

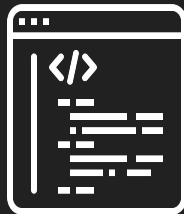
Exploring Large Language Models

Instructor

Apoorv Vishnoi

Head - Training Vertical at Analytics Vidhya





LLMs

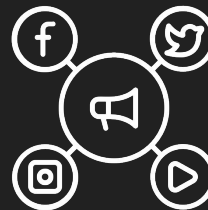
Understand & Generate human-like texts



Q&A

Essay

Text Prediction



LLMs

Understand & Generate human-like texts



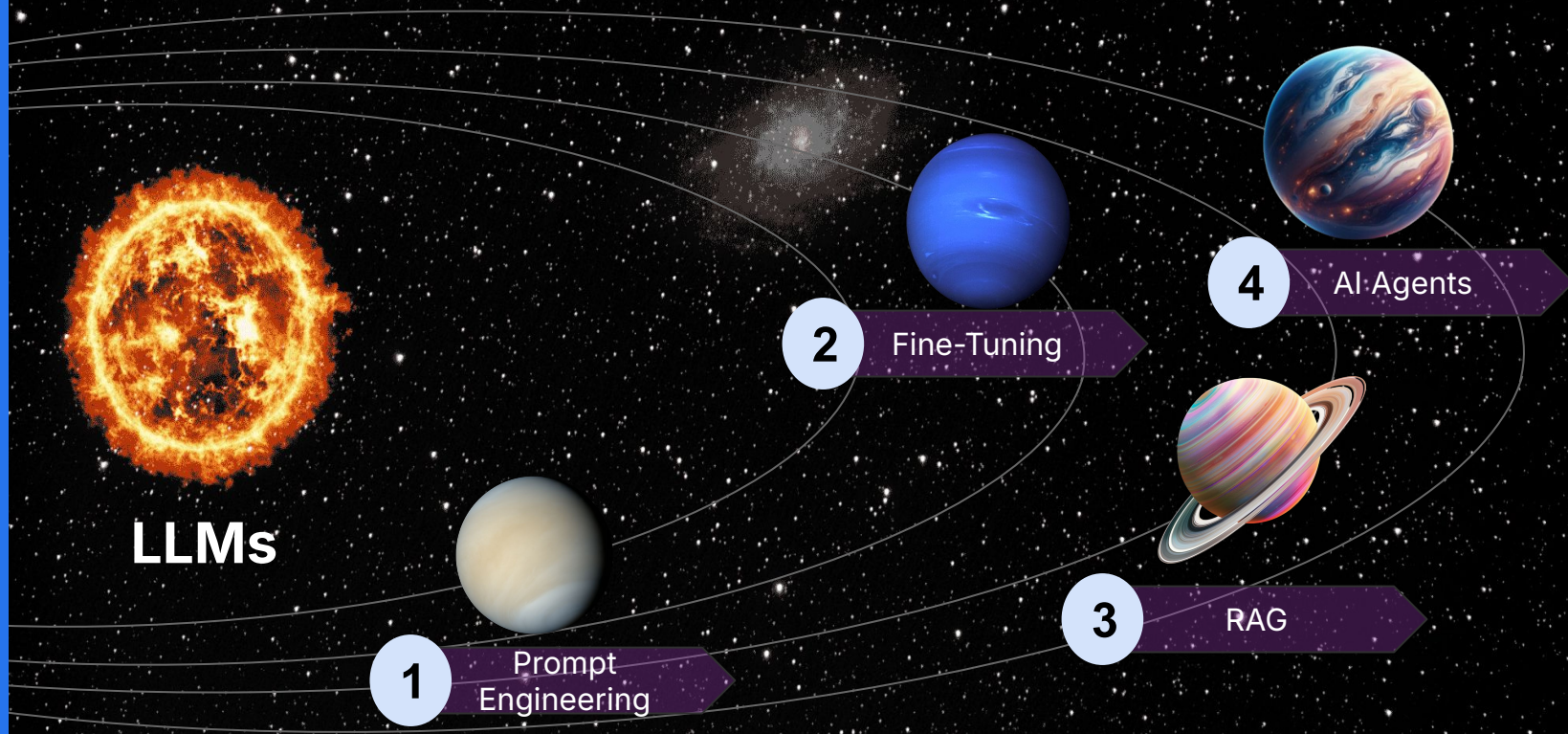
ChatGPT

Gemini



Claude

TRANSFORMER

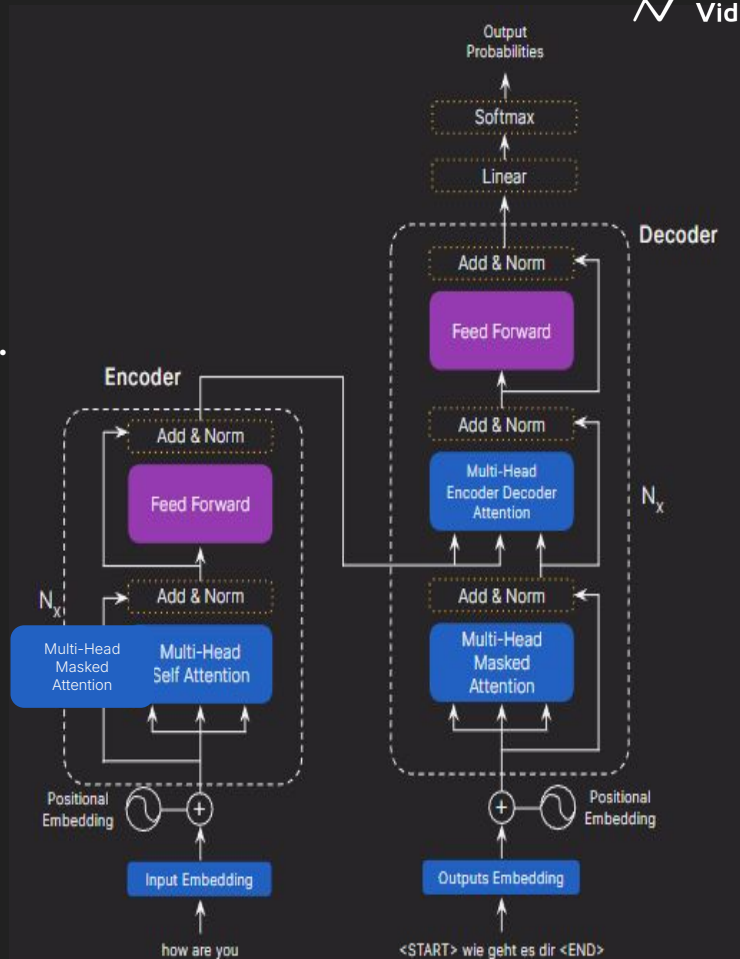


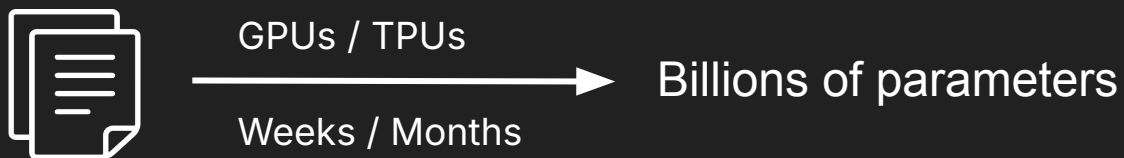
TRANSFORMERS

Enabled better understanding of long sentences.

Faster model training on massive datasets.

