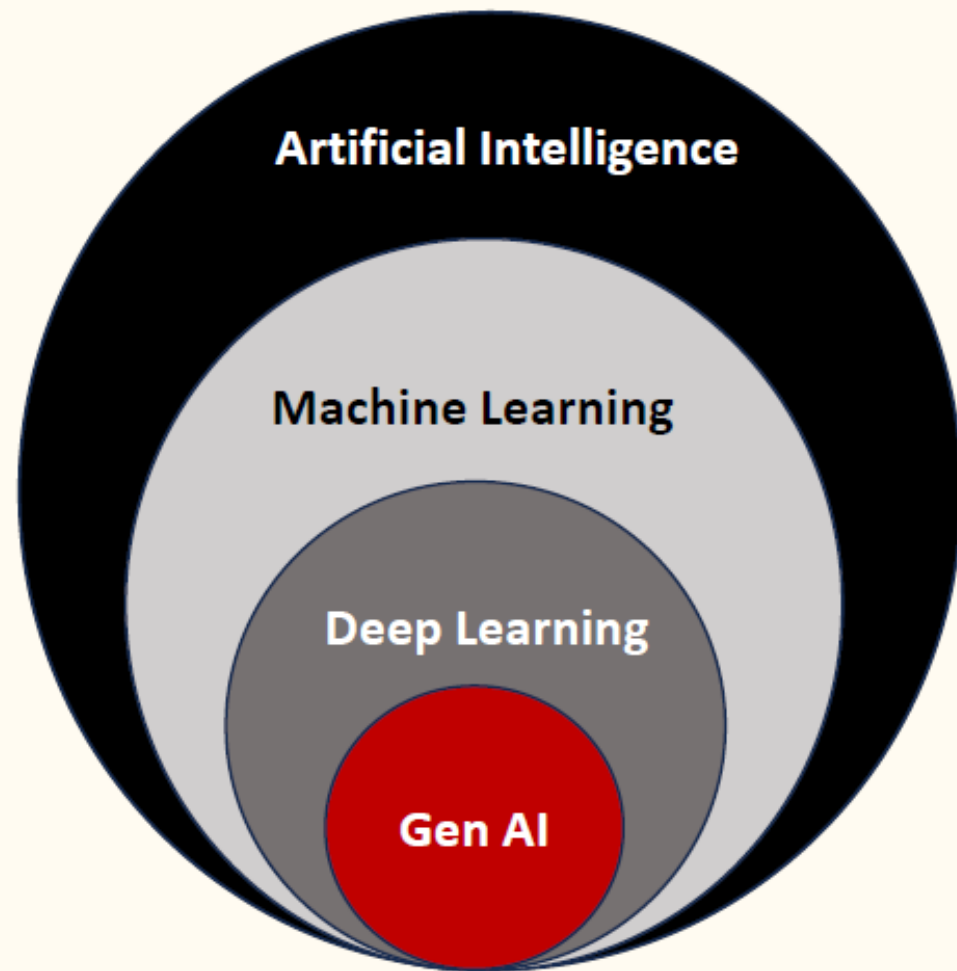




Agentic AI

Explore the next evolution of artificial intelligence.

Artificial Intelligence



Artificial Intelligence

Dartmouth conf 1956

Any technique that enables computer to mimic human behavior



Machine Learning

IBM Deep Blue 1997

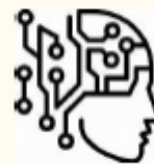
A subset of AI that enables computer to learn pattern from data



Deep Learning

Revival of interest in 2006

A subset of ML that works more like human brain



Generative AI

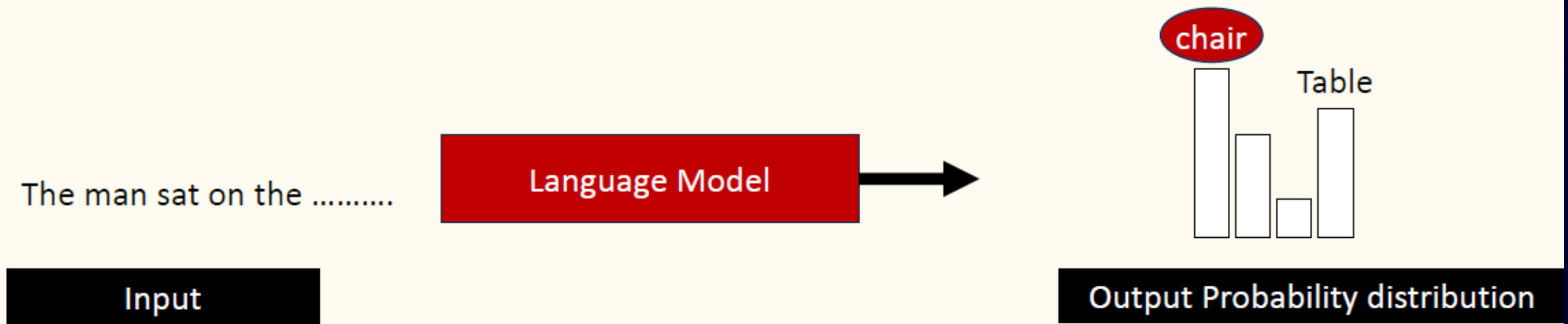
ChatGPT in 2021

Create new text, visual or auditory content based on prompt

Language Models

What are Language Models(LMs)




Language models predict the next word given input word sequence






Large Language Models (LLMs)

A large language model (LLM) is a specialized type of artificial intelligence (AI) that has been trained on vast amounts of text to understand existing content and generate original content. The model can produce text, audio, video data.

Characteristics of LLMs

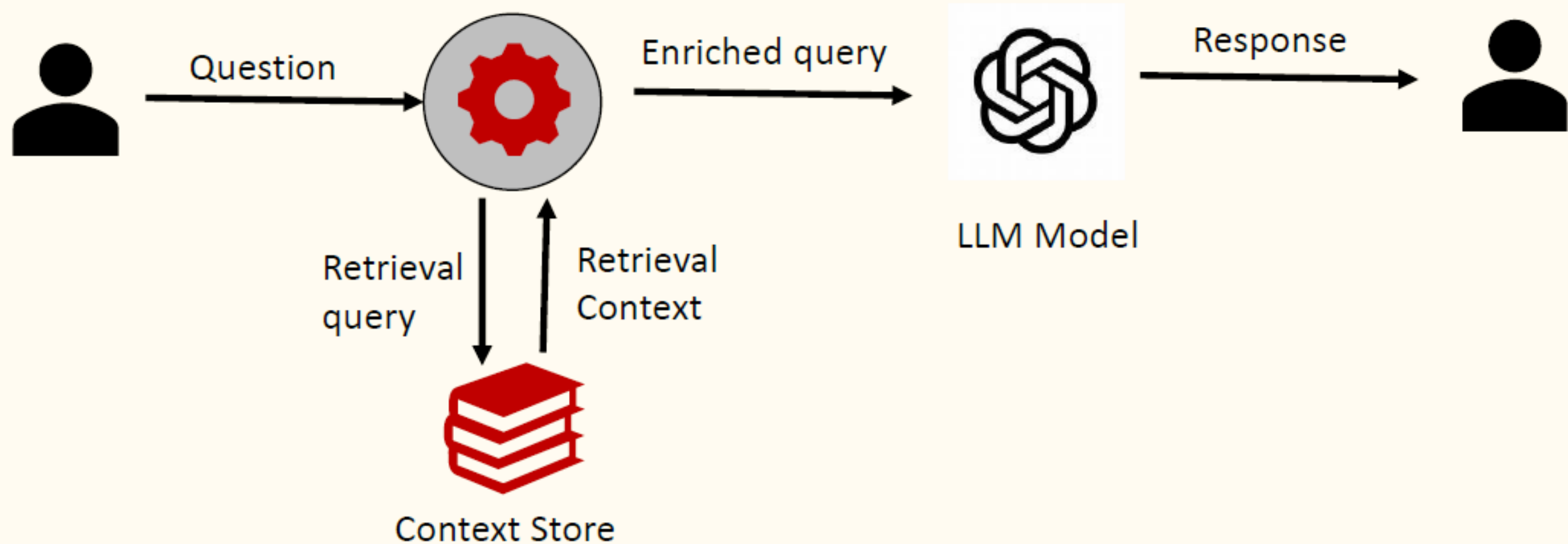
-  Large number of parameters
-  Trained on vast datasets
-  Versatile and general-purpose

