



SEPTEMBER EVENTS



**SEPT
8**

PROMPT ENGINEERING FOR CLASS

2:00 pm-4:00 pm
Goldberg Computer Science Building

CTF FOR BEGINNERS

6:30pm
Goldberg Computer Science Building

**SEPT
10**

PEER2PEER MIXER

2:00 pm-4:00pm
Goldberg Computer Science Building

WITS LOUNGE

6:30 pm-8:30pm
Goldberg Computer Science Building

**SEPT
16**

HOW TO NETWORK AND GET A CO-OP WORKSHOP

4pm-6pm
Goldberg Computer Science Building

SHIFTKEY ACADEMY UP: ACADEMY UP: AI AGENTS

6 pm-8pm
Goldberg Computer Science Building

**SEPT
9**

LINKEDIN GLOW UP

4pm- 6pm
Goldberg Computer Science Building

SHIFTKEY ACADEMY UP: ACADEMY UP: AI AGENTS

6 pm-8pm
Goldberg Computer Science Building

**SEPT
11**

LINKEDIN PHOTOBOOTH

2:00pm-4:00pm
Bissett Student Success Centre

**SEPT
17**

LINKEDIN PHOTOBOOTH

1pm-3pm
Bissett Student Success Centre

**SEPT
15**

CTF FOR BEGINNERS

6:30pm
Goldberg Computer Science Building

**SEPT
18**

TECH STARTUP SHOWCASE

4:00pm-6:00pm
Goldberg Computer Science Building





SEPTEMBER EVENTS



**SEPT
18**

TECH STARTUP SHOWCASE

4:00pm-6:00pm
Goldberg Computer Science Building

**SEPT
19-21**

SURGE BRAINHACK

All Day
SURGE Innovation

**SEPT
23**

HERE WE CODE: TECH INDUSTRY FAIR

All day
Dalhousie Student Union Building

OPEN STREET INNOVATION

4pm- 6pm
Goldberg Computer Science Building

SHIFTKEY ACADEMY UP: ACADEMY UP: AI AGENTS

6 pm-8pm
Goldberg Computer Science Building

**SEPT
25**

WORKSHOP: NETWORK PROTOCOLS

6pm-7pm
Goldberg Computer Science Building

**SEPT
29**

SHIFTKEY ACADEMY UP: ACADEMY UP: AI AGENTS

6PM-8PM
Goldberg Computer Science Building

**SEPT
30**

TRUTH & RECONCILIATION DAY

Universities and
most businesses closed





From hackathons to the Startup Residency program,
ShiftKey Labs makes sure students have the skills & support
they need to pursue their most innovative ideas!



HIGHLIGHTS

Space Apps Challenge Workshops & Talks

REACT
Blockchain
Prototyping
Startups
Freelancing
Cybersecurity

Global Game Jam

Generative AI
Hackathon

shiftkeylabs.ca

@ShiftKeyLabs

info@shiftkeylabs.ca

A photograph of two female students in a laboratory setting. One student in the foreground is smiling and looking down at a laptop screen. Another student is visible behind her, also focused on the screen. They are surrounded by various pieces of equipment, including a robotic arm mounted on a blue wall in the background.

YOUR JOURNEY INTO AI STARTS HERE

AI2Market / Discover

Lab2Market



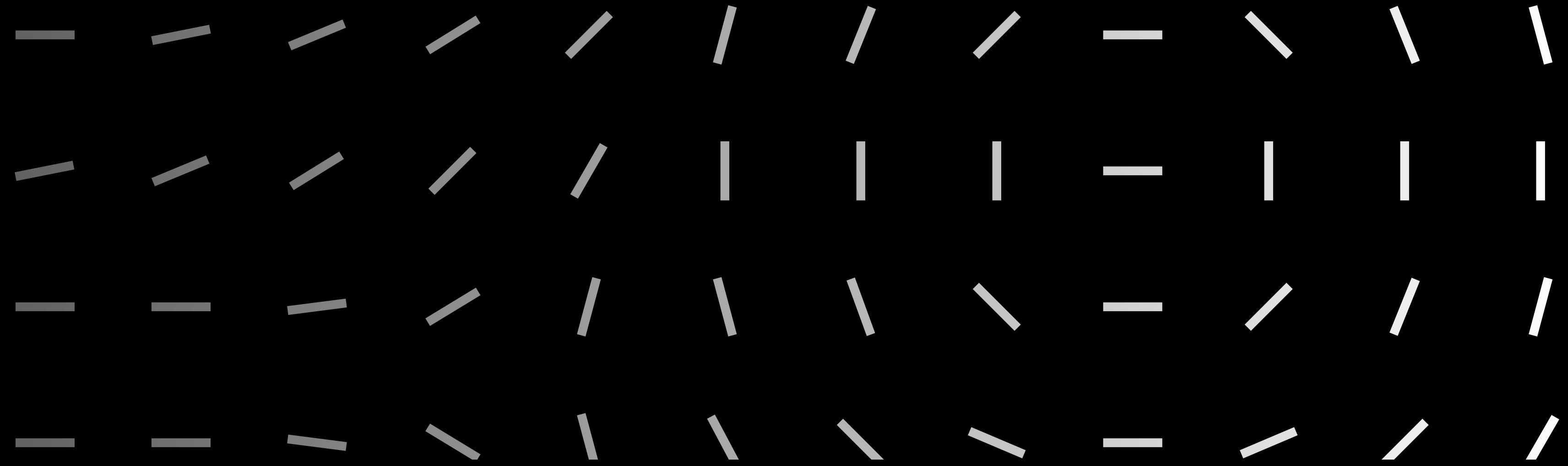
DALinnovates



SHIFTKEY
LABS

APPLICATIONS OPEN





Agentic AI

Session 1

Presented by Eduard and Huy



House Keeping

Attendance: 3 out of 4 sessions

Final Project: 3-5 minute video showcasing your agent

Resume Mini-Course: 10 minute exercise on Brightspace

Make sure you have access to Brightspace

About Us



Eduard Kakosyan

AI Developer @ AI-First Consulting
BCS @ Dal

1st place at Atlantic AI Summit
2nd place at Volta Agentic Hackathon
Shiftkey Build 2024-2025



Huy Huynh

AI Developer @ Nova Scotia Gov.
BACS @ Dal

Perplexity AI Campus Partner
1st place at Atlantic AI Summit
2nd place at Volta Agentic Hackathon
Shiftkey Build 2024-2025

Course Description

This is an introductory course into GenAI and Agents. By the end of this course you will know about:

- LLMs
- Context Engineering
- Workflows
- Agents
- How to build anything with LLMs

Final Project! (food for thought)



Requirements

- Create an AI agentic system that will solve a problem
- Description & Explanation
- Agent Development
- Behavioral Evaluation
- Insights & Reflections
- Recommendations
- Conclusion

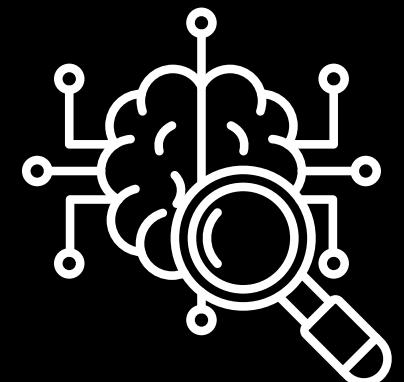
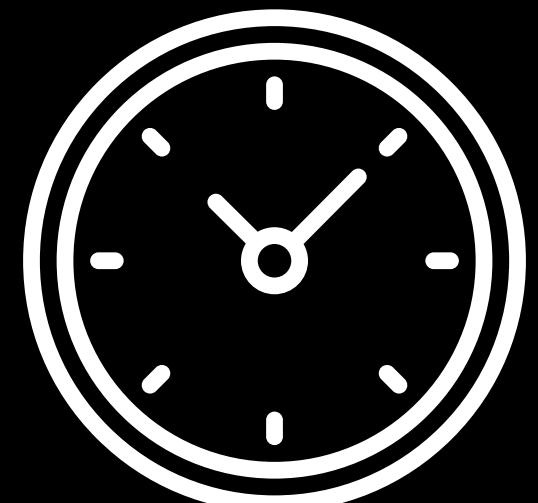
Questions?