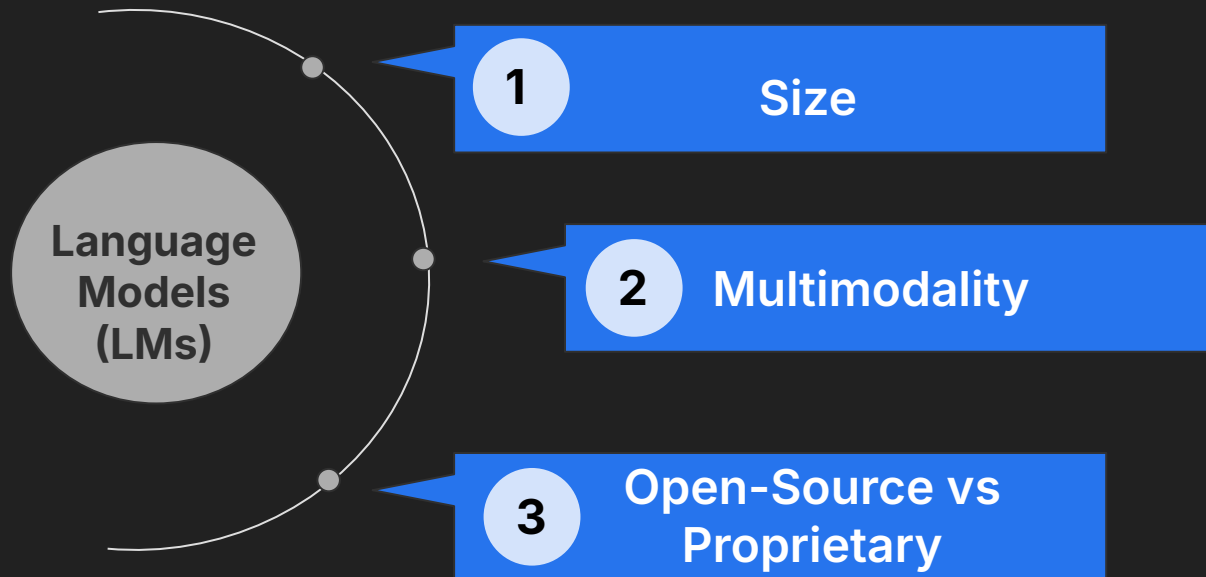
LLMs

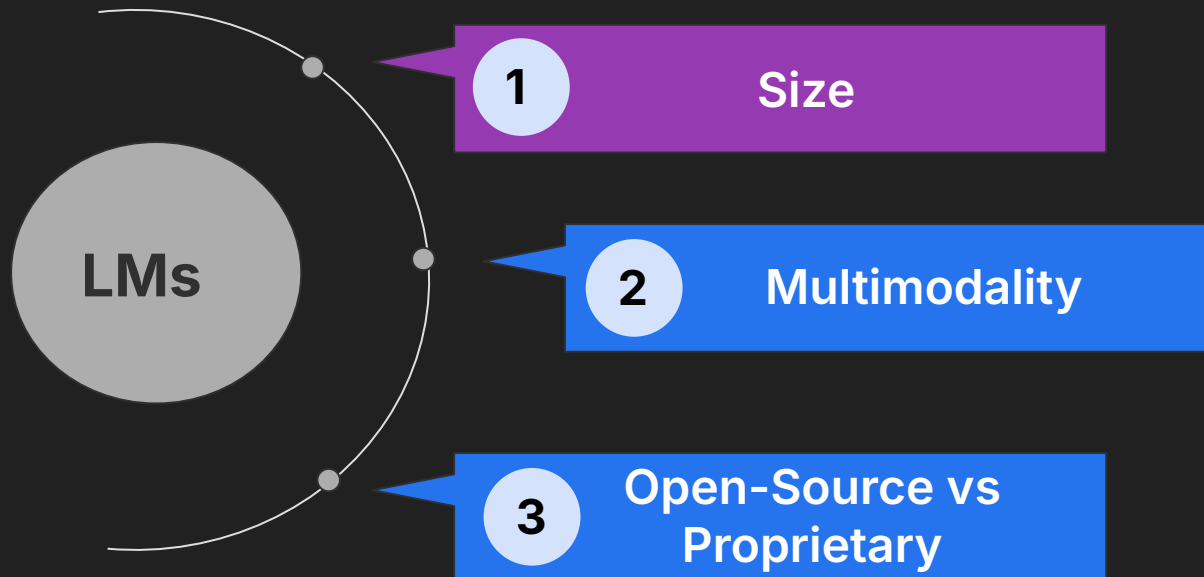


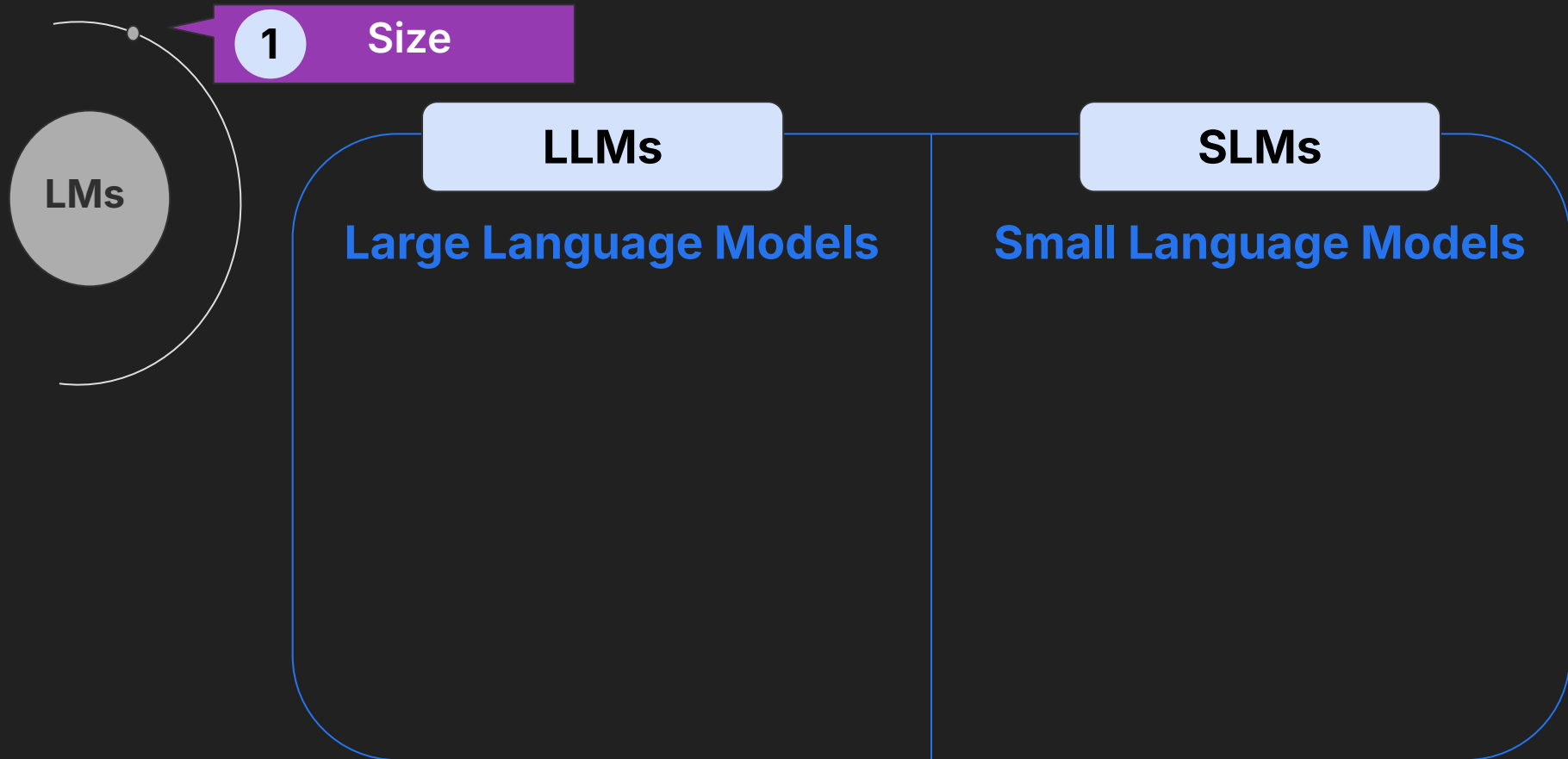


Requires intense computational resources and time.

Training **LLMs**







1

Size

LMs

LLMs

- **Parameters:** Billions to hundreds of billions.
- **Tasks:** Multi-step reasoning, complex mathematical problems.
- **Advantages:** Thinks and reasons well for complex tasks.
- **Limitations:** Requires significant time, resources, and cost for training.

Example: GPT-4

LLaMA-3.1 (70B & 405B)

Mistral Large 2 (123 B)