Benefits of LLMs

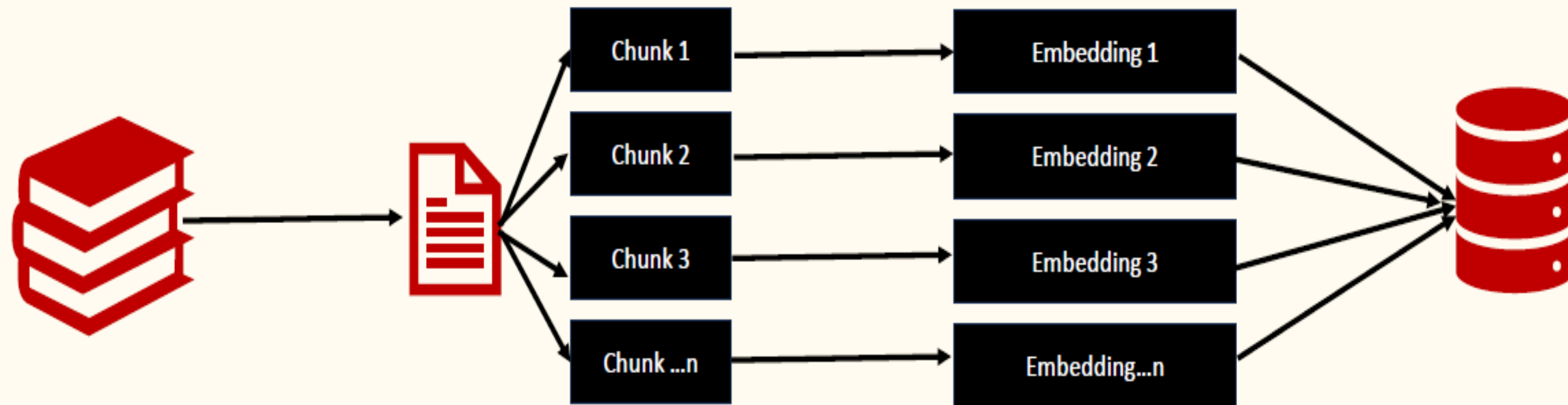
-  Perform diverse tasks
-  Adaptable through fine-tuning
-  Improve continuously with more data

RAG – Retrieval Augmented Generation

RAG is augmenting LLMs with specialized and mutable knowledge base



Vector Databases



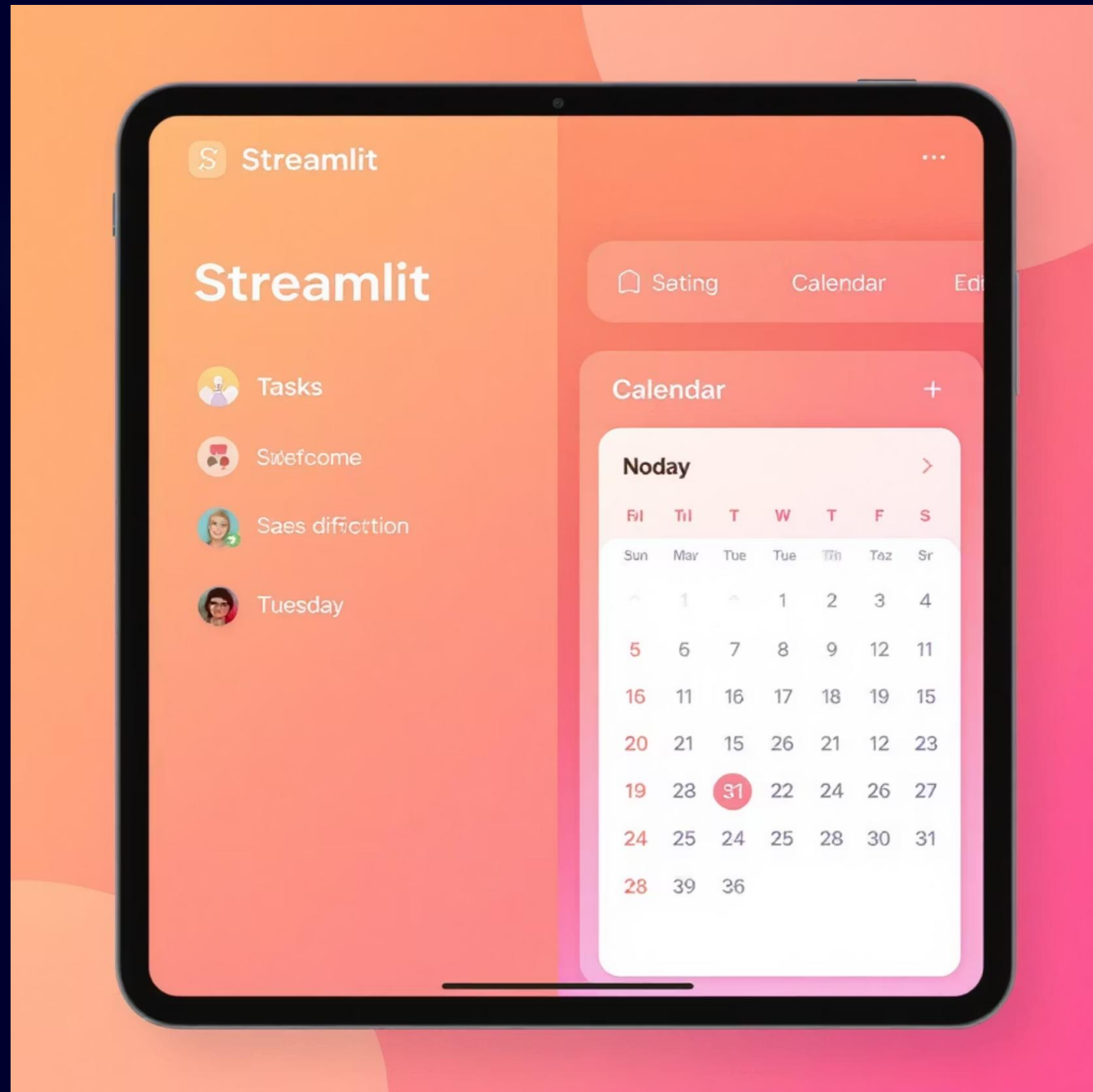
1. Load Documents

2. Chunk Documents

3. Create Embedding

4. Load in a vector DB

The AI-Assisted Daily Task Manager: Practical Demo



Purpose

Illustrating practical AI integration across all the SDLC phases.

Key Features

- Secure User Access & Time Tracking
- Task Management (Add, Edit, Complete)
- Flexible Reporting & Data Export to Excel

Built With

Streamlit (Python) and various other AI tools, VS Code IDE

Live Demo

<https://task-tracker-pro.streamlit.app/>

Agentic AI is the new Digital Labor

“We believe that, in 2025, we may see the first AI agents 'join the workforce' and materially change the output of companies,” – Sam Altman

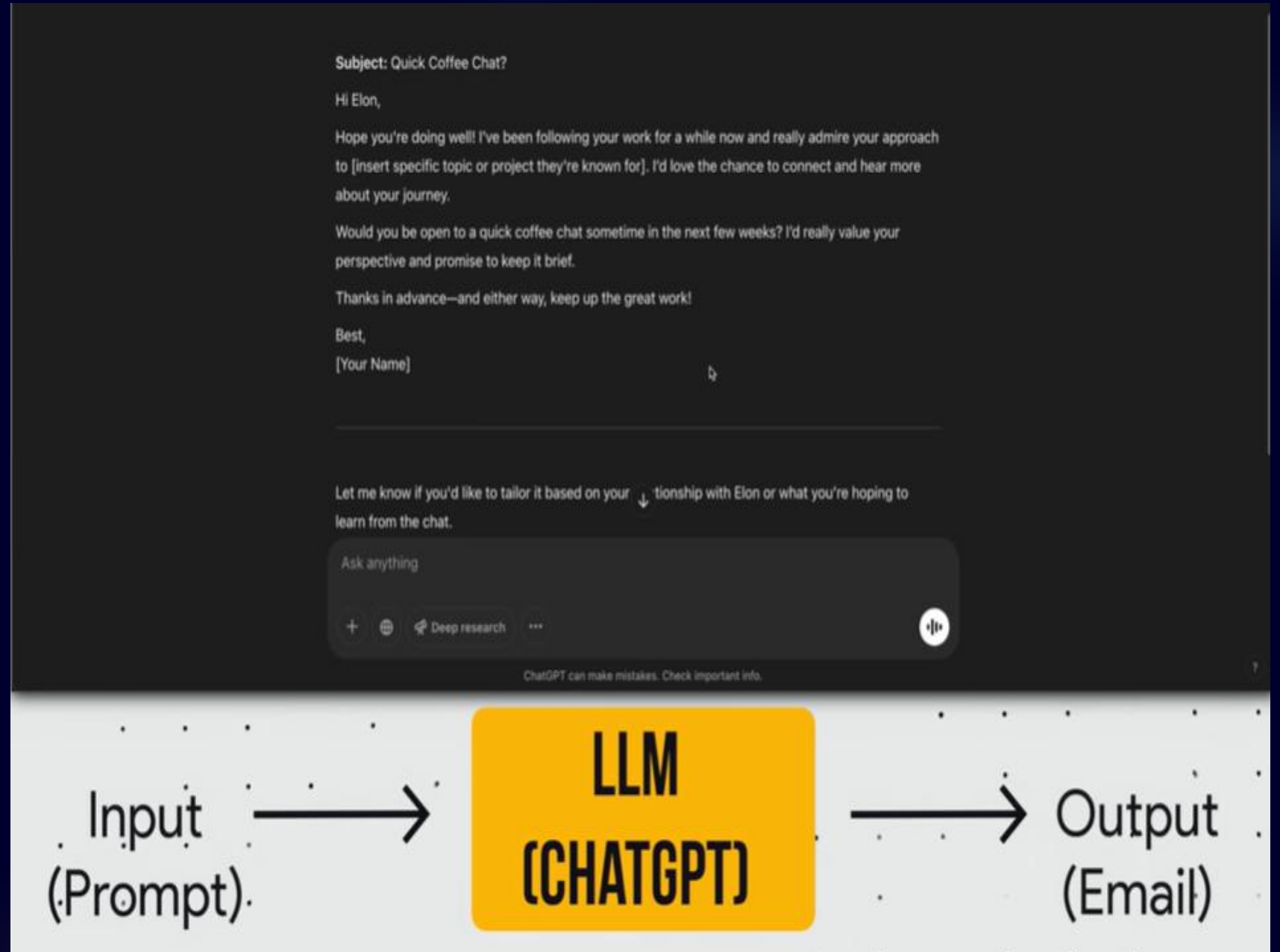
“AI agents will become our digital assistants, helping us navigate the complexities of the modern world. They will make our lives easier and more efficient.” – Jeff Bezos

