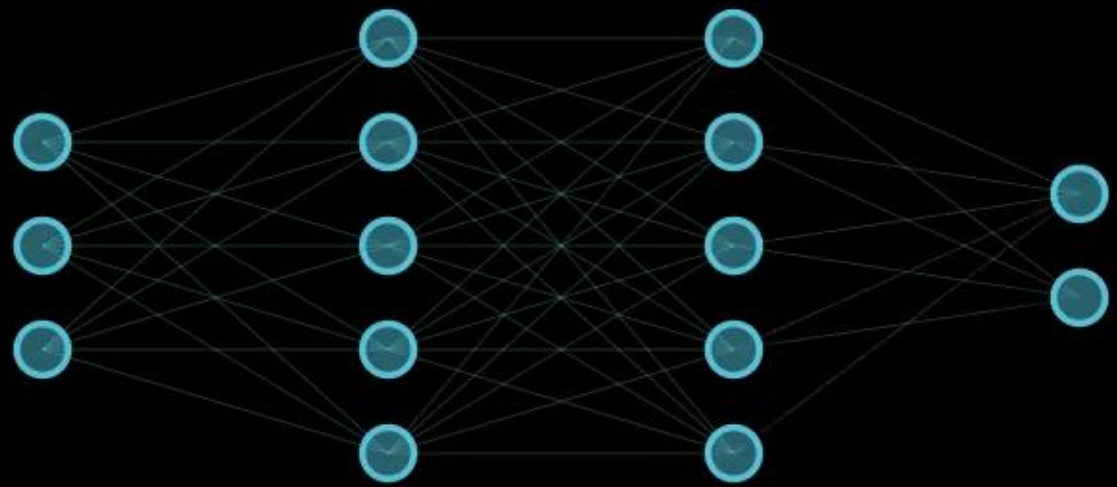
Show of Hands:
Who has used ChatGPT this week?

Generative AI:

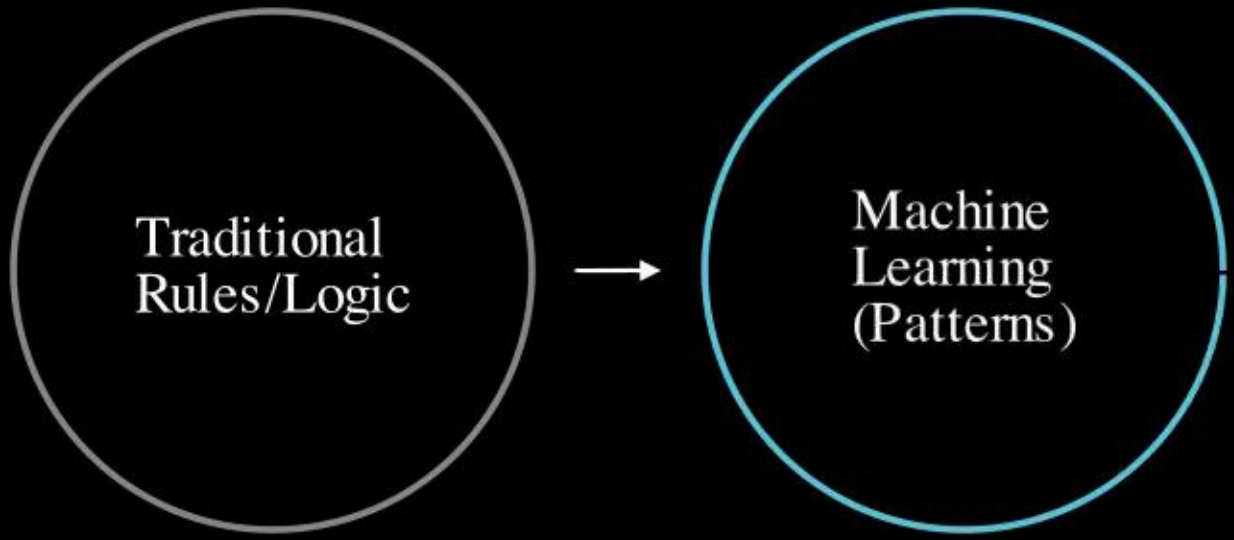
A Comprehensive Guide for College Students



