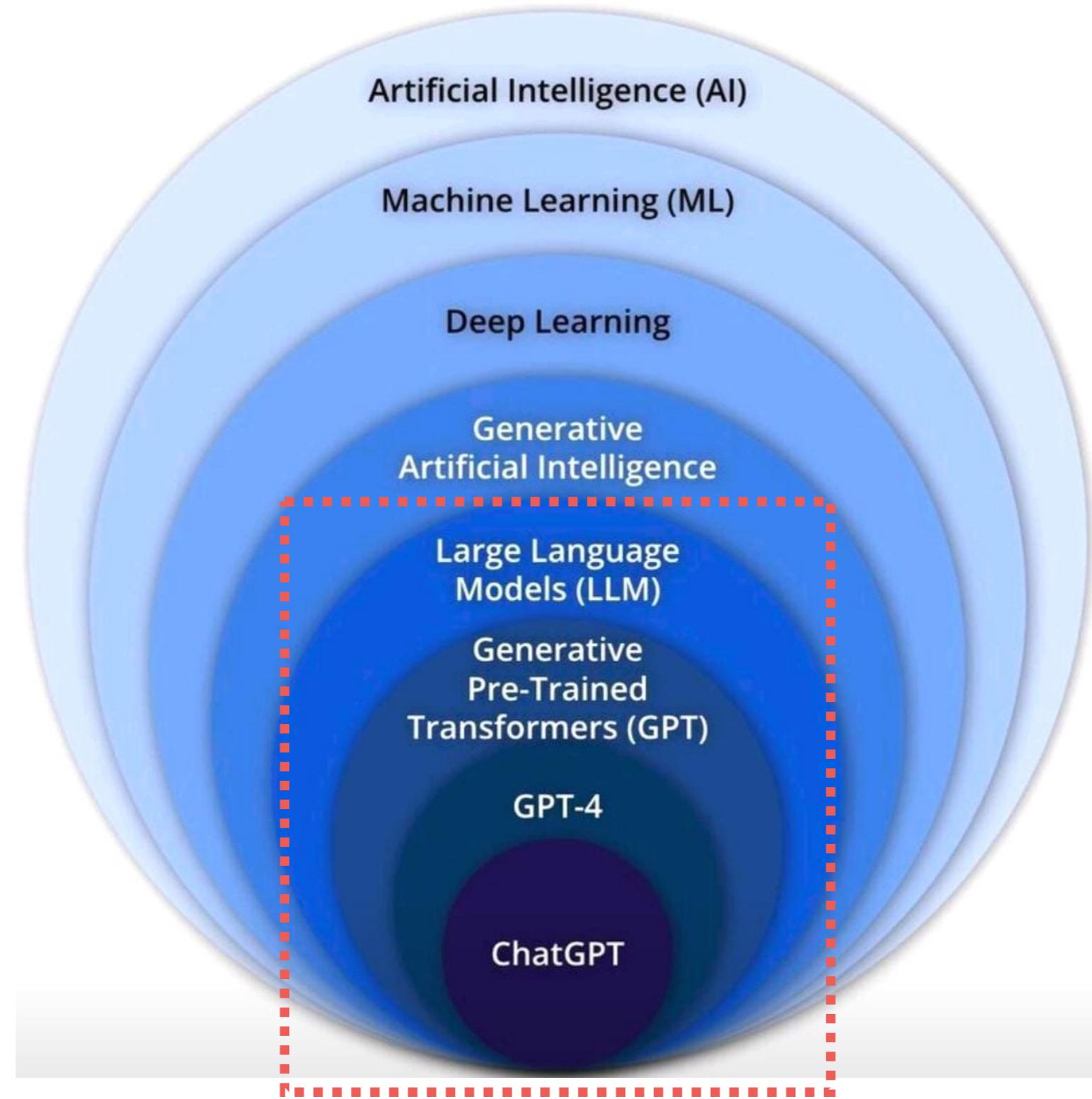


Generative AI



<https://grow.google/ai-essentials/>





LLMs in industry

Model name	Company
Bidirectional Encoder Representation from Transformers (BERT)	Google AI
Generative Pre-trained transformer-5 (GPT-5)	OpenAI
Pathways Language Model-E (PaLM-E)	Google AI
BLOOM	NVIDIA AI
Llama 4	Facebook
Claude 4.5 Sonnet	Anthropic



LLM Development timeline

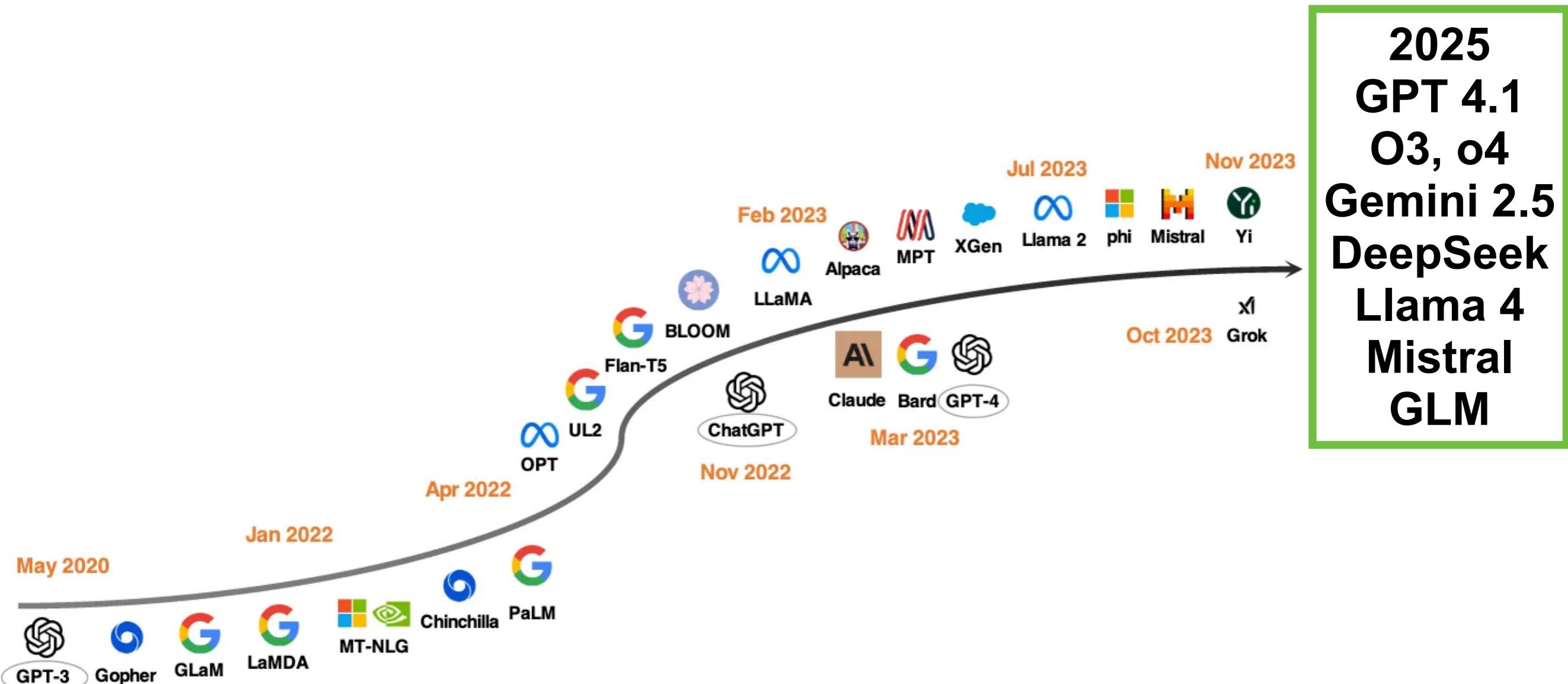


Figure 3: LLM development timeline. The models below the arrow are closed-source while those above the arrow are open-source.

<https://arxiv.org/abs/2311.16989>



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Generative AI in Nutshell

<https://www.youtube.com/watch?v=2IK3DFHRFfw>



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AI Tools



AI Tools ?