“AI agents will become the primary way we interact with computers in the future. They will be able to understand our needs and preferences, and proactively help us with tasks and decision making.” – Satya Nadella

LLMs

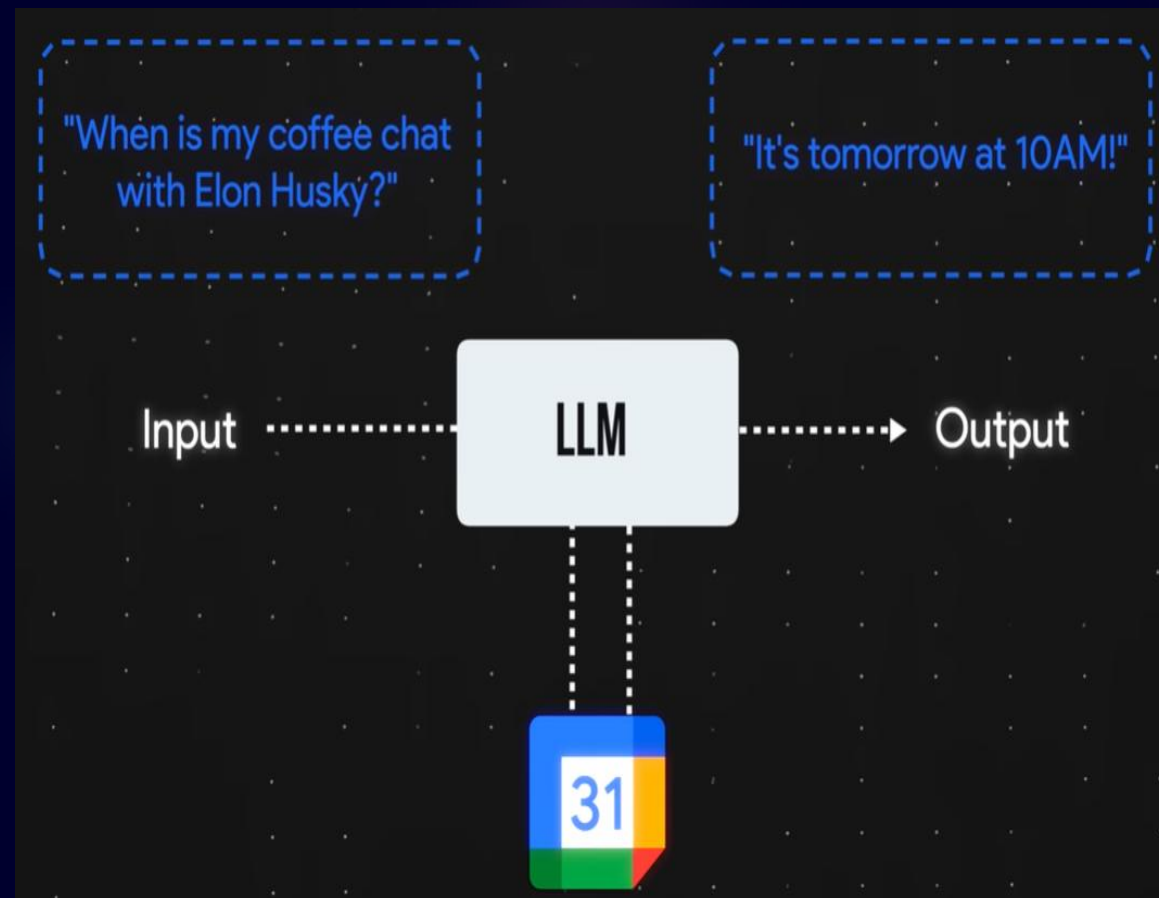


Large Language Models (LLMs)