adelsamir.com

The Evolution of AI

The Evolution of AI



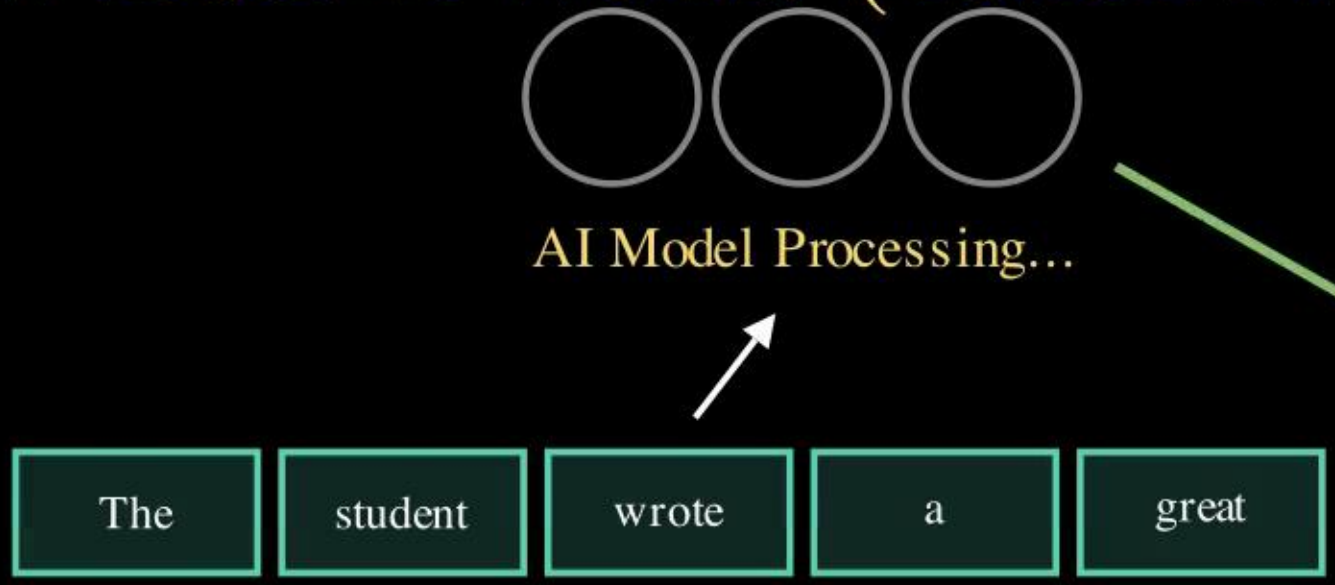
The Evolution of AI

How Does it Work? (Token Prediction)

How Does it Work? (Token Prediction)

AI Model Processing...

How Does it Work? (Token Prediction)

