

# Strategic Generative AI for Business Leaders





Dr. Shubin Yu

Email: [Shubin.Yu@bi.no](mailto:Shubin.Yu@bi.no)

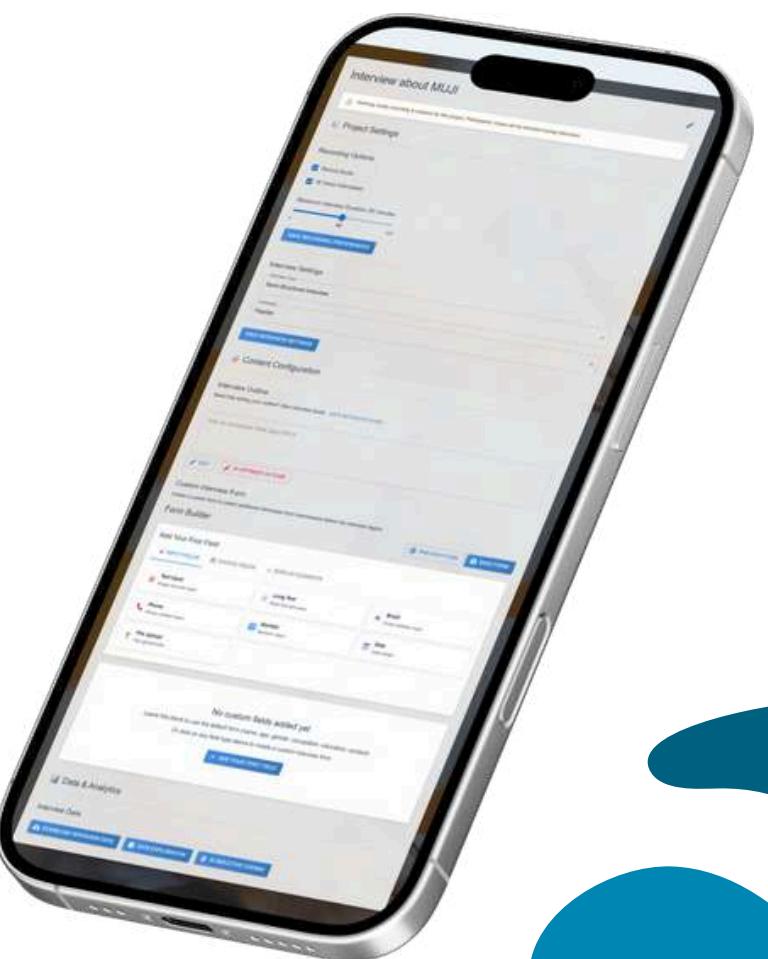
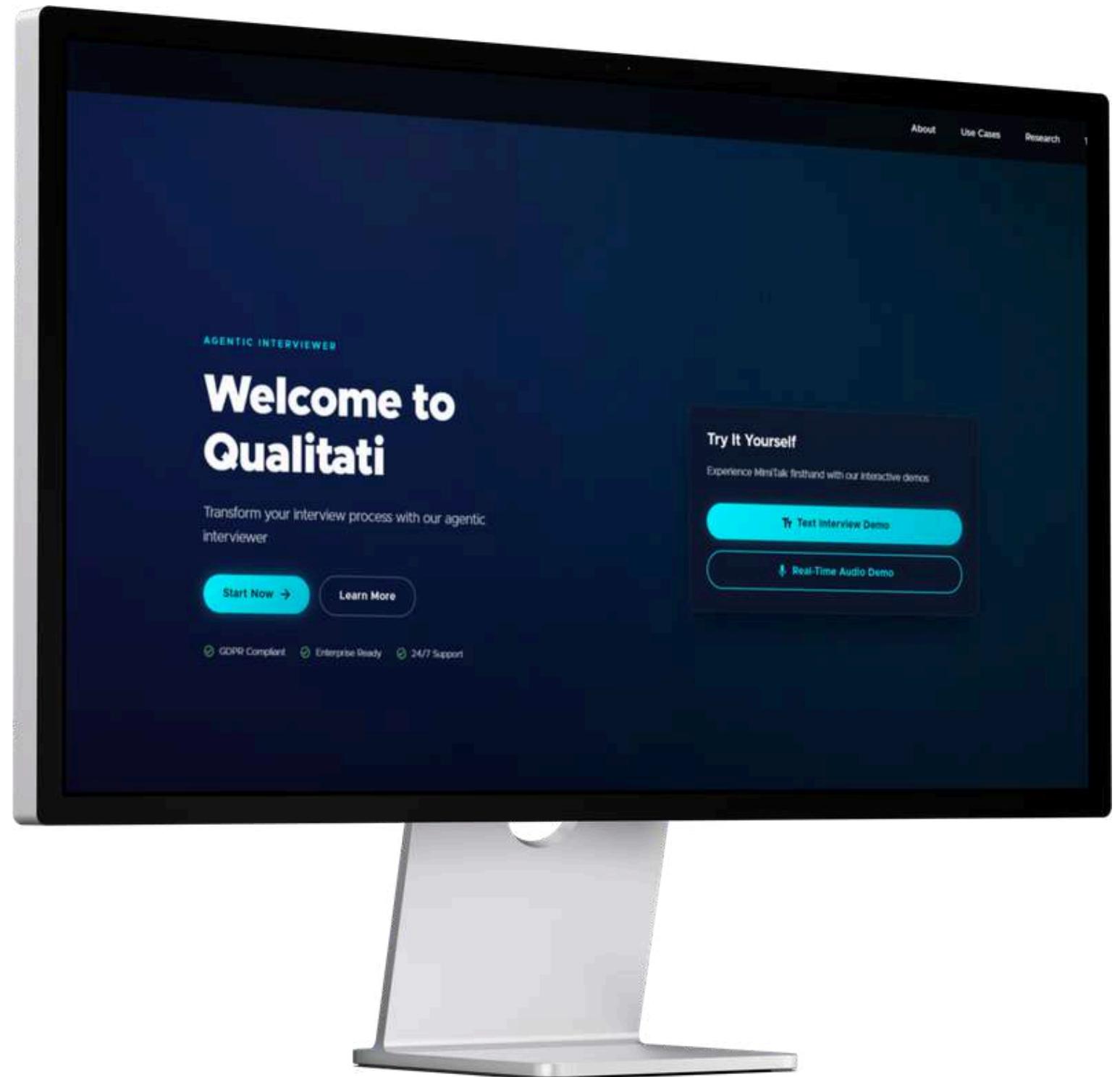
Address: W1-407, HEC Paris

Virtual office hours: by appointment only

- Currently founder of Qualitati.com
- Currently associate professor of Marketing, HEC Paris, France
- Previously associate professor at BI Norwegian Business School, Norway
- Previously assistant professor at Peking University, China
- Ph.D. in Communication Sciences at Ghent University, Belgium
- Research fields: GenAI for business, Consumer-technology interaction



**LSB** Luxembourg  
School of Business





- PhD. researcher in sustainable luxury consumption at Ghent University
- MA in digital text analysis at University of Antwerp



Lille My (Mimi)  
Girl

3.5 years old  
Coton de tulear  
Cheese

Have you used any GenAI tools?  
What are they?  
When do you use them?  
What do you like to know more about  
GenAI?

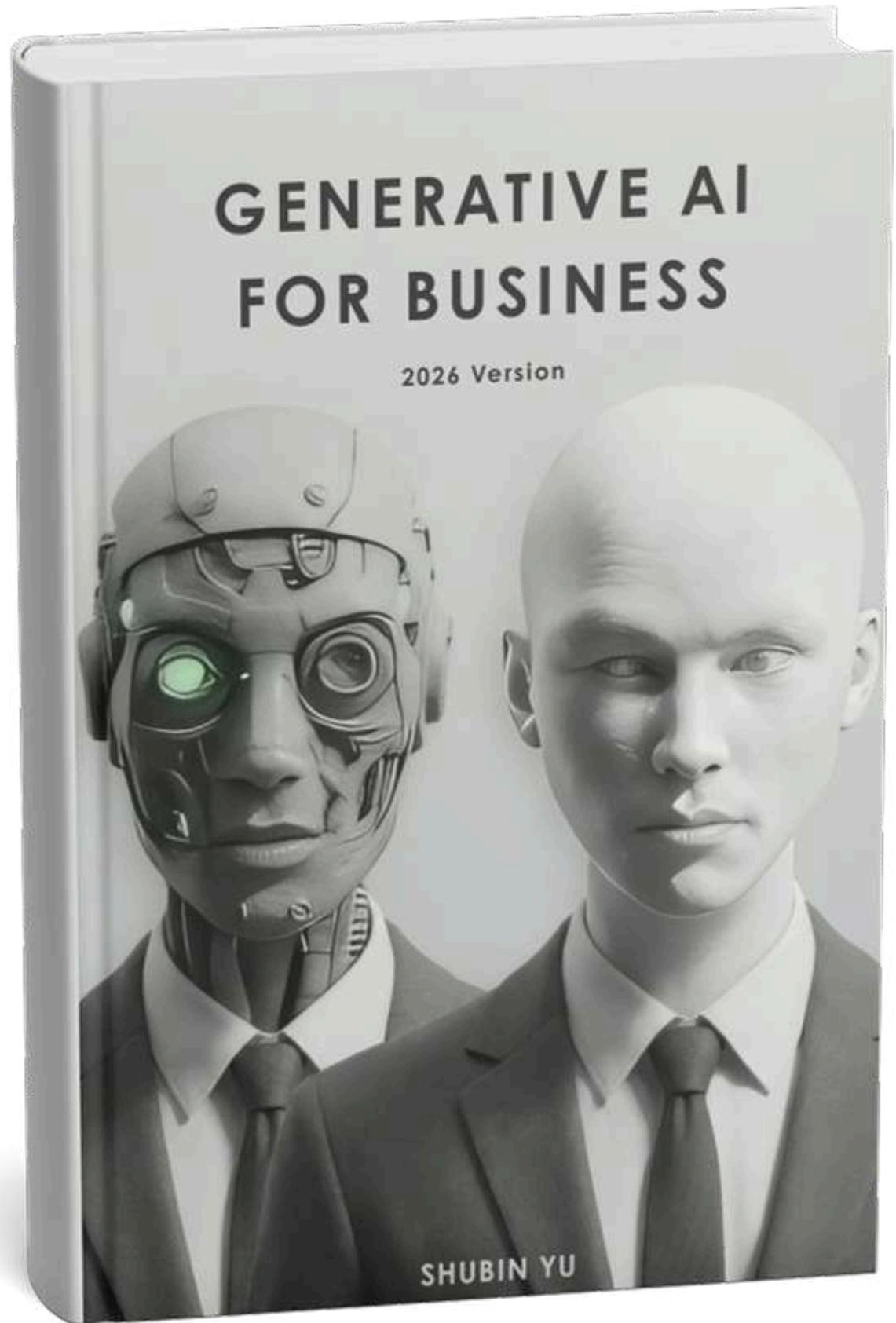


# Course description



This intensive executive course provides business executives with a comprehensive understanding of Generative AI (GenAI) and its transformative potential across various business functions.

You will not only gain **practical** knowledge of GenAI tools, prompt/context engineering techniques, and real-world applications, but also understand how to apply this technology in **strategic** decision-making and driving business growth.



Textbook  
<http://gaiforbusiness.com>

# Reading list

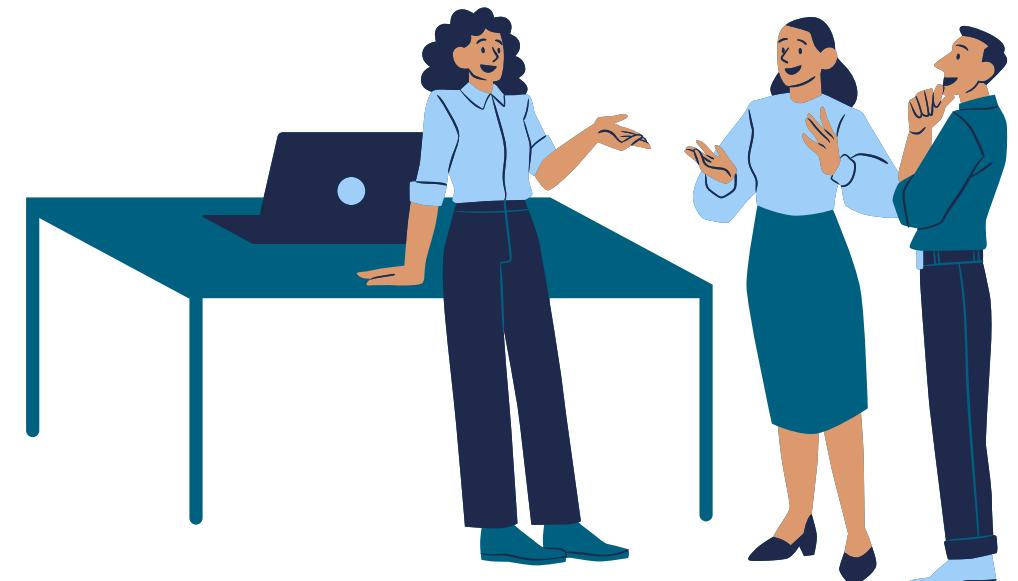
- Brian R. Spisak and Gary Marcus (2025), Cutting Through the AI Hype: The Facts Leaders Need to Know About GenAI Adoption and Return on Investment, *California Management Review Insights*.
- Kate Niederhoffer, Gabriella Rosen Kellerman, Angela Lee, Alex Liebscher, Kristina Rapuano, and Jeffrey T. Hancock (2025), AI-Generated “Workslop” Is Destroying Productivity, *Harvard Business Review*.
- Scott Cook, Andrei Hagiu, and Julian Wright (2024), Turn Generative AI from an Existential Threat into a Competitive Advantage, *Harvard Business Review*.
- H. James Wilson and Paul R. Daugherty (2024), Embracing Gen AI at Work, *Harvard Business Review*.
- Andrew McAfee, Daniel Rock, and Erik Brynjolfsson (2024), How to Capitalize on Generative AI: A guide to realizing its benefits while limiting its risks, *Harvard Business Review*.

See the full list on our github page: <https://tinyurl.com/genai4biz>



# Course Objectives:

- Define GenAI and understand the relevant concepts.
- Articulate the history, evolution, and future trends of GenAI.
- Identify key GenAI models, tools, and their capabilities.
- Apply GenAI tools for specific business tasks.
- Integrate GenAI strategically in business growth and value creation.
- Analyze the ethical implications and potential risks associated with GenAI.
- Talk about GenAI like an expert.



# Course Outline:

- 1: Foundation
- 2: Communication with GenAI
- 3: Toolkit
- 4: 5A-APIs, Applications, Assistants, Automation, and Agents
- 5: Generative AI use cases
- 6: GenAI in different functional tasks
- 7: Value creation
- 8: Strategic integration
- 9: Risks, ethical concerns, and regulations
- 10: The future of GenAI

# Practical information

Time

3 days

Course activities

Lecture, case studies, and hands-on exercises, group activities

<https://github.com/lanceyuu/GenAI-for-Business-LSB-2026>

<https://padlet.com/binbs/genai4biz>



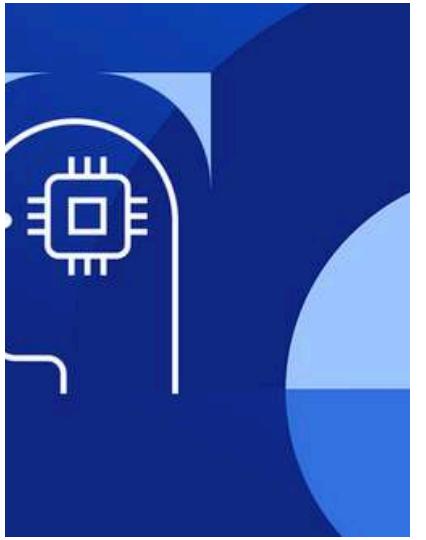
# Funny Stamp Quest: Earn, Collect, Win!

- Participate in activities to earn cat/dog stamps.
- Stamps: Awarded to winners/top ranks/participants.
- Awards: You can redeem your reward at the end of Day 3.
  