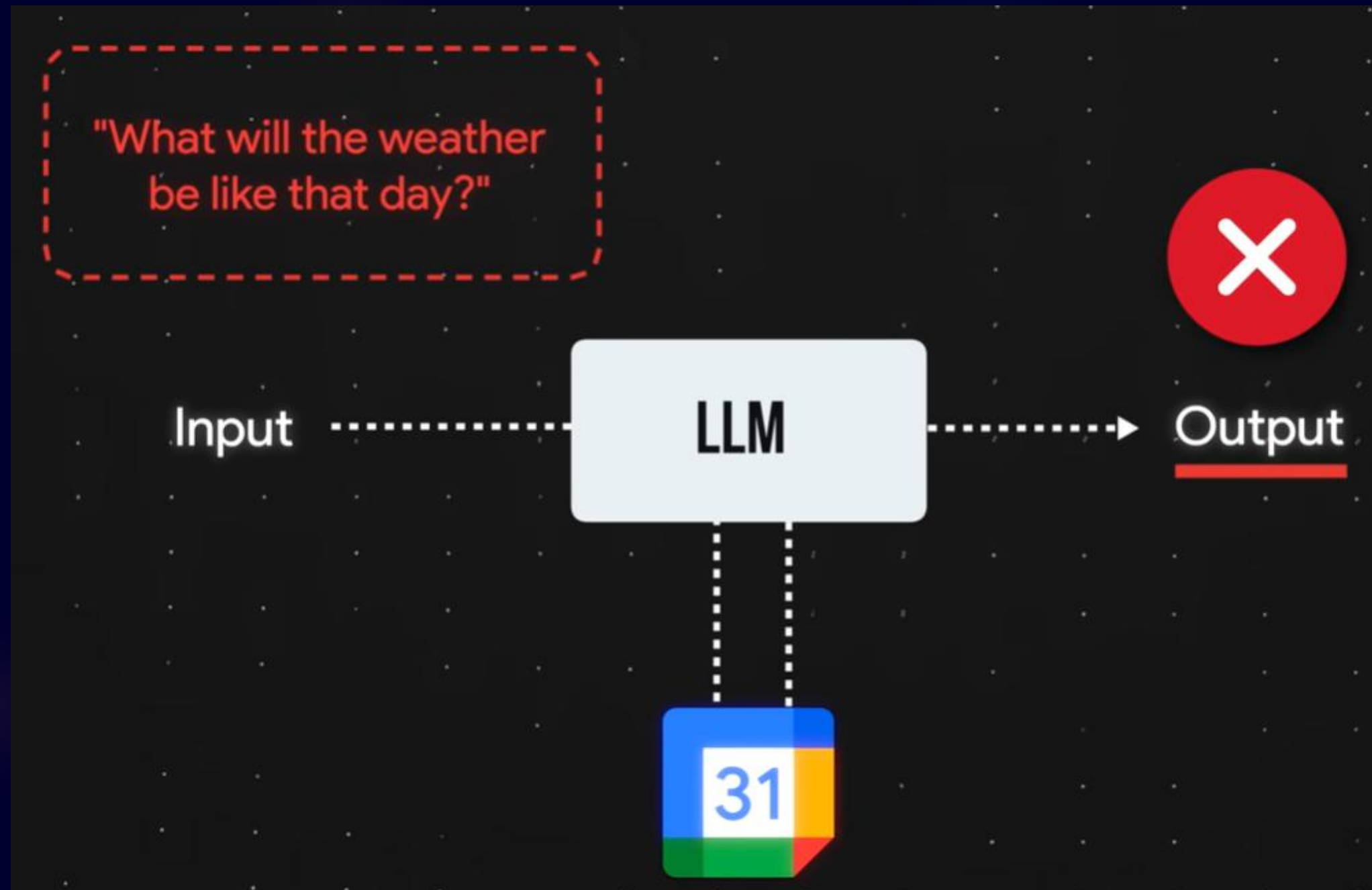


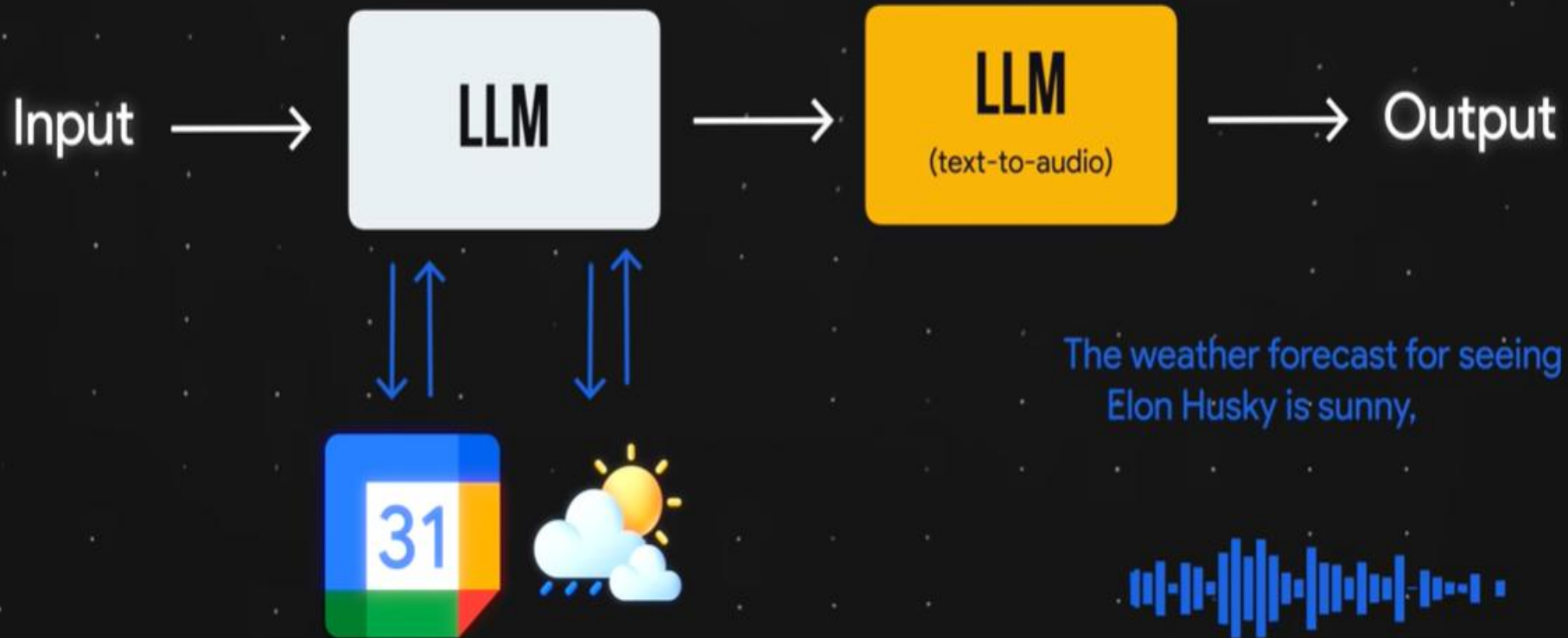
Key Traits of LLMs

1. Despite being trained on vast amounts of data, they have **limited knowledge of proprietary information**: like our personal information or internal company data.
2. LLMs are **passive** - they wait for our prompt and then respond.



LLMs & RAG



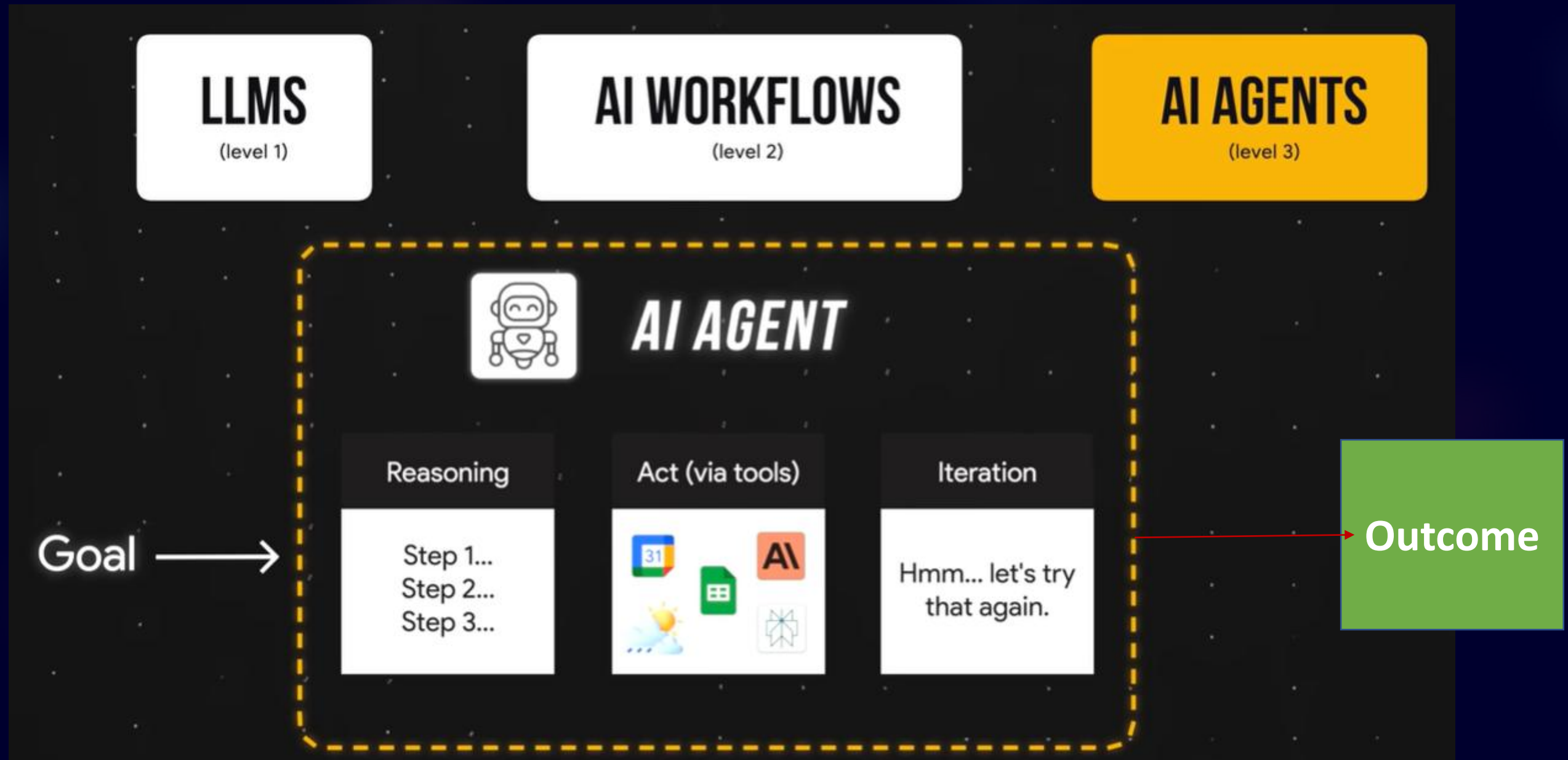


RAG / Tool APIs

RAG is a process that helps AI models "look things up" before they answer. Essentially, RAG is just a type of AI workflow.



Agentic AI



What is Agentic AI?

1

Beyond Reactive

Actively pursues goals, adapting actions from feedback.

2

Proactive & Adaptive

Anticipates needs, generates solutions, makes autonomous decisions.