What is a Large Language Model (LLM)

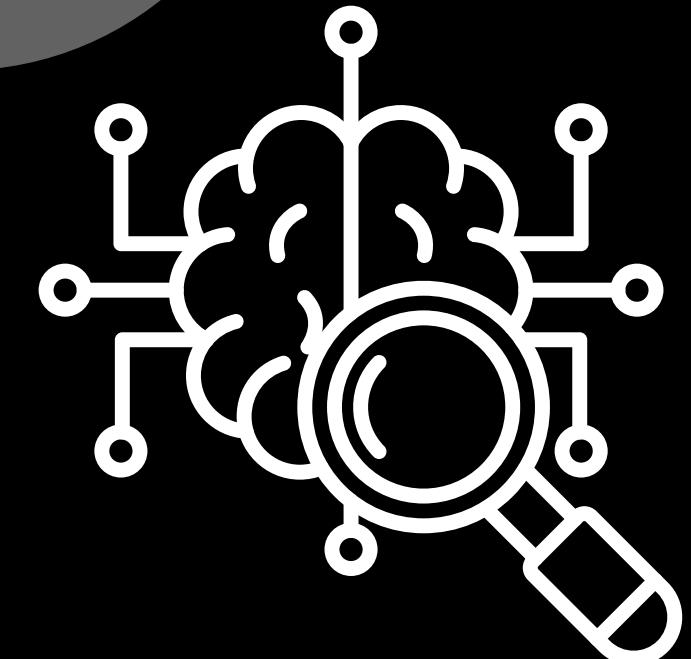
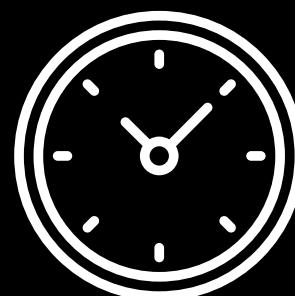
Large Language Model



Base LLM

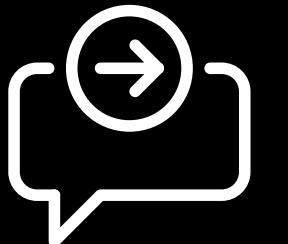


Instruct
LLM



LLMs are Next Word (TOKEN) Predictor Machines

“Tell me a story about a cat”



Prompt



LLM

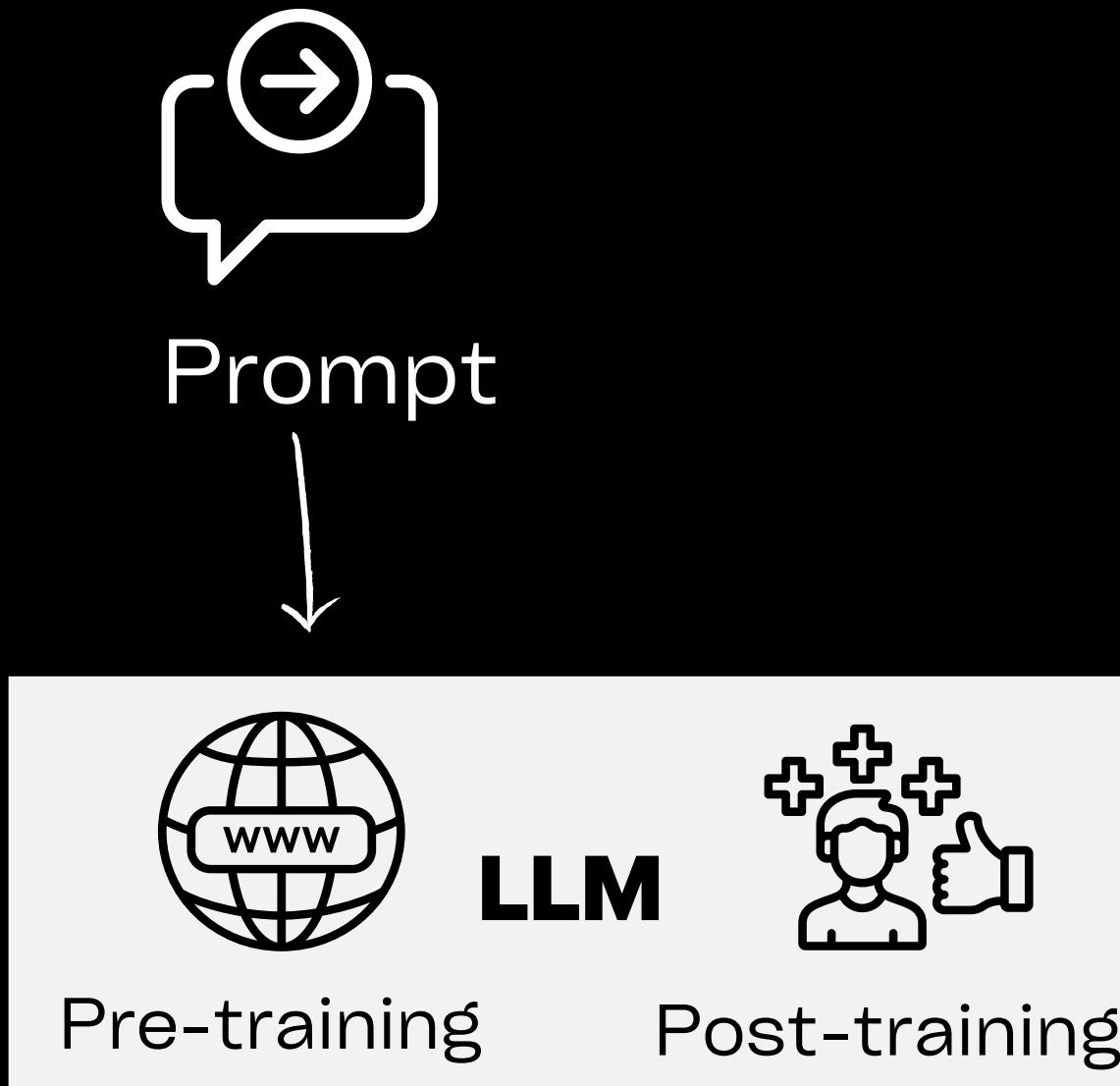
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