- 1st: Mimi T-Shirts
- 2nd: Mimitalk Accounts with 1500 credits (x3)
- 3rd: Mimi pens (x 15)



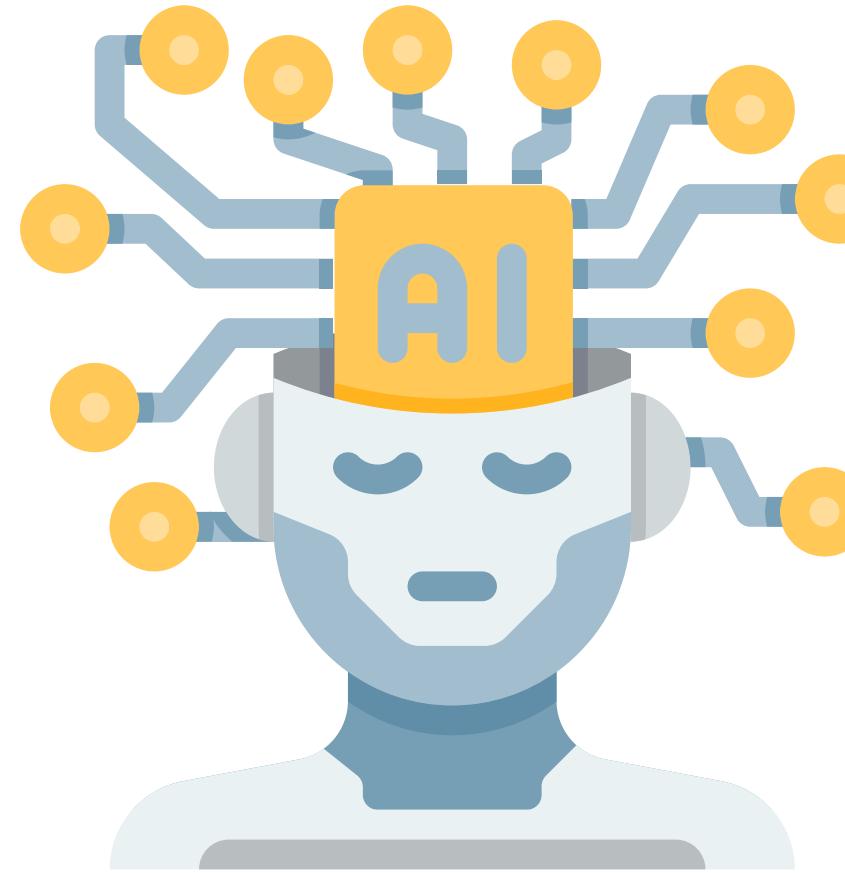
# GenAI for Business 2026

Session 1: Foundation  
Shubin Yu



# The impact of Generative AI

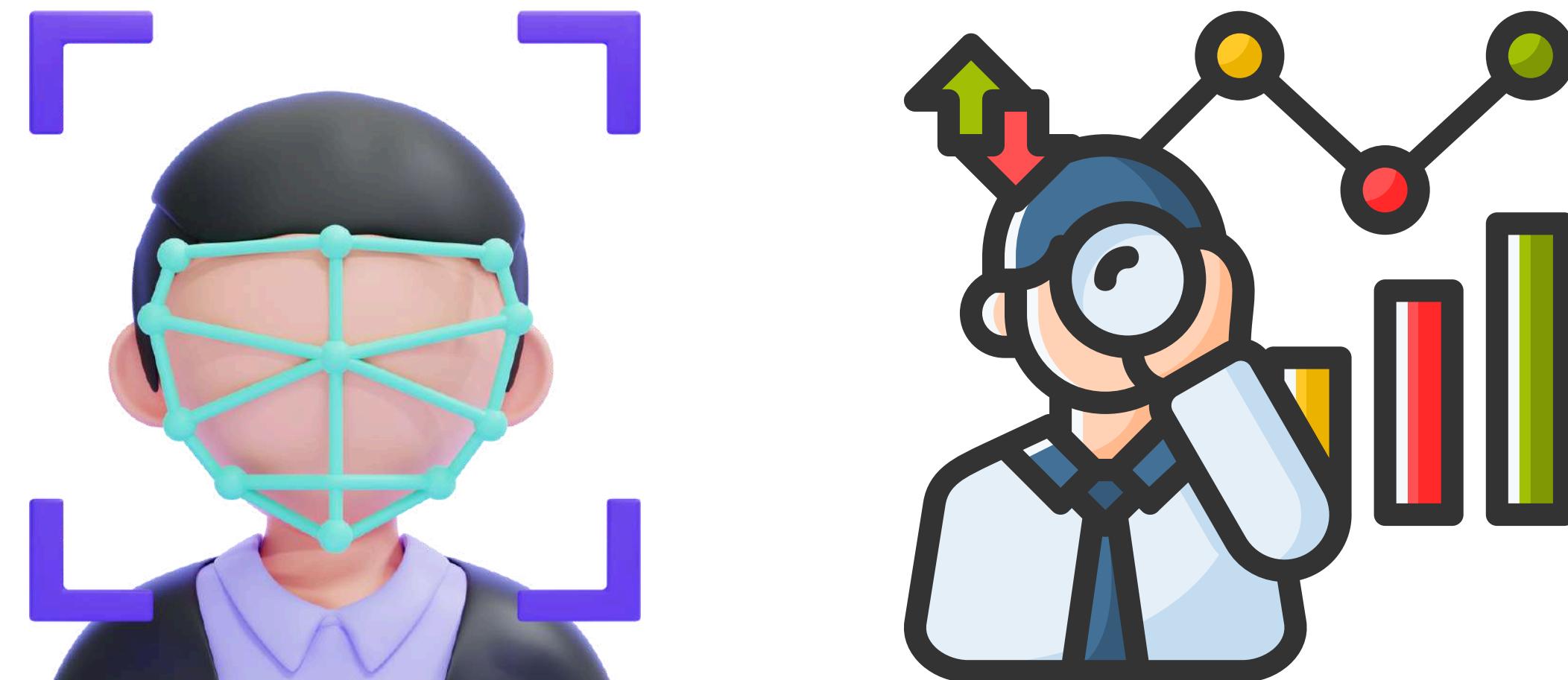
# What is Generative AI (GenAI)



Generative AI refers to artificial intelligence systems that can *create new content*, such as text, images, audio, or video, based on patterns learned from existing data.

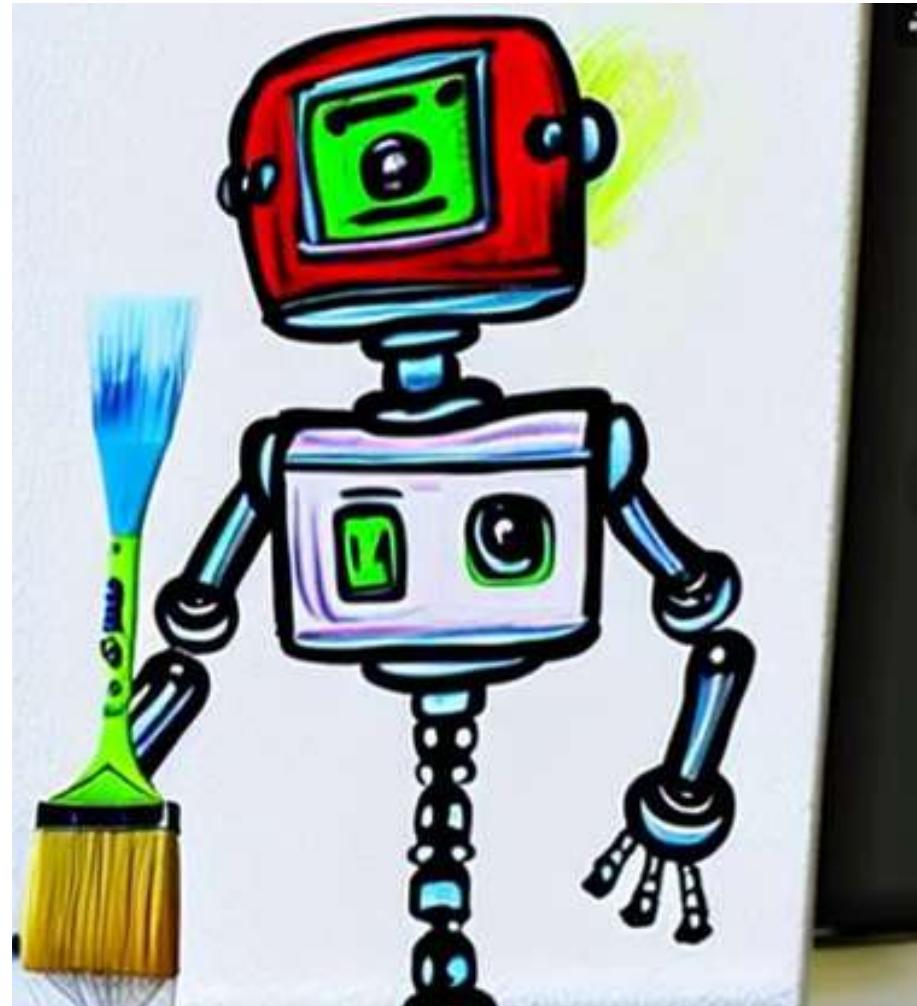
Traditional (or “classical”) AI is mainly built to analyze data and make predictions/decisions (e.g., classify, rank, detect fraud), while generative AI is built to create new content (e.g., text, images, code) that resembles patterns in its training data.

# Traditional AI



Detection and prediction

# The rapid evolution of GenAI



A robot is painting (March 2023 vs Jan 2024 vs. Jan 2026)



# Future workplace:

## Collaboration with GenAI for various tasks

- Content Creation and Marketing
  - Software Development
  - Legal Work
  - Human Resources
  - Project Management
  - Data Analysis
  - Financial Analysis
  - Customer Service
  - Education
  - Training
  - Consulting
- ...

# The impact of GenAI on productivity

- OpenAI's research estimates that 80% of current work activities can integrate generative AI technologies and capabilities.
- McKinsey's research indicates that generative AI and other technologies have the potential to automate 60% to 70% of the tasks that currently occupy employees' time.
- Accenture reports that GenAI can “transform productivity,” with modeling indicating it can save over 12% of working hours for the average company while improving output quality by 8.5%
- BCG consultants completed tasks 25% more quickly

# The impact of GenAI on productivity

## Coding

Software engineers code up to twice as fast using Codex, Peng et al. (2023)

## Customer service

AI assistance helps customer-support agents work faster, increasing issues resolved per hour by an average of 15%, Brynjolfsson et al., (2025)

## Writing

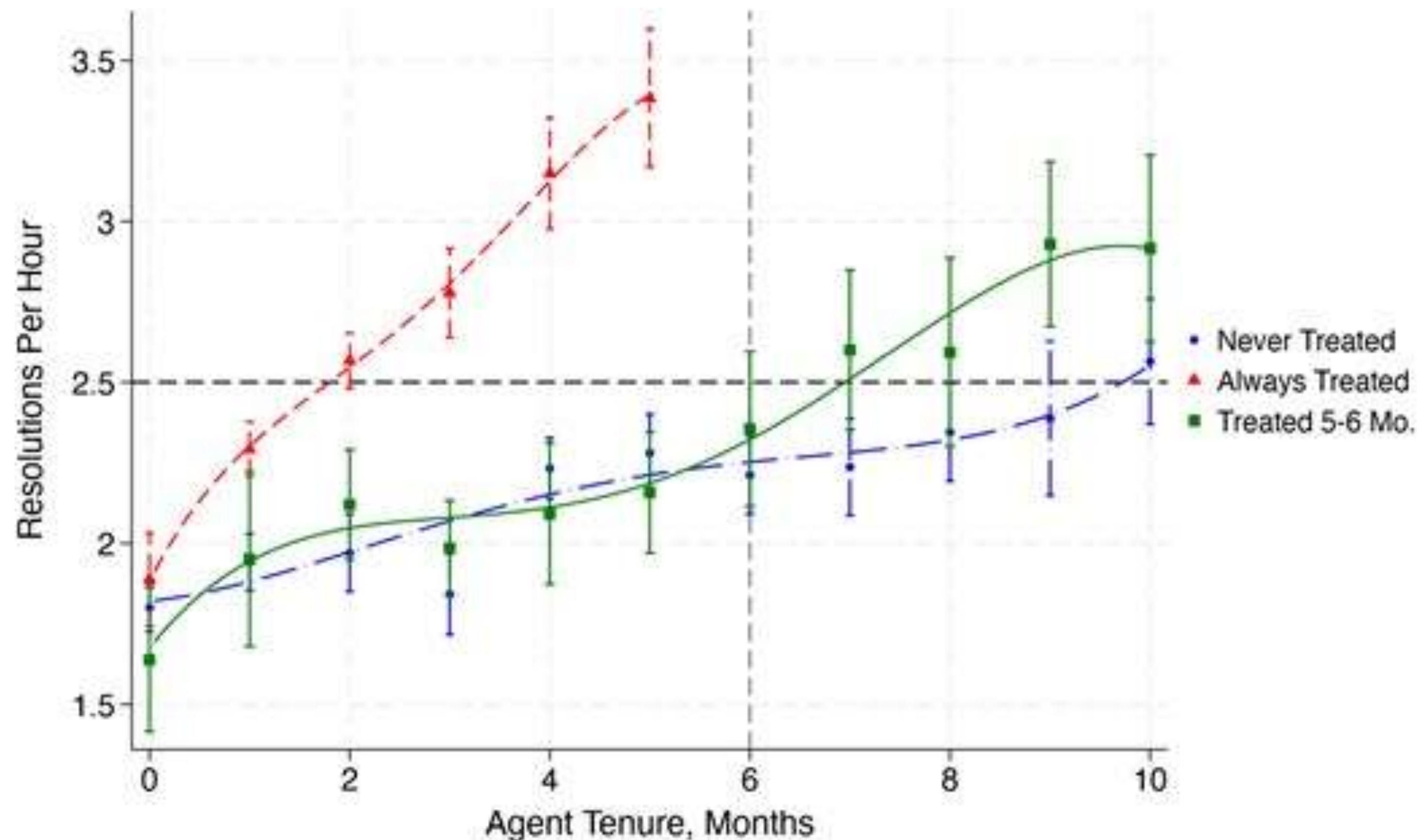
Writing tasks completed twice as fast, Noy and Zhang (2023)

## Diagnosis

Overall reading times shortened when radiologists used AI, Shin et al. (2023)

*Evidence from an increasing number of academic studies*

*Visit this notebook for all the articles: <https://notebooklm.google.com/notebook/4f7eb31d-911e-408e-89cd-a4c7dccad245>.*



# The impact of GenAI on employees' performance

- Bain & Company highlights early successes in sales: AI tools that guide sales reps or generate tailored pitches have delivered >30% improvements in sales win rates in pilot programs.
- BCG's experiment found that for a creative ideation task (developing a new product concept and go-to-market plan), 90% of consultants using GPT-4 outperformed those without it, achieving solutions roughly 40% higher in quality as rated by experts

# The impact of GenAI on productivity

## Quality & Output

Professional writing tasks show 18% higher output quality with AI assistance; artists using AI tools see artwork value rise 50%, Noy et al. (2023); Zhou et al. (2024)

## Creativity

Moderate boost to individual creativity when working with AI ( $g=0.27$ ), with laypeople benefiting most ( $g=0.654$ ), though collective idea diversity drops sharply ( $g=-0.86$ ) as users converge on similar solutions, Holzner et al. (2025)

## Skill Development

AI reduces performance gaps between employees, with newer and lower-skilled workers benefiting most from AI assistance, Brynjolfsson et al. (2023); Noy et al. (2023)

## Motivation & Engagement

Transitioning from AI-assisted to solo work increases boredom ( $d=0.45$ ) and decreases intrinsic motivation, Wu et al. (2025)

*Evidence from an increasing number of academic studies*

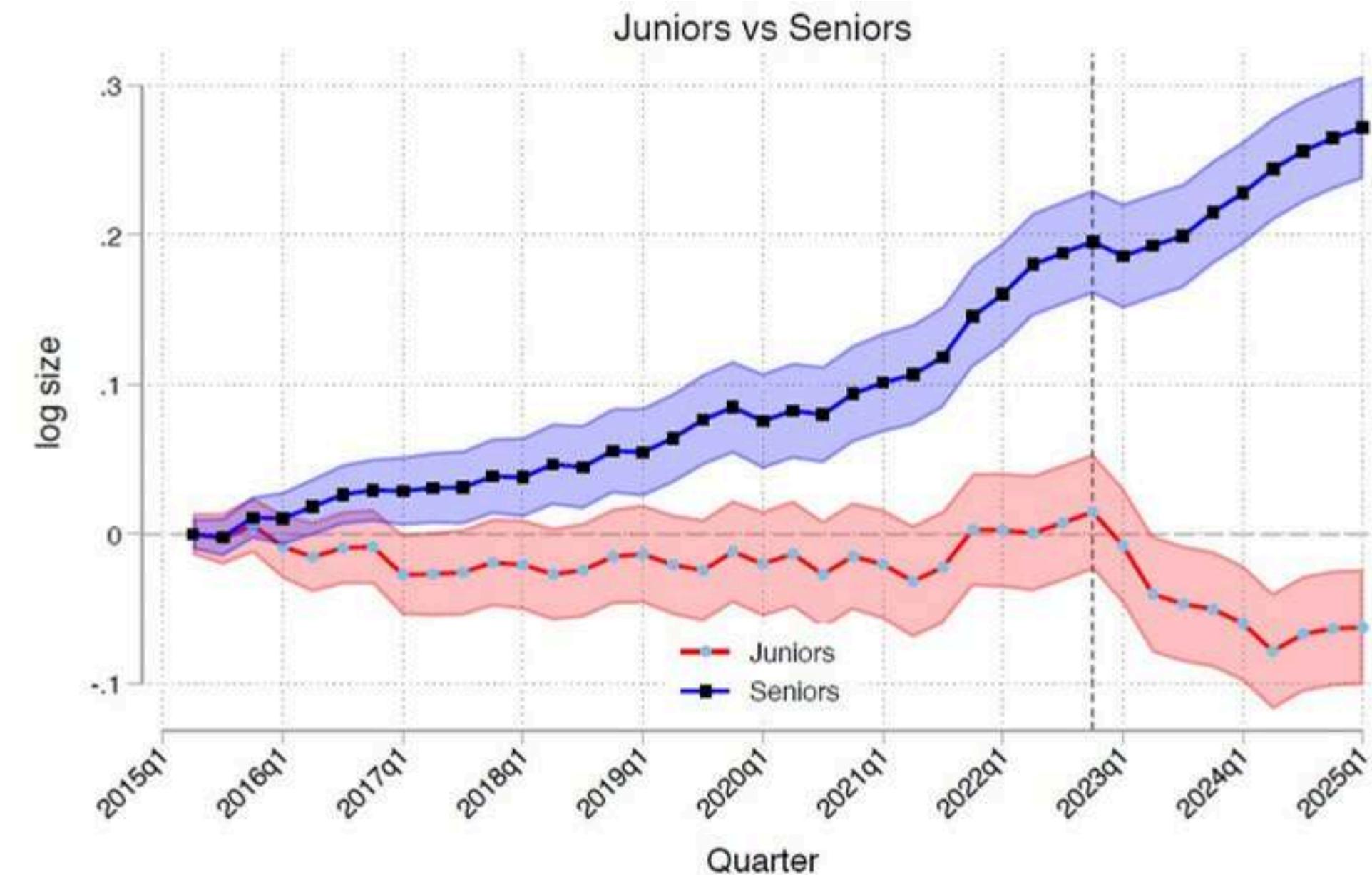
# Jensen Huang, CEO Nvidia

“

AI is not going to take your job. The person who uses AI will. Use AI as fast as you can, so that you can stay gainfully employed.

