





Prompt Engineer

And the
AI Agents
in Javascript



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Agenda

AI Agents

What is LangChain?
What is an AI Agent?

Use AI Responsibly

Generative AI



Prompt Engineering

Why?



Hands-on

Will look at some code



Artificial Intelligence



Artificial Intelligence

Seeks to create intelligent machines that can replicate/exceed human intelligence

Machine Learning



Machine Learning

subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions

Deep Learning



Deep Learning

a machine learning technique in which layers of neural networks are used to process data and make decisions

Generative AI

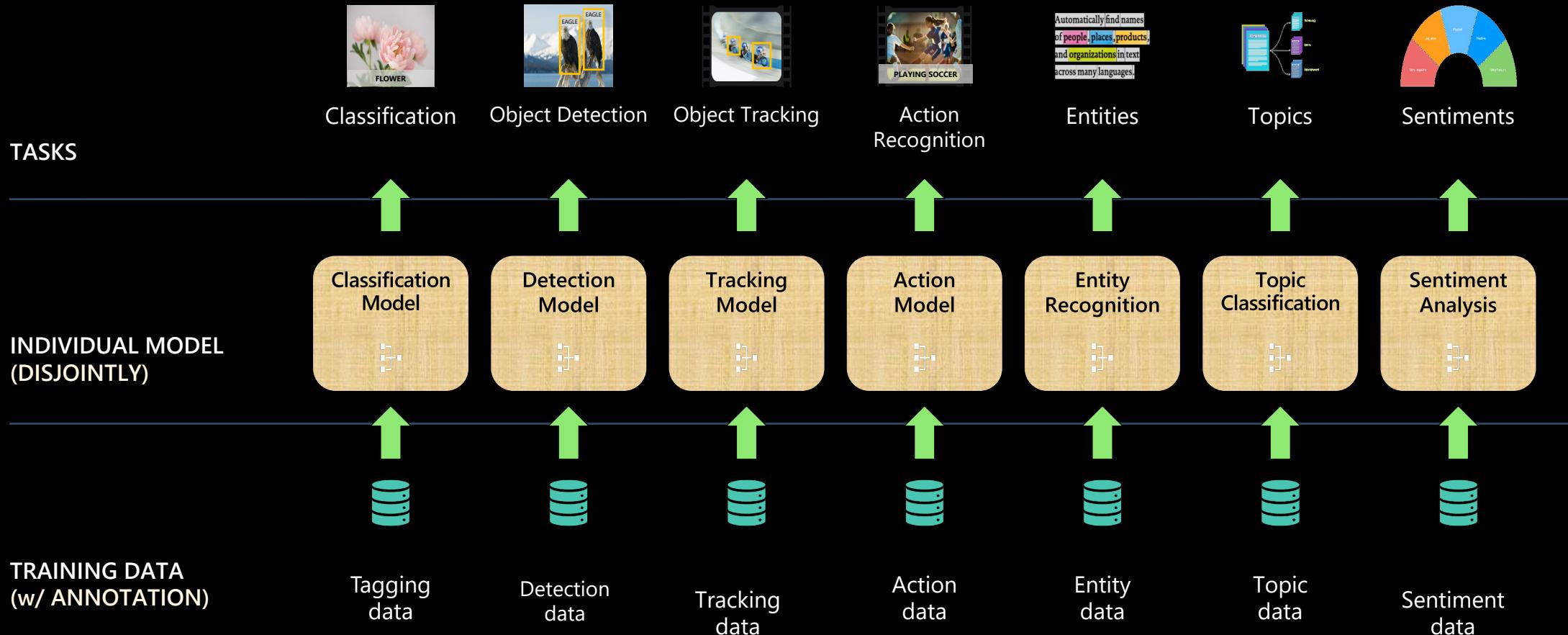


Generative AI

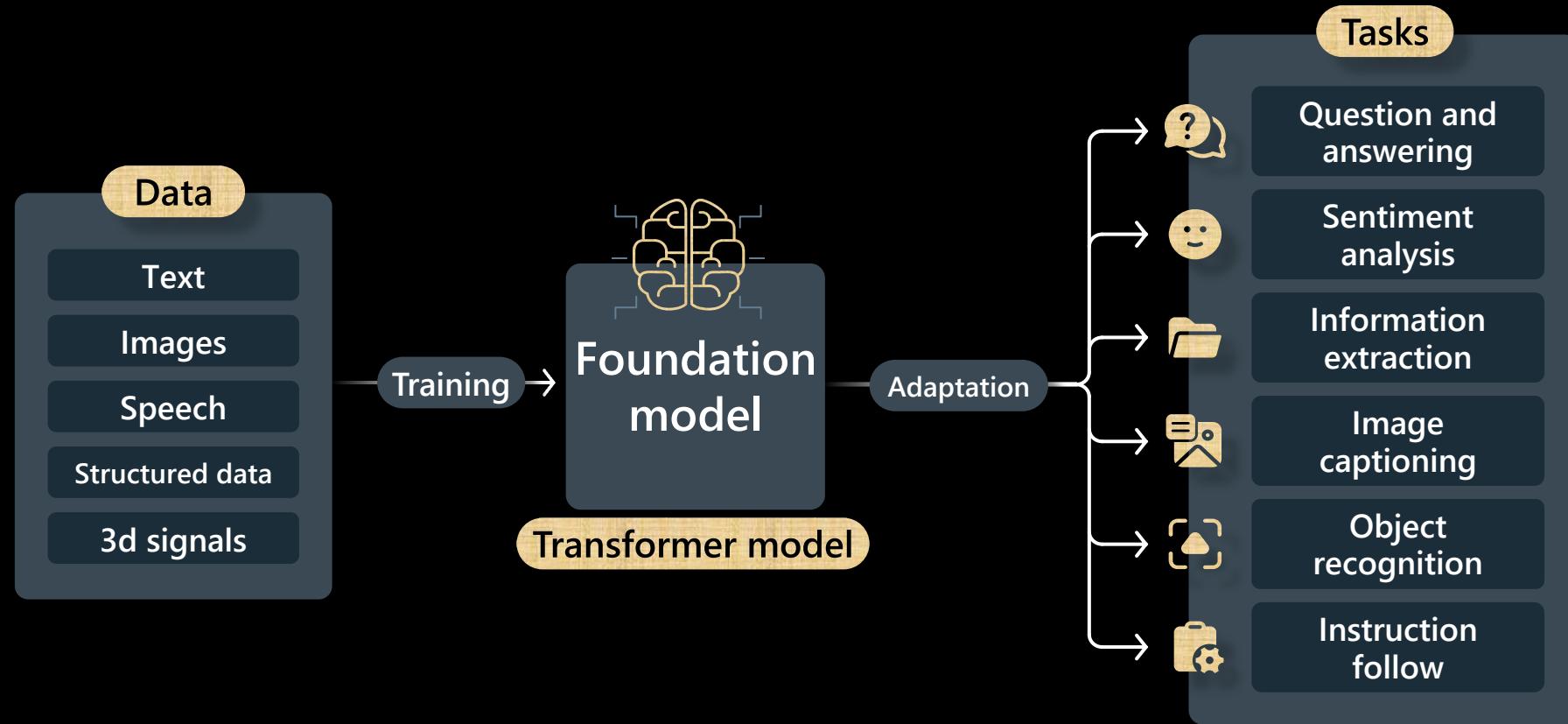
Create new written, visual, and auditory content given prompts or existing data.