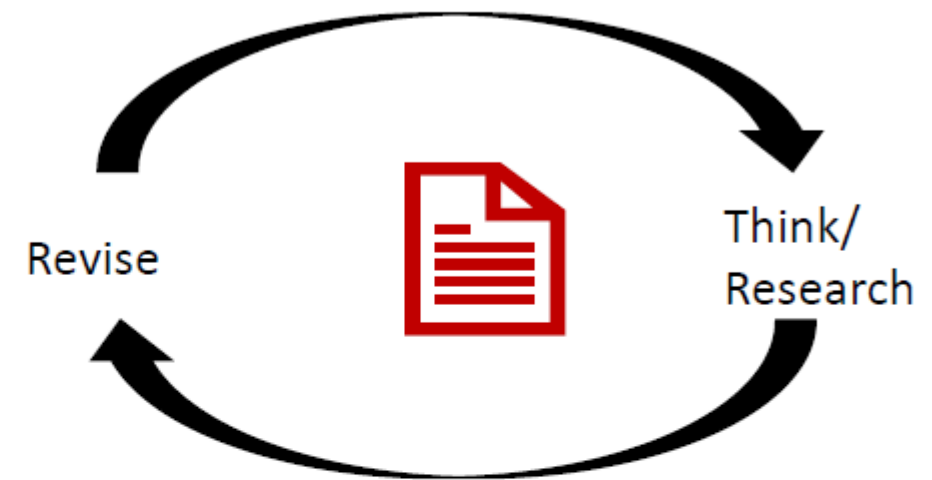
Agentic AI in Action

Non-Agentic AI



"The way most of us use language models today is a bit like asking someone to sit down at a keyboard and type an essay from start to finish without ever using backspace. Despite how challenging this is, language models do it remarkably well."

Agentic AI



"With an agentic workflow, the AI iterates—writes an essay outline, does necessary research, drafts, reviews, revises, and continues improving. This iterative process leads to significantly better outcomes." — Andrew Ng, founder of DeepLearning.ai

Source – Andrew Ng on Agentic AI

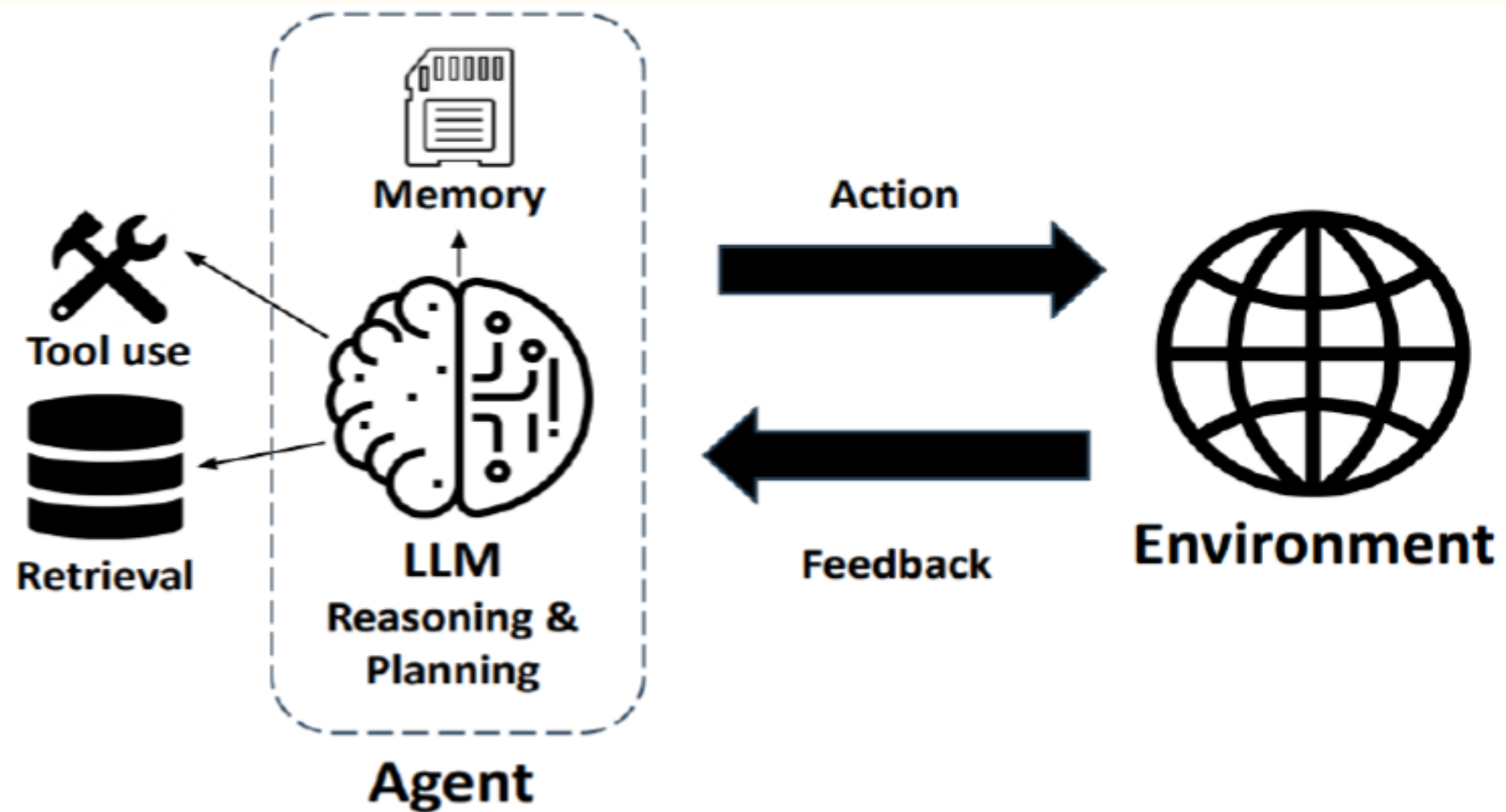
Key Characteristics

- 1 Goal-Oriented
Designed with specific objectives.
- 2 Autonomous
Operates independently, decides without constant human intervention.
- 3 Self-Learning
Continuously improves performance with data and feedback.
- 4 Contextual Awareness
Adapts to changing contexts with real-time info.



Defining Agentic AI

Agentic AI interacts with the environment



Benefits of Agentic AI

Increased Efficiency

Automates tasks, optimizes processes.

Enhanced Productivity

Boosts output via intelligent, proactive actions.

Improved Decision-Making

Leverages data analysis, predictive modeling.

Personalized Experiences

Tailors interactions, increases satisfaction.



Agentic AI in Action: Use Cases



Manufacturing

Automated lines, predictive maintenance.



Healthcare

Personalized treatment, drug discovery.



Finance

Fraud detection, algorithmic trading.



Education

Personalized learning, adaptive tutoring.



Look at the Banking Work Flow Scenario



Hello, I'm calling about my personal loan.

I recently made a payment, but it hasn't been reflected in my account yet.

I will definitely help you with that.....

Before we proceed, I need to verify your identify





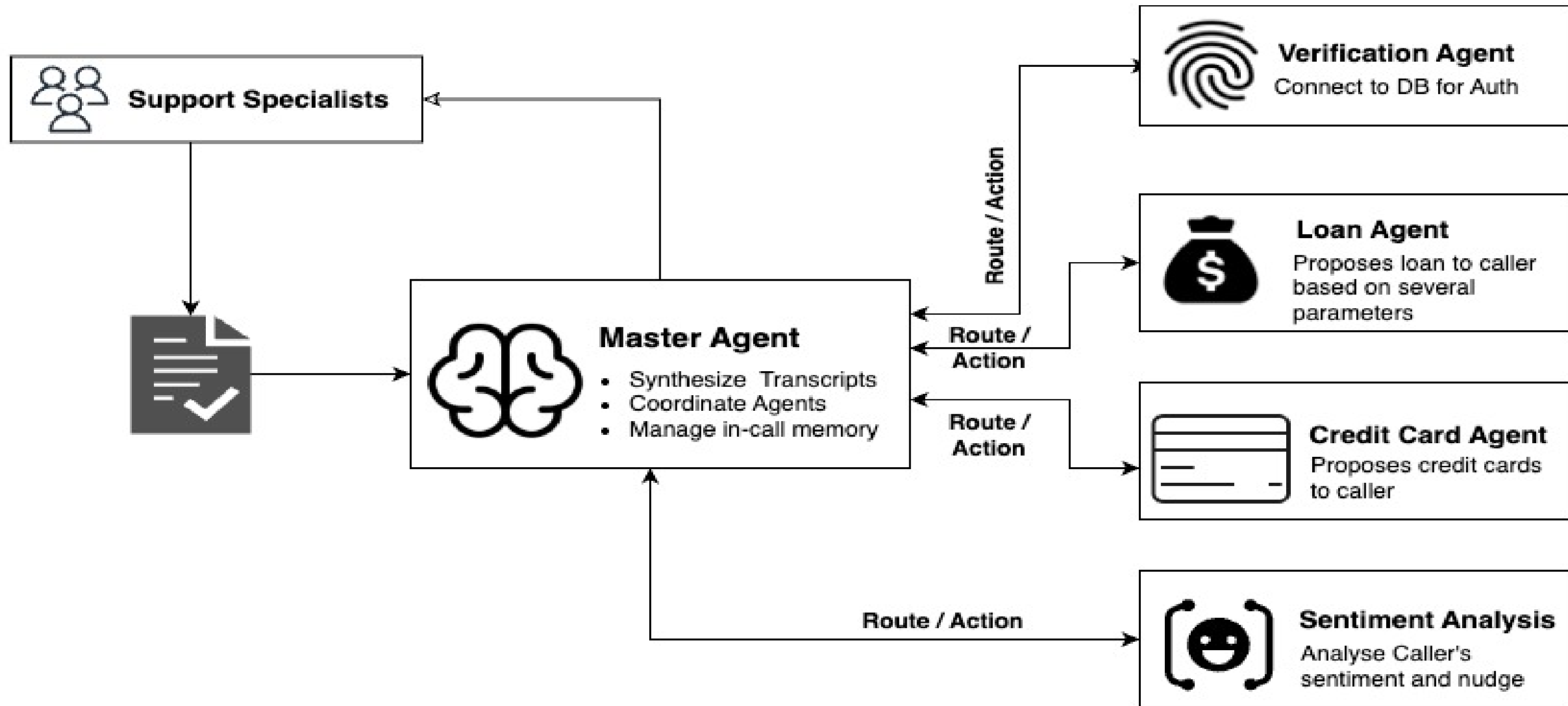
**I see some
suspected charges
on my
Credit Card**