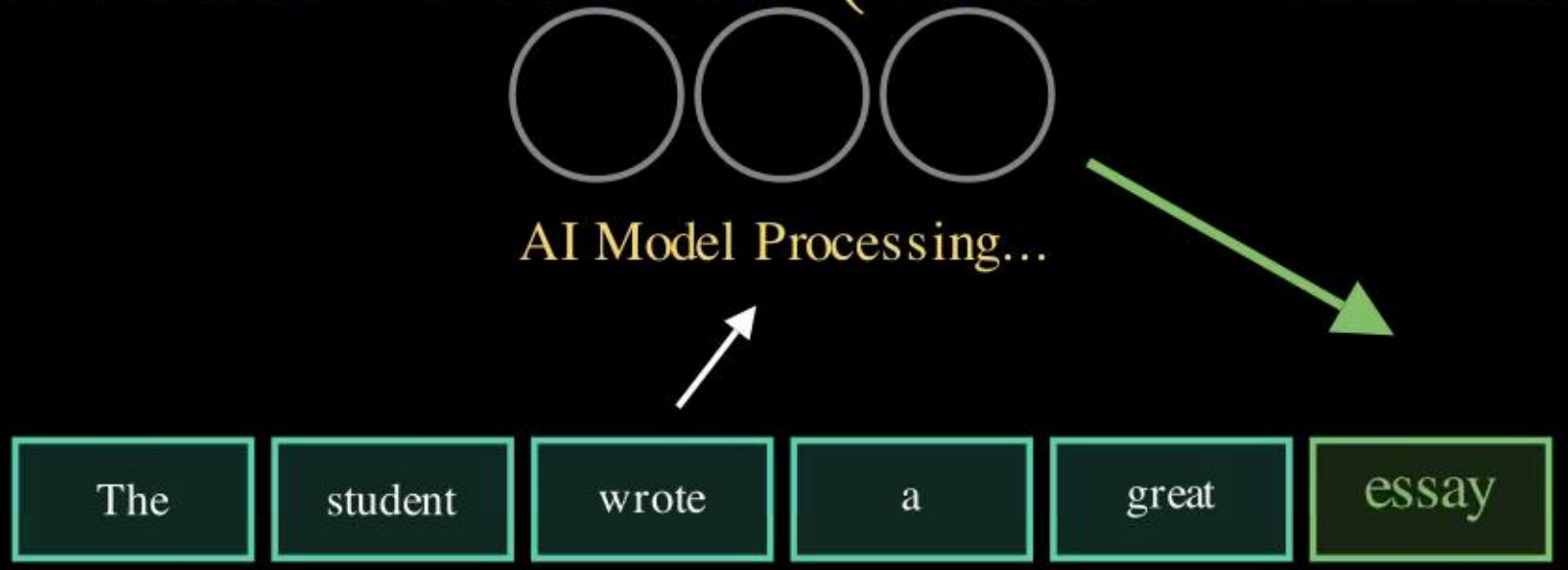


essay (85%)

book (10%)

potato (0.1%)