”

# The impact of GenAI on employment



**Figure 3:** Employment Differences Between Adopters and Non-Adopters Over Time

Notes: The graph present the estimated coefficients  $\beta_j$  from Equation 1, ran separately to juniors and seniors. Standard errors are clustered in firm level.

# Other negative impacts of Generative AI?





# How Generative AI works

# What is the difference between ChatGPT and GPT?



# How is a large language model created?

1. Pre-training:
  - Trained on vast amounts of text data from the internet, books, and other sources.
  - Learn patterns, relationships, and structures in language without specific tasks.
2. Unsupervised Learning:
  - During pre-training, the model predicts the next word given the previous words.
  - This allows it to learn grammar, facts, reasoning, and even some level of common sense.
3. Tokenization:
  - Text is broken down into tokens (words or subwords).
  - The model processes and generates text token by token.
4. Contextual Understanding:
  - Uses attention mechanisms to weigh the importance of different parts of the input.
  - Can understand context over long sequences of text.
5. Reinforce learning:
  - Learning through trial and error with rewards and penalties.
6. Fine-tuning:
  - Can be further trained on specific tasks or domains for better performance.

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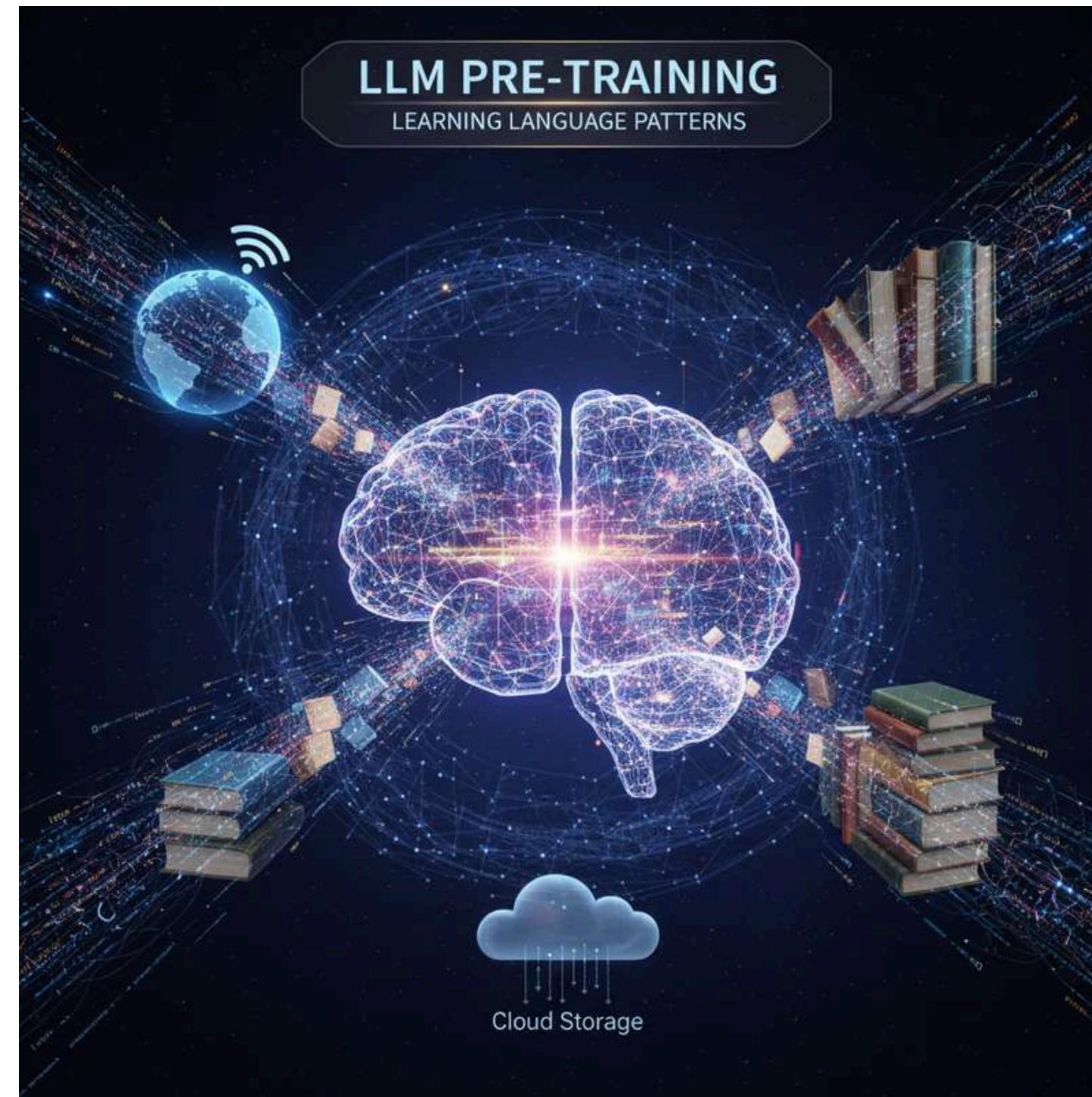
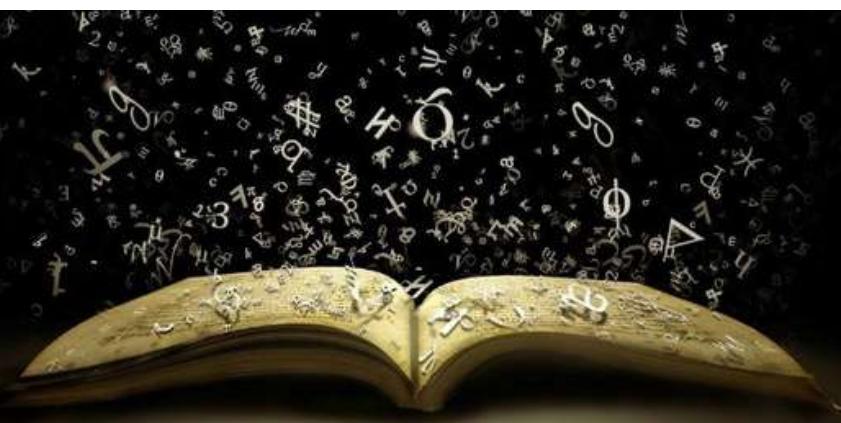
## 5. Reinforce learning:

- Learning through trial and error with rewards and penalties.

## 6. Fine-tuning:

- Can be further trained on specific tasks or domains for better performance.

Text from web pages, books,  
articles, and social gossip  
Unsupervised learning



# How is a large language model created?

- 1. Pre-training:**
  - Trained on vast amounts of text data from the internet, books, and other sources.
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- 2. Tokenization and embedding:**
  - Text is broken down into tokens (words or subwords).
  - The model embeds each word into a vector of numbers that represents its meaning.
- 3. Unsupervised Learning:**
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**Input**

My dog loves cheese

### Tokenization

Break down into small pieces (words or parts of words)

**Tokens**

My

dog

loves

cheese

### Embedding

Turn Token into numerical representation  
Capturing their meaning

**Embedding**

My

0.12,	-0.05,	0.88...
0.33,	-0.06,	0.01...
0.24,	-0.05,	0.88...

Dog

0.12,	-0.05,	0.88...
-34,	0.76,	0.01...
	-0.06	

Loves

0.05
0.07
0.26

Cheese

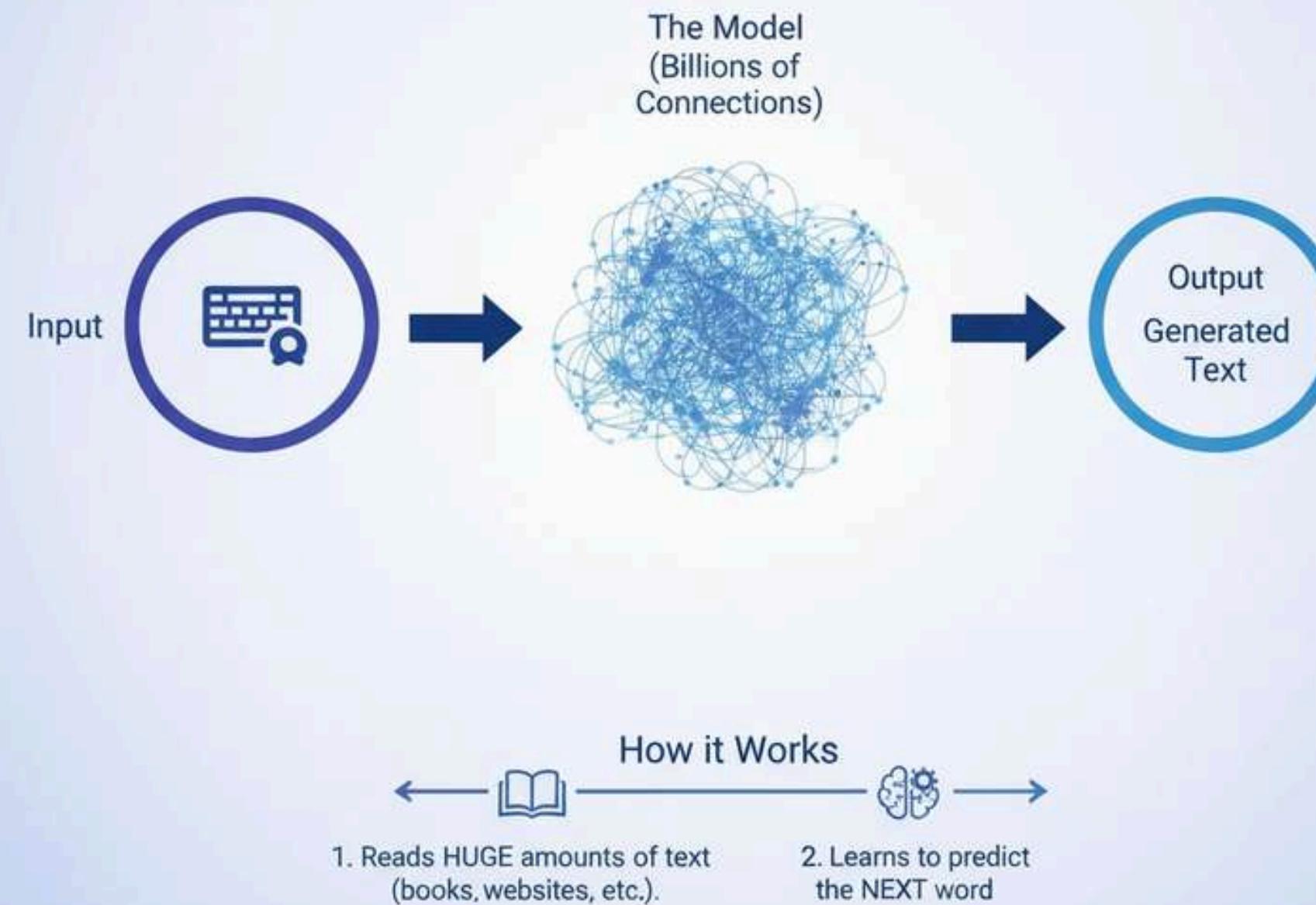
0.98
-0.45
1.17

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# Neural network

## Large Language Model





User Input: "What is the capital of France?"

System processes this and model begins generation...

closure



Input sequence: "What is the capital of France?"

Model processes → Output layer probabilities:

- "The" (0.05)
- "Paris" (0.78) ← HIGHEST
- "France" (0.02)
- "It" (0.08)
- ...

Selected token: "Paris"

clojure



Input sequence: "What is the capital of France? Paris"

Model processes → Output layer probabilities:

- "is" (0.72) ← HIGHEST
- "," (0.15)
- "." (0.08)
- "was" (0.03)
- ...

Selected token: "is"

clojure



Input sequence: "What is the capital of France? Paris is"

Model processes → Output layer probabilities:

- "the" (0.85) ← HIGHEST
- "a" (0.08)
- "located" (0.04)
- "indeed" (0.02)
- ...

Selected token: "the"



Input sequence: "What is the capital of France? Paris is the"

Model processes → Output layer probabilities:

- "capital" (0.91) ← HIGHEST
- "largest" (0.04)
- "main" (0.03)
- ...

Selected token: "capital"



Input sequence: "What is the capital of France? Paris is the capital"

Model processes → Output layer probabilities:

- "of" (0.88) ← HIGHEST
- "city" (0.07)
- "." (0.03)
- ...

Selected token: "of"



Input sequence: "What is the capital of France? Paris is the capital of"

Model processes → Output layer probabilities:

- "France" (0.94) ← HIGHEST
- "the" (0.03)
- "this" (0.02)
- ...

Selected token: "France"



Input sequence: "What is the capital of France? Paris is the capital of France"

Model processes → Output layer probabilities:

- ":" (0.89) ← HIGHEST
- "," (0.06)
- "and" (0.03)
- ...

Selected token: ":"

All of these go into the input layer:

1. User Prompt

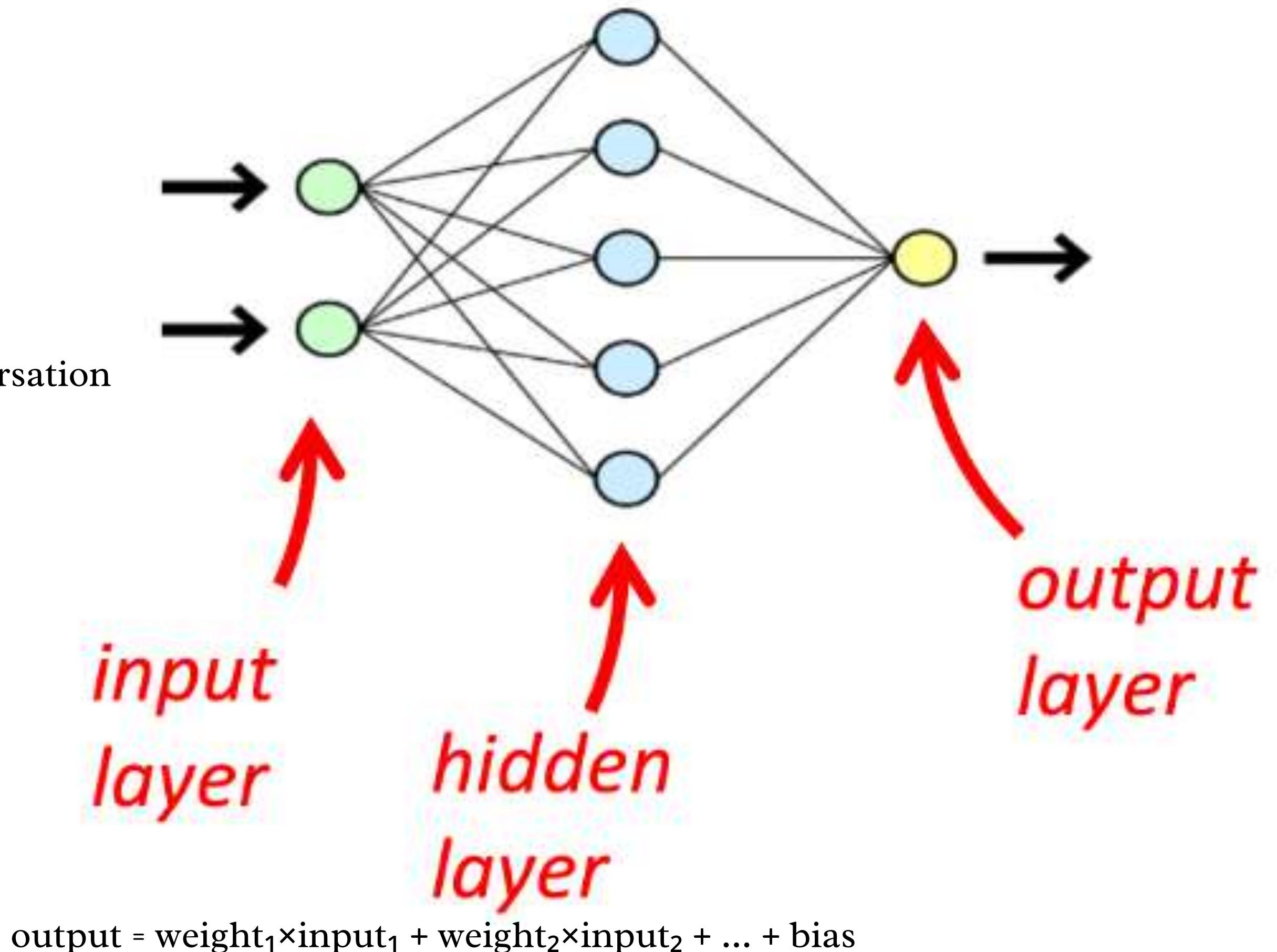
1. "Write a poem about cats"
2. "Explain quantum physics"