SLMs

1

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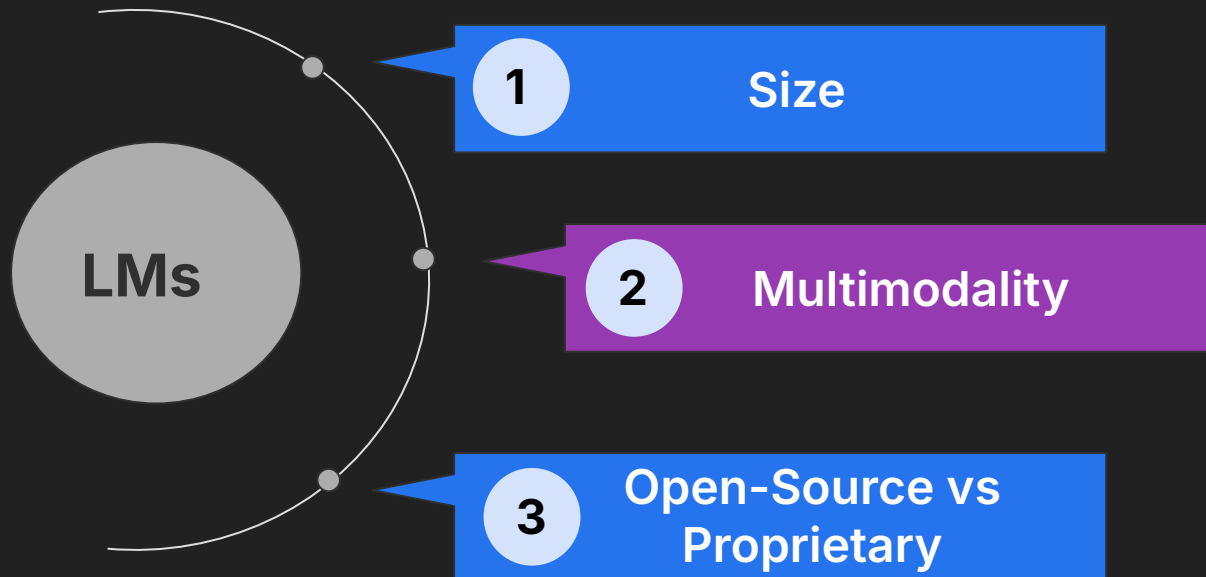
SLMs

- **Parameters:** Millions to low billions.
- **Tasks:** Simple Tasks.
- **Advantages:** More efficient, lower resource consumption
- **Limitations:** Unable to perform high complex tasks.

Example: Gemma 2B (2 billion)

Phi-3 Mini (3.8 billion)

Llama 3.2 (1B & 3B)



LMs

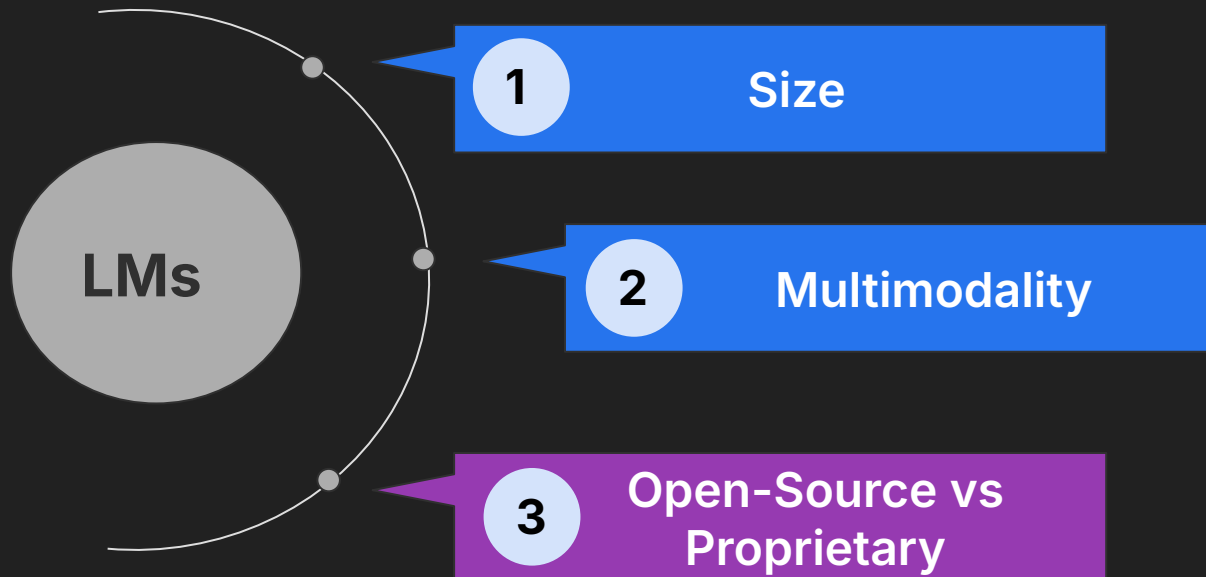
2 Multimodality

- The ability of AI systems to work with multiple types of inputs and outputs simultaneously.



Example: GPT-4, Google Gemini (1.5 Flash), Claude 3.5 Sonnet

Unimodal LLMs: Handle only text inputs
GPT-3.5 and LLaMA 3.1



3 Open-Source vs Proprietary

LMs

Open-Source

- **Code & Architecture:** Publically available.
- Promotes **innovation, collaboration** and **Customization**.
- **Access:** Desktop/server options based on model size.