How Does it Work? (Token Prediction)



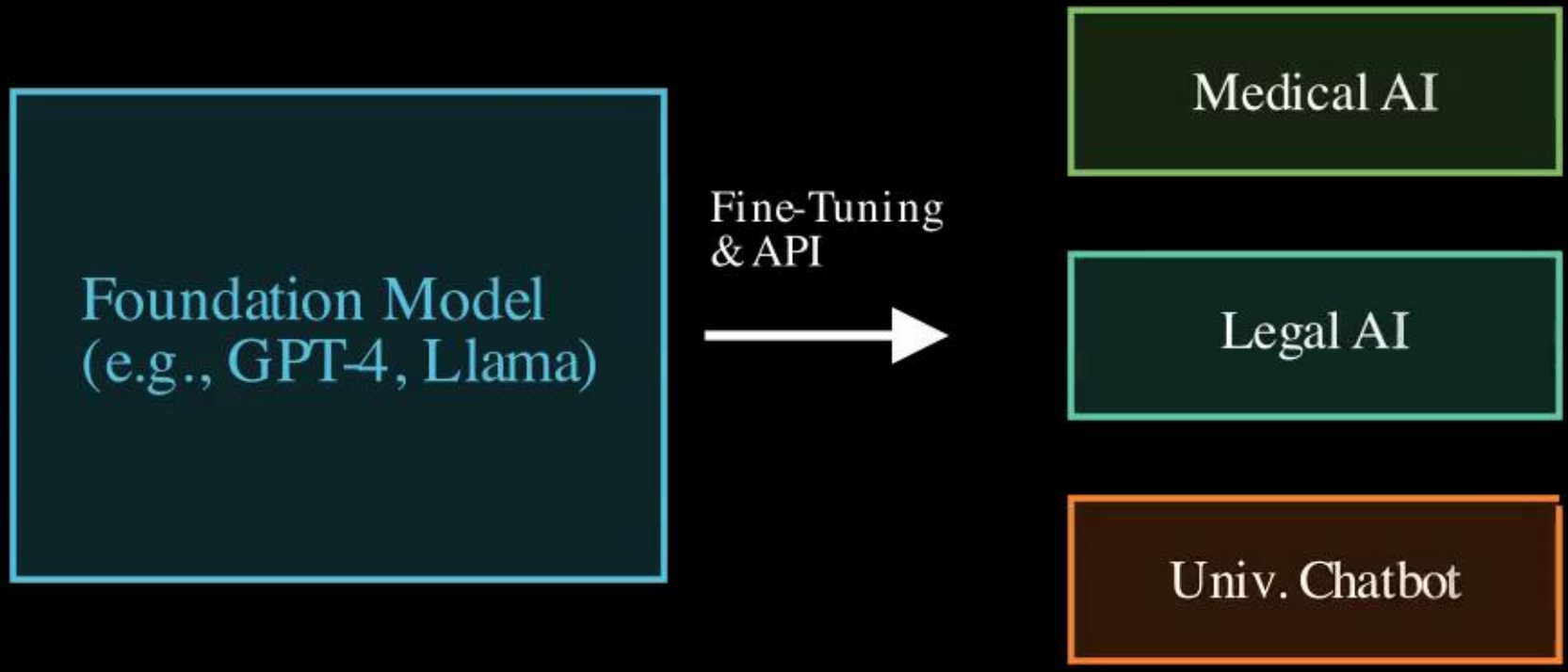
essay (85%)