Traditional model development

High cost and slow deployment—each service is trained disjointly



Foundation Models

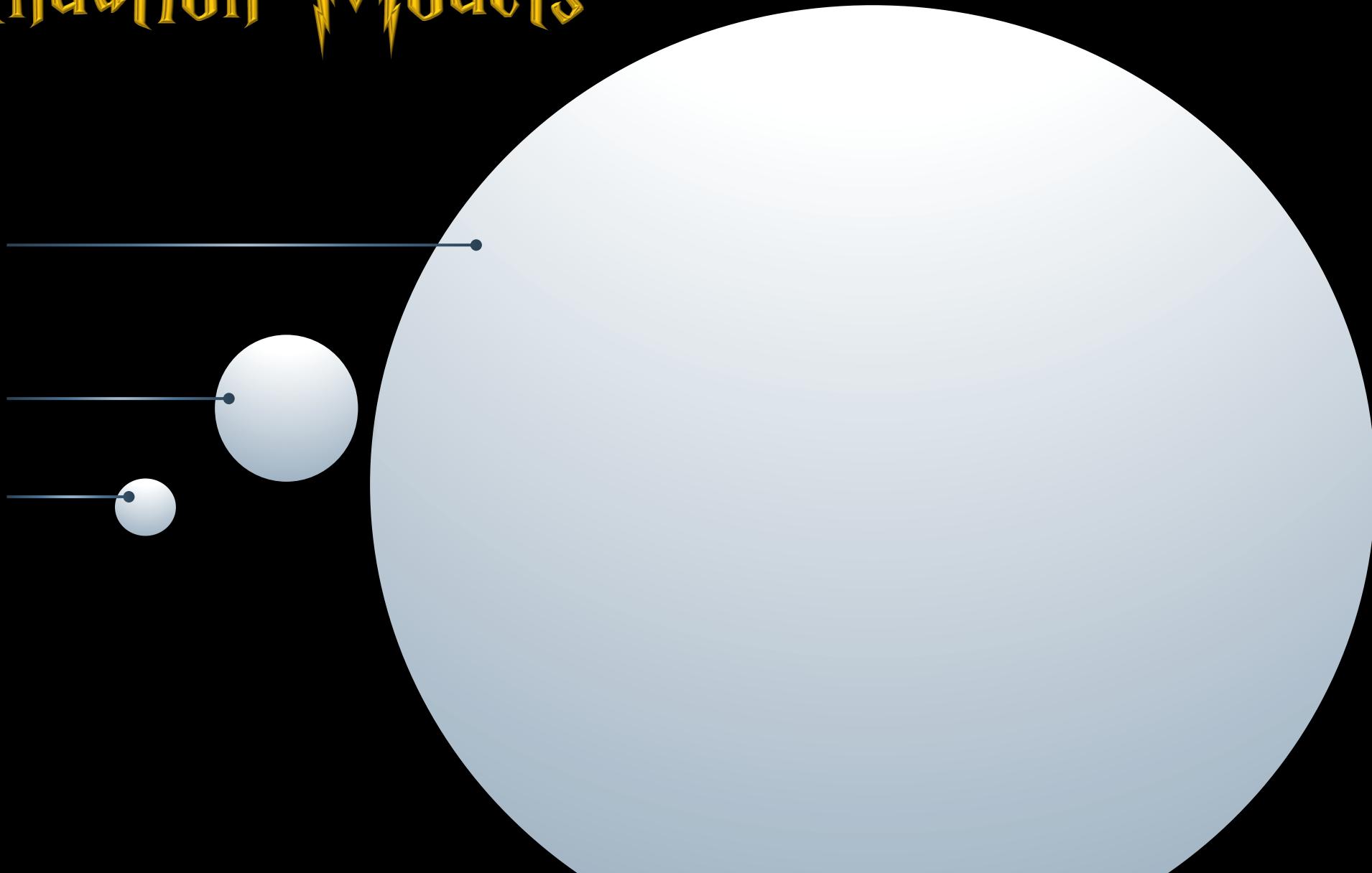


Foundation Models

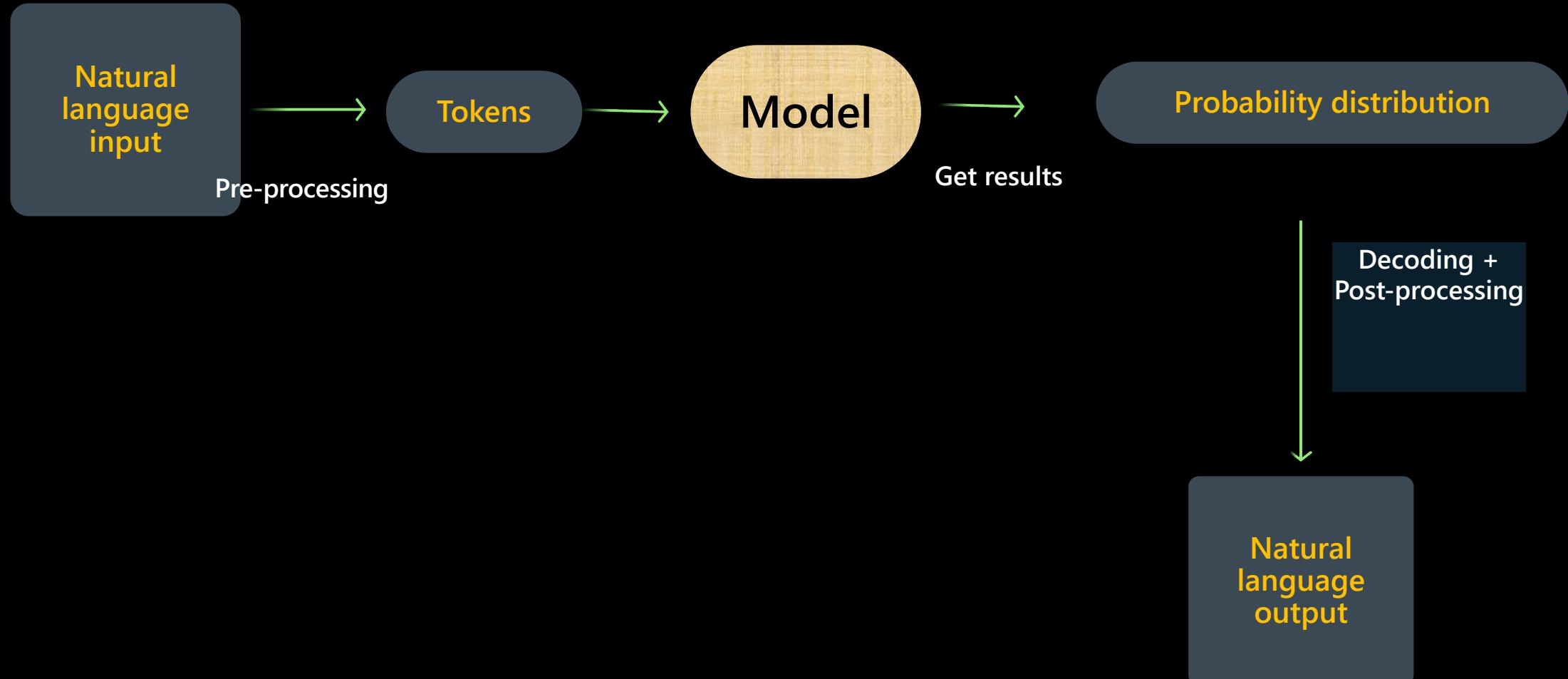
1.76T
GPT-4 (300x)