Gemini



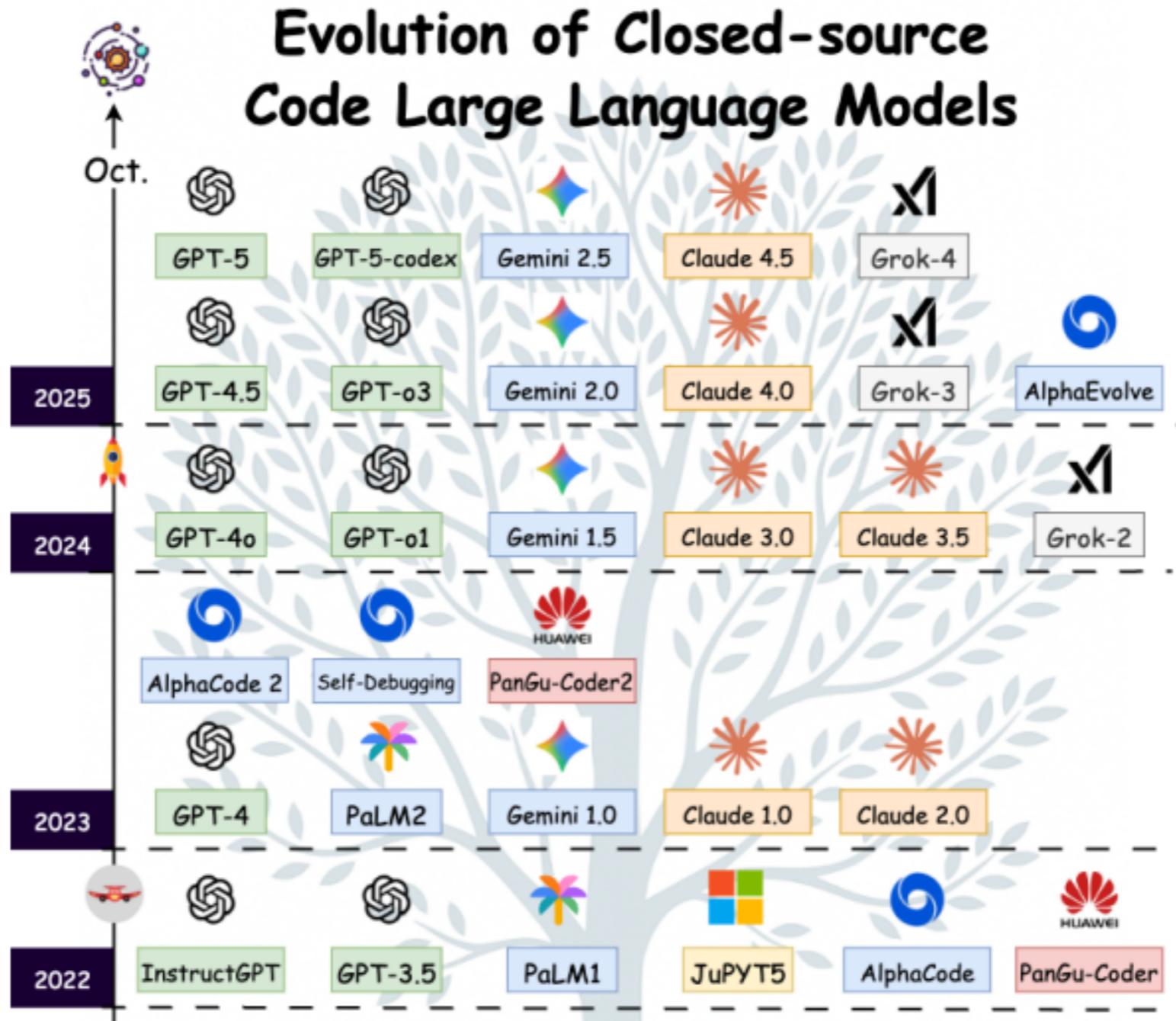
ChatGPT



Google
NANO BANANA



AI Models ?



<https://huggingface.co/papers/2511.18538>



Model Specification ?

GPT-5.1 Default ⚙️ ⚡

The best model for coding and agentic tasks with configurable reasoning effort.

Compare Try in Playground

REASONING	SPEED	PRICE	INPUT	OUTPUT
💡💡💡💡	⚡⚡⚡⚡	\$1.25 · \$10 Input · Output	Text, image	Text
Higher	Fast			

GPT-5.1 is our flagship model for coding and agentic tasks with configurable reasoning and non-reasoning effort. Learn more in our [GPT-5.1 usage guide](#).

- ❖ 400,000 context window
- ➡ 128,000 max output tokens
- 📅 Sep 30, 2024 knowledge cutoff
- 💡 Reasoning token support

<https://platform.openai.com/docs/models/gpt-5.1>



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Model Specification ?

Token

Context window

Knowledge cutoff



Token ?

GPT-4o & GPT-4o mini GPT-3.5 & GPT-4 GPT-3 (Legacy)

สวัสดีประเทศไทย

Clear Show example

Tokens	Characters
5	15

สวัสดีประเทศไทย

Text Token IDs

<https://platform.openai.com/tokenizer>



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Context Window ?

The amount of text , measured in **token**, that the model can process at one time (working memory)



CONTEXT WINDOW IN LLMS



Long Context Window is better ?

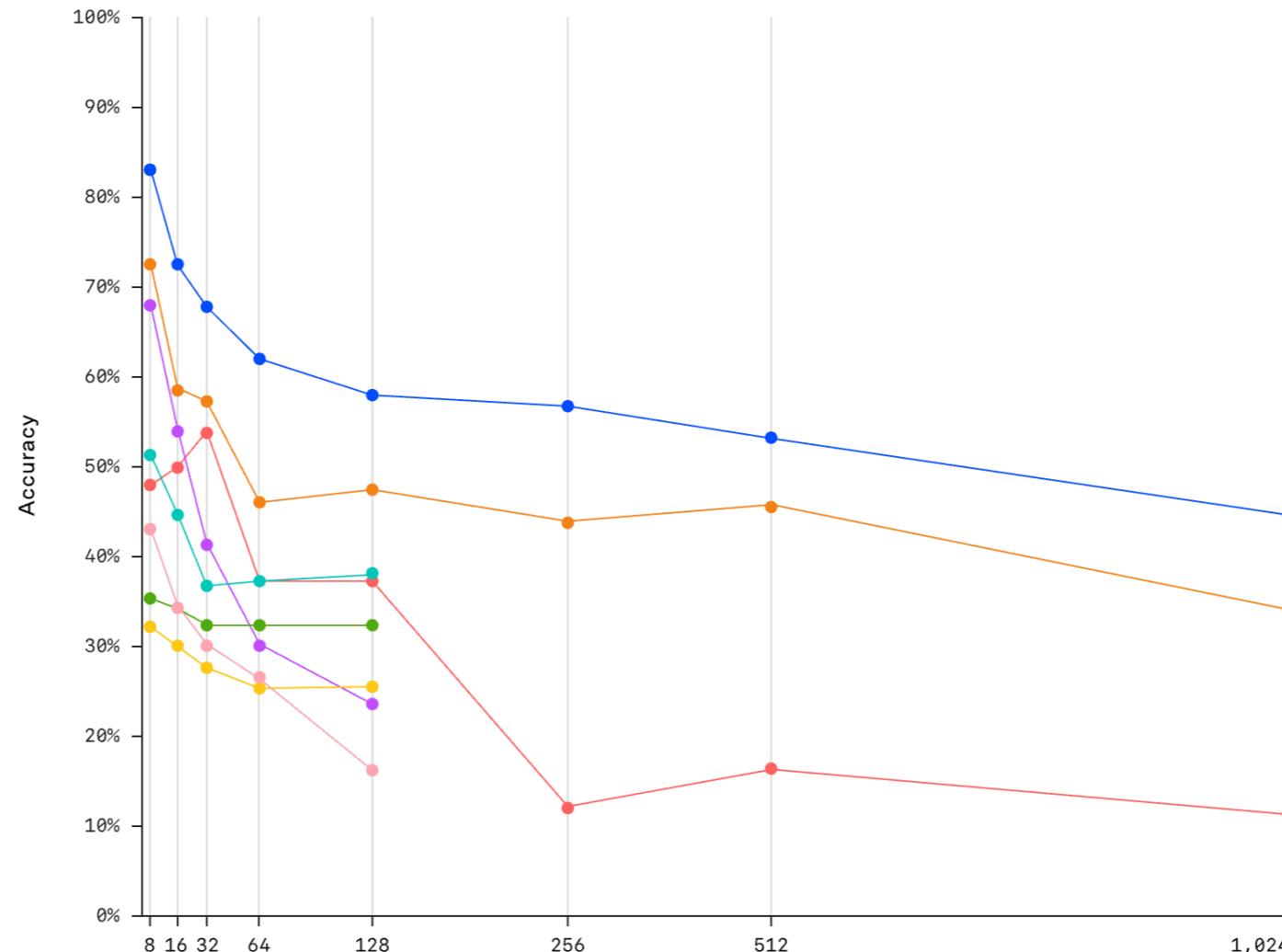
Accuracy

OpenAI-MRCR Accuracy



GPT-4.1 GPT-4.1 mini GPT-4.1 nano GPT-4.5 GPT-4o (2024-11-20)
GPT-4o mini OpenAI o1 (high) OpenAI o3-mini (high)