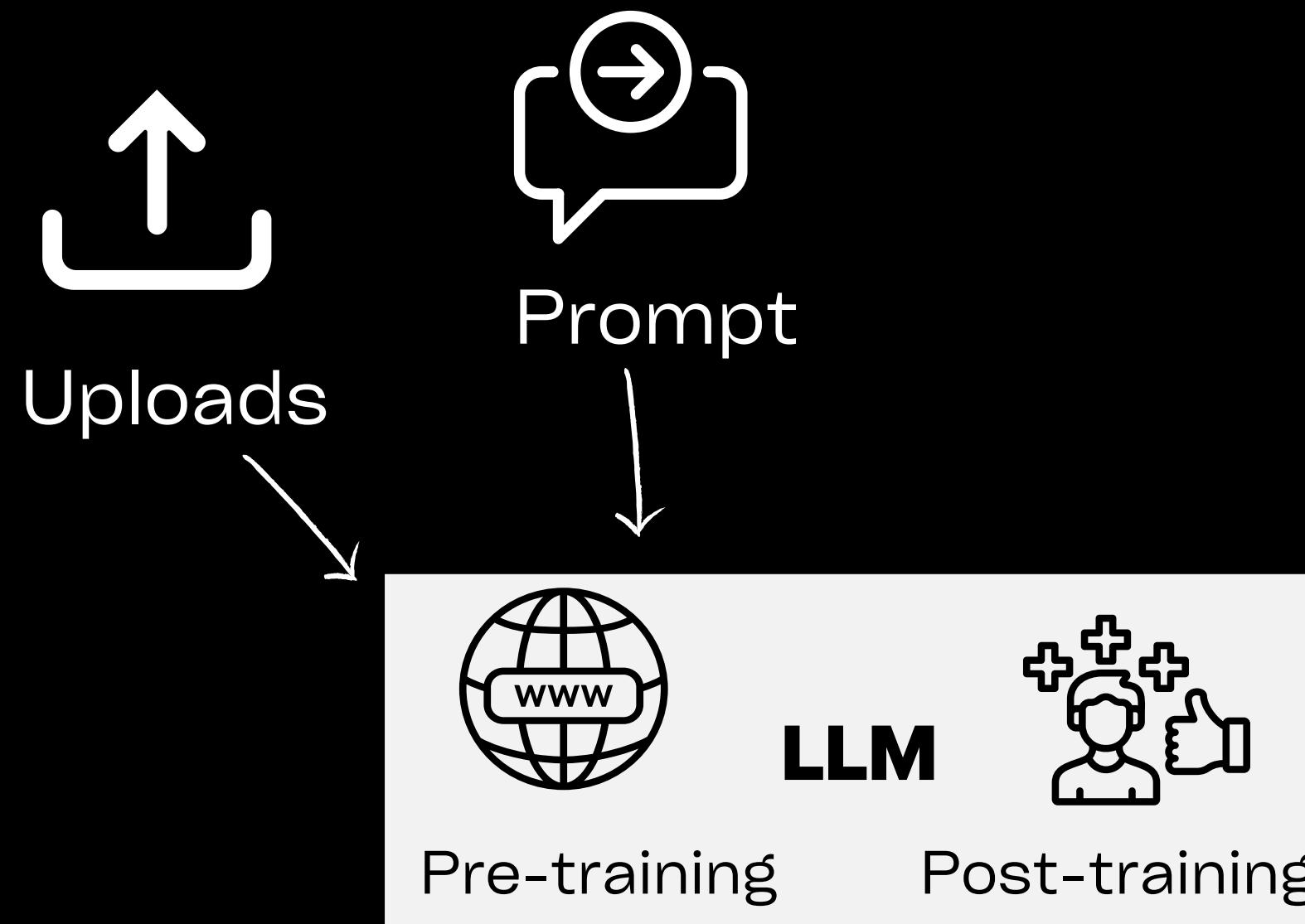
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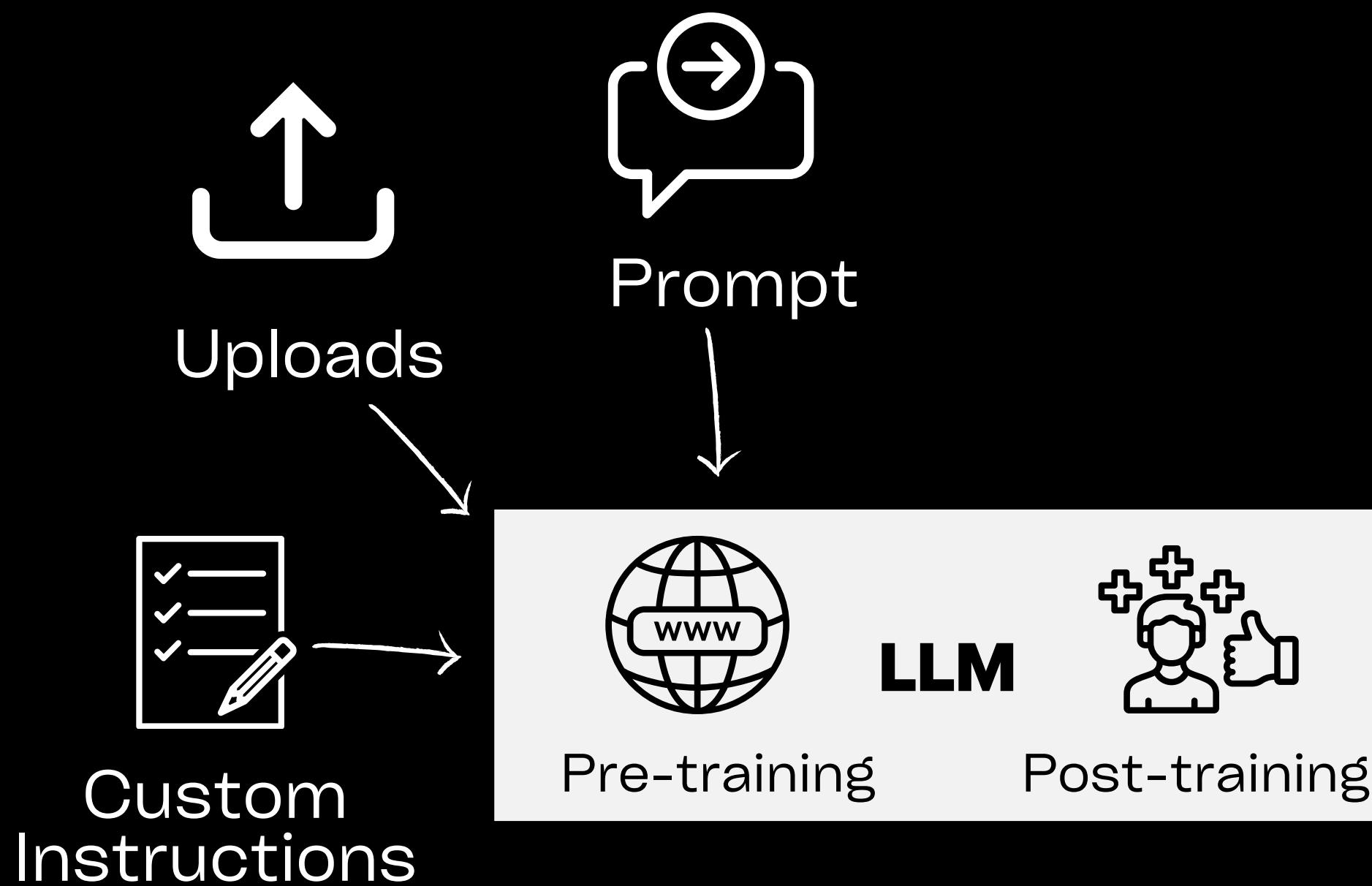
LLMs are Next Word Predictor Machines

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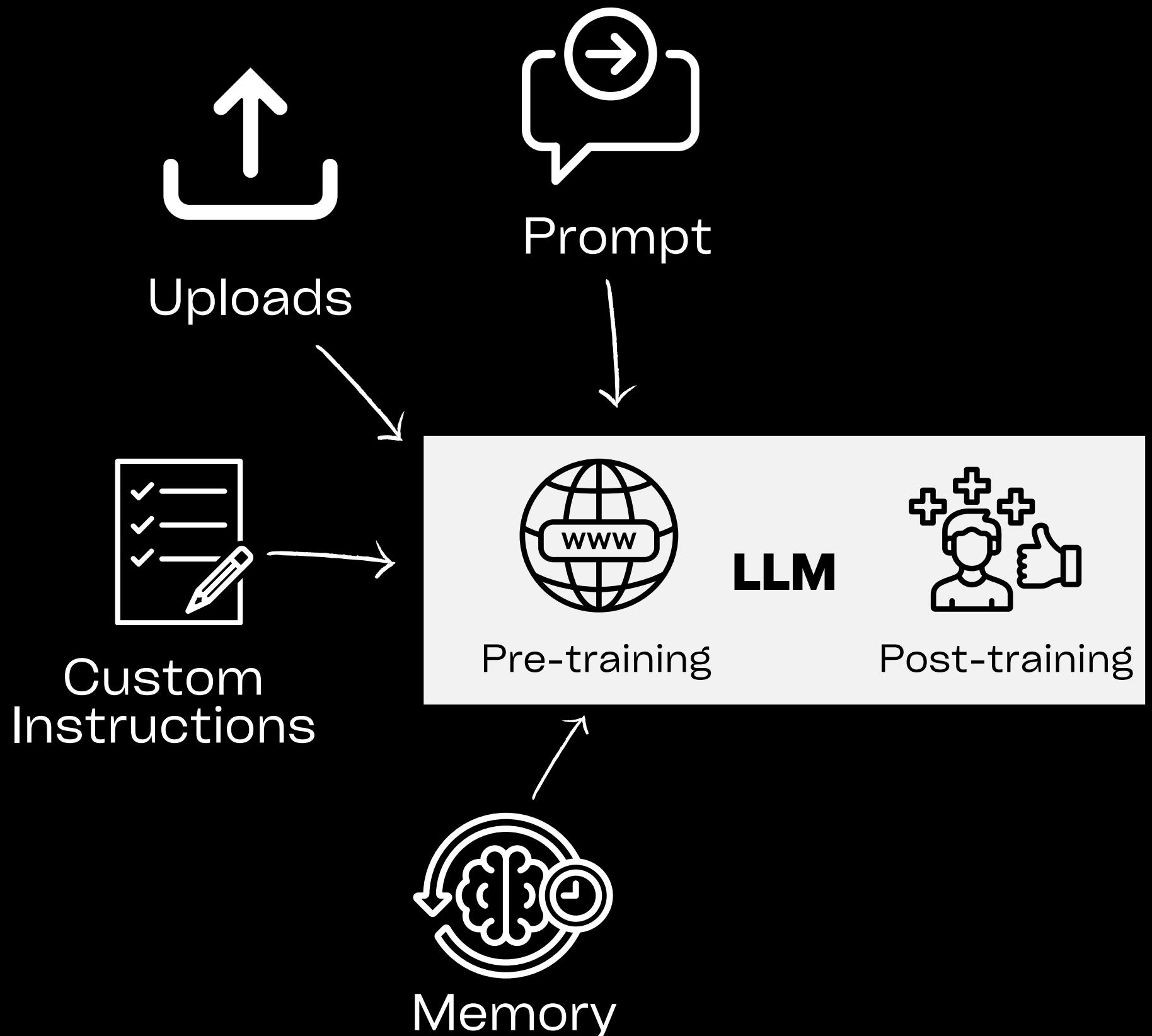
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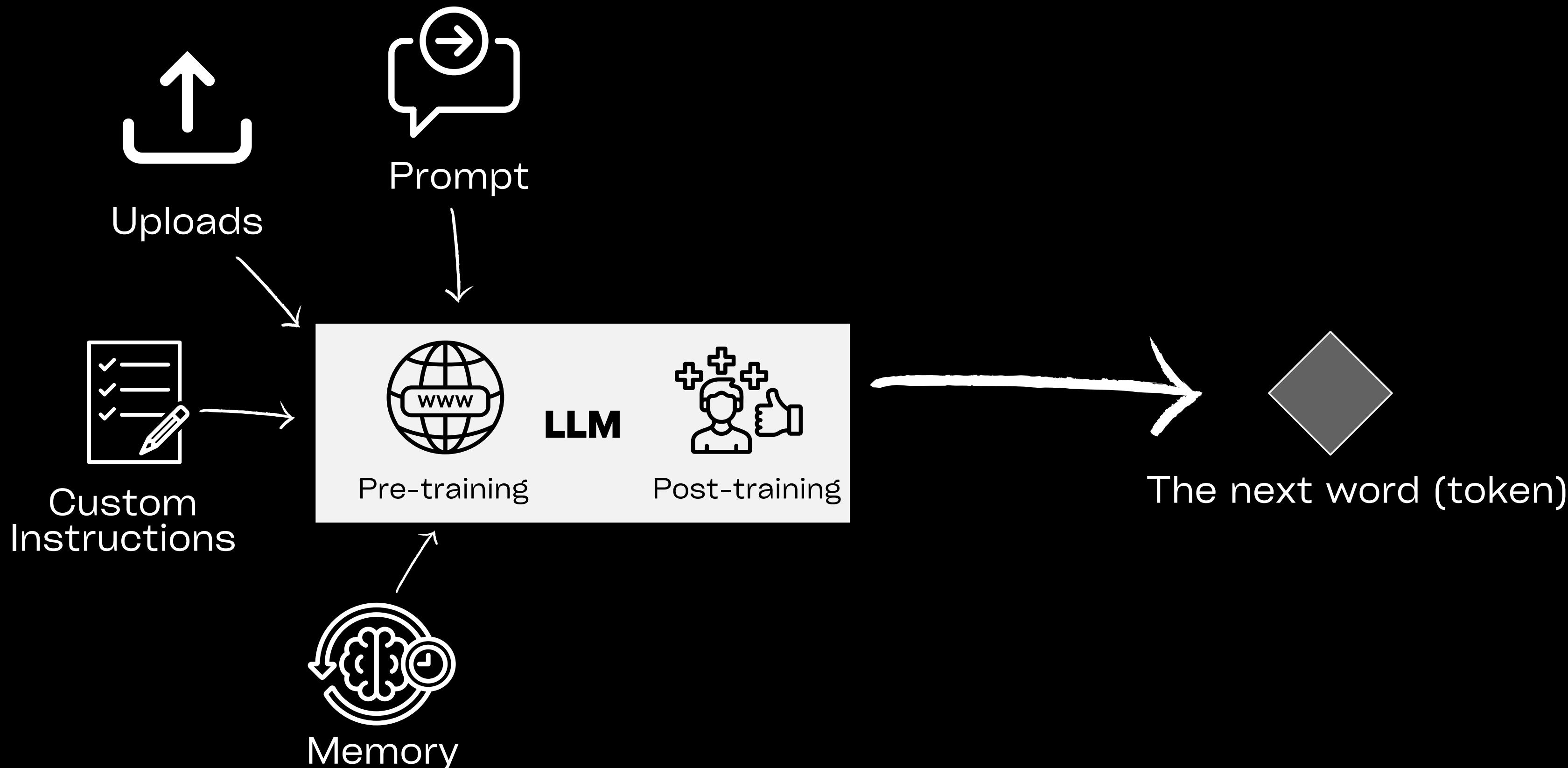
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