175B
GPT-3

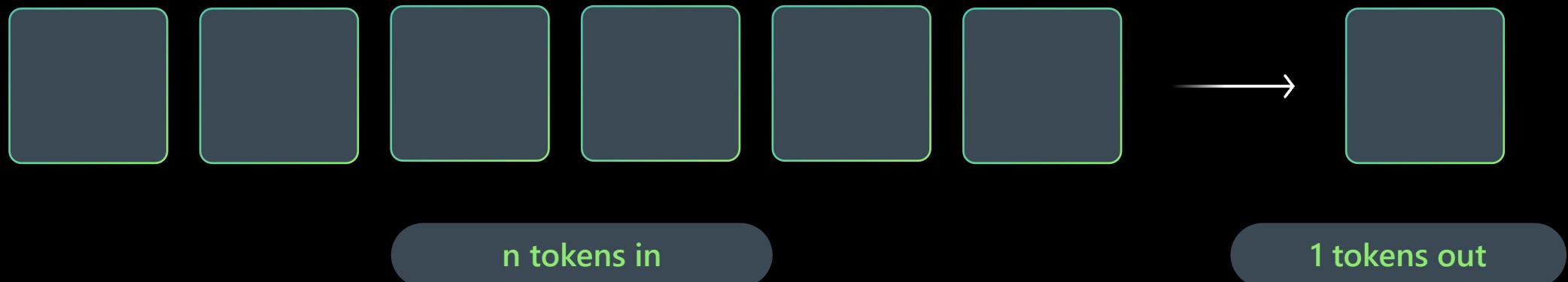
17B
Turing-NLG



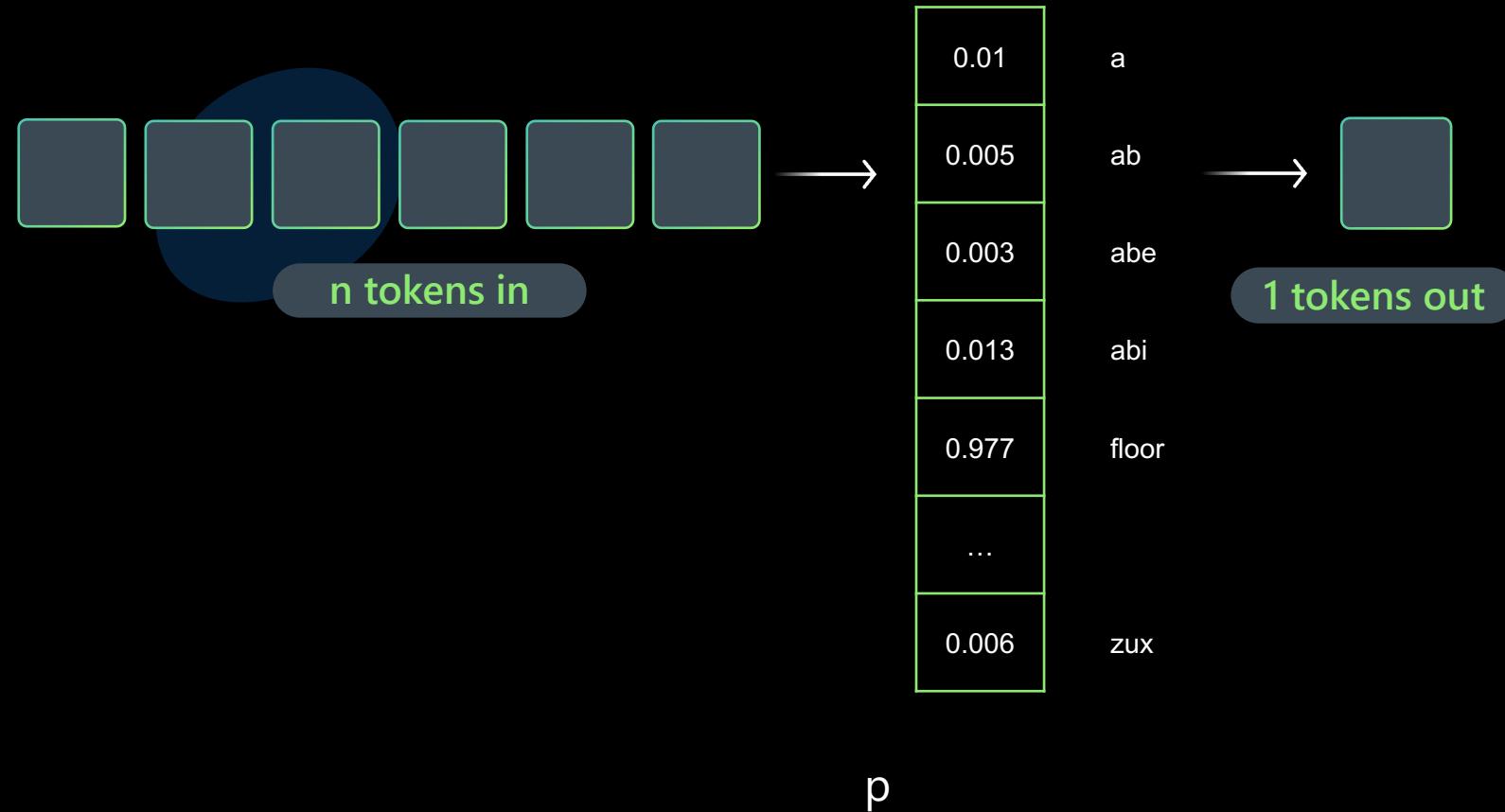
Large Language Models



Large Language Models



Large Language Models



Large Language Models



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

Tokens	Characters
25	113

“Happiness can be found even in the darkest of times, when one only remembers to turn on the light.” – Dumbledore

Text Token IDs

Prompt Engineering

What is Prompt Engineering?