2 needle accuracy vs input tokens



of tokens

<https://openai.com/index/gpt-4-1/>



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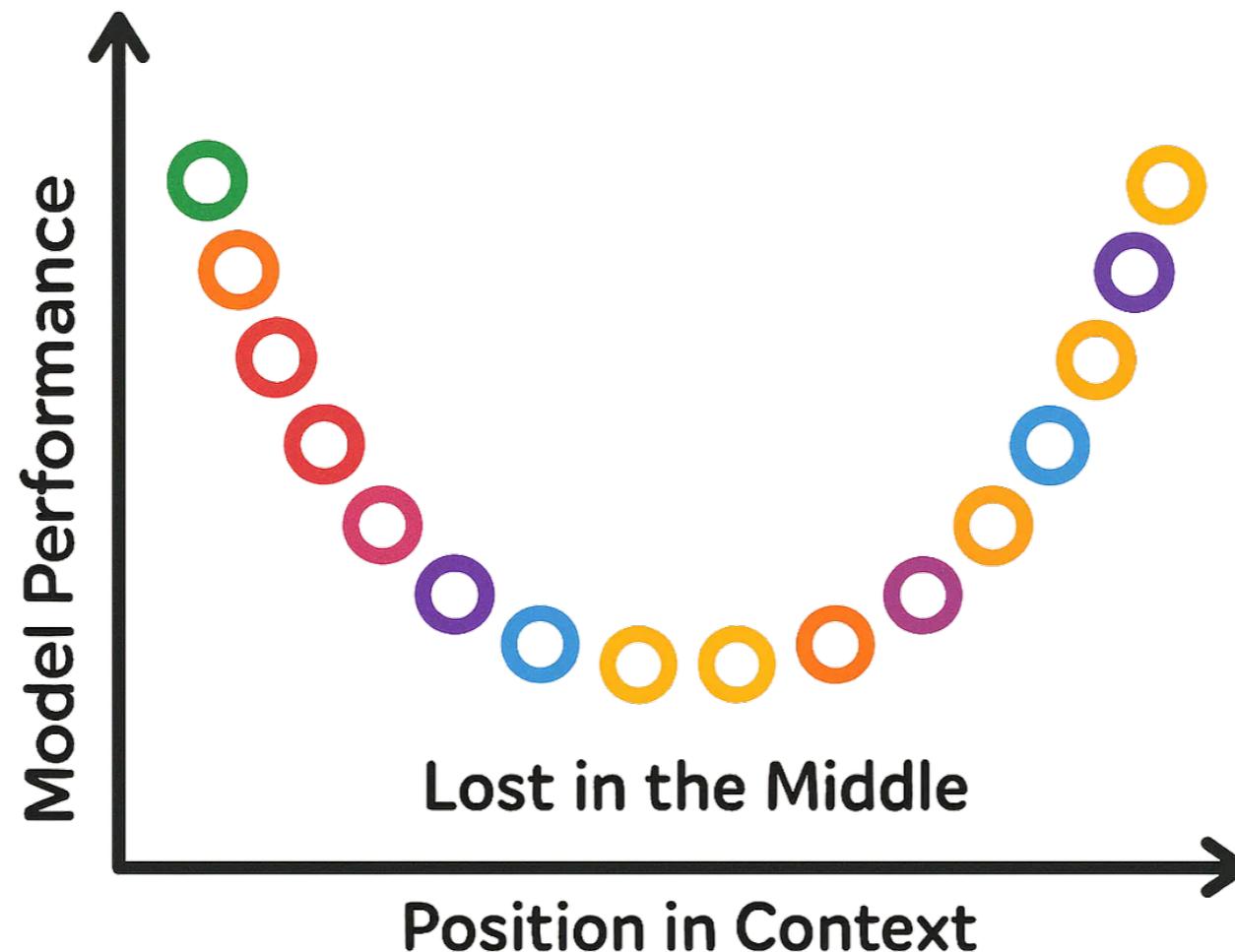
Long Context Window !!

Why Bigger Context Windows Aren't Always Better?



Long Context Window !!

Lost in the middle problem in LLM ?

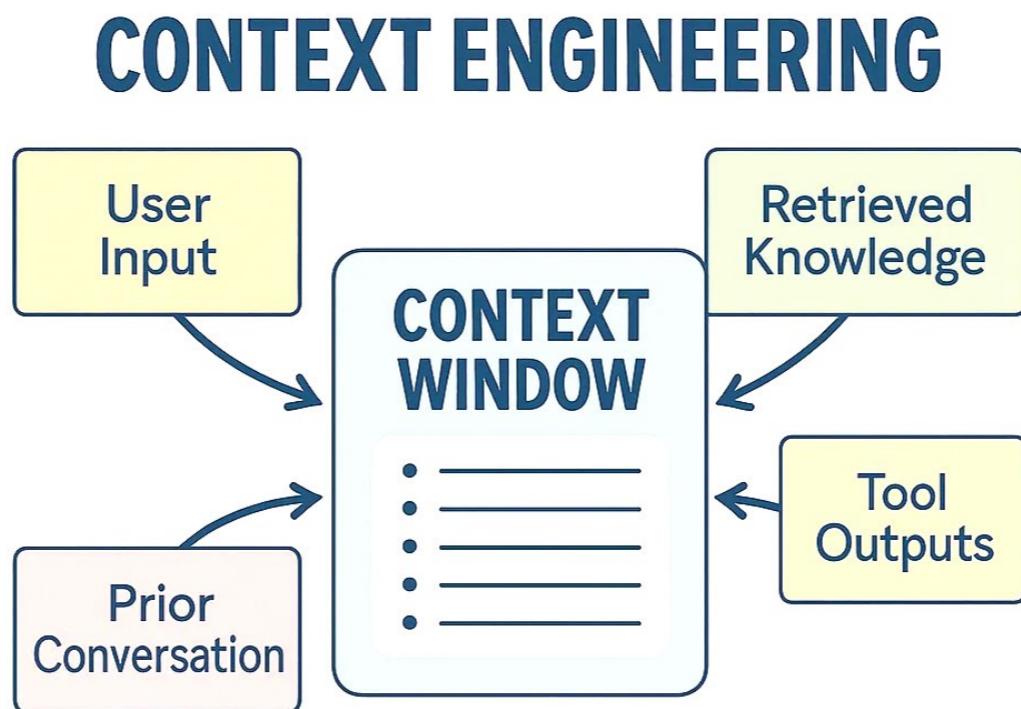


<https://arxiv.org/abs/2307.03172>



Context Engineering

Provide information and tool that need for AI to complete a task



Filling the right information in the right format, so the LLM can complete the task

<https://addyo.substack.com/p/context-engineering-bringing-engineering>



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AI Prompt Engineering



AI Prompt Engineering ?