Example: Meta's LLaMA 3.1, Mistral 7B, Phi-3.5

Proprietary

3 Open-Source vs Proprietary

LMs

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Example: Meta's LLaMA 3.1, Mistral 7B, Phi-3.5

Proprietary

- **Code & Architecture:** Not shared publicly and controlled by private organizations.
- Provides **state-of-the-art results**.
- **Access:** Available through APIs or platforms

Example: OpenAI's GPT-4, Anthropic's Claude

Links

Limitations

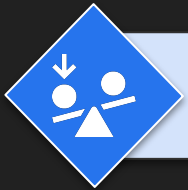


Misinformation

Limitations



Misinformation

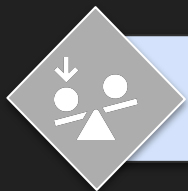


Bias

Limitations



Misinformation



Bias

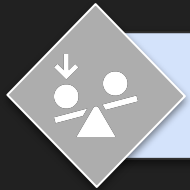


Privacy Risks

Limitations



Misinformation



Bias

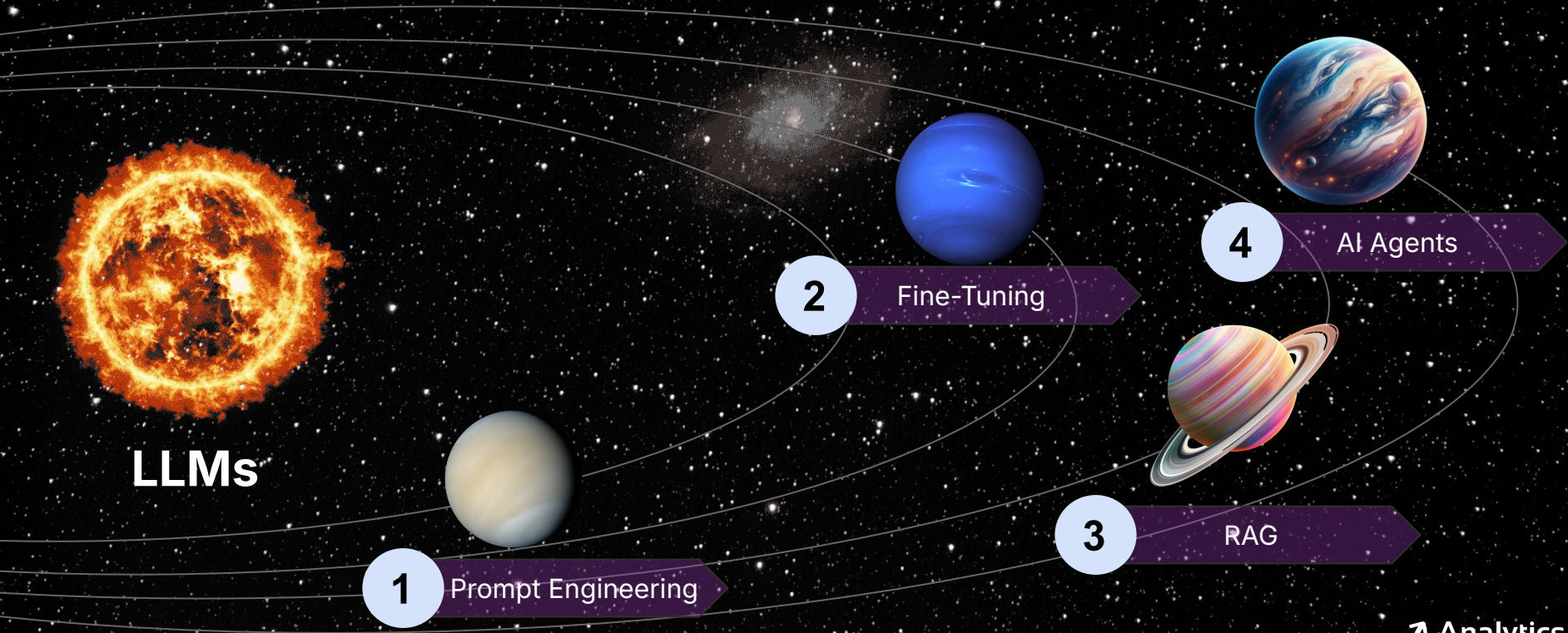


Privacy Risks



Resource Intensity

SOLAR SYSTEM : ANALOGY



Up Next: Prompt Engineering

Thank You