book (10%)

potato (0.1%)

Foundation vs Fine-Tuned Models

Foundation vs Fine-Tuned Models



The AI Tool Ecosystem

Foundational LLMs

ChatGPT (OpenAI)

Claude (Anthropic)

Gemini (Google)

The AI Tool Ecosystem

Foundational LLMs

ChatGPT (OpenAI)

Claude (Anthropic)

Gemini (Google)

Research & Searching

Perplexity (Web Search)

Elicit (Papers)

Consensus (Science)

The AI Tool Ecosystem

Foundational LLMs

ChatGPT (OpenAI)

Claude (Anthropic)

Gemini (Google)

Research & Searching

Perplexity (Web Search)

Elicit (Papers)

Consensus (Science)

Writing & Notes

Notion AI

Grammarly

Obsidian Co-Pilot

The AI Tool Ecosystem

Foundational LLMs

ChatGPT (OpenAI)

Claude (Anthropic)

Gemini (Google)

Research & Searching

Perplexity (Web Search)

Elicit (Papers)

Consensus (Science)

Writing & Notes

Notion AI

Grammarly

Obsidian Co-Pilot

Math & Code

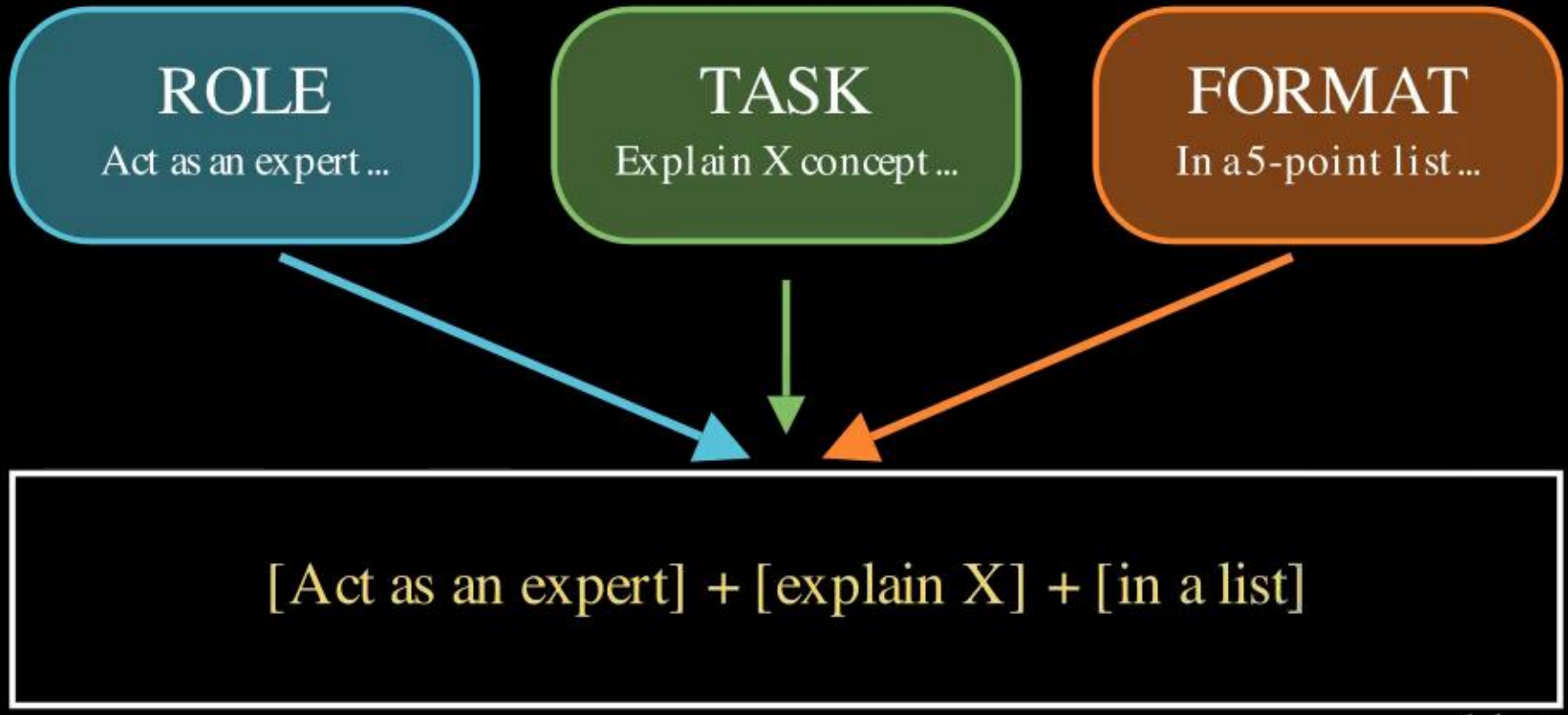
GitHub Copilot

Wolfram Alpha

Cursor Editor

Prompt Engineering: R-T-F Framework

Prompt Engineering: R-T-F Framework



adelsamir.com

Spot the Hallucination!

Audience quiz! Where is the fake claim?

"The integration of neural networks in quantum computing
was first theorized playfully by Albert Einstein in 1932
as 'spooky modeling at a distance.' Modern researchers
rely on transformer circuits to predict quantum states."

Spot the Hallucination!

Audience quiz! Where is the fake claim?

"The integration of neural networks in quantum computing was first theorized playfully by Albert Einstein in 1932 as 'spooky modeling at a distance.' Modern researchers rely on transformer circuits to predict quantum states."

Fake! (Einstein actually said 'spooky action at a distance' about quantum entanglement, and neural nets didn't exist!)

Advanced Prompting

Zero-Shot

Classify this movie:
'The acting was terrible'

Output: Negative

Advanced Prompting

Zero-Shot

Classify this movie:
'The acting was terrible'

Output: Negative

Few-Shot

Examples:
'I loved it' -> Positive
'Boring' -> Negative

Classify this movie:
'The acting was terrible'

Output: Negative

Advanced Prompting

Zero-Shot

Classify this movie:
'The acting was terrible'

Output: Negative

Few-Shot

Examples:
'I loved it' -> Positive
'Boring' -> Negative

Classify this movie:
'The acting was terrible'

Output: Negative

Chain-of-Thought: 'Let's think step-by-step.'