**I understand
the concern !!**

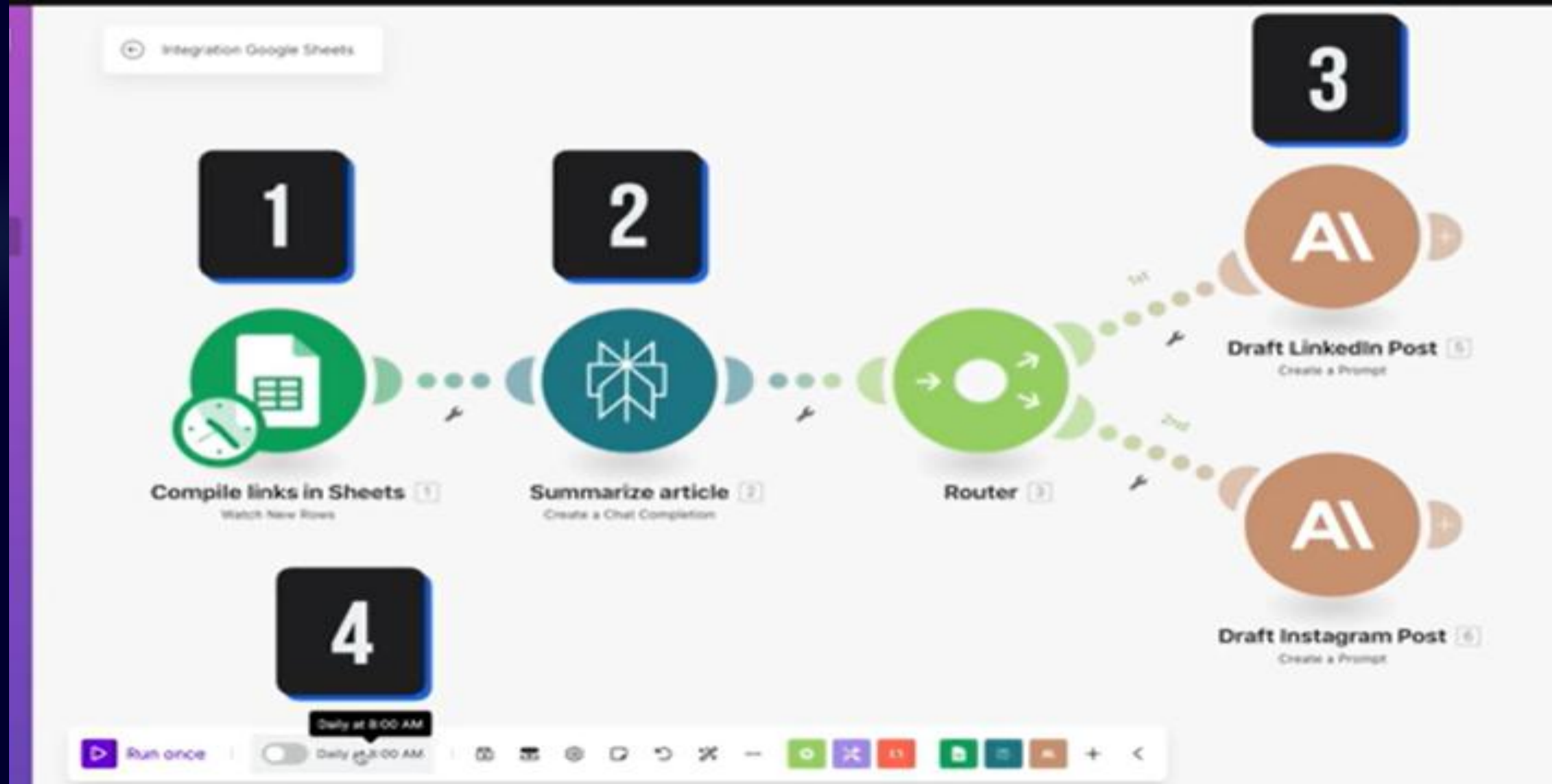
**Let me check that
for you**

Intelligent Banking Agent

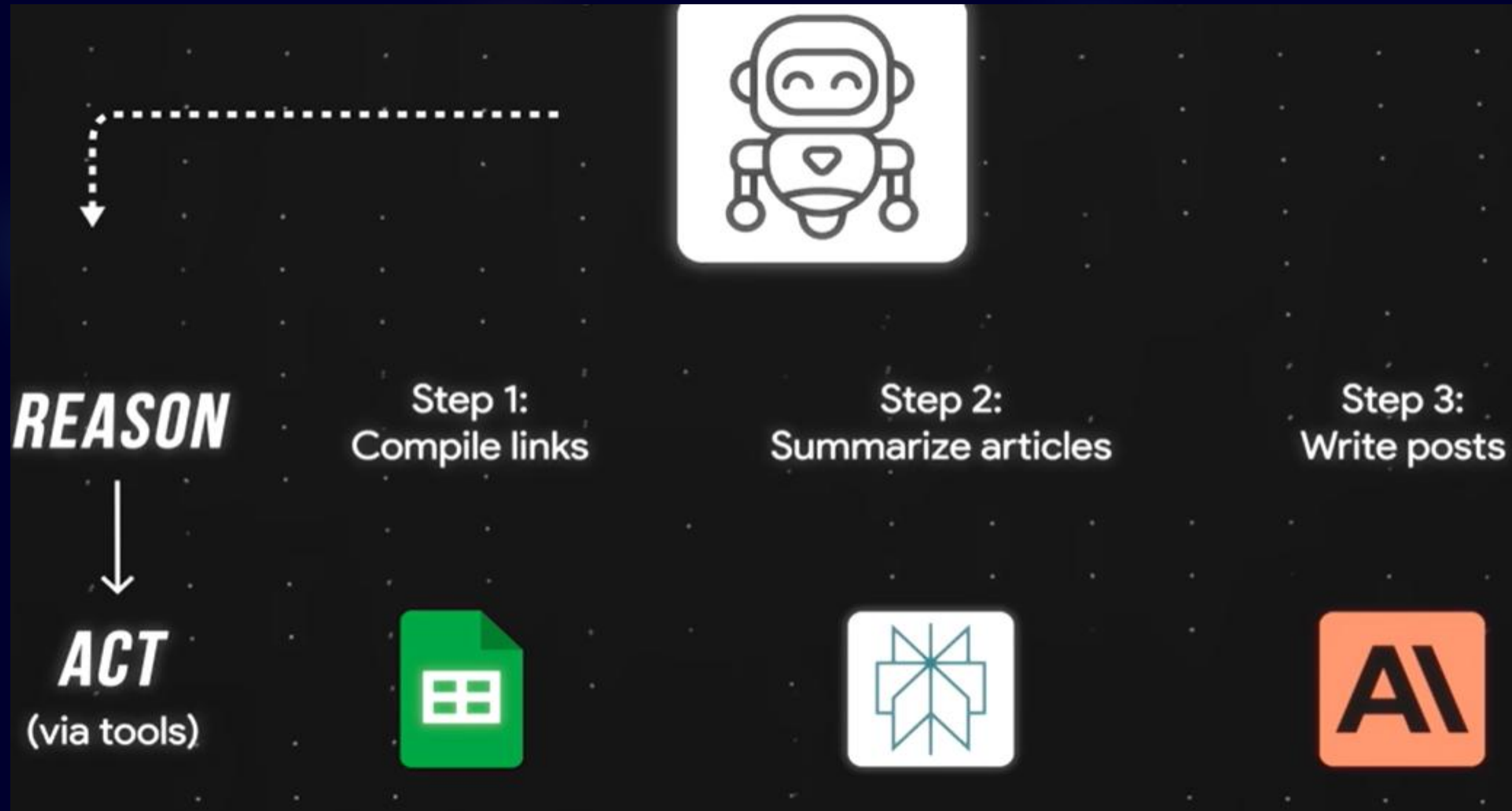


Social Media Post - Work Flow with AI Agents

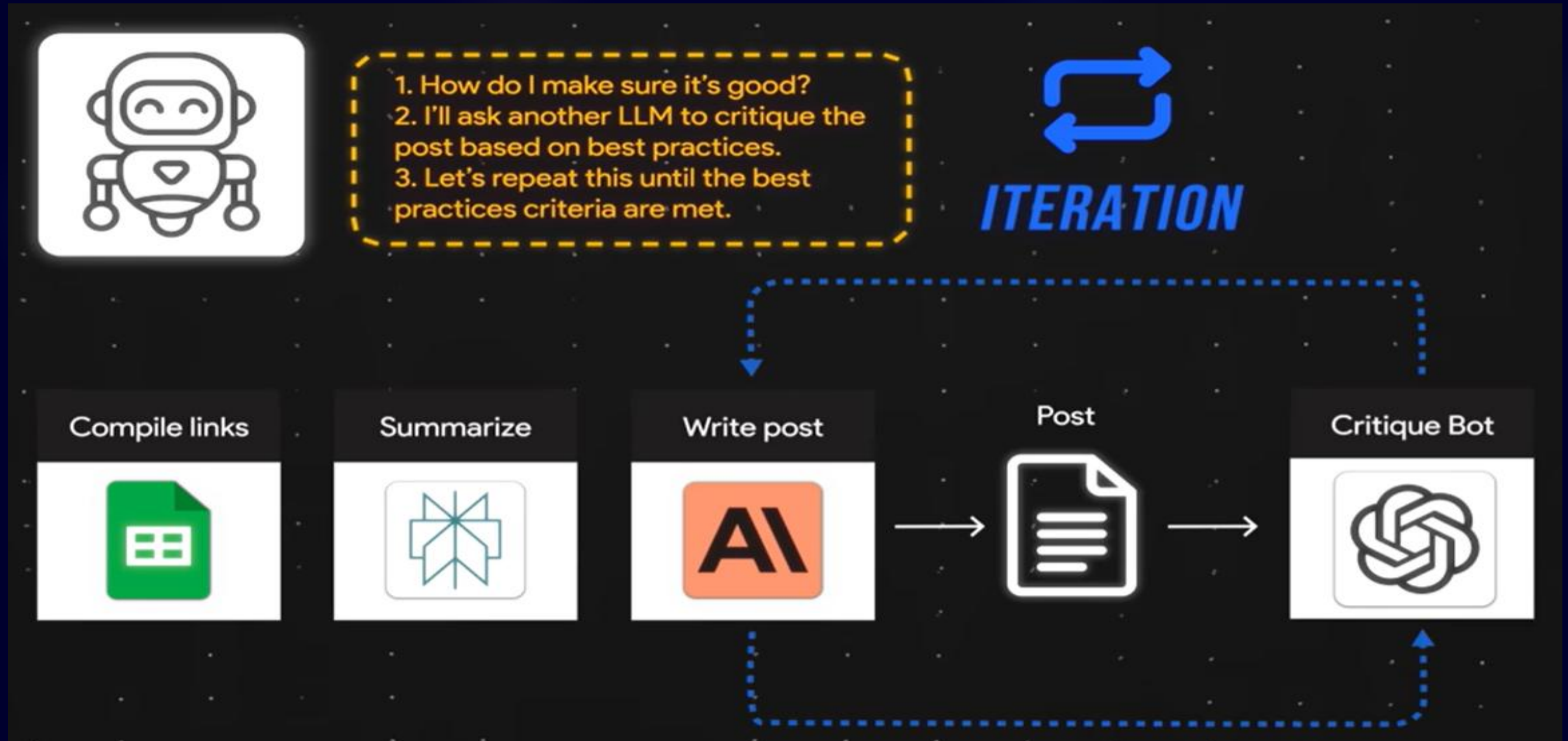
Agentic Work Flow – Social Media Post



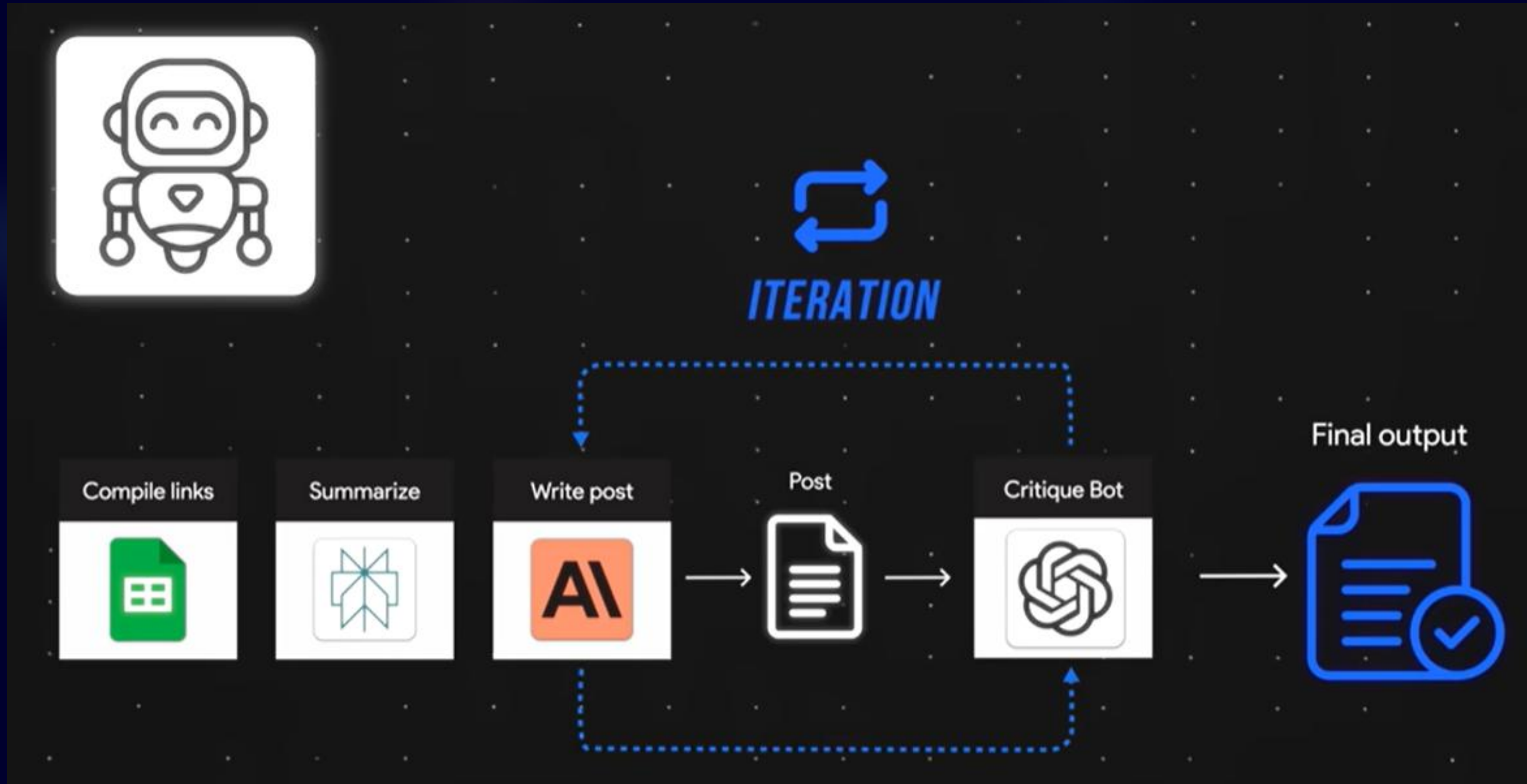
Agentic Work Flow – Social Media Post



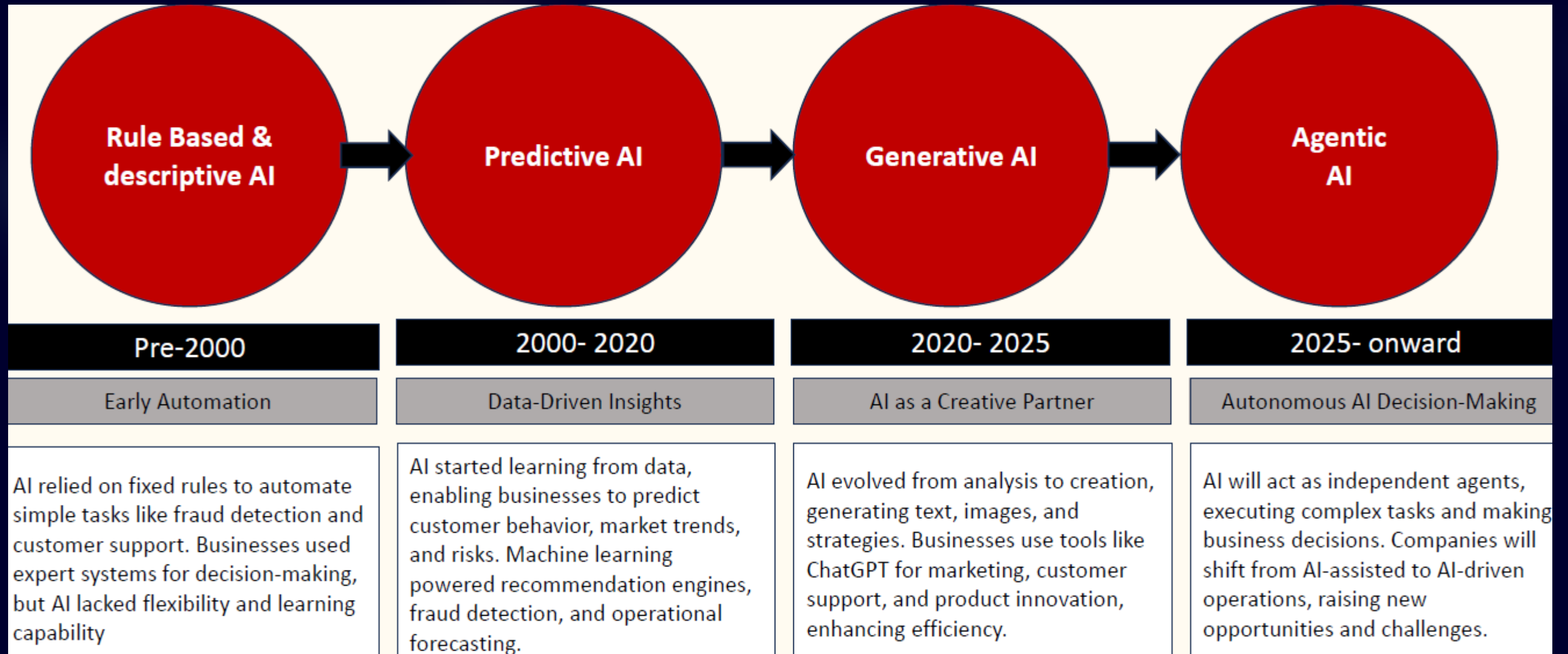
Agentic Work Flow – Social Media Post



Agentic Work Flow – Social Media Post



What Next AI?



Artificial General Intelligence (AGI)

“Artificial General Intelligence (AGI) is the stage when machines can all do general tasks like humans can do.”

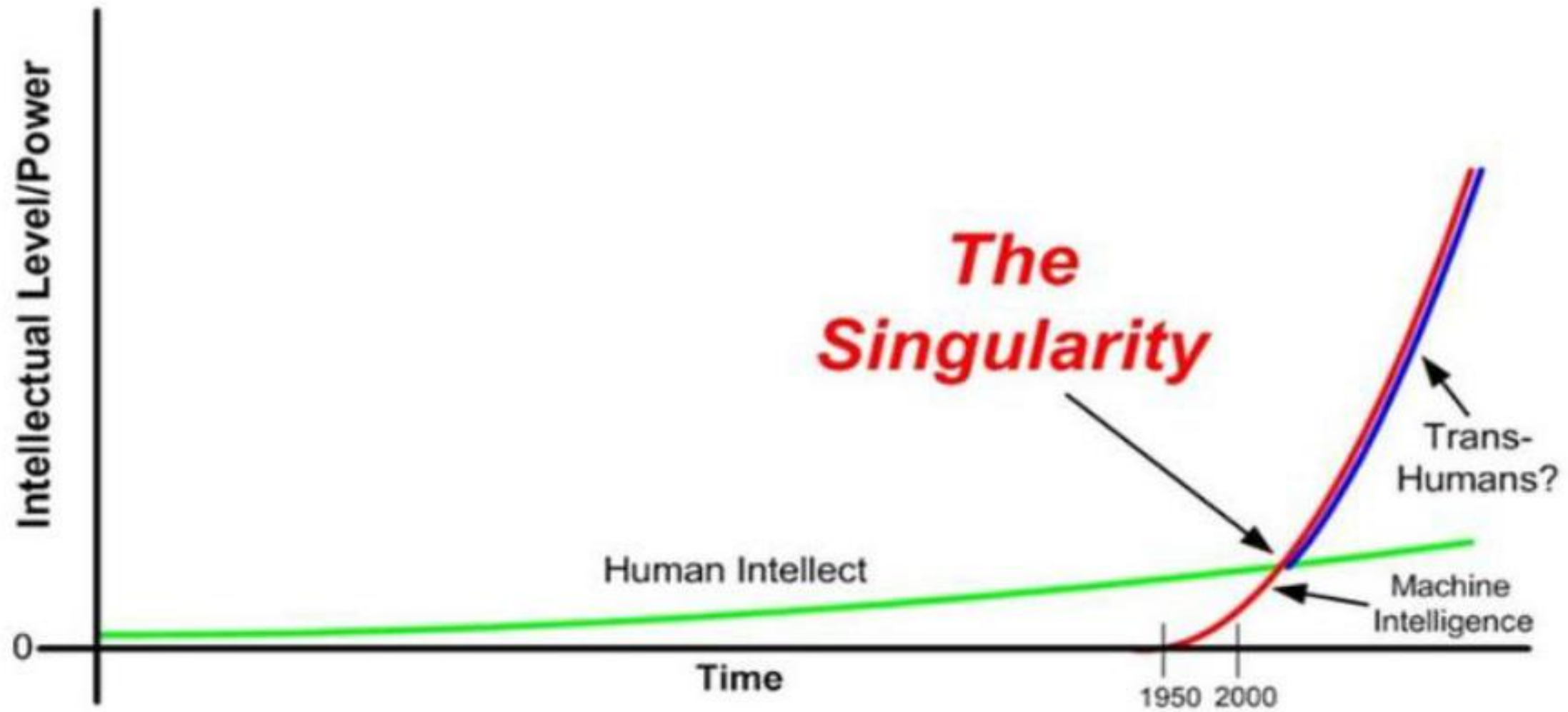
Robotic AGI

- AI to do work in the physical and real world like robots