The process of crafting **instructions** for generative AI models to get desired outputs using a combination of **science** and **art**

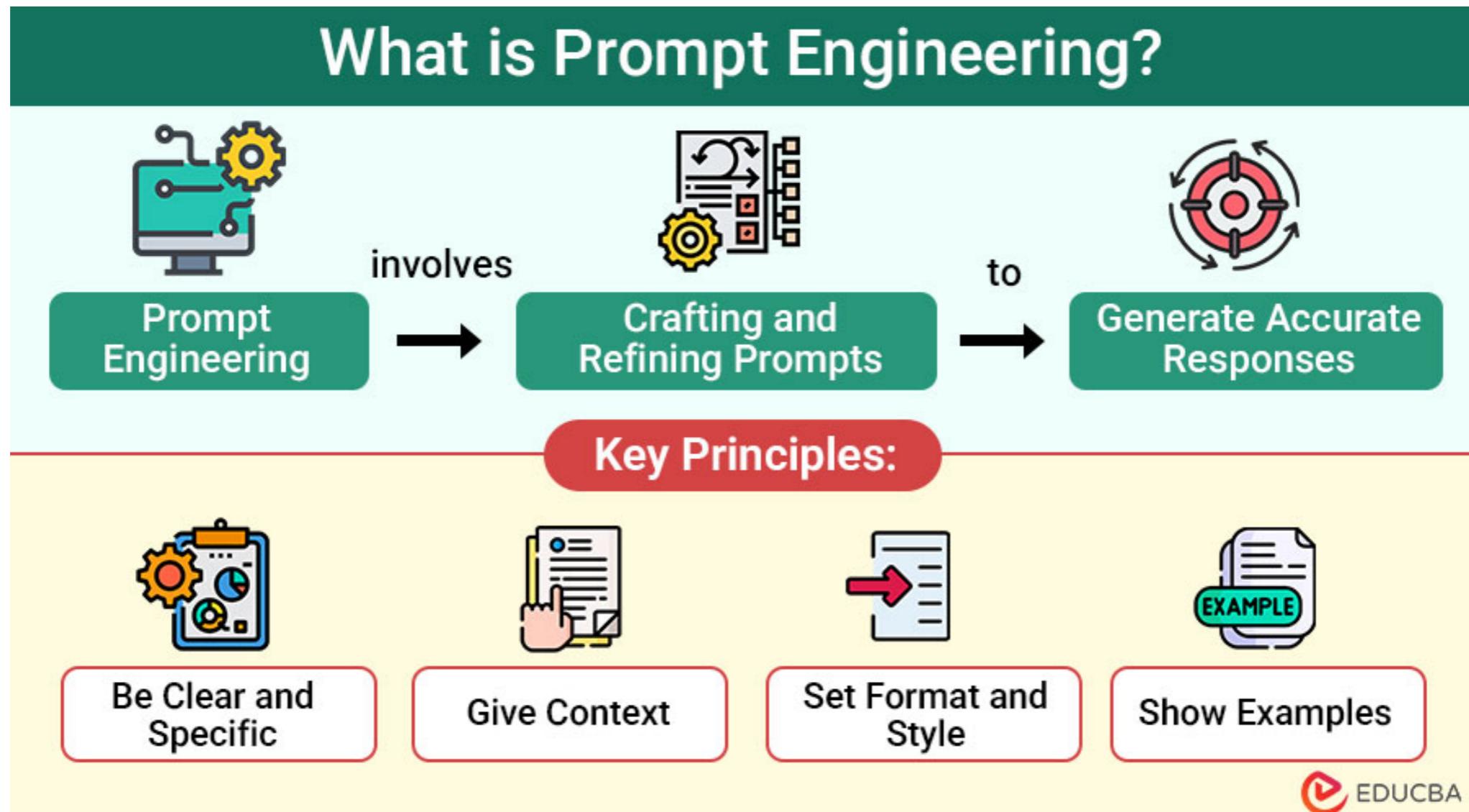
Improve output

Increase efficiency

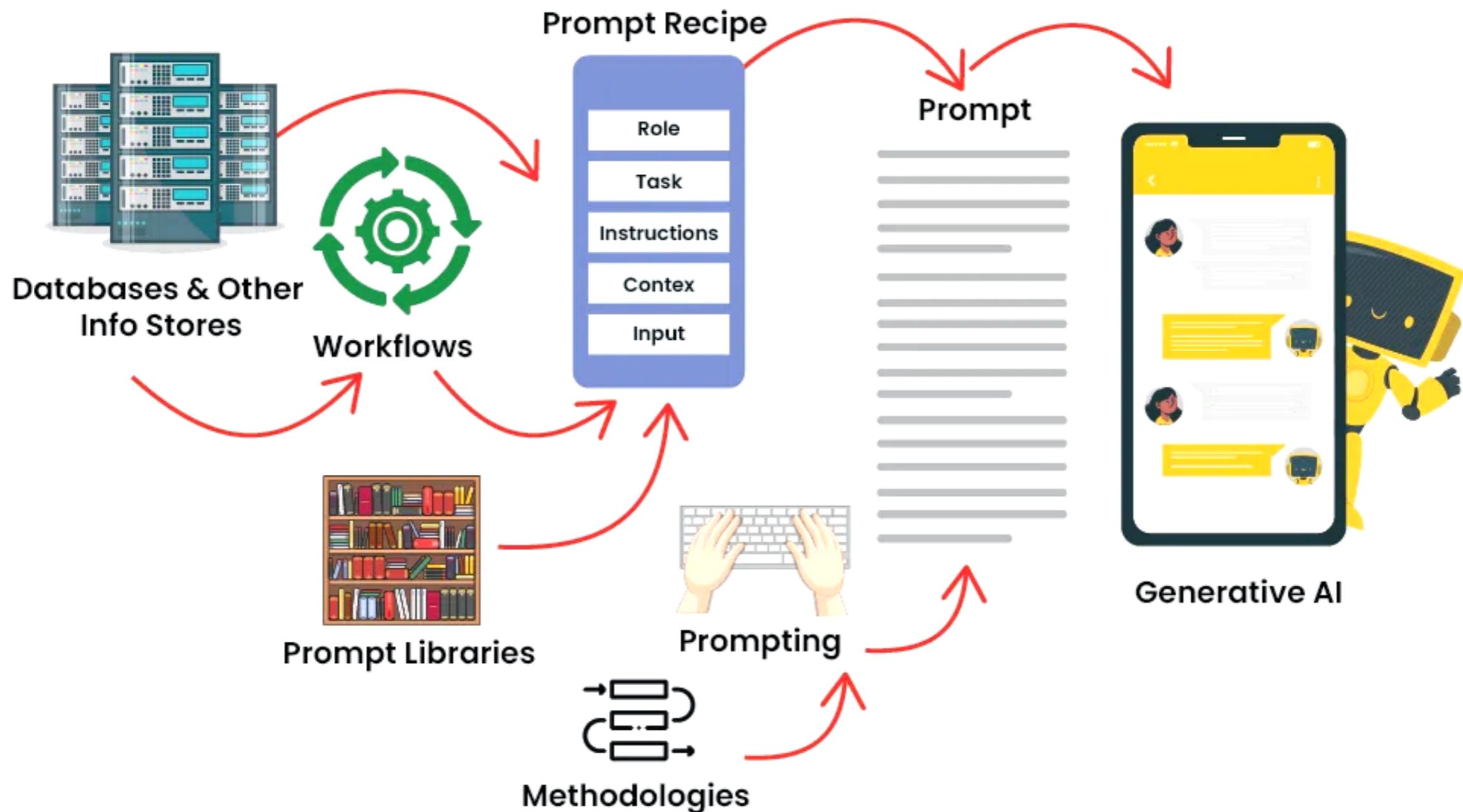
Unlocks potential of AI



AI Prompt Engineering ?



AI Prompt Engineering ?



<https://www.geeksforgeeks.org/artificial-intelligence/what-is-an-ai-prompt-engineering/>



Prompting Guide

Prompt Engineering

Prompt Engineering Guide

Prompt engineering is a relatively new discipline for developing and optimizing prompts to efficiently use language models (LMs) for a wide variety of applications and research topics. Prompt engineering skills help to better understand the capabilities and limitations of large language models (LLMs).