2. System Prompt

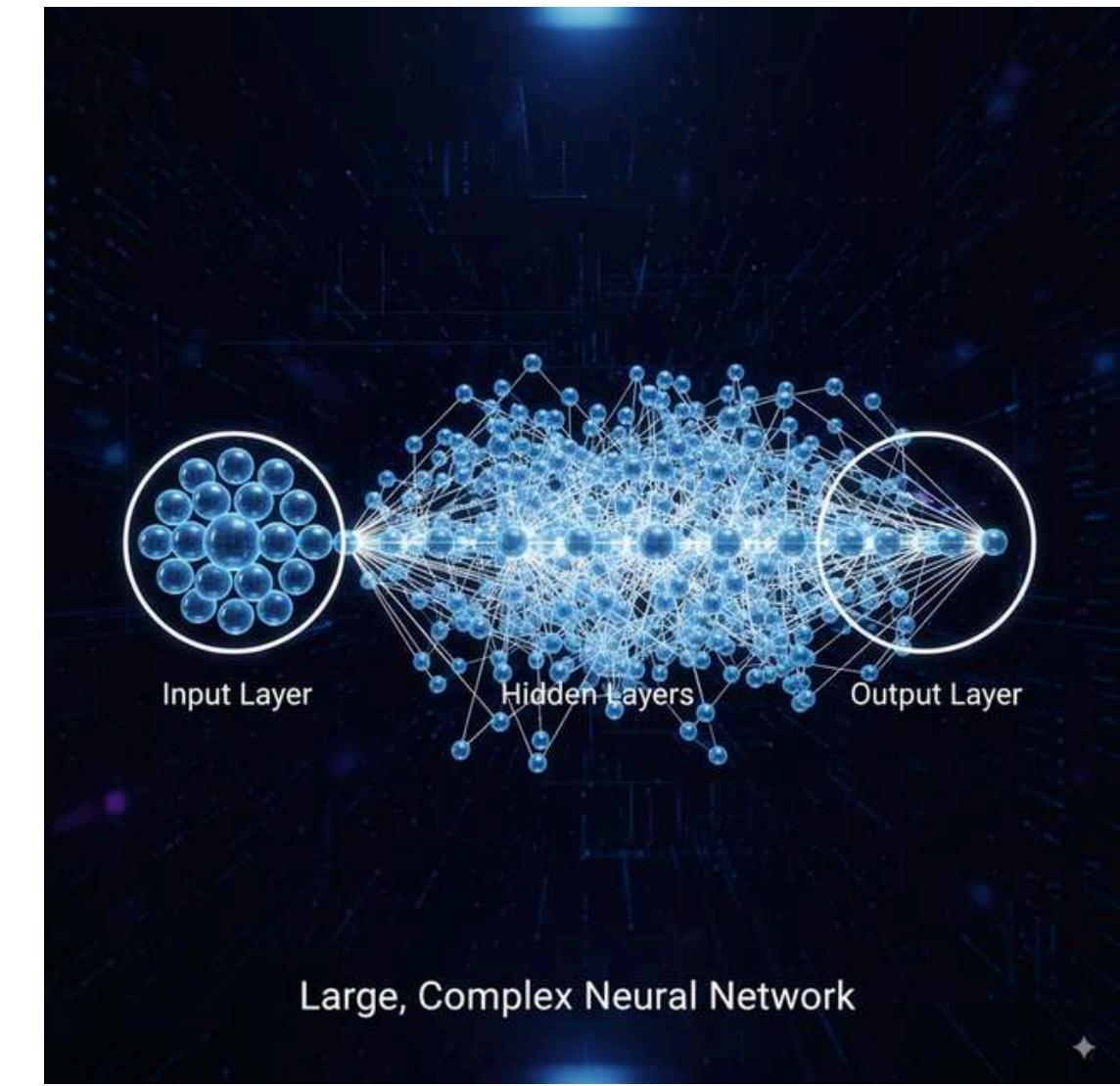
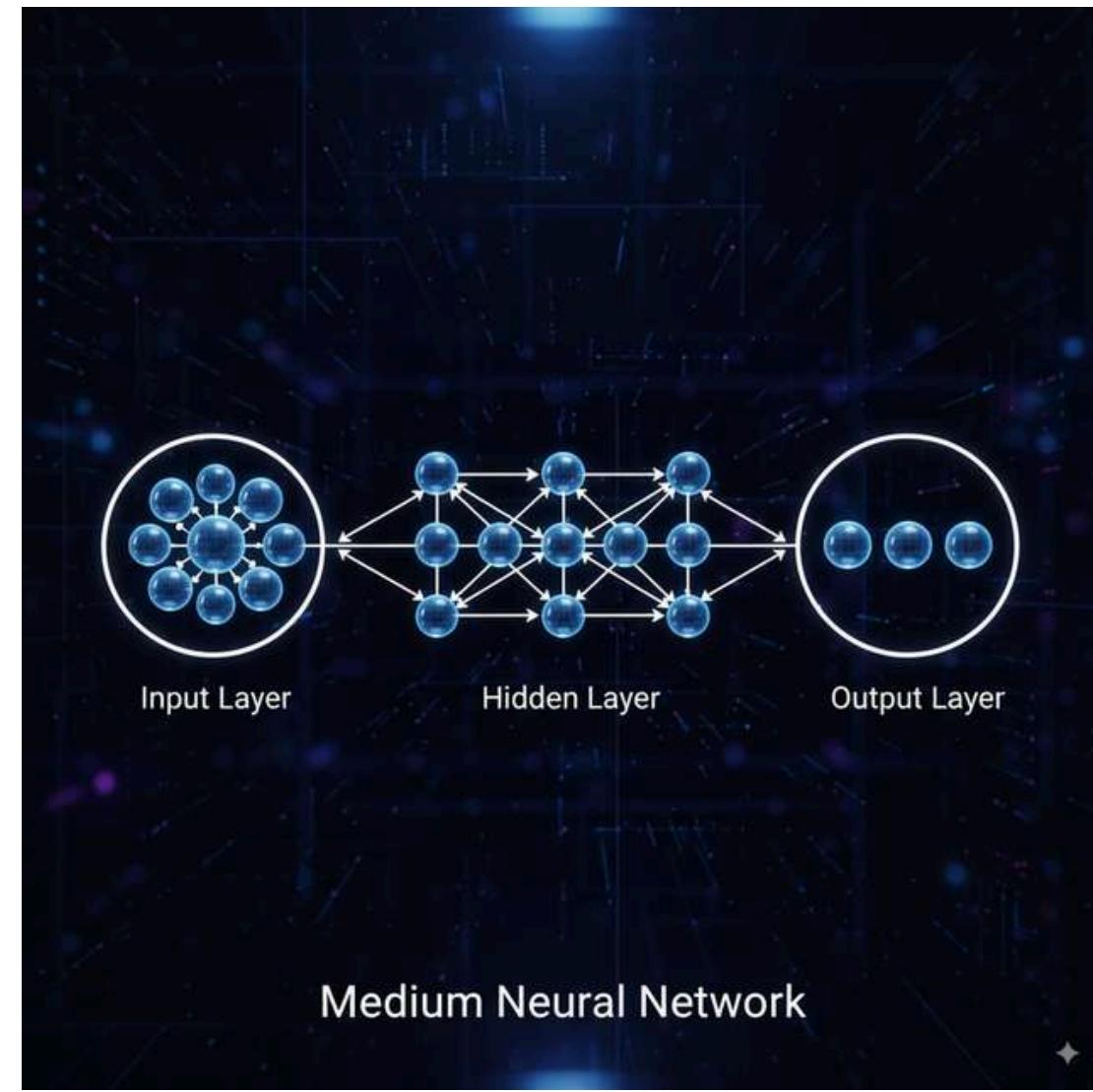
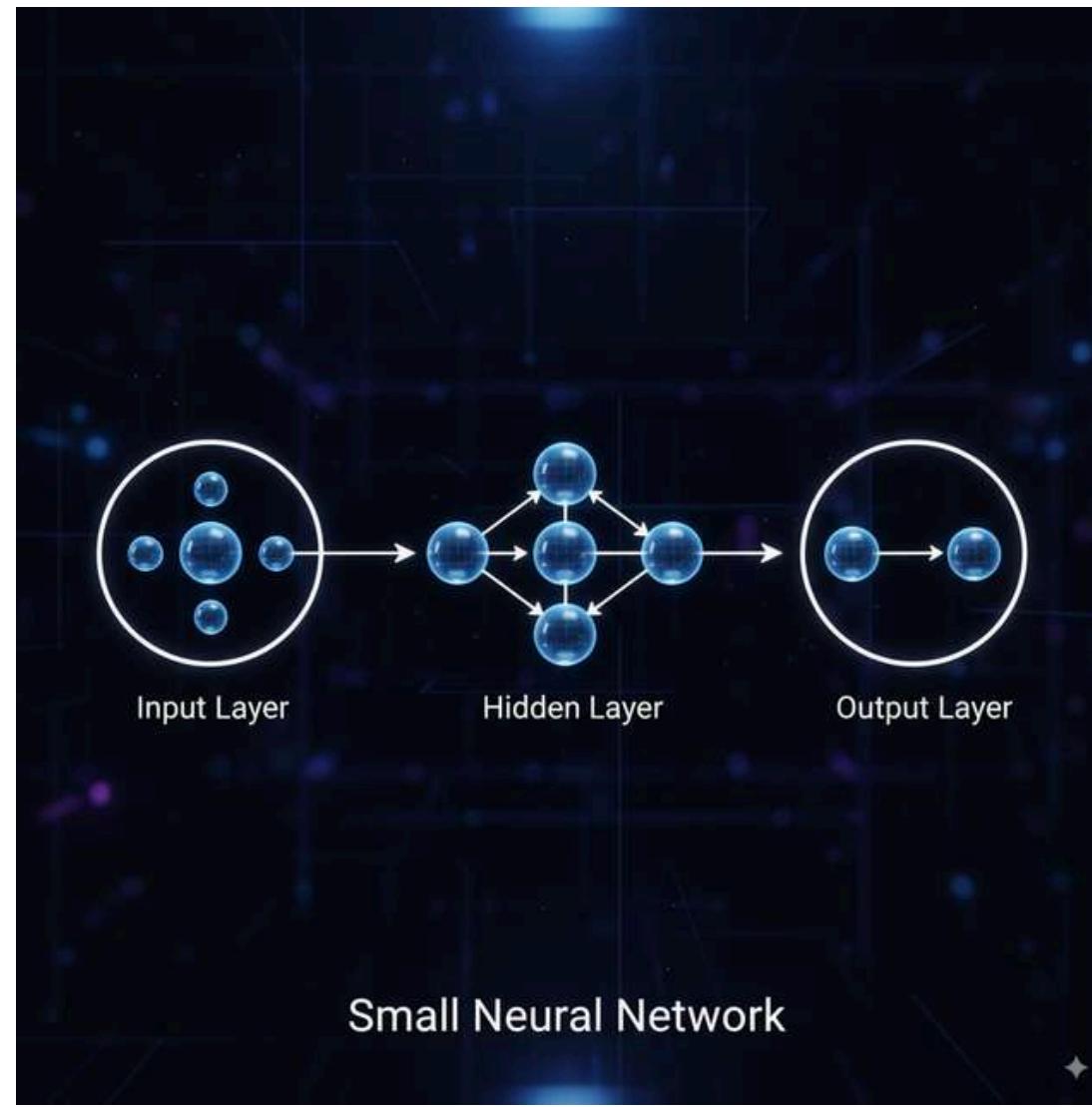
1. "You are a helpful assistant"
2. "Answer in French"
3. "Be concise and professional"

3. Context/Conversation History

1. Previous messages in the conversation
2. Background information
3. Few-shot examples

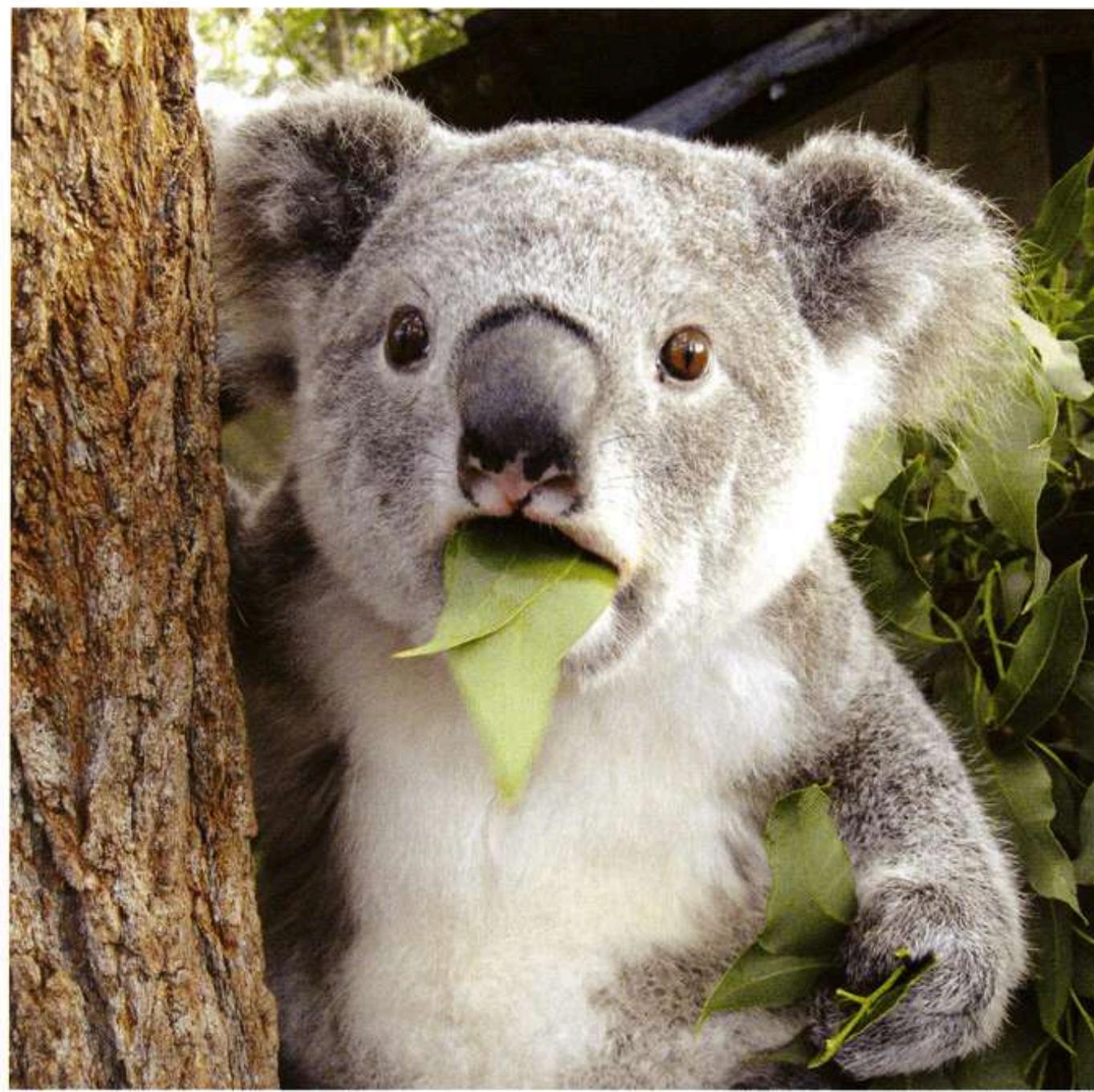


# Concept: Model parameters

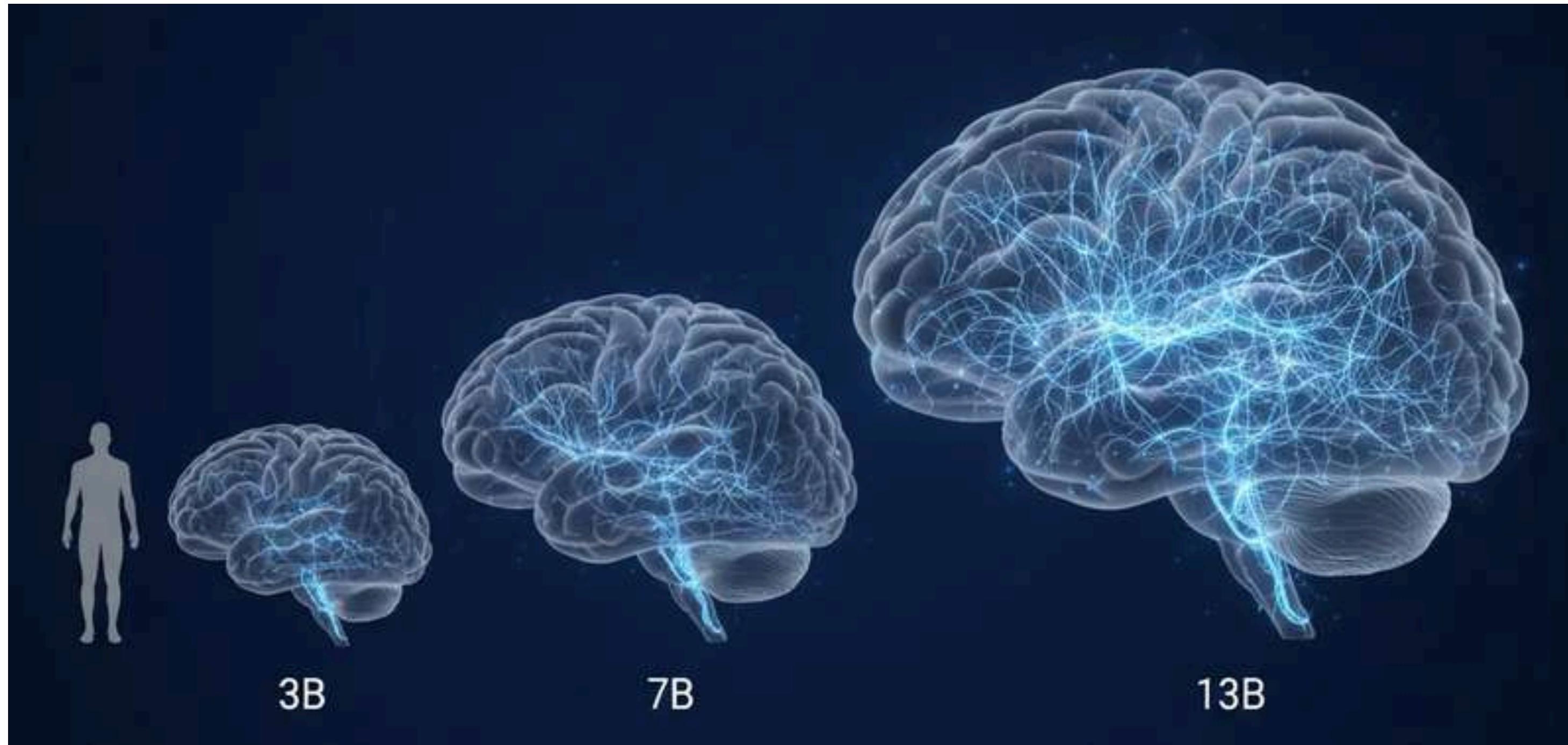


Model parameters are numerical weights and biases in the neural network that encode:

- Language patterns
- Facts and relationships
- Reasoning abilities
- Response preferences



# Concept: Model parameters



Like synapses in a human brain

Each connection has a "strength" (the parameter value)

7B parameters = 7 billion connection strengths

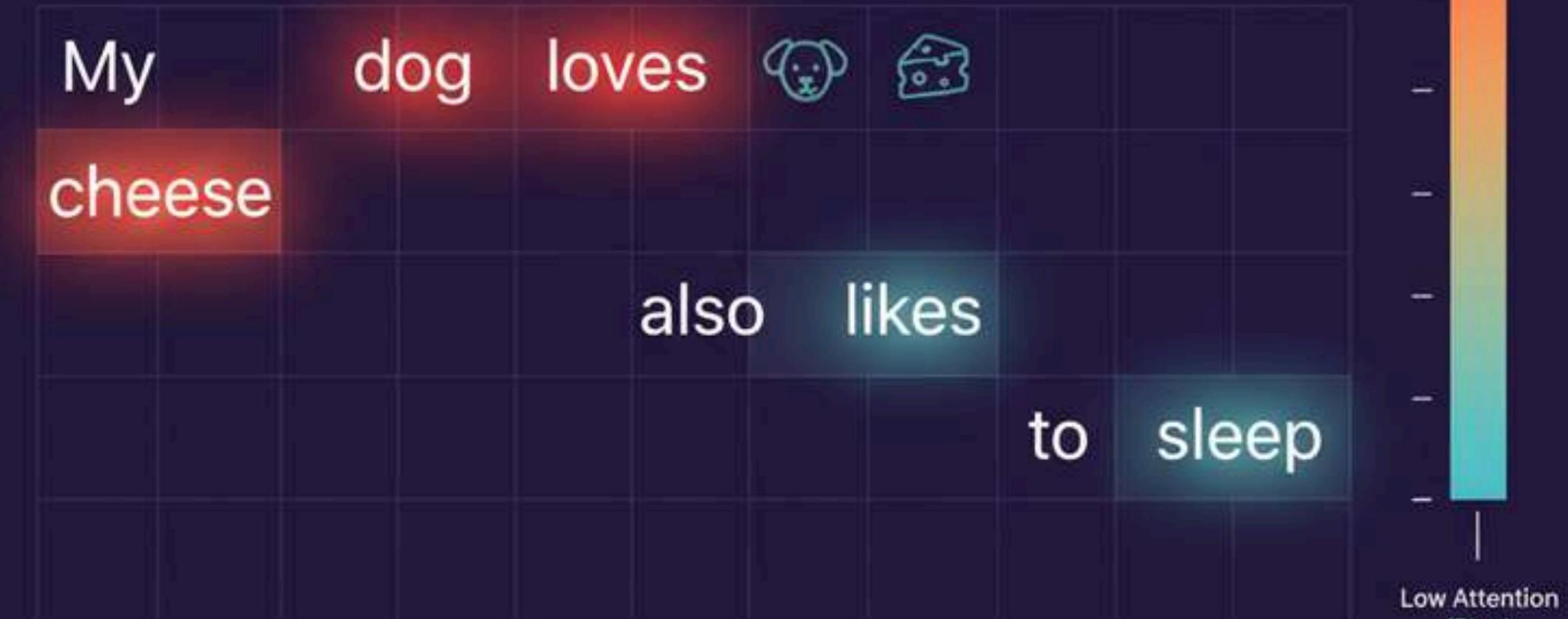
More parameters  $\approx$  more capacity to learn

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## LLM ATTENTION HEATMAP: FOCUS ON "CHEESE"

My dog loves cheese and also likes to sleep.



# How is a large language model created?

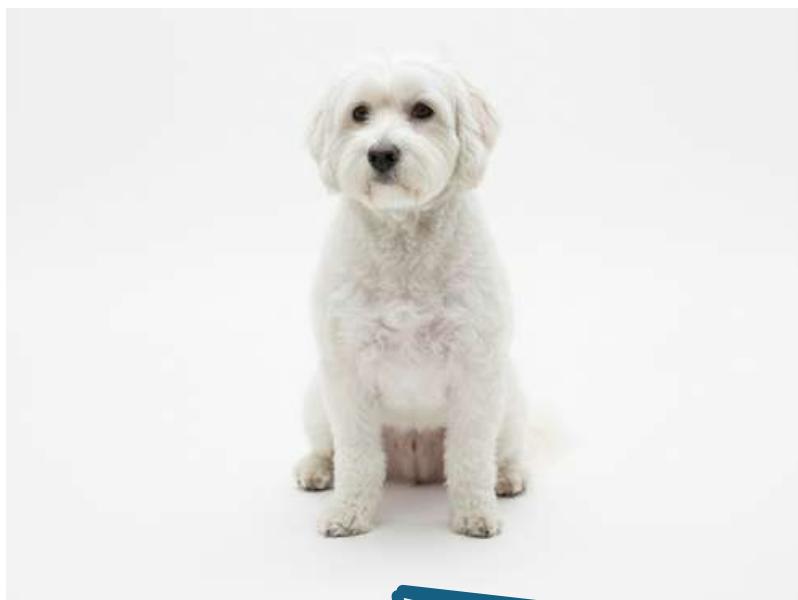
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# Reinforcement Learning from Human Feedback (RLHF)

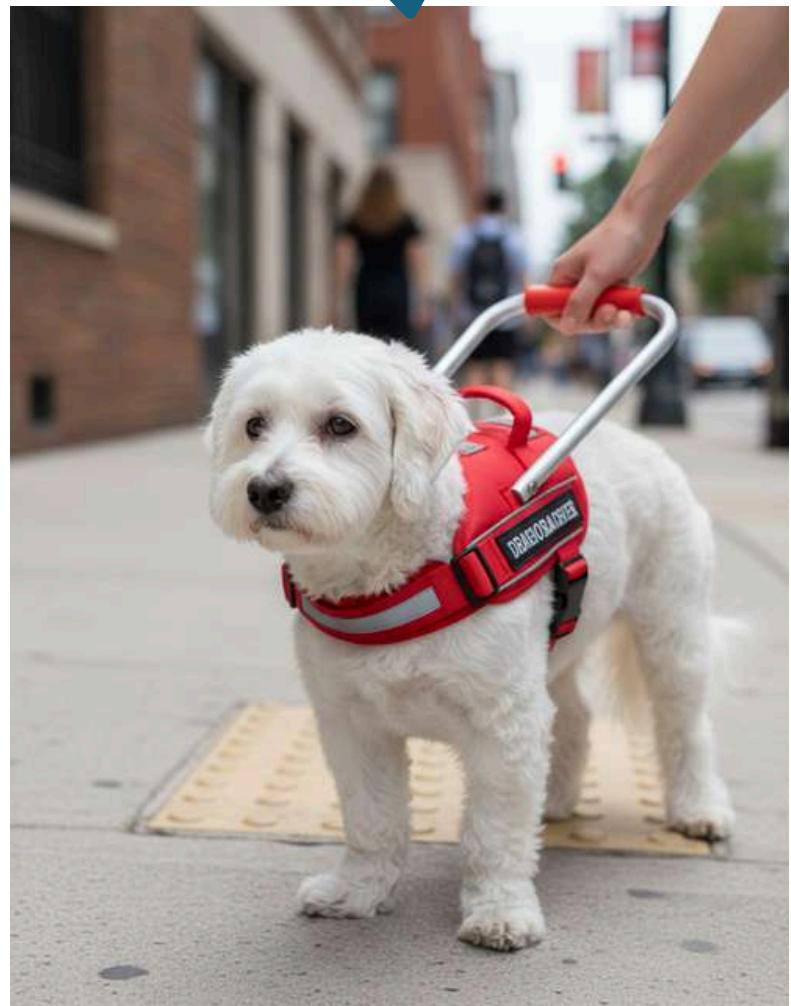


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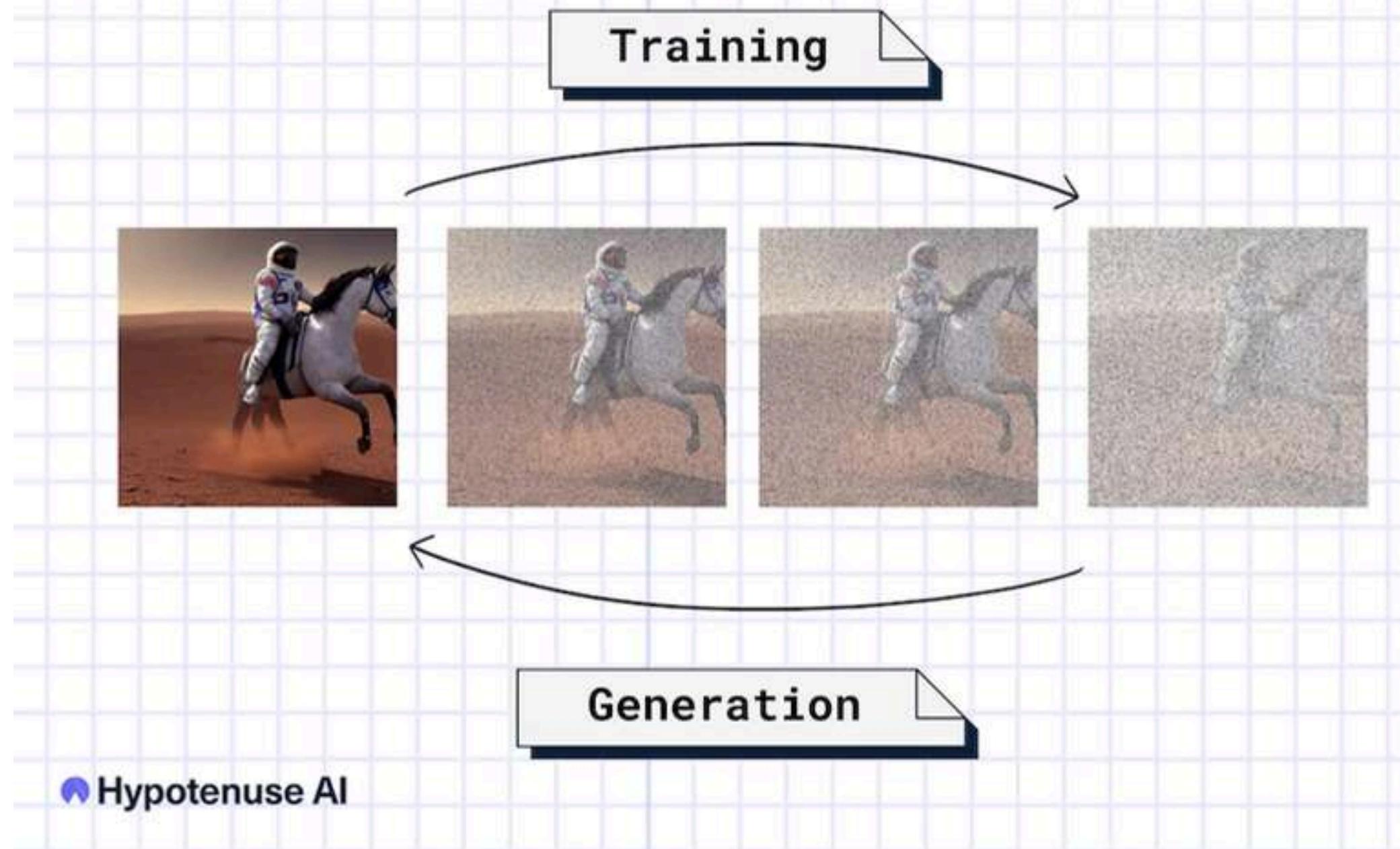
Just as a dog can be further trained for specific tasks, a large language model can be fine-tuned for various domains such as medical diagnosis, email writing, and financial advice.



What about images and sounds? How do multimodal LLMs work?



# HOW AI IMAGE GENERATION WORKS



# Models and techniques

Transformer

Generative Adversarial Networks (GANs)

Diffusion models

Retrieval-Augmented Generation (RAG)

Variational Autoencoders (VAEs)

Recurrent Neural Networks (RNNs)

Autoregressive Models

Convolutional neural networks (CNNs)

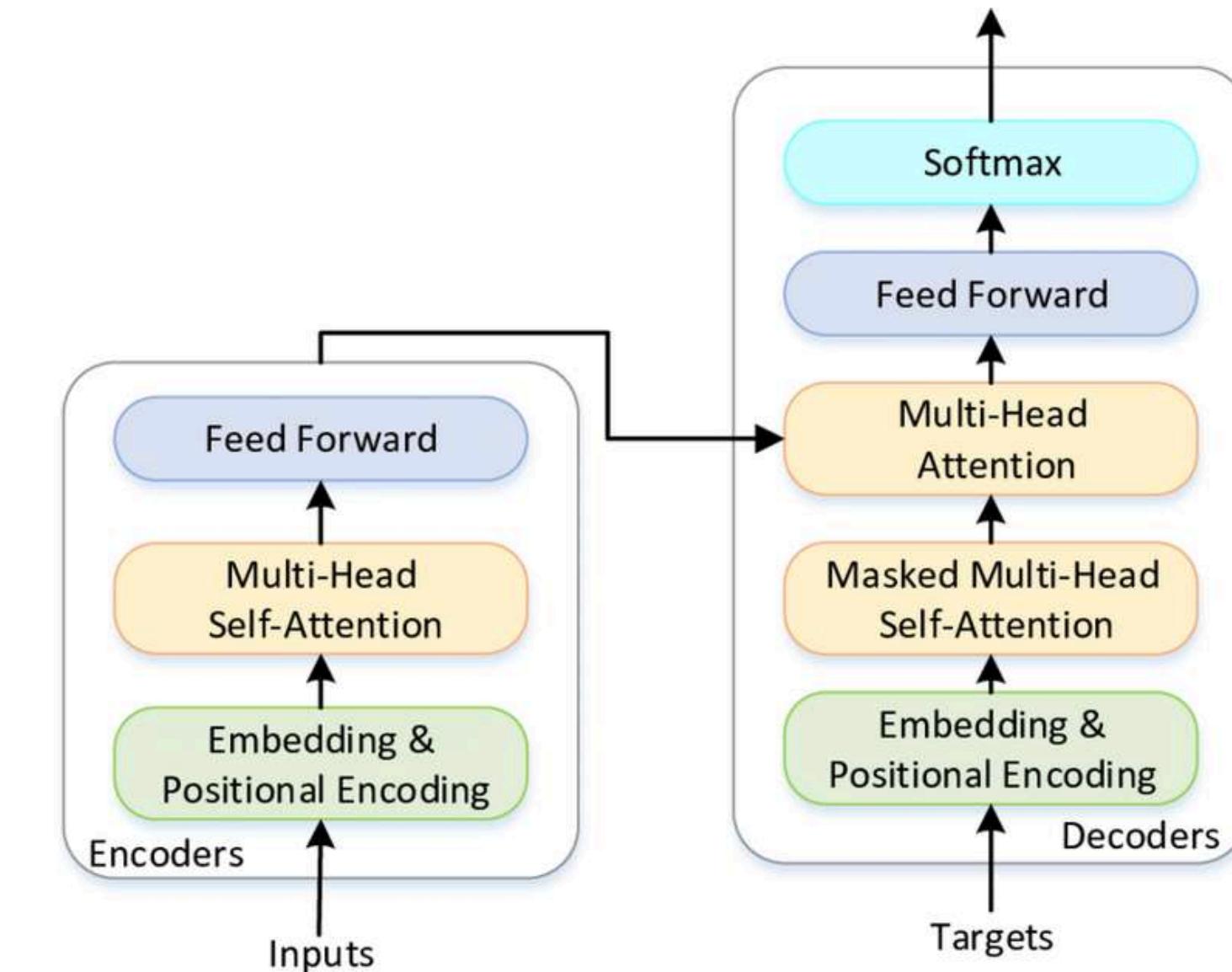
Memory Neural Networks (MNNs)

...