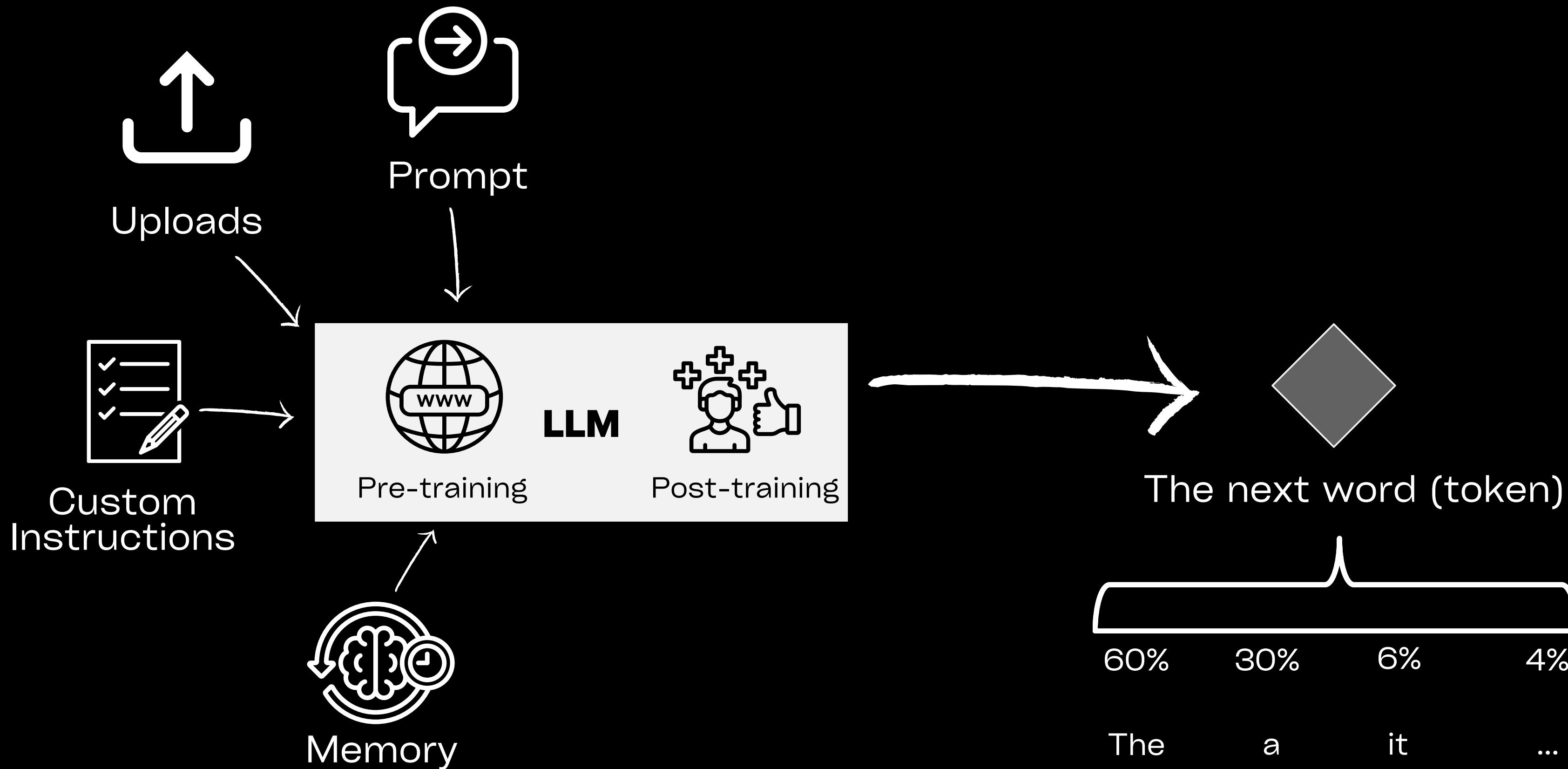
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



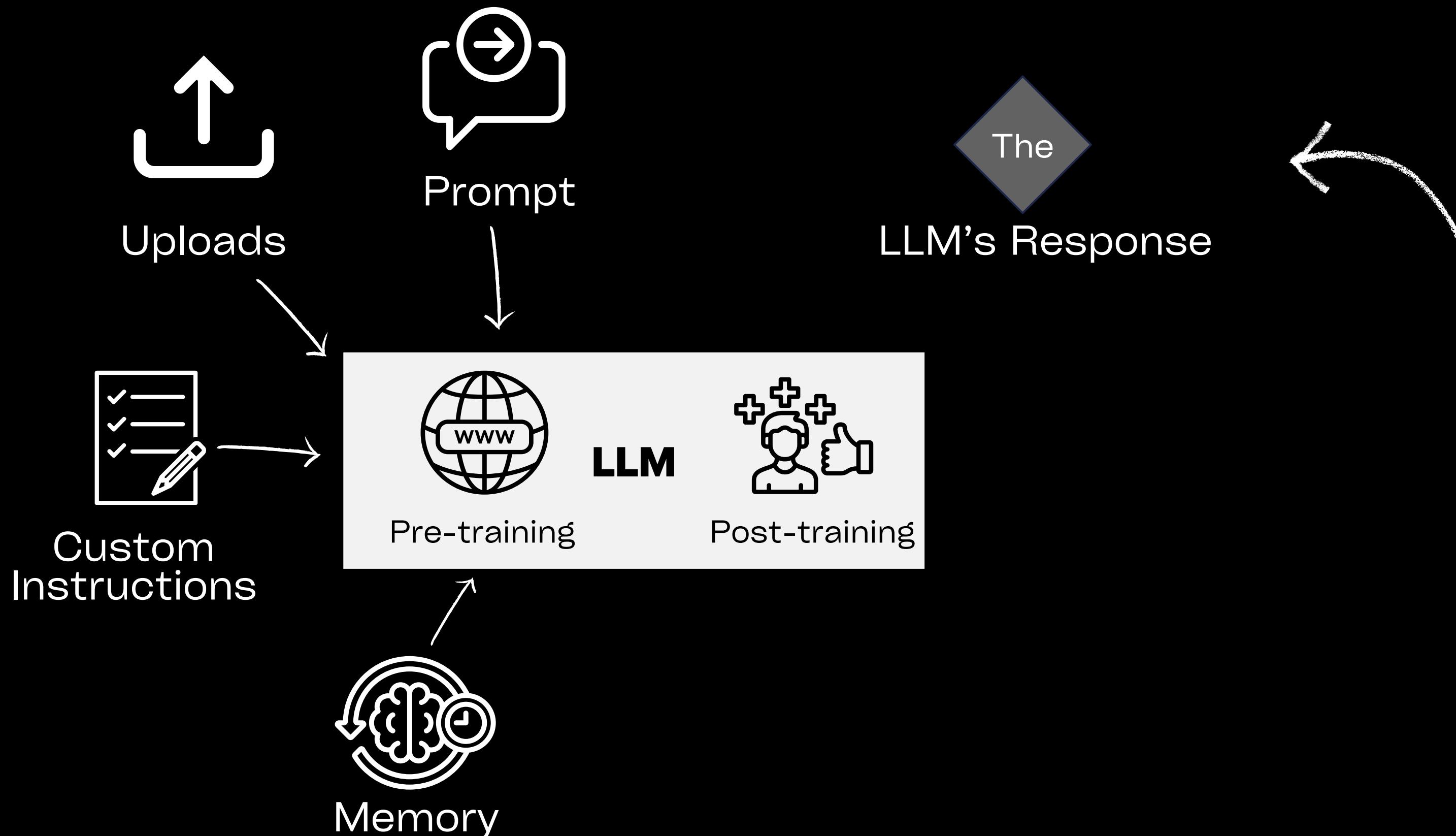
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