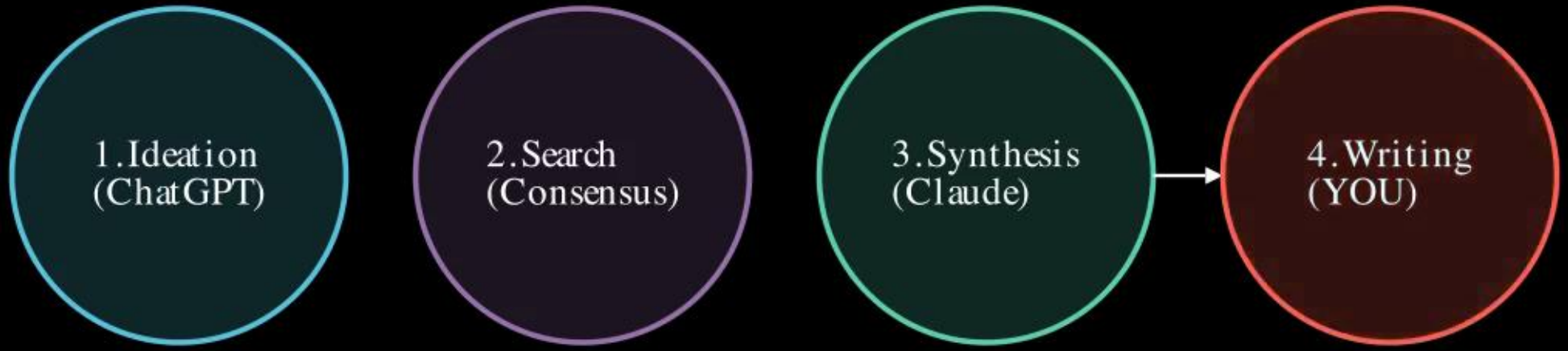
Safe Academic Workflow

Safe Academic Workflow

Safe Academic Workflow

Safe Academic Workflow

Safe Academic Workflow



Never use AI to write the final draft!

Coding with AI (For Non-Majors)

Prompt: "Write Python code to plot population growth"

Coding with AI (For Non-Majors)

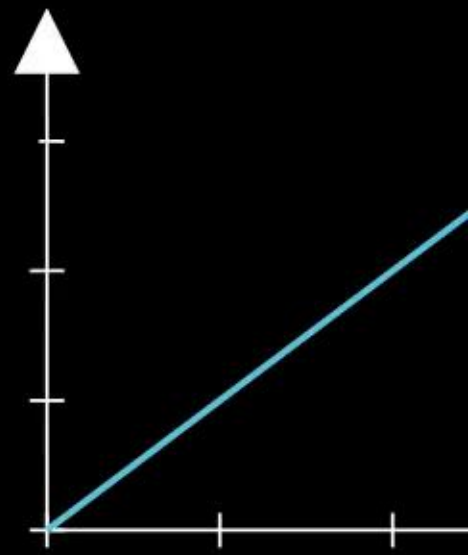
Prompt: "Write Python code to plot population growth"

```
import matplotlib.pyplot as plt
x = [2000, 2010, 2020]
y = [6.1, 6.9, 7.8]
plt.plot(x, y)
plt.show()
```

Coding with AI (For Non-Majors)

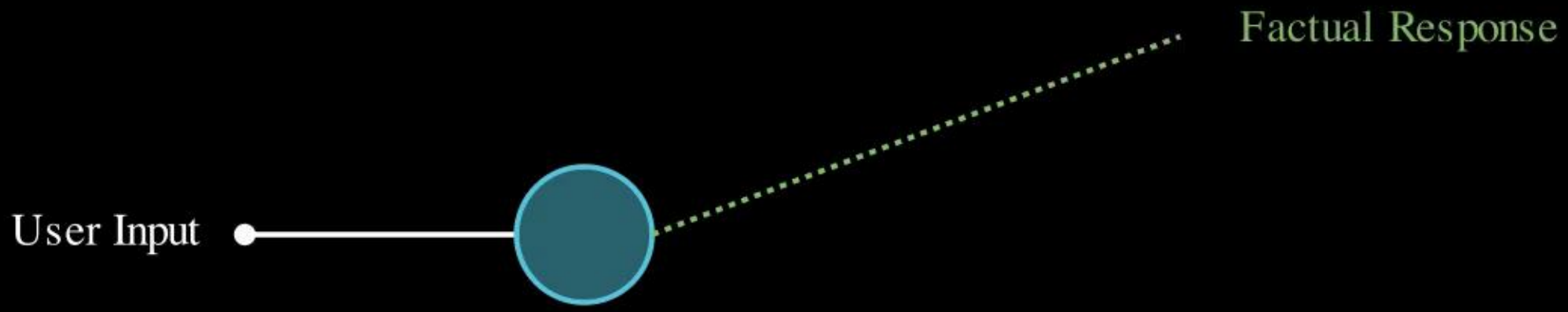
Prompt: "Write Python code to plot population growth"

```
import matplotlib.pyplot as plt
x = [2000, 2010, 2020]
y = [6.1, 6.9, 7.8]
plt.plot(x, y)
plt.show()
```