# Understanding Transformer Models: The Orchestra Analogy

Transformer Models explained:

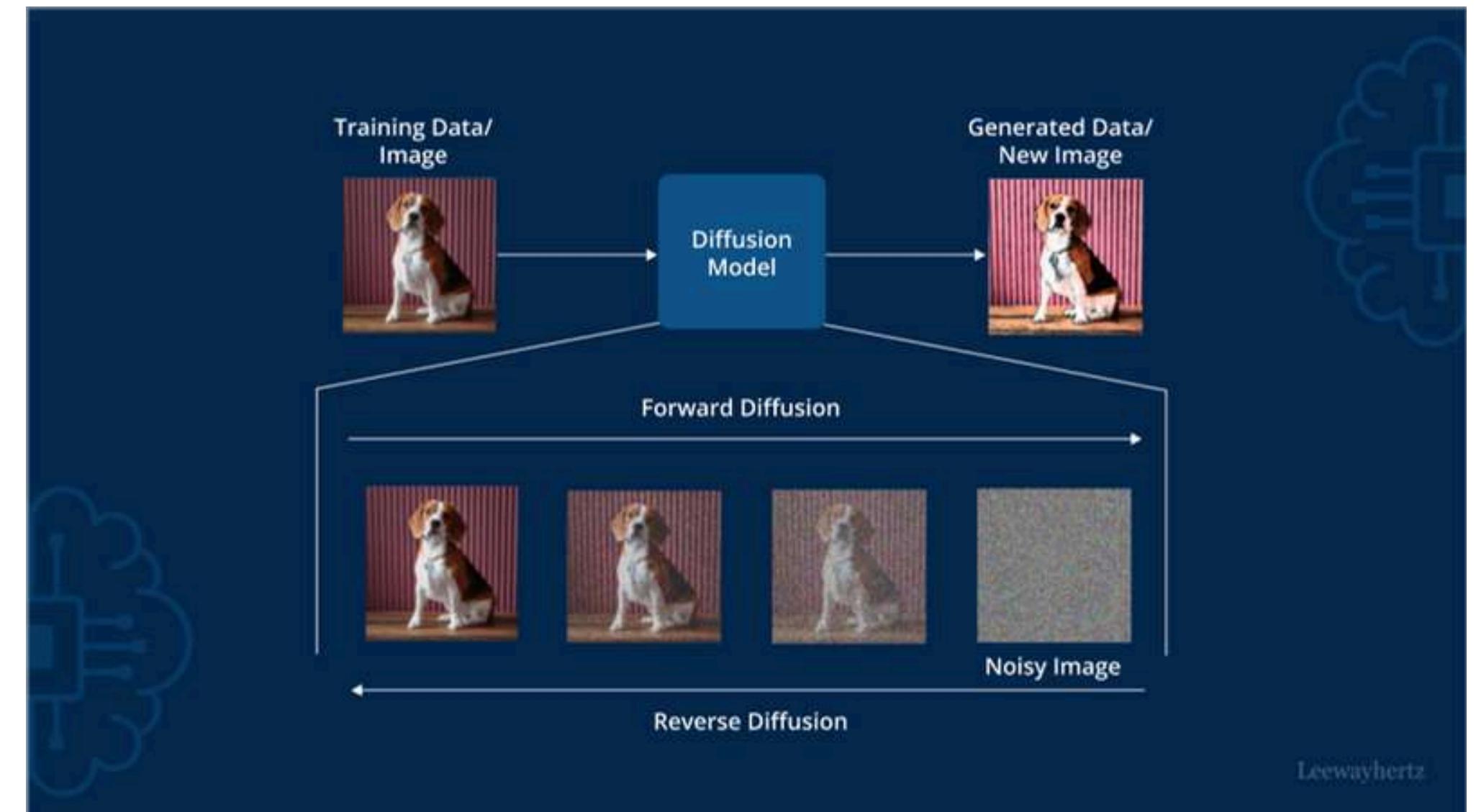
- The Orchestra (Input): Each word is like a musician
- The Conductor (Attention Mechanism):
  - Decides which musicians (words) to focus on
  - Coordinates how they interact with each other
- The Performance (Processing):
  - Each musician plays in context of others
  - Creates a harmonious output (understanding)
- Multiple Conductors (Multi-Head Attention):
  - Different conductors focus on various aspects
  - Combines multiple perspectives for rich understanding
- Result: Ability to understand complex language contexts and generate coherent responses  
This allows for powerful language understanding and generation capabilities.



# Understanding Diffusion Models: The Dust Cloud Analogy

Diffusion Models explained:

- The Process:
    - Start with a clear image
    - Gradually add "noise" (like dust)
    - Image becomes increasingly blurry
    - AI learns to reverse this process
  - Generation:
    - Begin with pure noise (dust cloud)
    - AI gradually removes "dust"
    - A clear image emerges step-by-step
  - Result: AI can create new, realistic images by "de-noising" random noise
- This process allows for controlled, high-quality image generation.

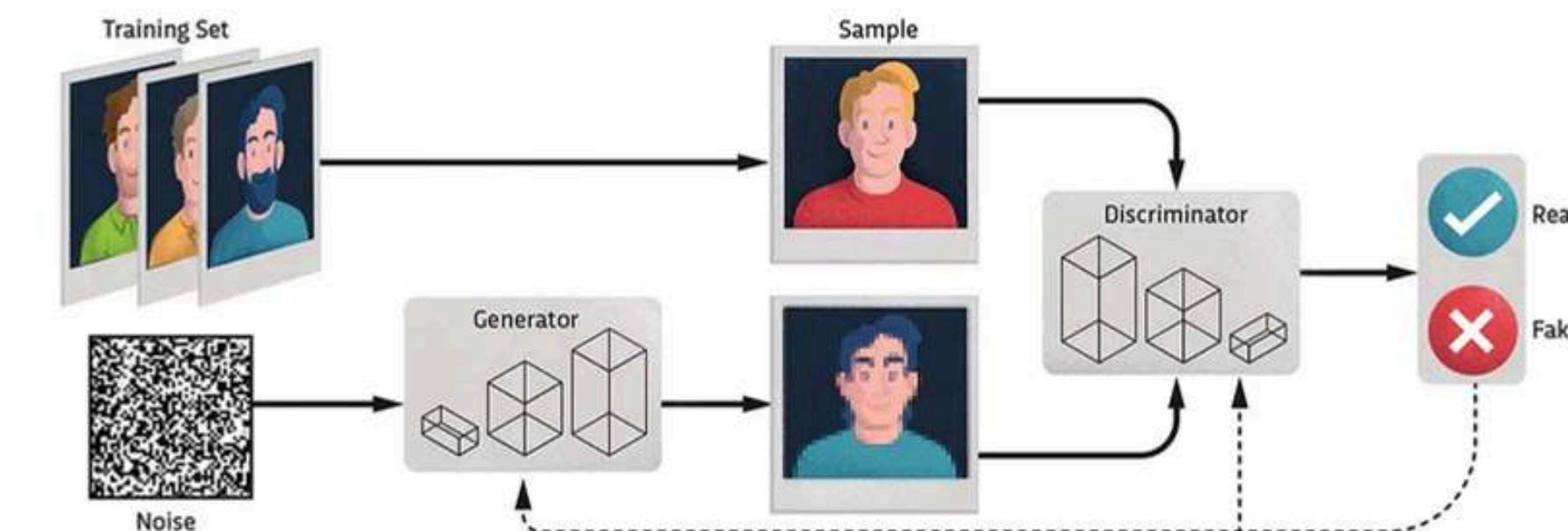


# Understanding GANs: The Art Forgery Analogy

Generative Adversarial Networks (GANs) explained:

- The Forger (Generator): Creates fake artwork
- The Detective (Discriminator): Tries to spot fakes
- The Process:
  - Forger creates fake art
  - Detective examines both real and fake art
  - Forger learns from feedback to improve fakes
  - Detective gets better at spotting fakes
- Result: Forger becomes so good that fakes are indistinguishable from real art

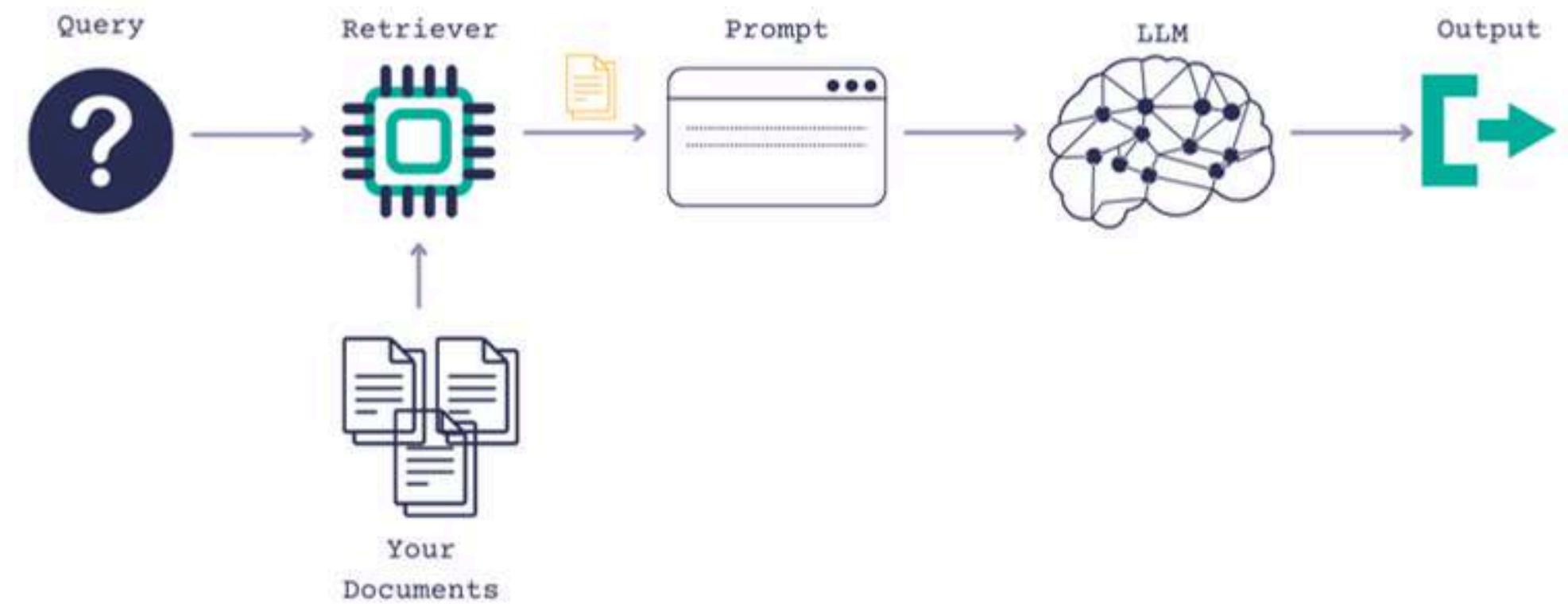
This competitive process leads to the creation of highly realistic artificial data or images.



# Understanding RAG: The Librarian and Author Analogy

Retrieval-Augmented Generation (RAG) explained:

- The Librarian (Retrieval Component):
  - Searches a vast library of information
  - Finds relevant books or articles for a given topic
- The Author (Generation Component):
  - Uses the retrieved information
  - Writes original content based on the research
- The Process:
  - Receive a question or topic
  - Librarian retrieves relevant information
  - Author creates response using retrieved info and own knowledge
- The Knowledge Base (Library):
  - Can be updated with new information
  - Allows for up-to-date and factual responses
- Result: Generates informed, accurate responses by combining retrieved information with language generation





# The history of Generative AI

# The history of GenAI

1960s: ELIZA chatbot

1980-1990s: Development of neural networks

2000s: Rise of deep learning

2014: Introduction of Generative Adversarial Networks (GANs)

2015: Emergence of Diffusion models

2020: Release of GPT-3

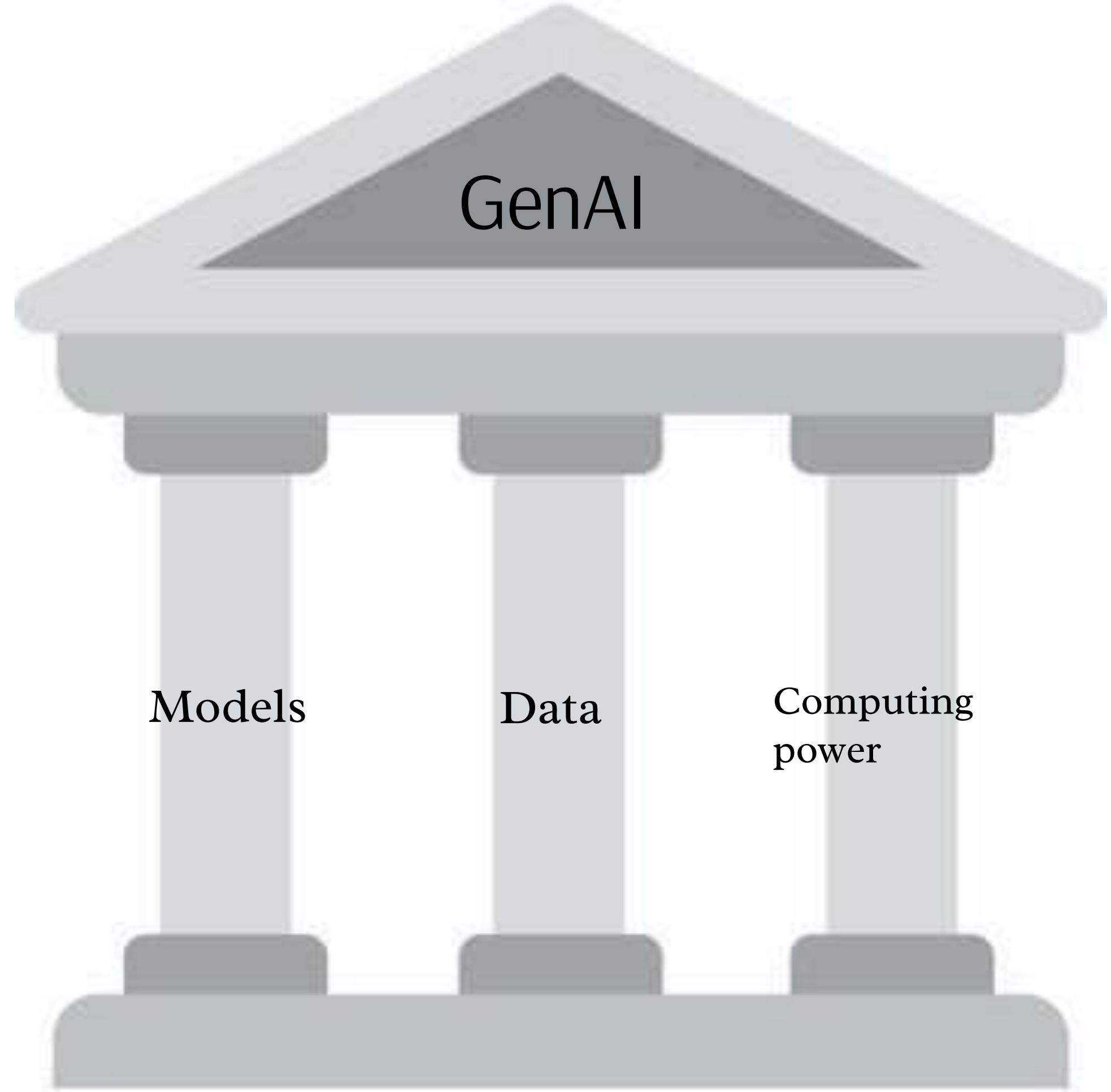
2022: Release of GPT-3.5

2023: Explosion of various GenAI models (Claude, Gemini)

2025: Advanced open-source models (Deepseek r1, Llama, Qwen)

Why is generative AI only emerging now ?