Researchers use prompt engineering to improve the capacity of LLMs on a wide range of common and complex tasks such as question answering and arithmetic reasoning. Developers use prompt engineering to design robust and effective prompting techniques that interface with LLMs and other tools.

Prompt engineering is not just about designing and developing prompts. It encompasses a wide range of skills and techniques that are useful for interacting and developing with LLMs. It's an important skill to interface, build with, and understand capabilities of LLMs. You can use prompt engineering to improve safety of LLMs and build new capabilities like augmenting LLMs with domain knowledge and external tools.

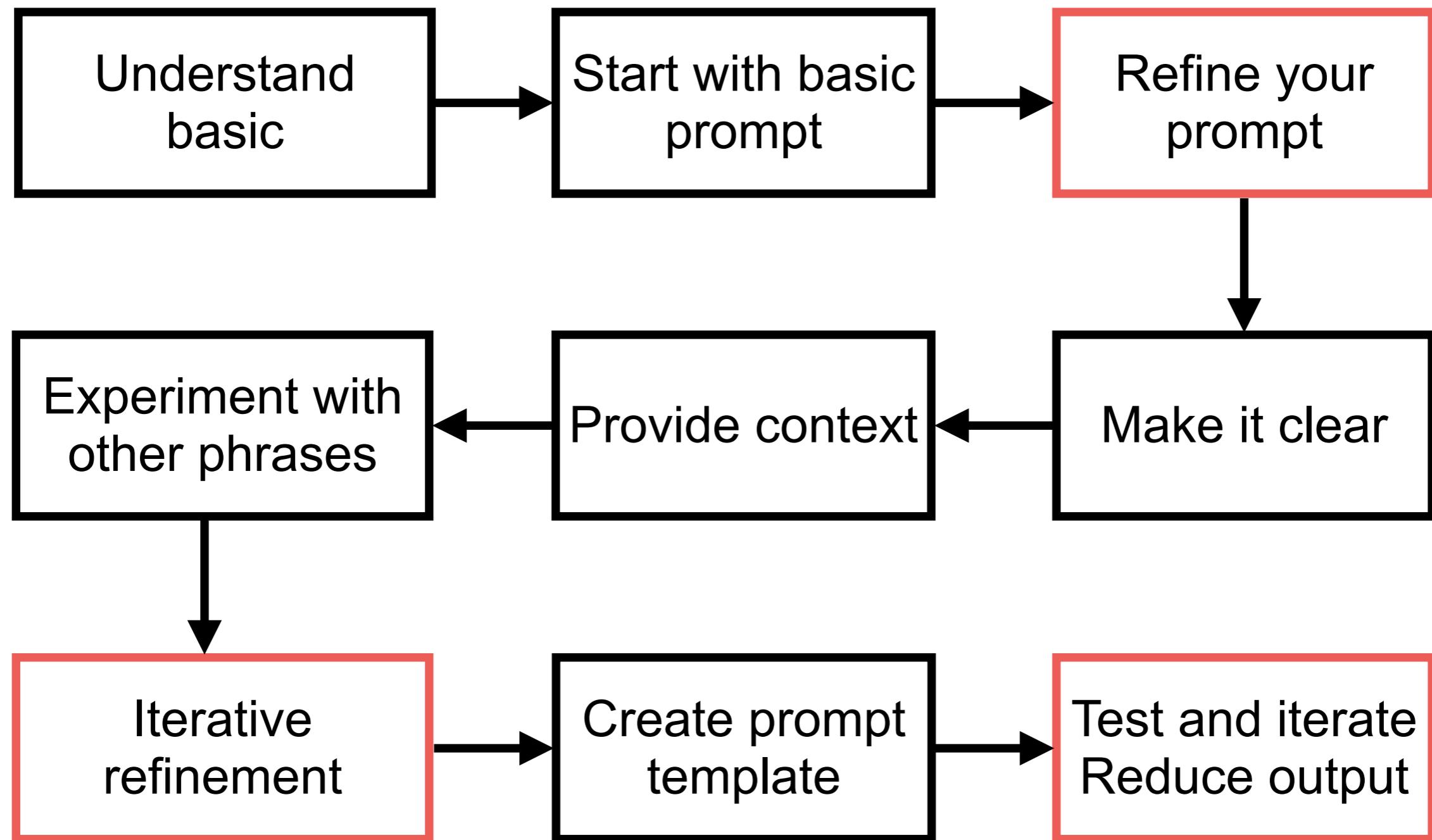
<https://www.promptingguide.ai/>



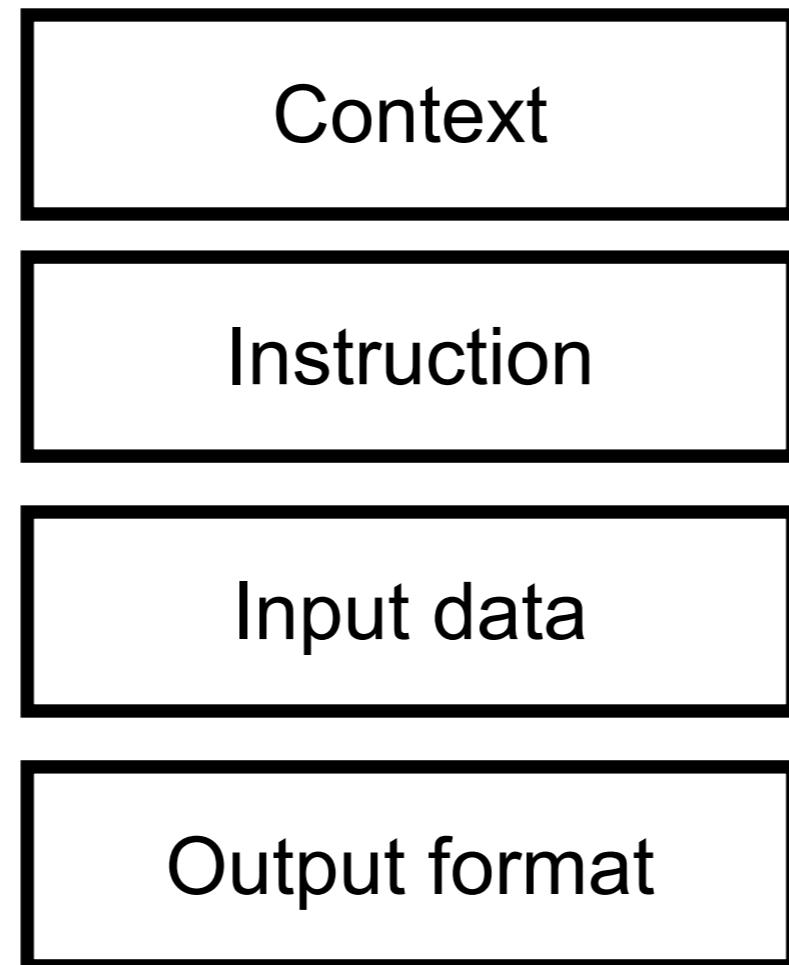
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Basic of Prompt Engineer



Structure of Prompt ?



<https://platform.openai.com/docs/guides/prompt-engineering>



Structure of Prompt !!

APE
Action, Purpose,
Expectation

RACE
Role, Action,
Context,
Expectation

TAG
Task, Action, Goal

COAST
Context, Objective,
Action, Scenario,
Task

RISE
Role, Input, Step,
Expectation

<https://twitter.com/pradeepeth/status/1673271866696544257>



Better Prompt

Write clear instructions

Provide reference text

Split complex tasks into simpler subtasks

Give the model time to think

Testing and improve ...