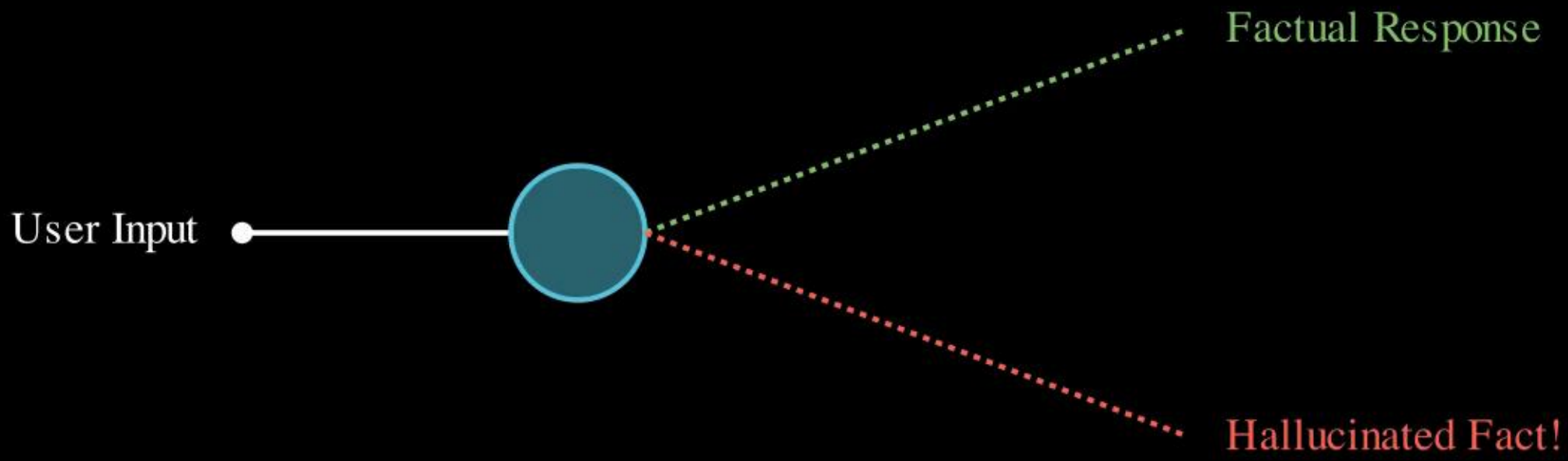


Limitations: The Hallucination Path

Limitations: The Hallucination Path



Limitations: The Hallucination Path



AI lacks 'ground truth' reasoning. It predicts words.

Ethics, Plagiarism & Integrity

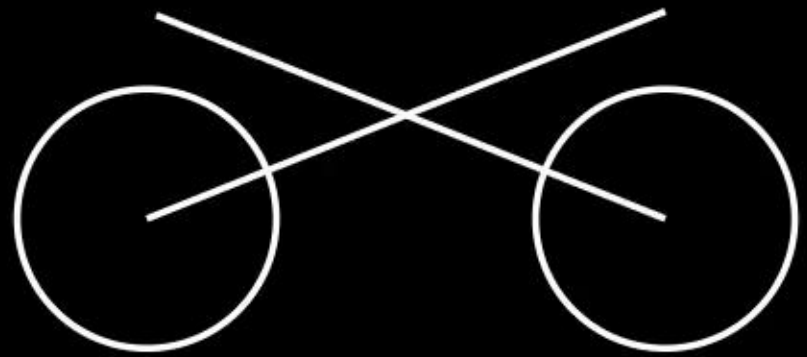
Ethics, Plagiarism & Integrity

- The Golden Rule: AI is an assistant, not the author.
- Academic Integrity: Know and follow your university's AI policy.
- Data Privacy: Do not paste sensitive personal/unpublished data.
- Critical Verification: Verify facts, citations, and logic independently.

Empower Your Learning

Empower Your Learning

AI is a bicycle for the mind. You still have to pedal.



adelsamir.com

Q&A + Audience Challenge

Q&A + Audience Challenge

Try this today:

"Hey AI, summarize the core arguments of my latest reading assignment in bullet points, but explain it at an 8th-grade level."