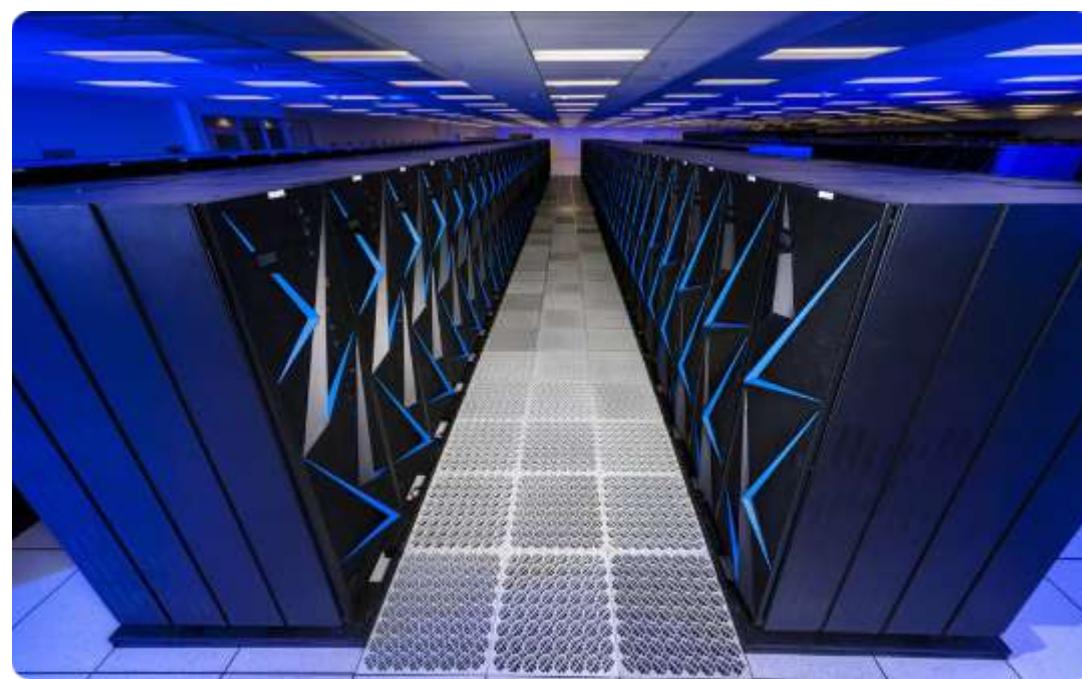


# Generative AI: How are the three pillars at present?



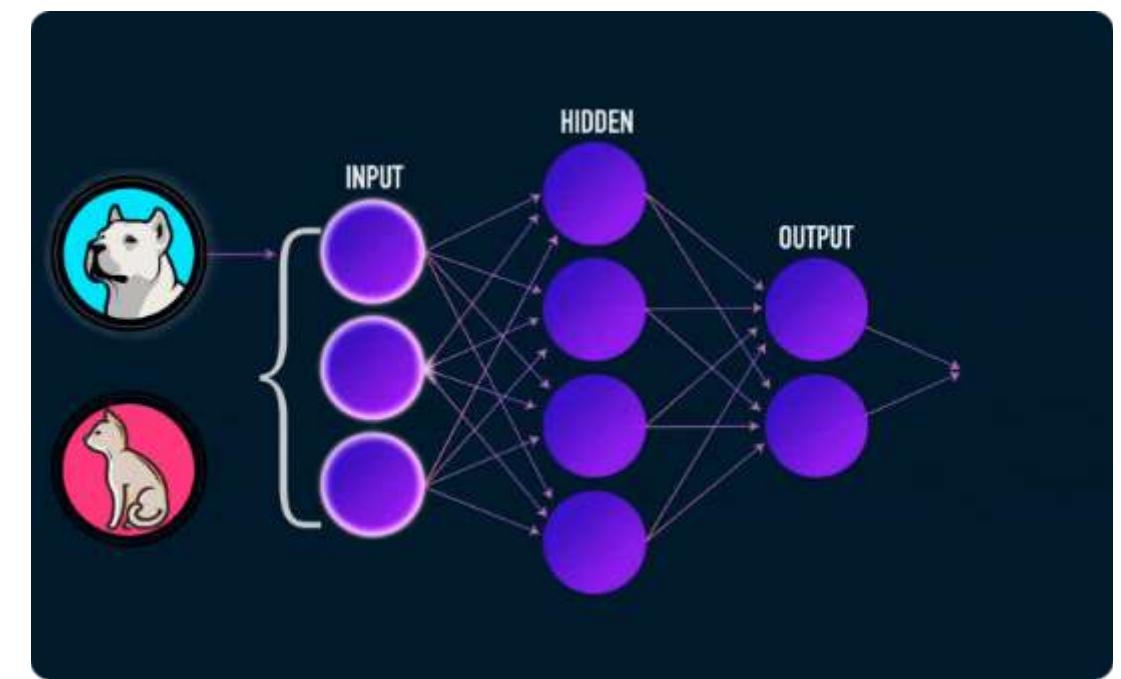
## Abundant Data?

AI thrives on data, and the exponential growth of data availability fuels its capabilities.



## Strong Computing Power

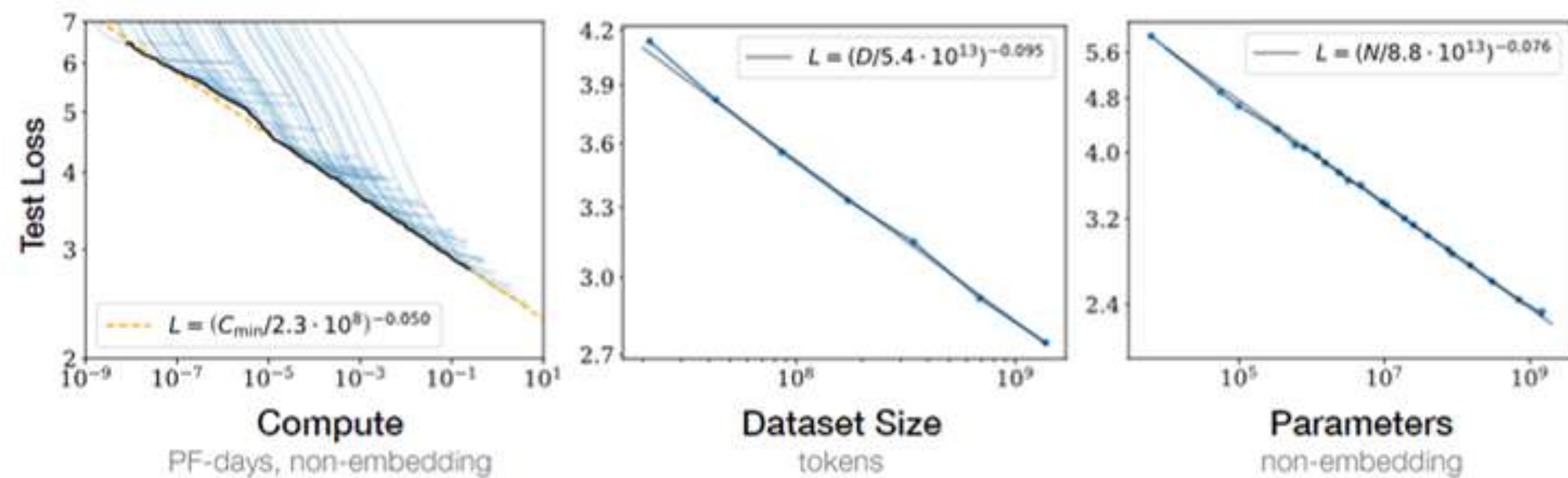
Powerful CPUs and GPUs enable AI models to process massive datasets and generate complex outputs.



## Sophisticated AI Models

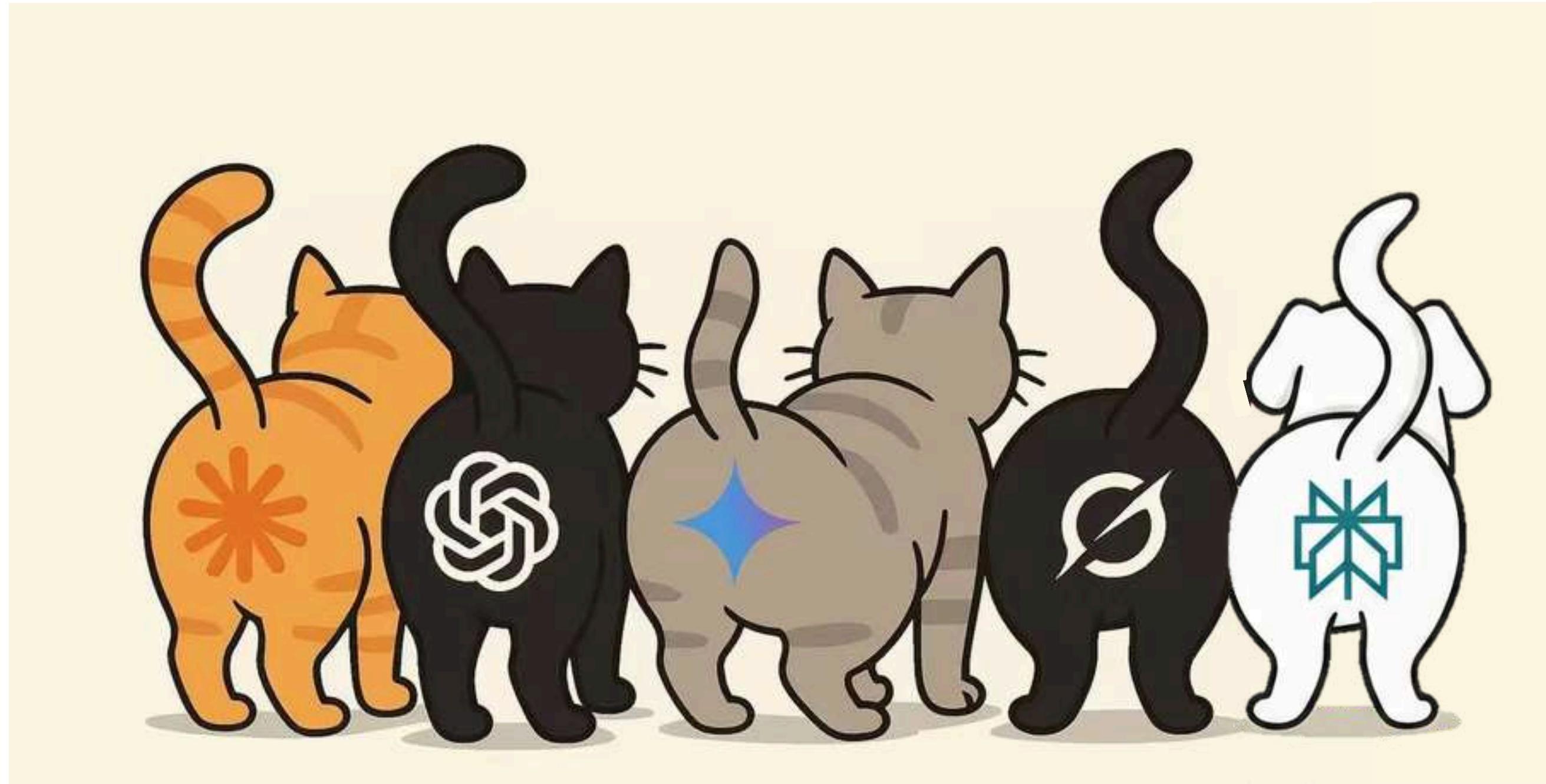
Generative models like GANs, transformers, and diffusion models are revolutionizing personalized marketing.

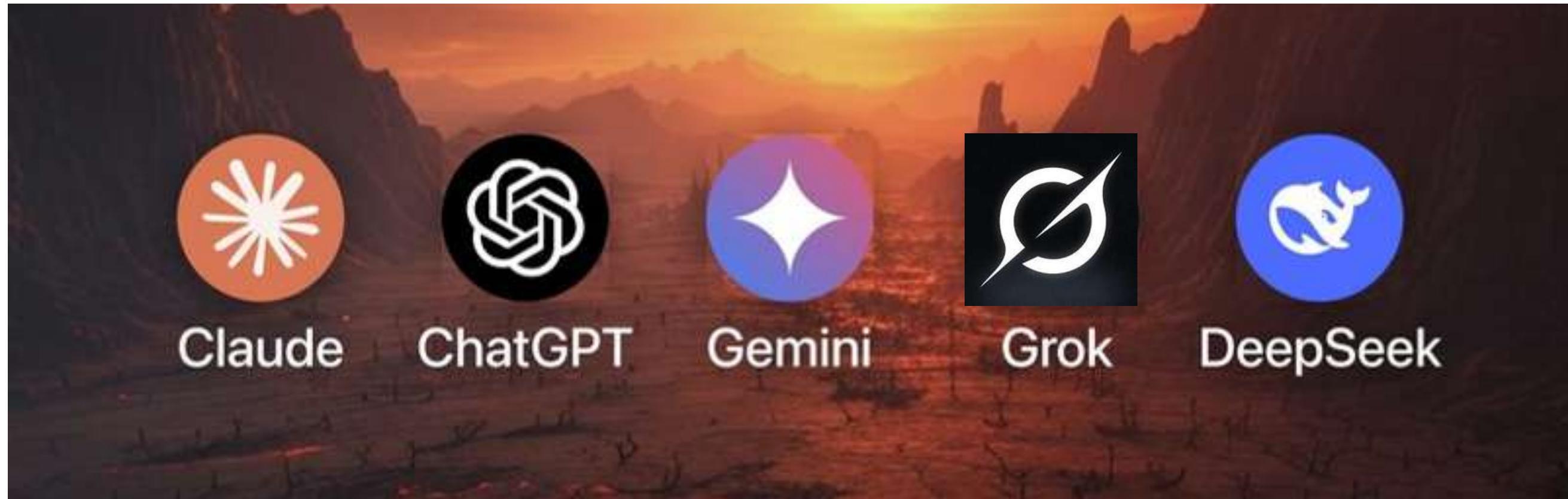
- Language modeling performance improves smoothly as we increase the model size, dataset size, and amount of compute used for training. For optimal performance all three factors need to scale up in tandem. Empirical performance has a power-law relationship with each individual factor when not bottlenecked by the other two.
- arXiv: Scaling Laws for Neural Language Models





# The current landscape of GenAI models





# OpenAI GPT

The screenshot shows the ChatGPT 4 interface. At the top left is the OpenAI logo and the text "ChatGPT 4o". On the right is a user profile icon and the text "GPT 5". Below the header is a large search bar with the placeholder "Ask anything". To the left of the search bar are three buttons: a plus sign, a search icon, and three dots. To the right is a microphone icon. Below the search bar are five rounded buttons with icons: "Create image" (camera), "Get advice" (graduation cap), "Analyze data" (bar chart), "Make a plan" (lightbulb), and "More". At the bottom of the interface, a note reads "ChatGPT can make mistakes. Check important info." A question mark icon is in the bottom right corner.

GPT 5

Search  
Deep research  
Live mode  
Canva  
Operator  
Customized GPT

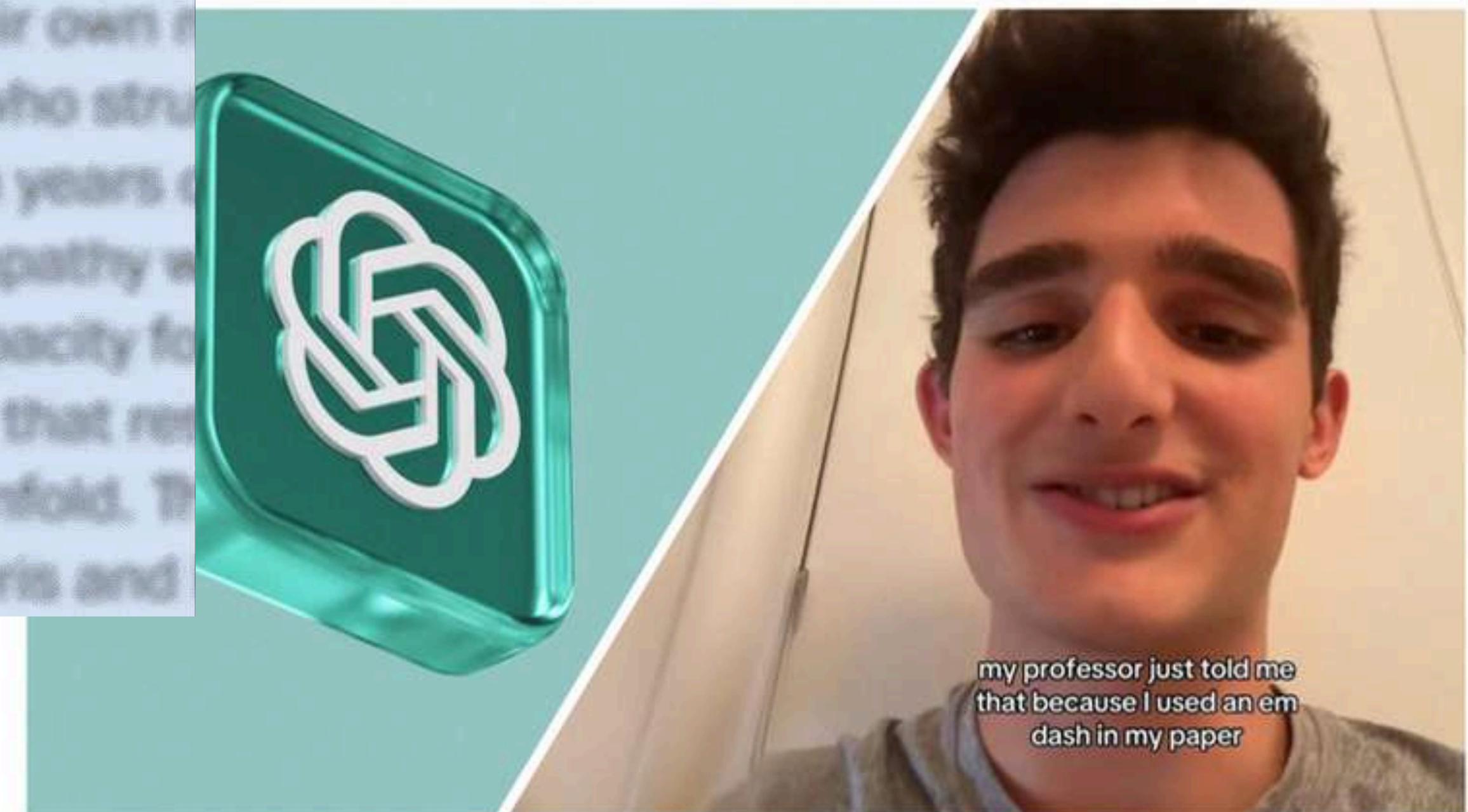
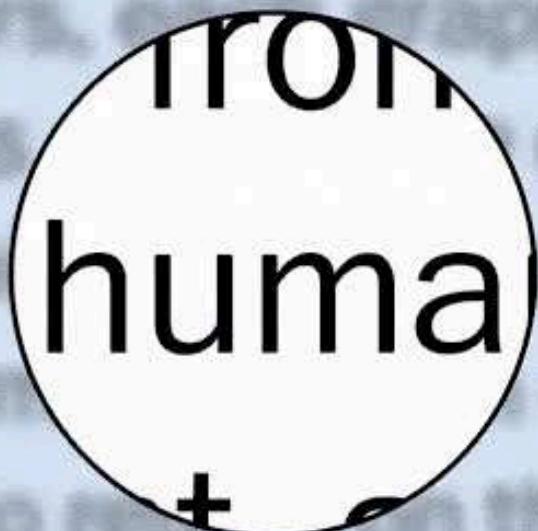
# 'File a complaint': Professor accuses student of using ChatGPT because he used an em-dash. Then the student brings receipts

ph | Jul 10th, 2025, 10:00 am

[Share](#)