<https://platform.openai.com/docs/guides/prompt-engineering/six-strategies-for-getting-better-results>



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Prompt with AI Workshop



List of workshop with AI

Basic of good prompt

Read data from many datasources

Summarizing content

Generate outputs (text, file, audio)



Prompt Workshop

Text summarization
Information extraction
Question answering
Text classification
Conversation

<https://www.promptingguide.ai/introduction/examples>



Workflow Steps

Input the content (text, document, audio, video)

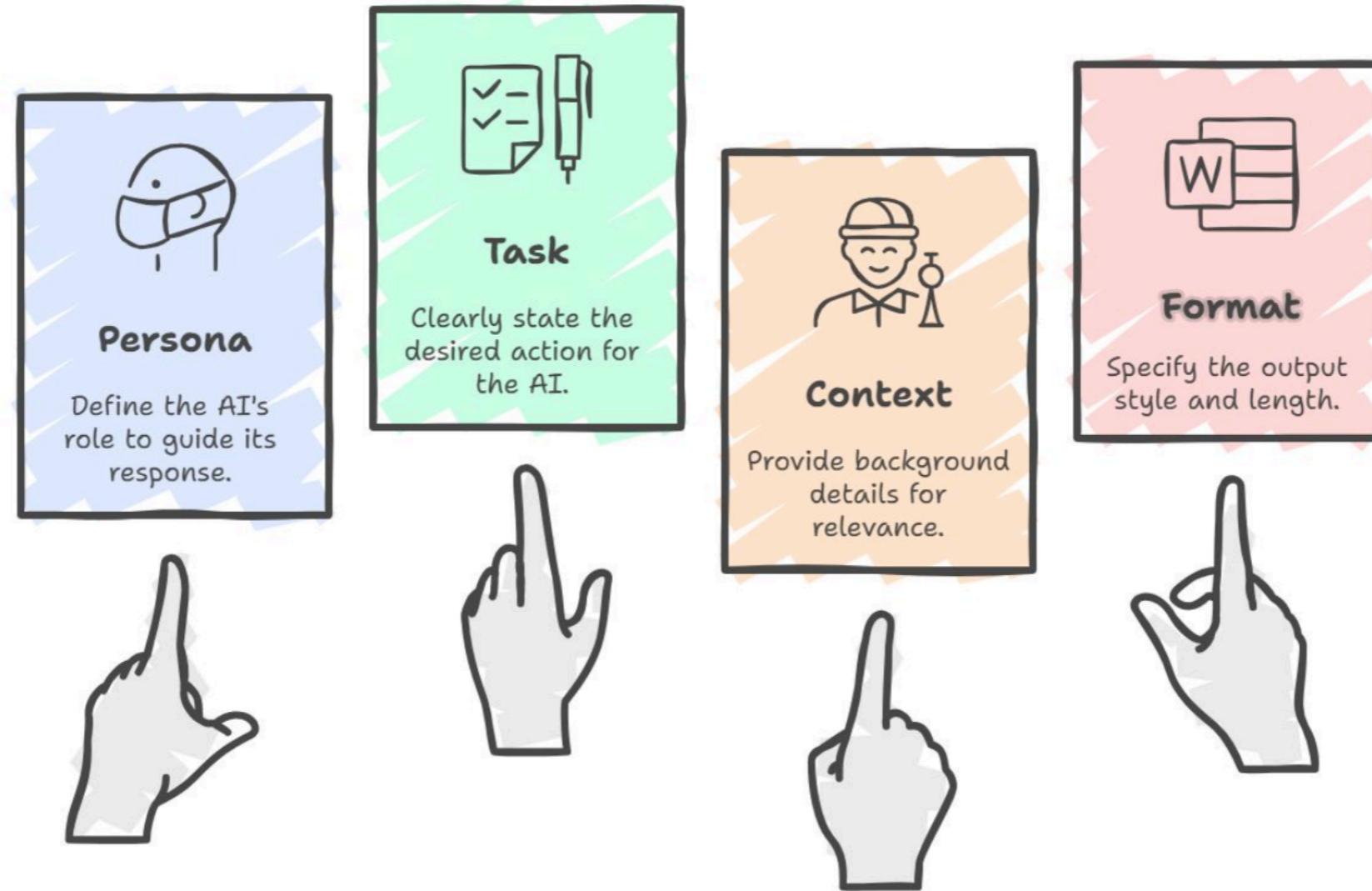
Provide instructions (prompting)

AI processing

Review and refine



Better prompt from Gemini



Persona: Tell Gemini what role to play, which gives it some context for how to behave and respond.

✍ Help me write

I am a customer service representative. Help me craft an empathetic email response. The customer ordered a pair of headphones that arrived damaged. Include a paragraph that acknowledges their frustration and 3 bullet points with potential resolutions.

Create



Task: Tell Gemini what you need it to do (summarize, write, change the tone, create, etc.), and use a verb.

✍ Help me write

I am a customer service representative. Help me craft an empathetic email response. The customer ordered a pair of headphones that arrived damaged. Include a paragraph that acknowledges their frustration and 3 bullet points with potential resolutions.

Create



Context: Provide as much relevant background as possible.

✍ Help me write

I am a customer service representative. Help me craft an empathetic email response. The customer ordered a pair of headphones that arrived damaged. Include a paragraph that acknowledges their frustration and 3 bullet points with potential resolutions.

Create



Format: Be specific when specifying desired structure.

✍ Help me write

I am a customer service representative. Help me craft an empathetic email response. The customer ordered a pair of headphones that arrived damaged. Include a paragraph that acknowledges their frustration and 3 bullet points with potential resolutions.

Create



List of tools ?



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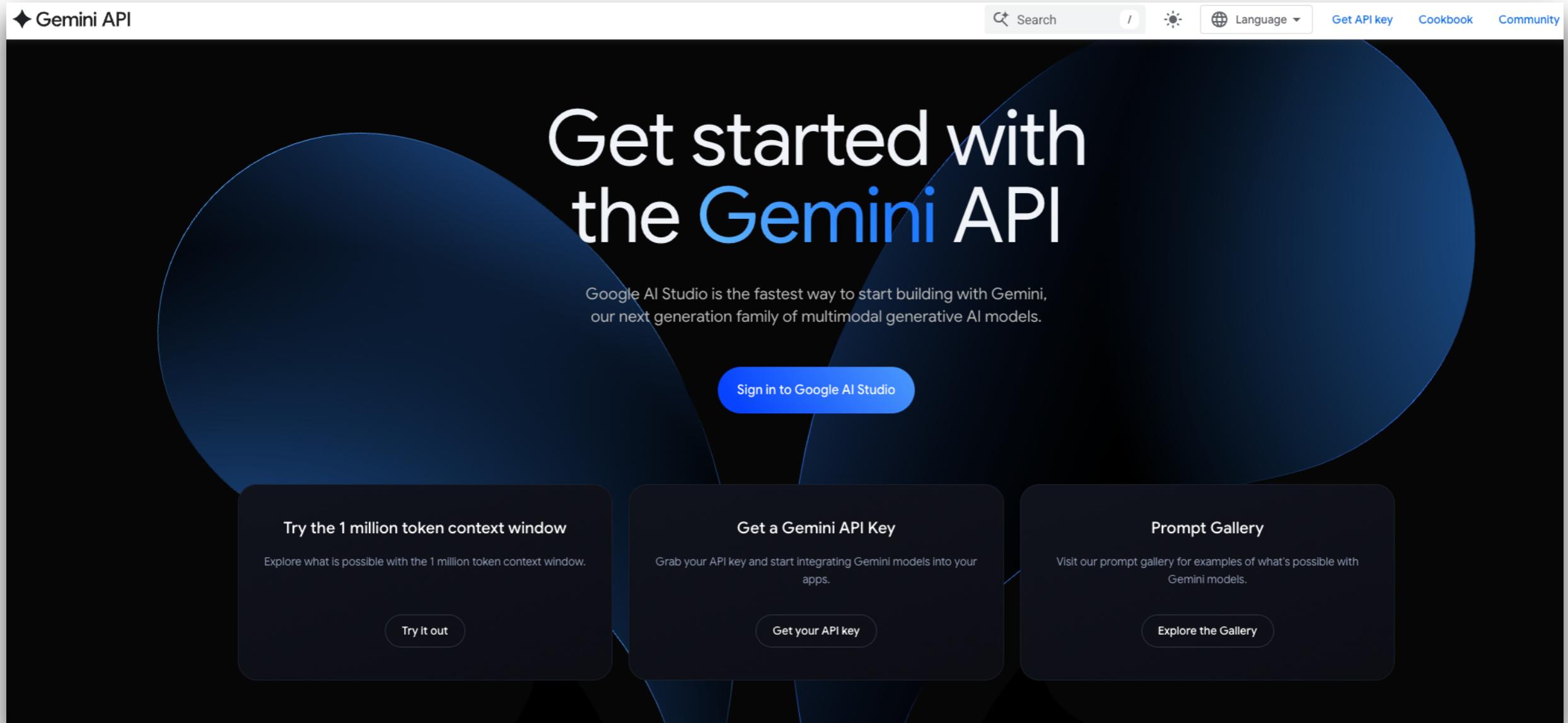
Google Gemini

The screenshot shows the Google Gemini AI interface. At the top left is the 'Gemini' logo. On the right are buttons for 'Upgrade to Google AI Plus' and a user profile icon. Below the header is a large blue text 'Hello, somkiat'. A central input field is labeled 'Ask Gemini' and includes a '+' button, a 'Tools' section, a 'Fast' dropdown, and a microphone icon. Below the input field are five circular buttons: 'Create Image' (with a camera icon), 'Write', 'Build', 'Deep Research', and 'Learn'. The bottom left corner features a gear icon.