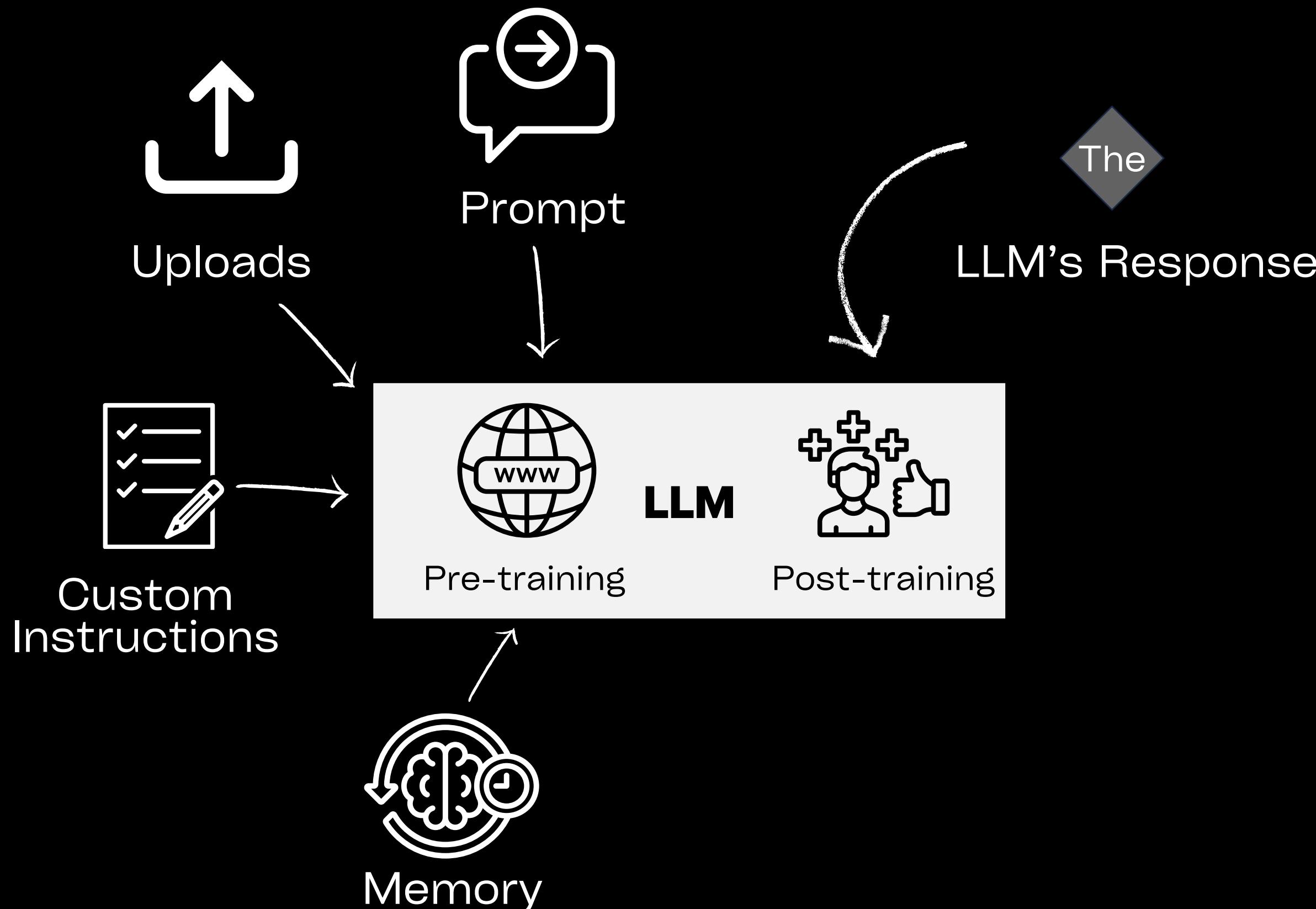
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



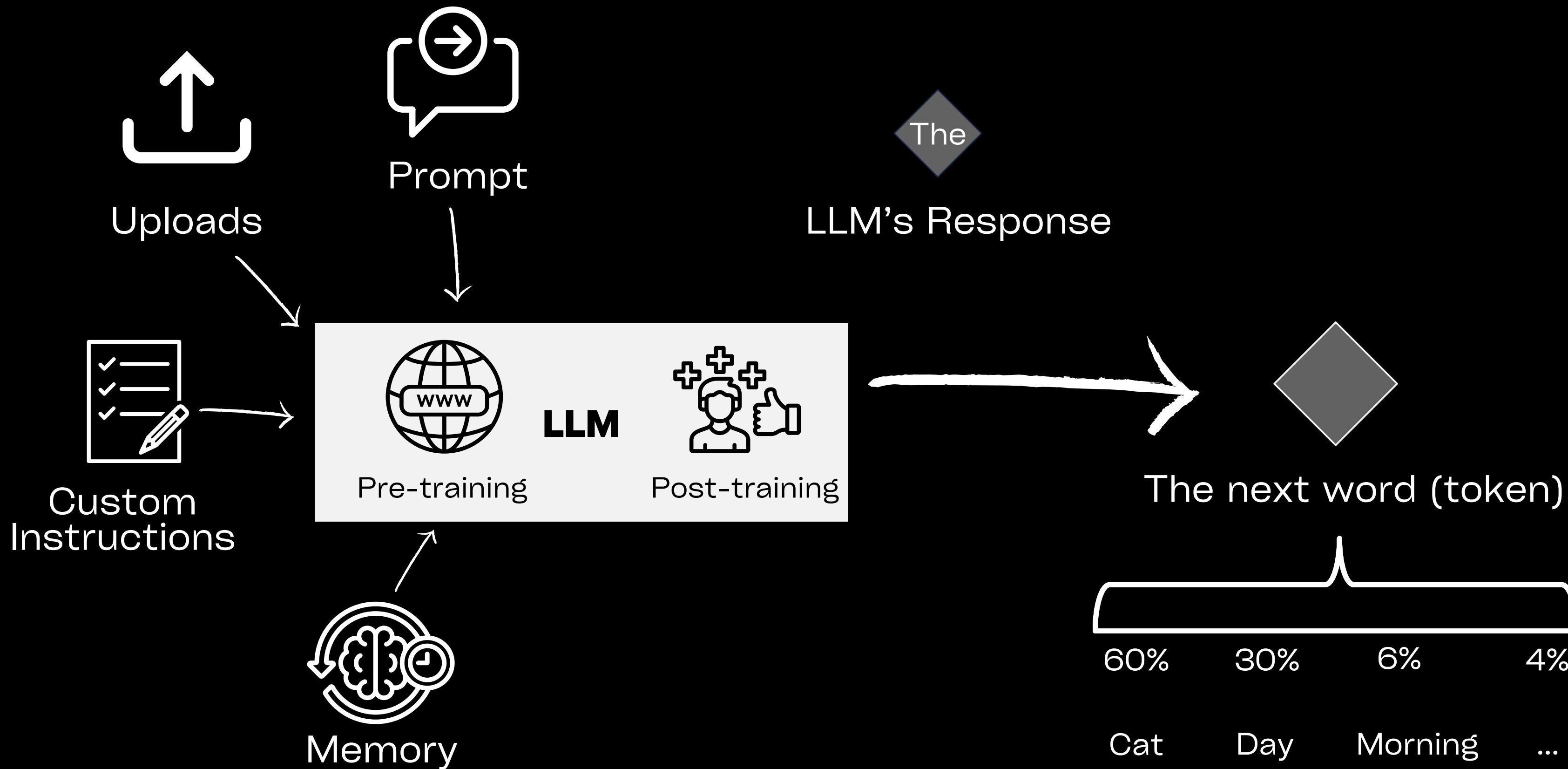
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