- Difficult to achieve human equivalence like fine motor movements
- May not be anywhere close to AGI

Cognitive AGI

- AI to do work in the cognitive world like computers
- Huge advancements triggered by LLMs in last few months
- We may be closer to AGI

Intelligence Explosion - Projection



A Road to Singularity

Utopian View

"We will merge with our technology, expand our intelligence, and reach new heights of creativity and consciousness. The singularity will allow us to transcend the limitations of biology, curing diseases, ending poverty, and unlocking unimaginable possibilities for human potential. The future will be a time of radical abundance."

Ray Kurzweil - The Singularity Is Near

Dystopian View

"Once a superintelligent AI is in control, we may find ourselves at its mercy. If its goals are not perfectly aligned with human values, it could pursue objectives indifferent to our survival or well-being, reducing humanity to irrelevance—or worse, extinction."

Nick Bostrom - Superintelligence: Paths, Dangers, Strategies

We are truly living in an interesting time

Looking into the Future....

Max Tegmark explores this idea in his book *Life 3.0*. He predicts that as artificial intelligence advances, the world will be divided into three distinct zones:



The Superintelligence Zone

A realm dominated by AI, where human presence is meaningless.



The Cyborg Zone

A hybrid space where humans with machine augmentations thrive, blending biology with technology.



The Human Zone

The last refuge of purely biological humans, though they will have little influence over the other two zones.

Questions??

Thank You!!

Sadhu Sreenivas