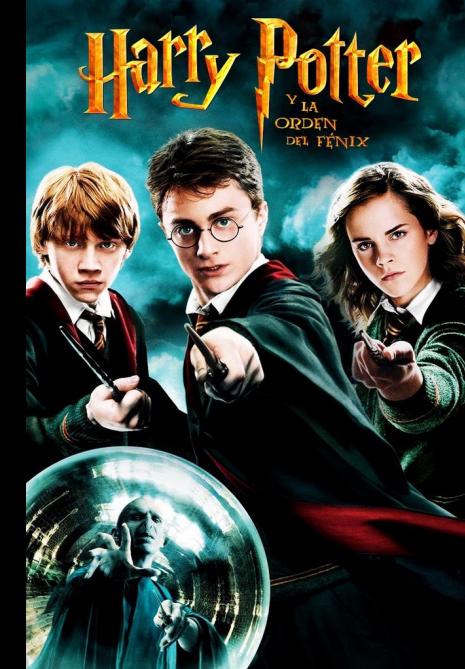
- Technique to improve AI response quality in Generative AI models
- Involves refining the question you ask AI.

Types of Prompt

- Zero-Shot – no examples
- Prompting with examples (One-Shot, Few-Shots, Multi-Shots)
- Chain-of-Thought - "Let's think step by step."

Real-World Example

- Crafting the right Google search query to find what you need



AI Agents

What is OpenAI GPT API?

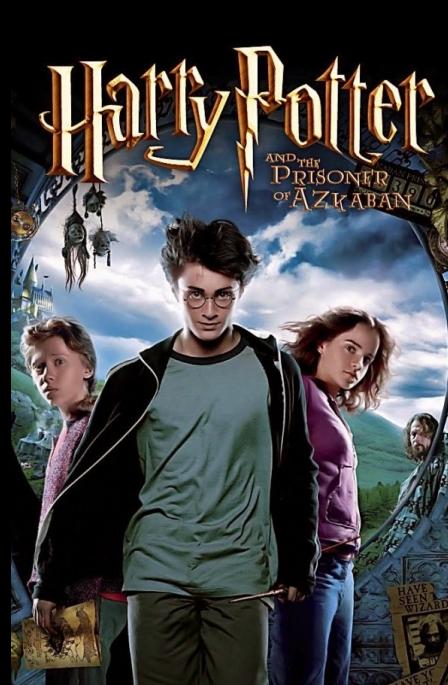
- (Generative Pre-trained Transformer)
- trained to understand natural language and code

What is LangChain?

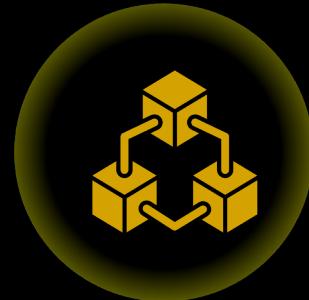
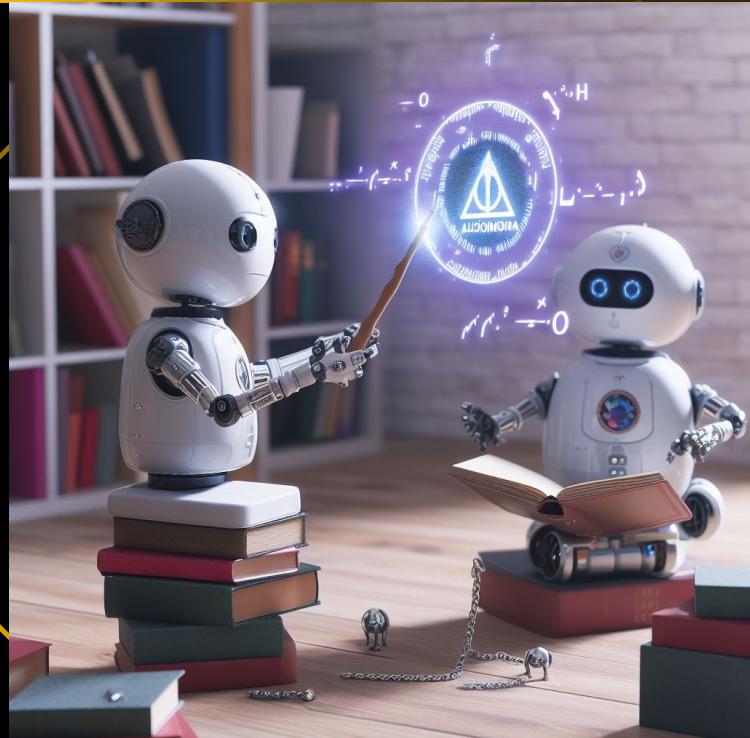
- open-source framework
- simplify creation and development of applications powered by large language models (LLMs)

What are AI Agents?