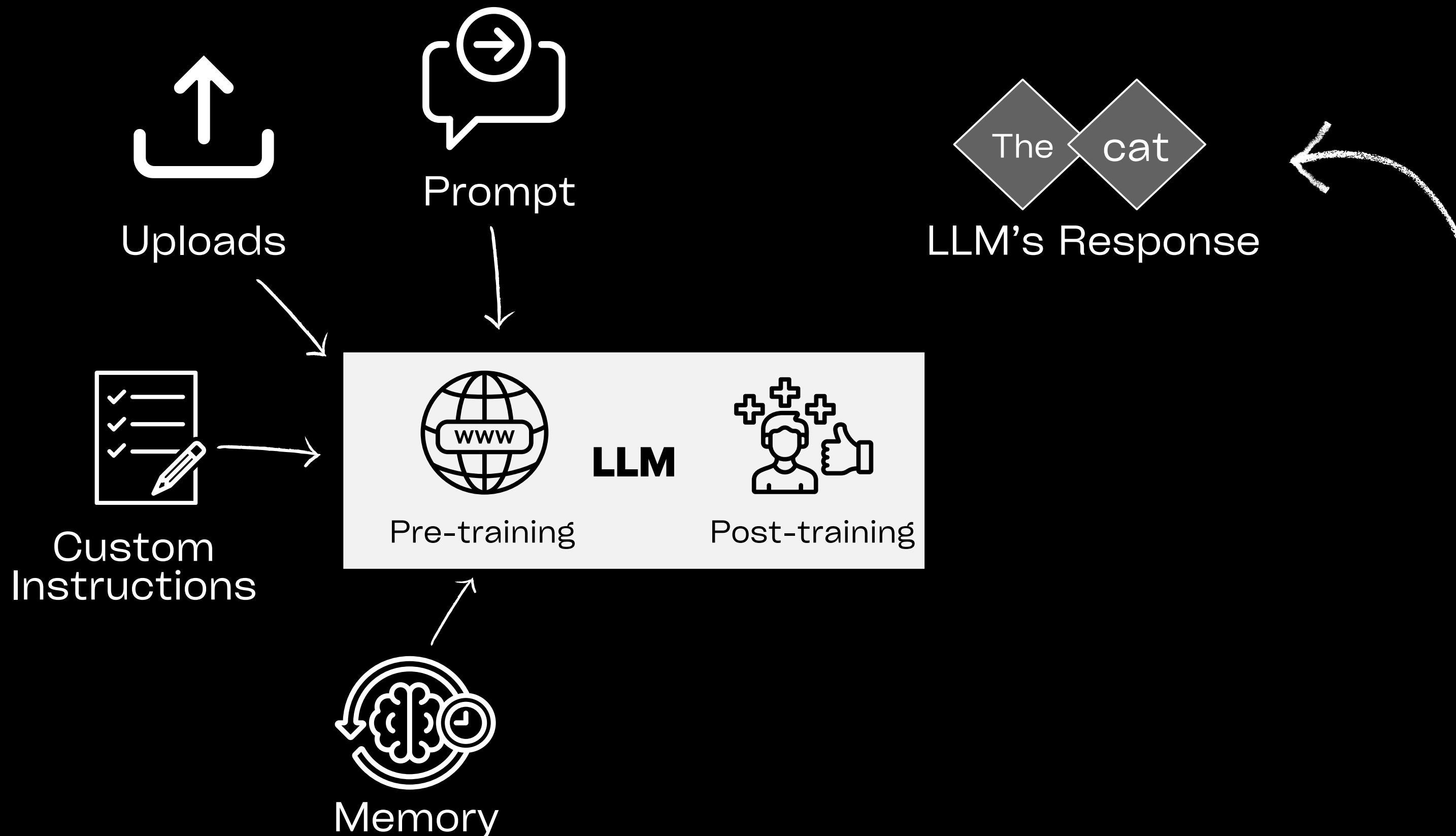
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



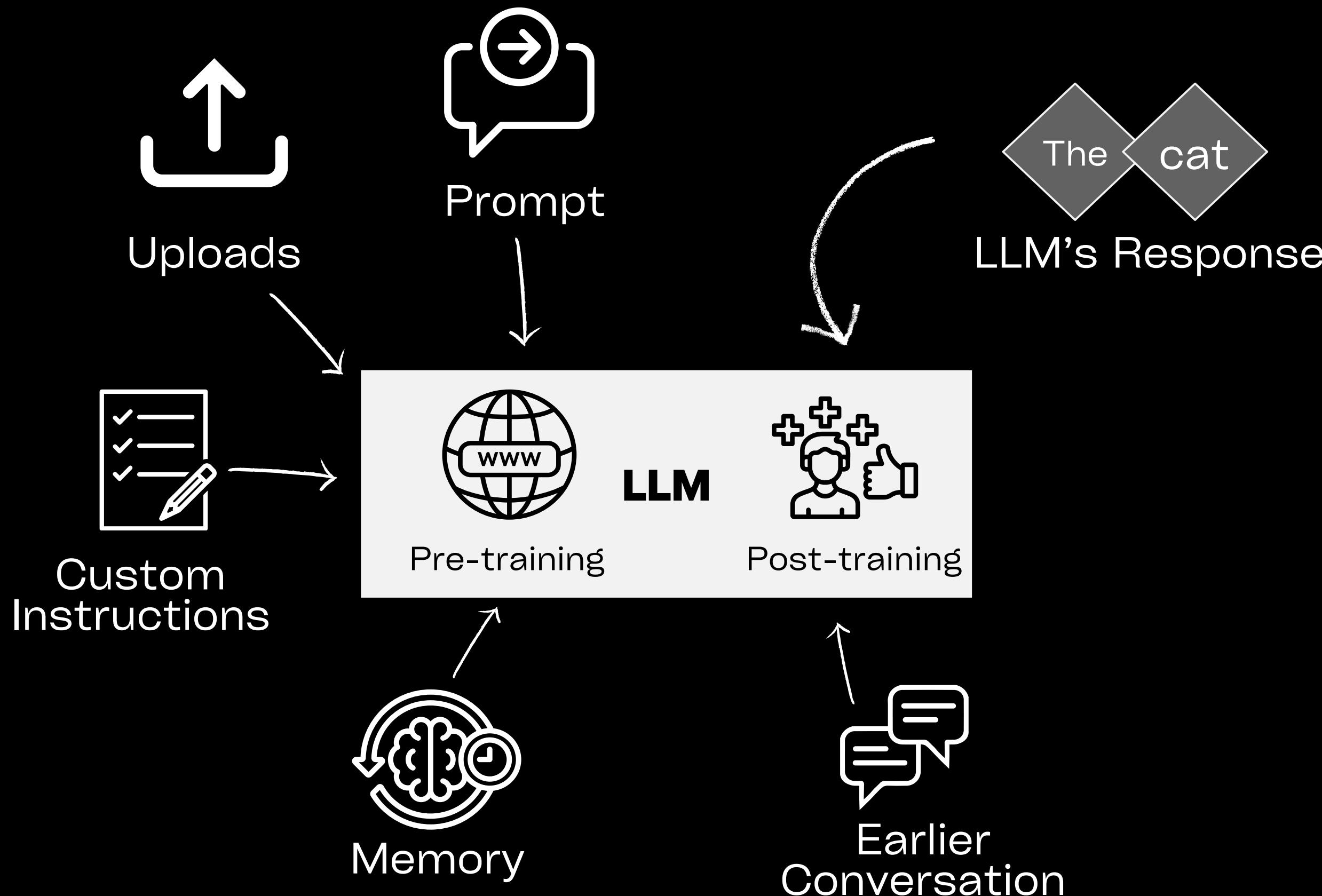
LLMs are Next Word Predictor Machines

“Tell me a story about a cat”



LLMs are Next Word Predictor Machines

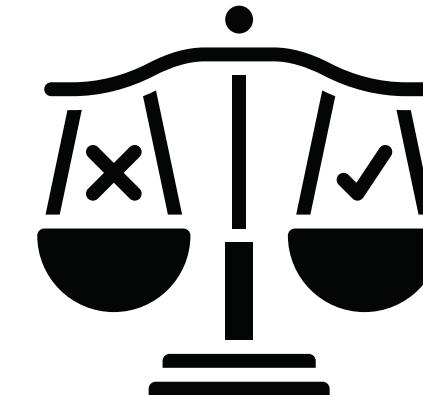
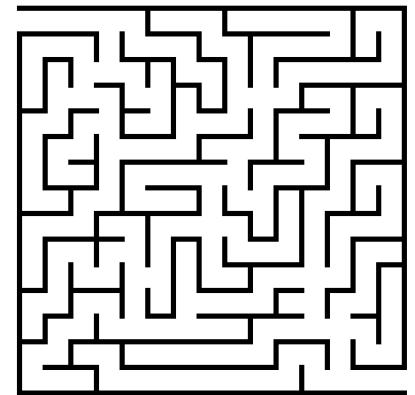
“Tell me a story about a cat”



Questions?