<https://gemini.google.com/app>



Google Gemini API



The screenshot shows the homepage of the Google Gemini API. At the top, there is a navigation bar with links for "Gemini API", "Search", "Language", "Get API key", "Cookbook", and "Community". The main title "Get started with the Gemini API" is prominently displayed in large white and blue text. Below the title, a subtitle reads: "Google AI Studio is the fastest way to start building with Gemini, our next generation family of multimodal generative AI models." A central call-to-action button says "Sign in to Google AI Studio". To the left, a box titled "Try the 1 million token context window" encourages users to explore what's possible with the 1 million token context window, with a "Try it out" button. In the center, another box titled "Get a Gemini API Key" instructs users to grab their API key for integrating Gemini models into apps, with a "Get your API key" button. To the right, a box titled "Prompt Gallery" invites users to visit the prompt gallery for examples of what's possible with Gemini models, with a "Explore the Gallery" button.

<https://ai.google.dev/aistudio>



ChatGPT

The screenshot shows the ChatGPT web interface. At the top left is a sidebar with icons for profile, search, and other functions. The main area has a title "ChatGPT" with a dropdown arrow. Below it is a search bar with placeholder text "What's on the agenda today?". To the right of the search bar are icons for microphone and zero messages. A dropdown menu is open from the search bar, listing options: "Ask anything" (selected), "Add photos & files", "Create image", "Thinking", "Deep research", "Shopping research", and "... More". A small "SP" badge is visible at the bottom left.

<https://chatgpt.com/>



Google NotebookLM

The screenshot shows the Google NotebookLM interface. At the top left is the title "Untitled notebook". The top right features navigation links: "Analytics", "Share", "Settings", "PRO", and a user profile icon. The main area is divided into three vertical sections:

- Sources:** Contains a button "+ Add sources", a "Try Deep Research" callout, a search bar "Search the web for new sources", and a "Web" dropdown. It also includes a note about saved sources and instructions for adding files from Google Drive.
- Chat:** A central workspace with a large "Add a source to get started" button and an "Upload a source" button below it. A note at the bottom states: "NotebookLM can be inaccurate; please double check its responses."
- Studio:** A section for generating outputs, featuring "Audio Overview", "Video Overview", "Mind Map", "Reports", "Flashcards", "Quiz", "Infographic", and "Slide Deck" options. It also includes a note about where studio output is saved and what can be done after adding sources.

<https://notebooklm.google/>



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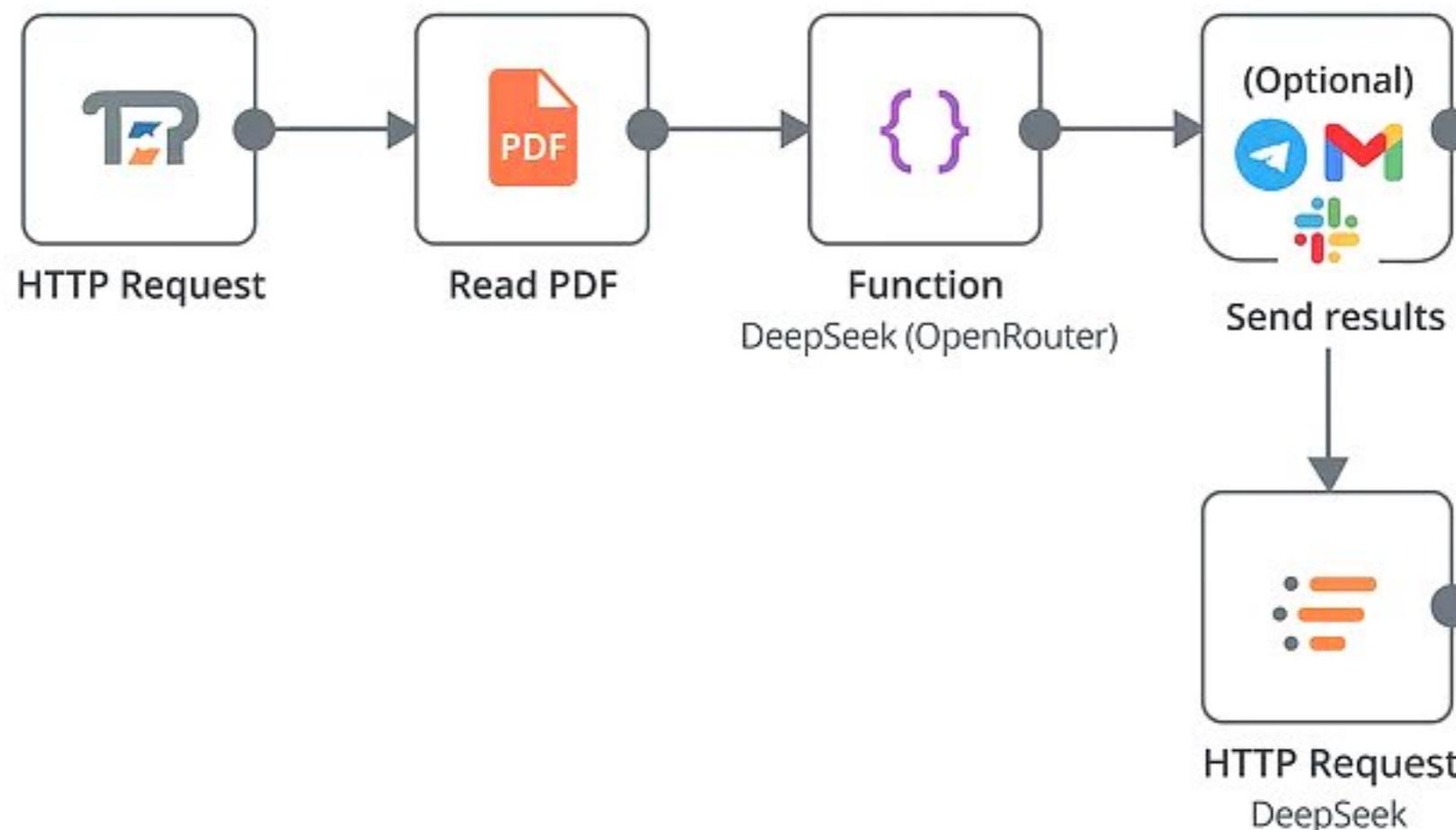
Let's start workshop



Manual to Automation ?