- leverage large language models (LLMs) for decision-making within a chain of actions



Workshop



<https://github.com/rondagdag/ai-agents-js>

Workshop

<https://github.com/rondagdag/ai-agents-js>

Click my binder link to test it out! [launch binder](#)

Wait....

Click Terminal

```
> echo OPENAI_API_KEY=sk-proj-.....8MA867gmy2 > .env  
> npm install  
> node 01_first_chain.js
```



Use AI Responsibly

Do not humanize AI!
How to mitigate hallucinations



| Do not humanize AI!

Generative AI

is not:

- **Intelligent**
- **Deterministic**
- **Grounded**

Generative AI

can not:

- **Understand language or maths**
- **Understand manners or emotions**
- **Know facts that are not in its training dataset**

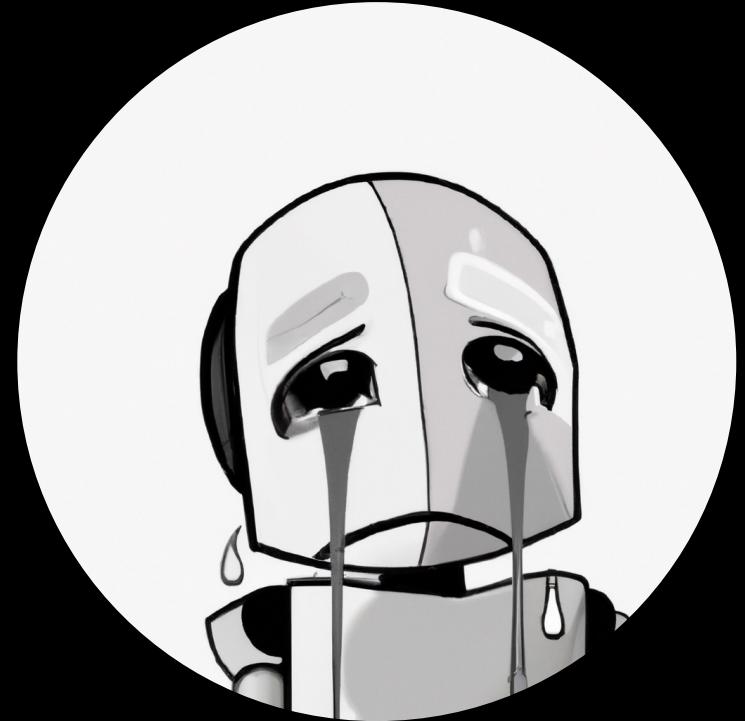
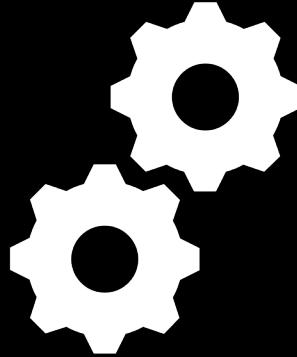
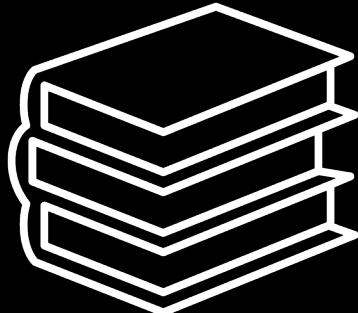


Image created by DALL E2

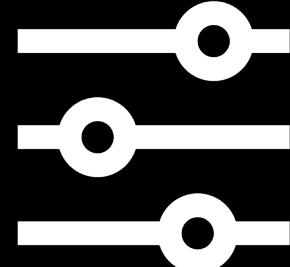
| How to mitigate hallucinations



- Effective prompt engineering



- Provide validated data sources
- Ask for citations



- Tweak parameters (temperature/max length)
- Content filtering



Summary

What is Prompt Engineering?
Asking certain way

What is GPT, LangChain and AI Agents?

Prompts, Chains, Parsers, Retrieval, Vector DB,
Memory, ChatBot

Agents: ReAct (ZeroShot, Conversational) ,
OpenAI Functions, Plan and Execute



Resources

<https://learnprompting.org/>

<https://js.langchain.com/>

<https://flowiseai.com/>

<https://github.com/langchain4j>

Thanks