Generative AI Considerations

Things to understand before going all-in on AI



Unable to Think
Ahead*

Hallucinations
and Inaccuracies

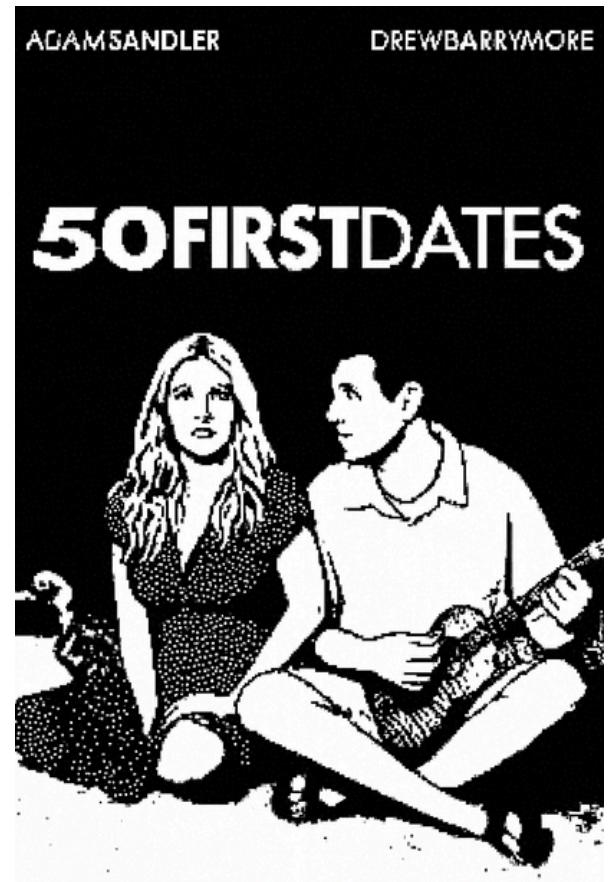
Confidentiality
and Privacy

Sensitive and
Ethical Issues

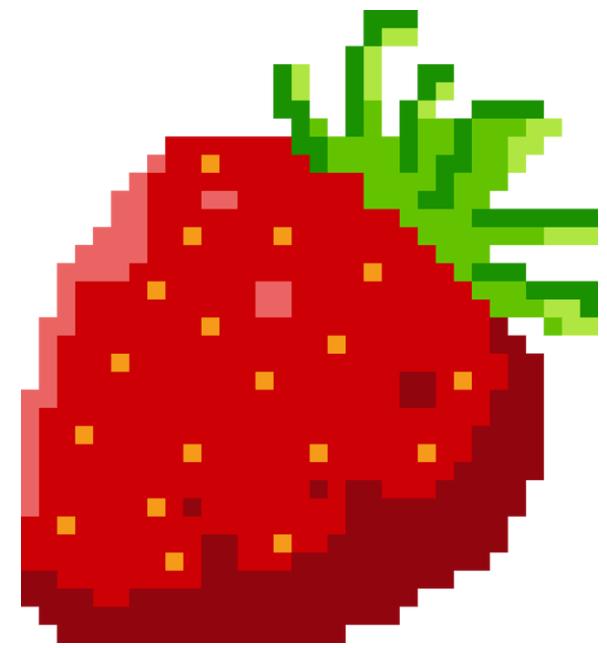
Environmental
Concerns

AI Quirks

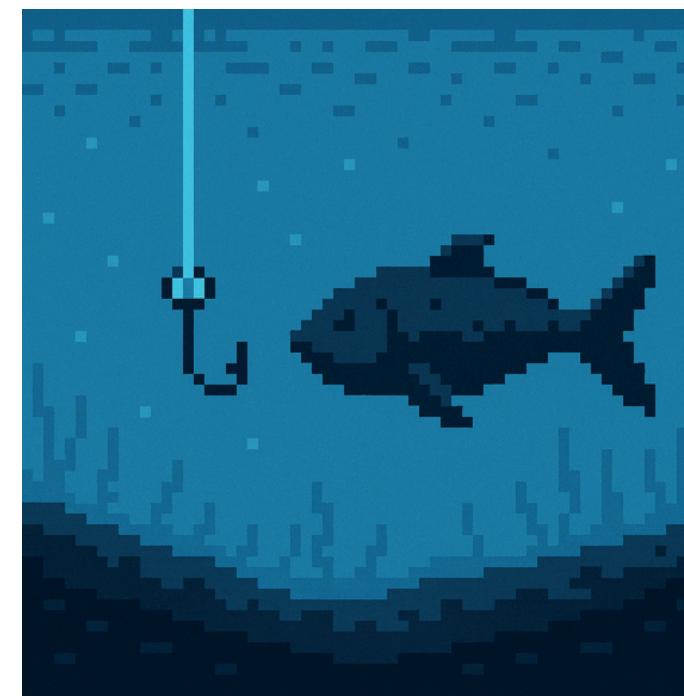
LLMs are like geniuses who sometimes get things a bit goofy



Memory
Challenges



Jagged
Intelligence
“How many R’s in
‘strawberry’?”

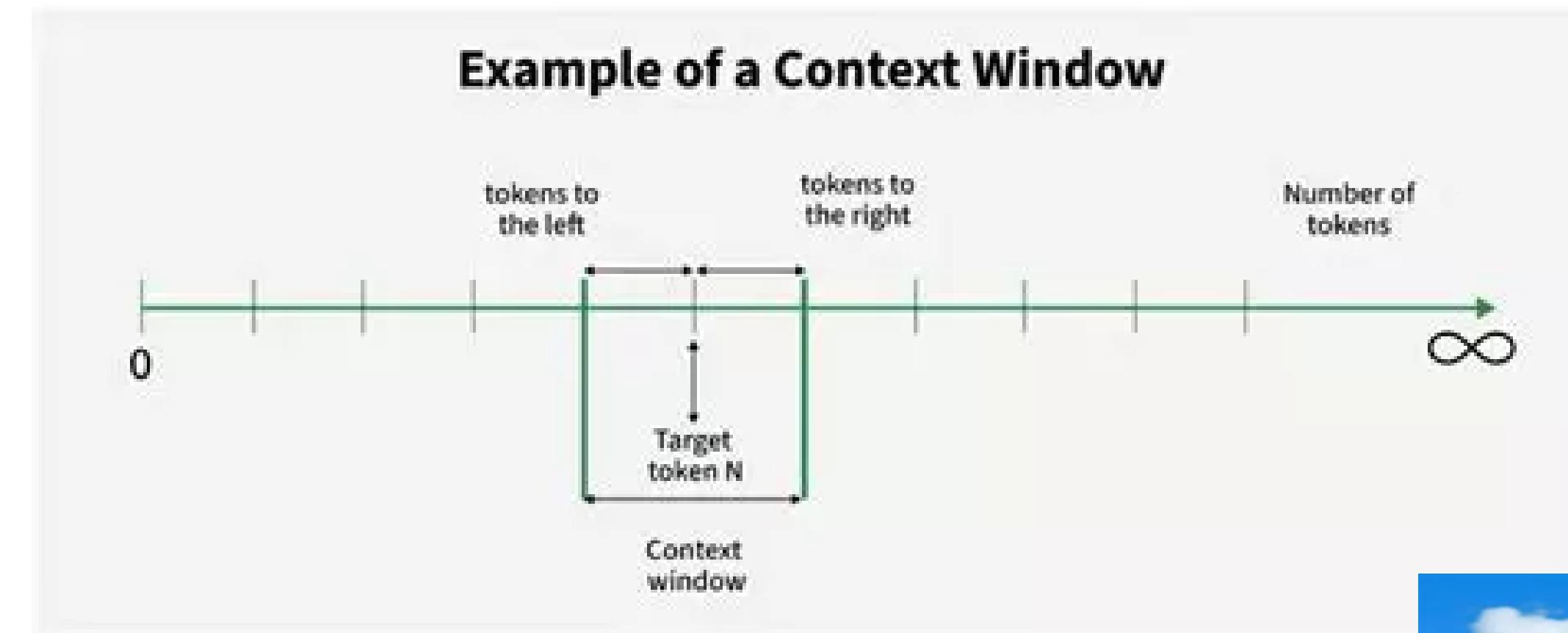


Gullible
(can be tricked)