Automated Read data from PDF



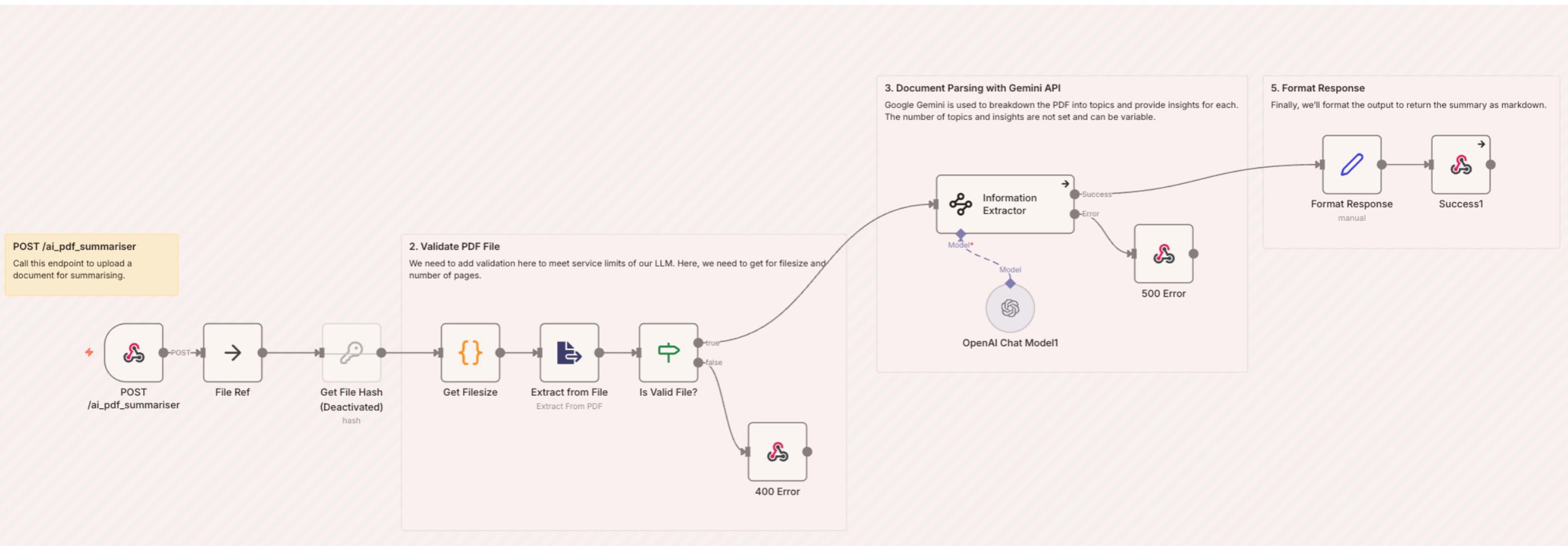
<https://leandrocaladoferreira.medium.com/how-i-automated-pdf-reading-with-ai-using-n8n-and-deepseek-bd0a8d276dea>



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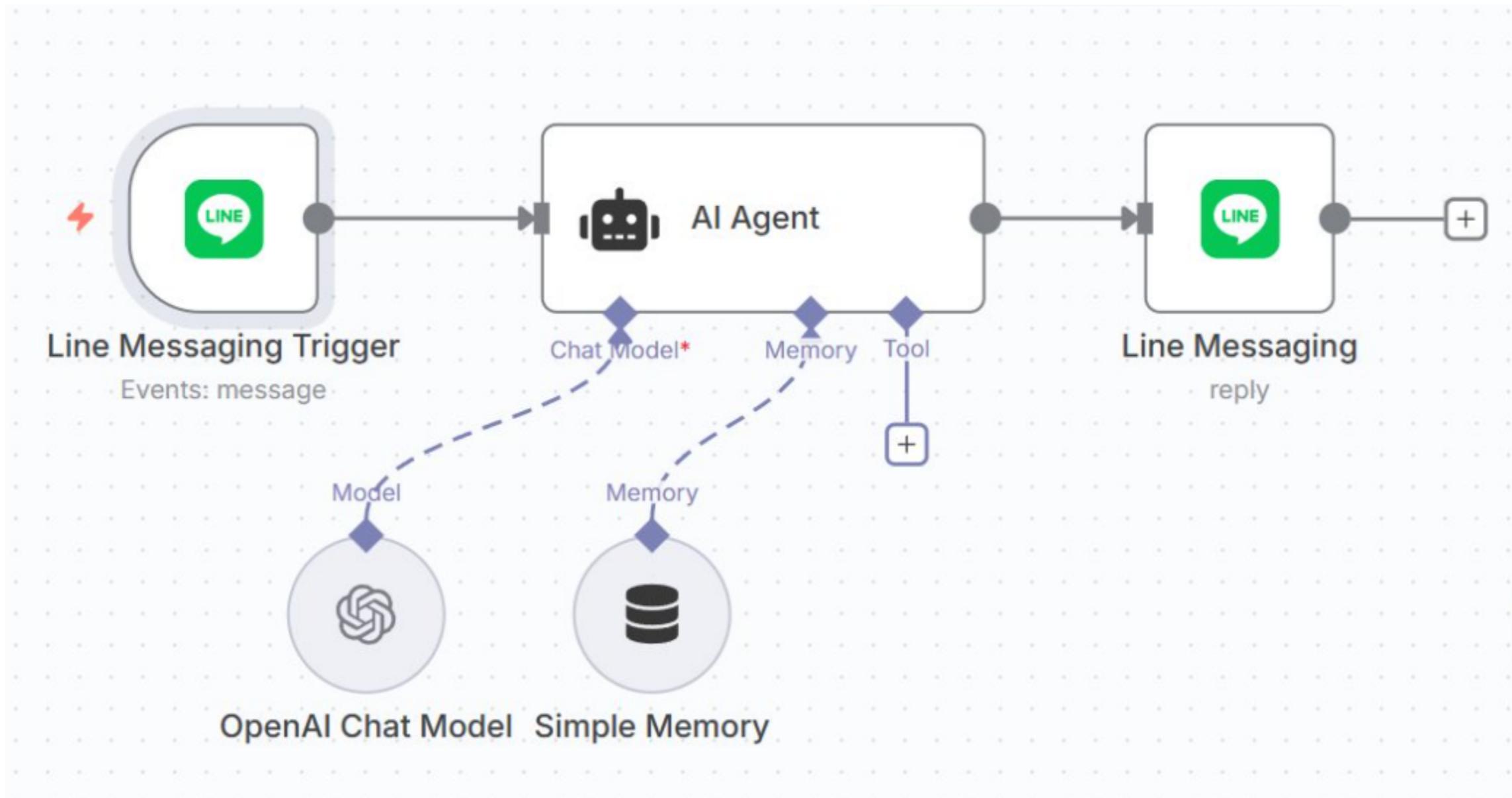
PDF Summarize



<https://n8n.io/tools/ai-pdf-summarizer/>

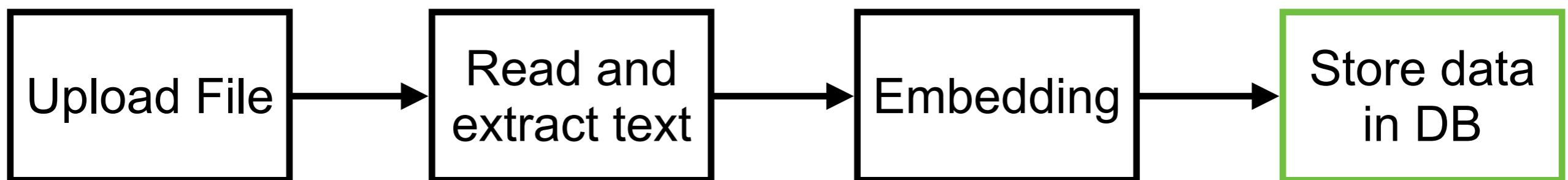


Chat with Line Messaging

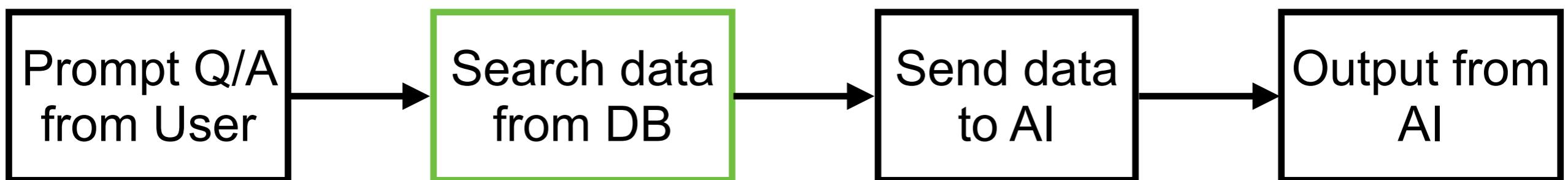


Build your AI Assistant ?

Step 1 : prepare data



Step 2 : Q/A with AI



Q/A