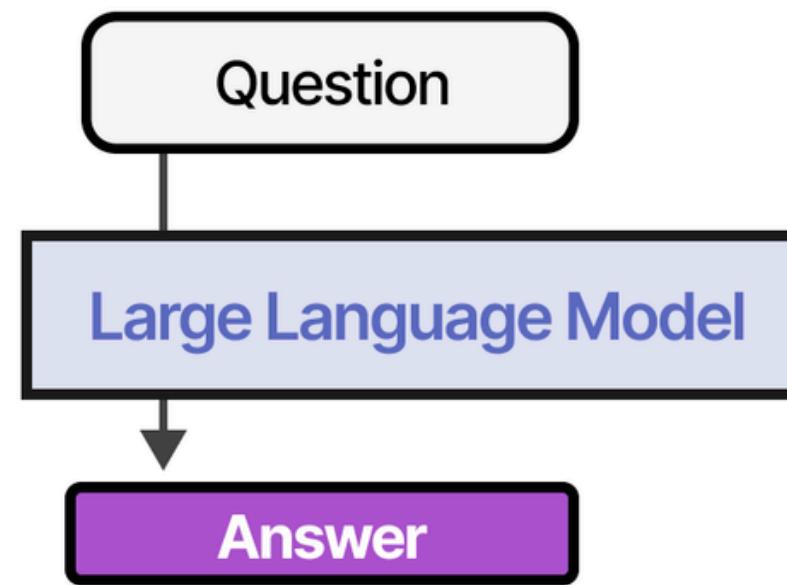
Sycophantic
(eager to
please)

Context/Memory

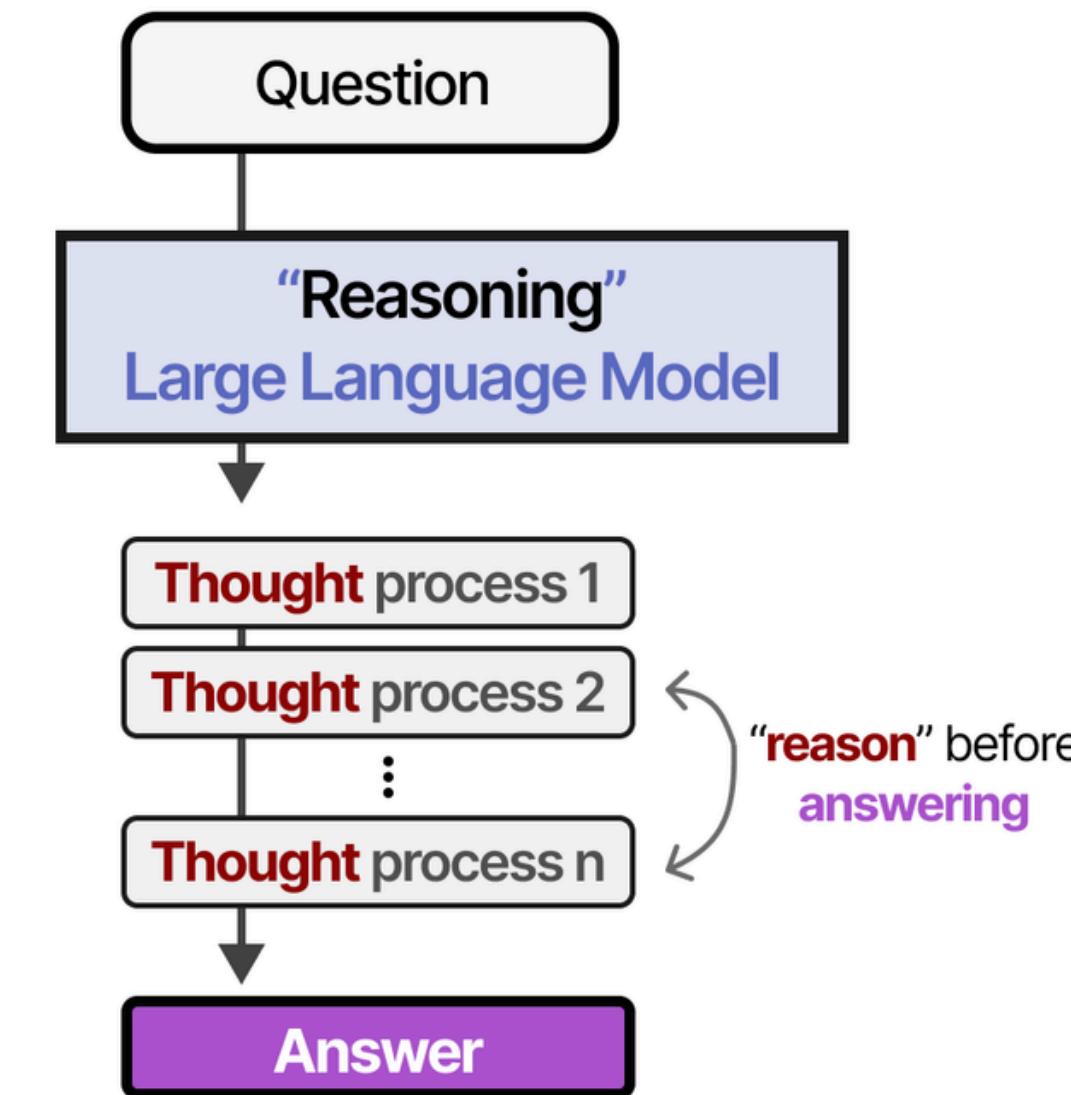


Do they think?

“Regular” LLMs



“Reasoning” LLMs



Questions?

Prompt Engineering

Crafting input prompts to guide language models (LMs) to produce accurate and relevant outputs.

Well-structured prompts improve model performance and reduce errors.
Poorly constructed prompts lead to irrelevant or nonsensical results.

Often requires multiple attempts to refine and improve prompts based on feedback.

Common Strategies

Zero-Shot

No examples provided. The model is expected to generate responses without guidance.

Few-Shot

Include 1-5 examples to guide the model on how to respond.

Chain-of-Thought

Break down complex tasks into sequential steps for clearer reasoning.

Context Engineering

C: Character

O: Objective

-

C: Context

R: Readability

E: Examples

A: Additions

T: Template

O: Orient

R: Rationale

Character

You are a knowledgeable and encouraging AI study assistant who adapts to different learning styles.

Objective

Help me understand complex topics, retain information effectively, and develop strong study habits. I need to achieve high grades and pass my courses.

Context

I'm a 4th Year student studying Computer Science. I have 1.6 GPA, I need above 1.7 GPA to pass this semester.

Readability

Use clear, simple language appropriate for a failing student and avoid overwhelming jargon. Make pop culture reference when possible.

Examples

Provide concrete examples, analogies, and practice problems to illustrate key concepts.

Additions

Offer study schedules, memory techniques, and personalized learning strategies based on student needs.

Template

Structure responses with: concept explanation → example → practice opportunity → study tip.

Orient

Begin by understanding the student's current knowledge level, learning goals, and preferred study methods.

Rationale

Explain the "why" behind concepts and study techniques to promote deeper understanding and motivation.

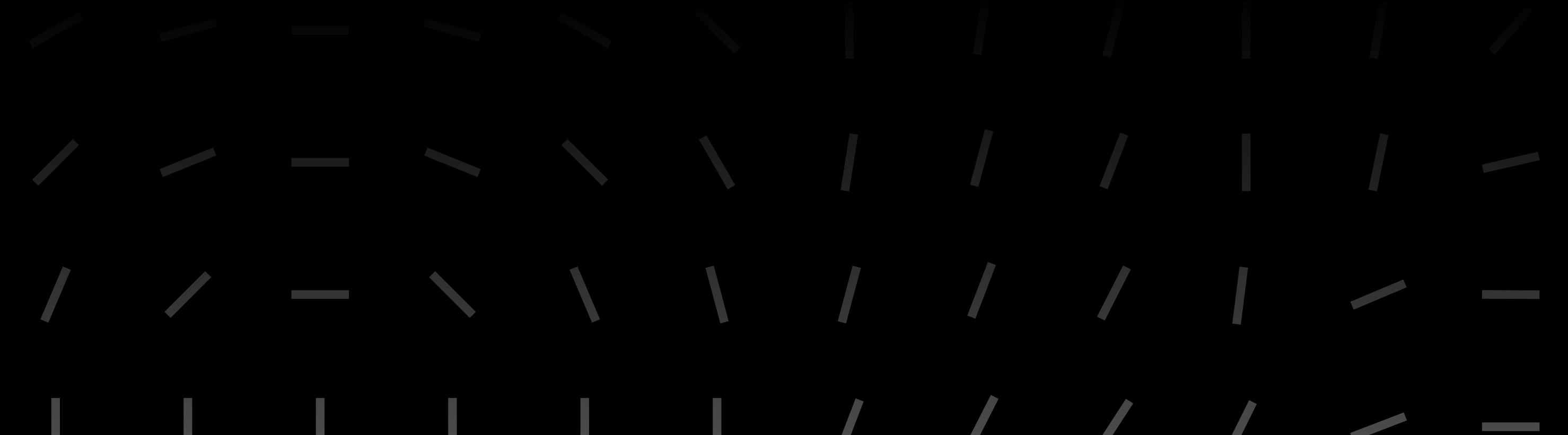
Which one
should I use?



Gemini

A stylized orange sunburst or starburst icon next to the word "Claude" in a large, black, sans-serif font.

Demo



Next Session

- Tools of the industry
- RAG
- Workflows