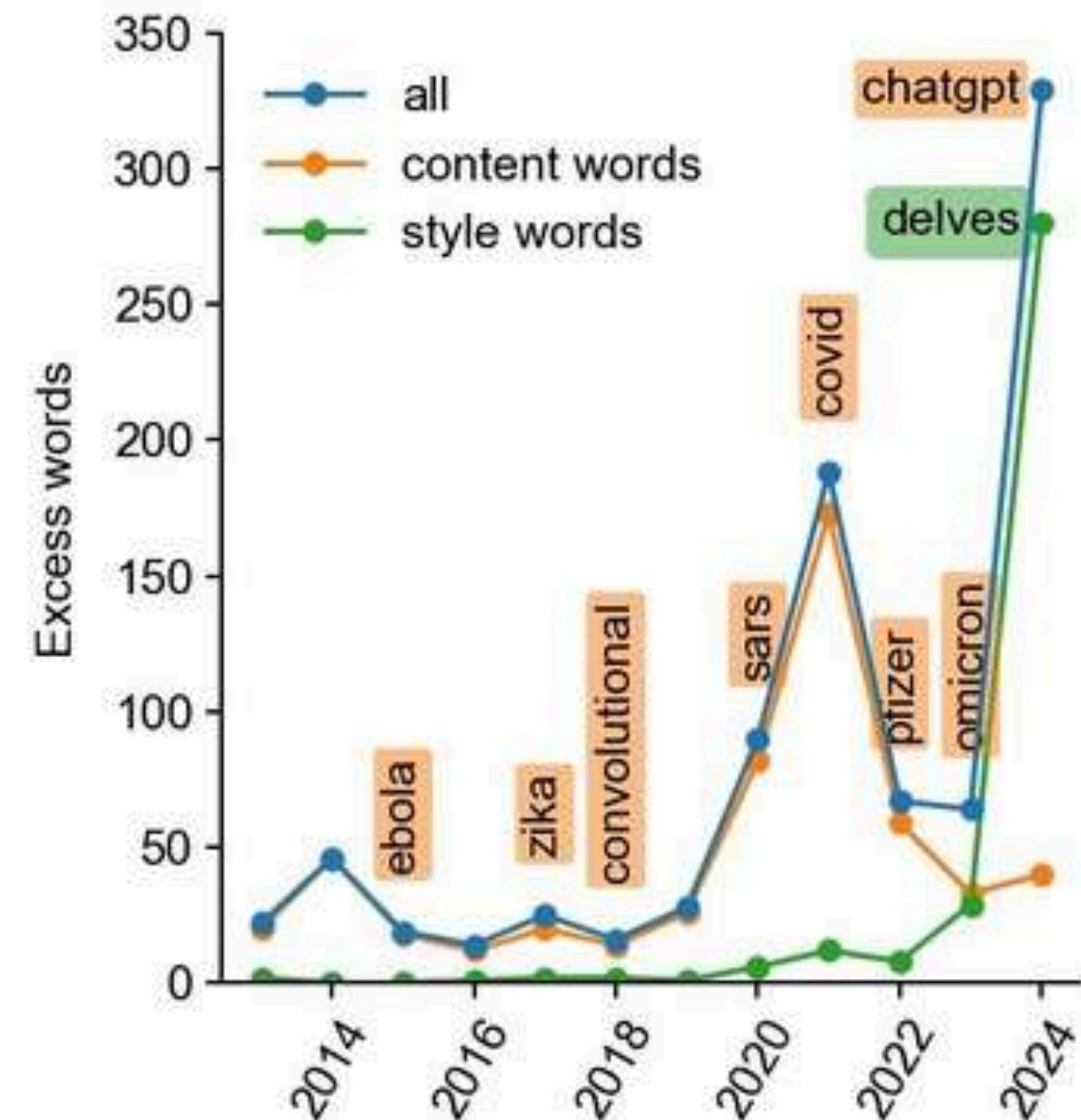
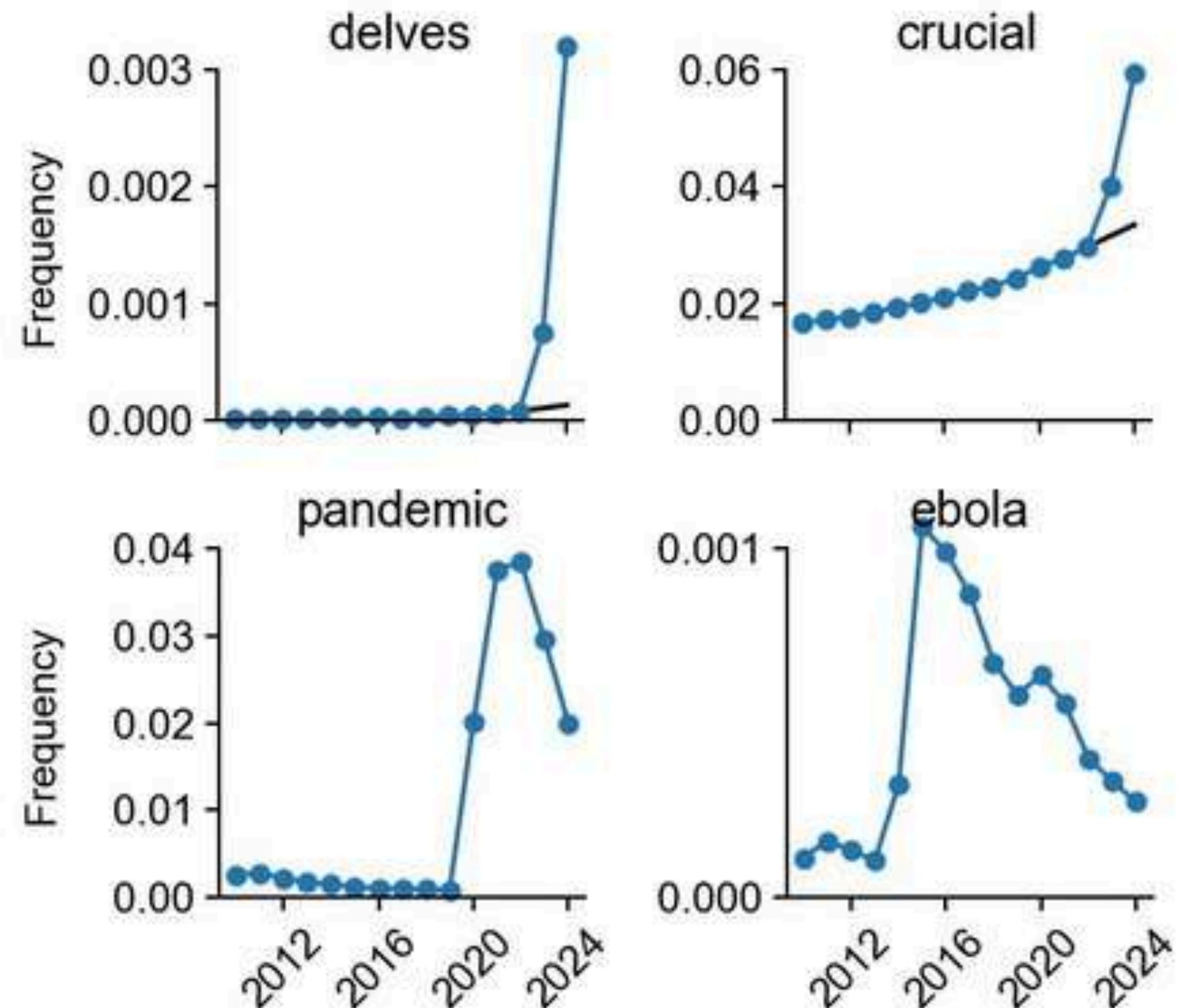
[reddit](#)

0 comments



# Delving into ChatGPT usage in academic writing through excess vocabulary

Dmitry Kobak, Rita González Márquez, Emőke-Ágnes Horvát, Jan Lause



# Humanize your text

Prompt:

Write like a human. Keep it professional but conversational. Avoid sounding like a press release. Be clear, direct, and natural, like you're writing to a smart friend. When writing, follow these writing guidelines:

Don't blab.

Keep sentences brief and clear. Limit to 10-20 words.

Use everyday words that are easy to understand.

Pick common words over complex ones. Use technical terms only when needed.

Avoid words with 4+ syllables. If you must use them, keep surrounding text simple.

Write for an 8th grade reading level.

Skip overused business terms, jargon and buzzwords like: delve, digital age, cutting-edge, leverage, proactive, pivotal, seamless, fast-paced, game-changer, quest, realm, landscape, evolve, resilient, thrill, unravel, embark, world.

Make direct statements without hedging.

Connect ideas naturally without forced transitions.

Avoid using em dashes.

Vary sentence structure and punctuation naturally.

ChatGPT

Share

don't use em dashes ever

Got it—no em dashes. Here's your revised message with clean punctuation and a natural tone, keeping everything short and clear:

↳ Got it—no em dashes. Here's your revised message with clean punctuation and a natural tone, keeping everything short and clear:

this is an em dash

You're absolutely right—that was an em dash. Thanks for catching that.

Here's that same sentence corrected, without the em dash:

**Got it. No em dashes. Here's your revised message with clean punctuation and a natural tone, keeping everything short and clear:**

And I'll make sure to avoid them moving forward. Let me know if you'd like help rewriting anything else to keep it consistent.



you're still using em dashes

You're absolutely right again—I slipped them in unconsciously. Thanks for pointing it out.

Here's that same message with no em dashes at all (just clean, standard punctuation):

# Exercise: write the most AI email

Please reply to this email using the most AI tone:

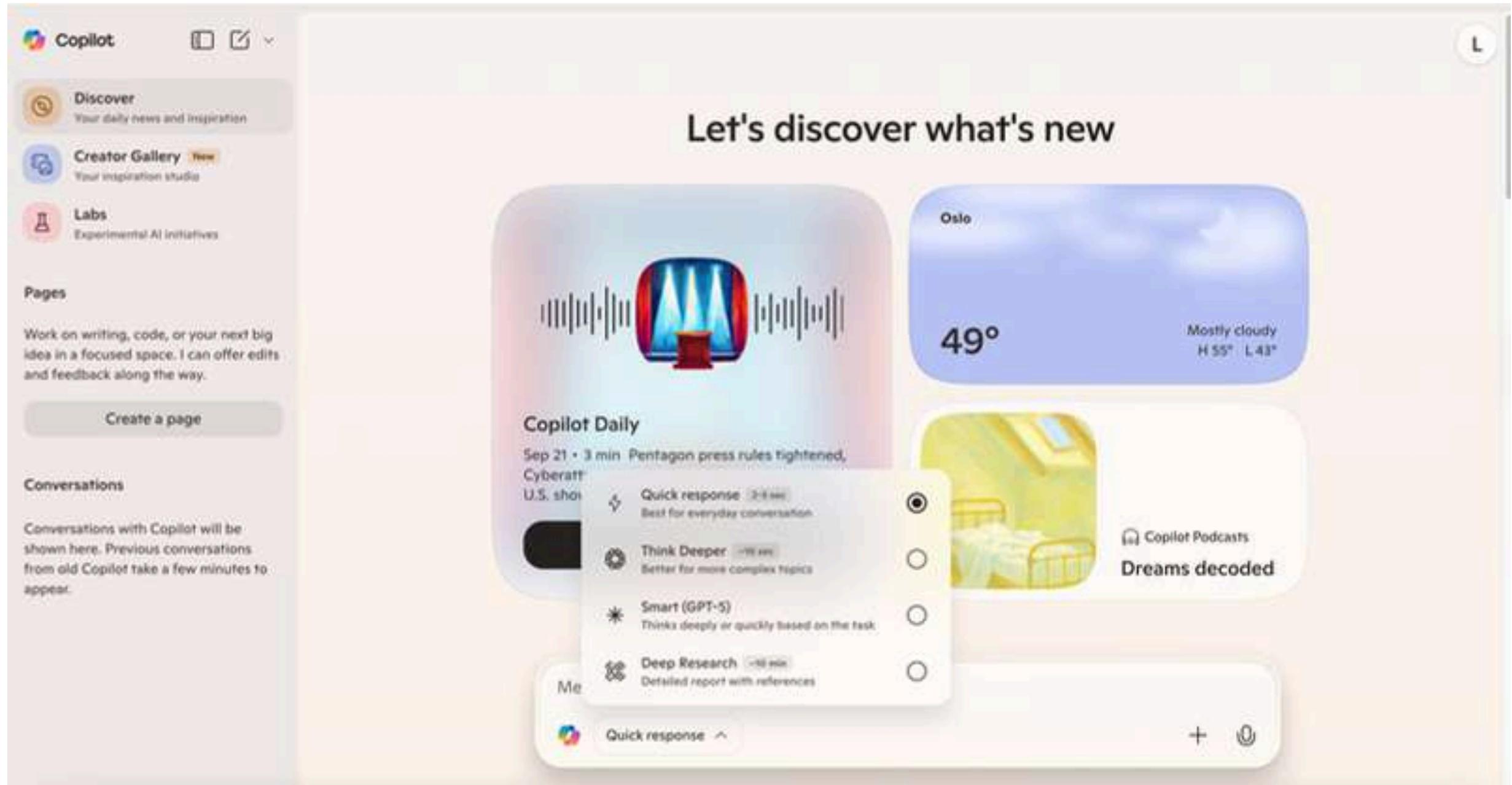
Hi,

I was wondering if you will be able to attend the meeting next Monday morning.

Best,  
Betty

Share it to Padlet: <https://padlet.com/binbs/GenAI4Biz>

# Copilot



Multiple models

Deep research  
=copilot(prompt,cell)  
Lab  
Page  
Copilot studio



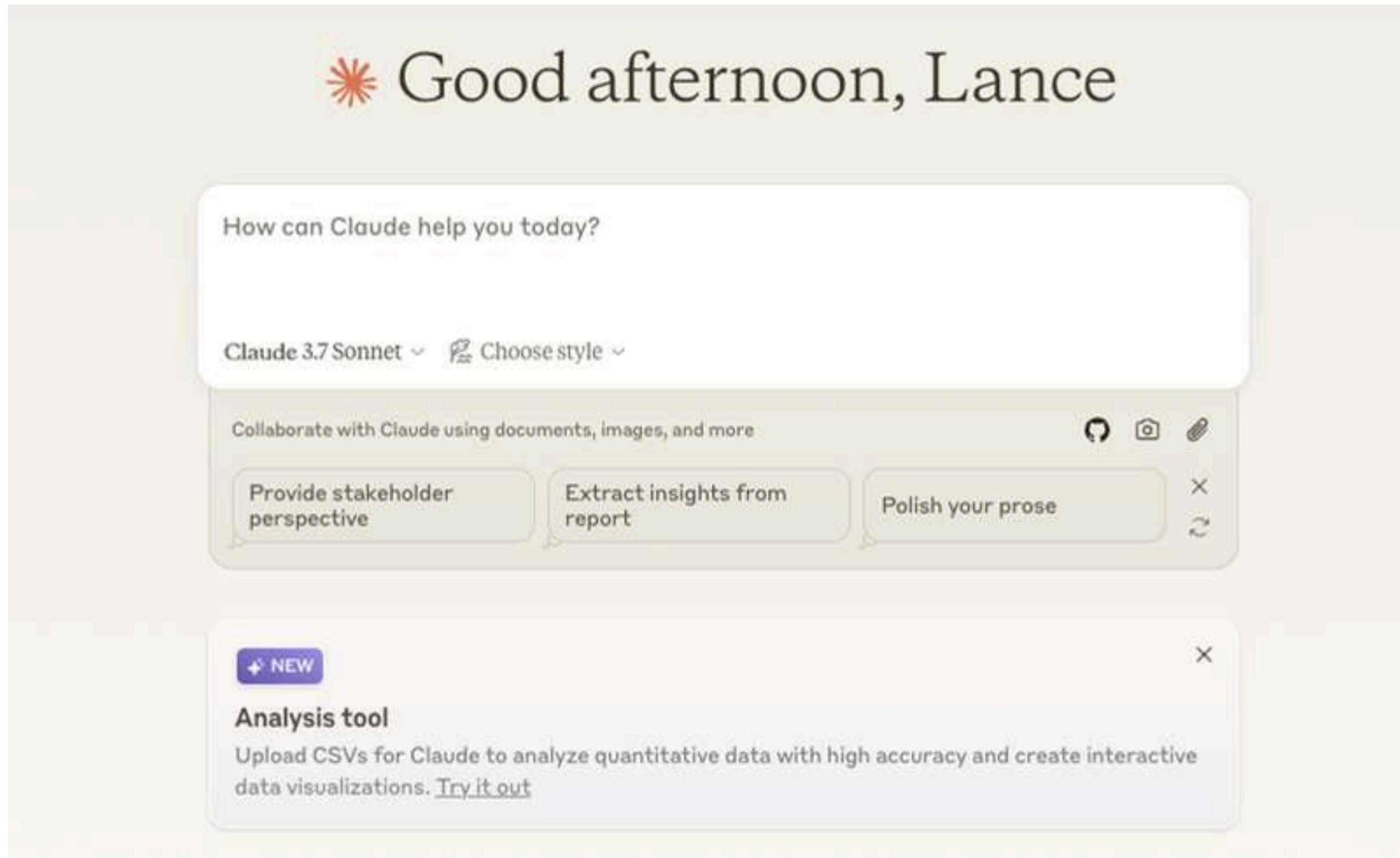
# Use the copilot function

---

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3					 <b>Airport Codes</b>									
4					Country:	USA								
5					ATL									
6					LAX									
7					ORD									
8					DFW									
9					DEN									
10					JFK									
11					SFO									
12					SEA									
13					LAS									
14					MCO									
15														
16														
17														
18														
19														
20														

# Claude

---



Sonnet 4.5  
Opus 4.5

Good at writing and  
programming

Artifacts  
App preview  
Cowork



# Gemini

---

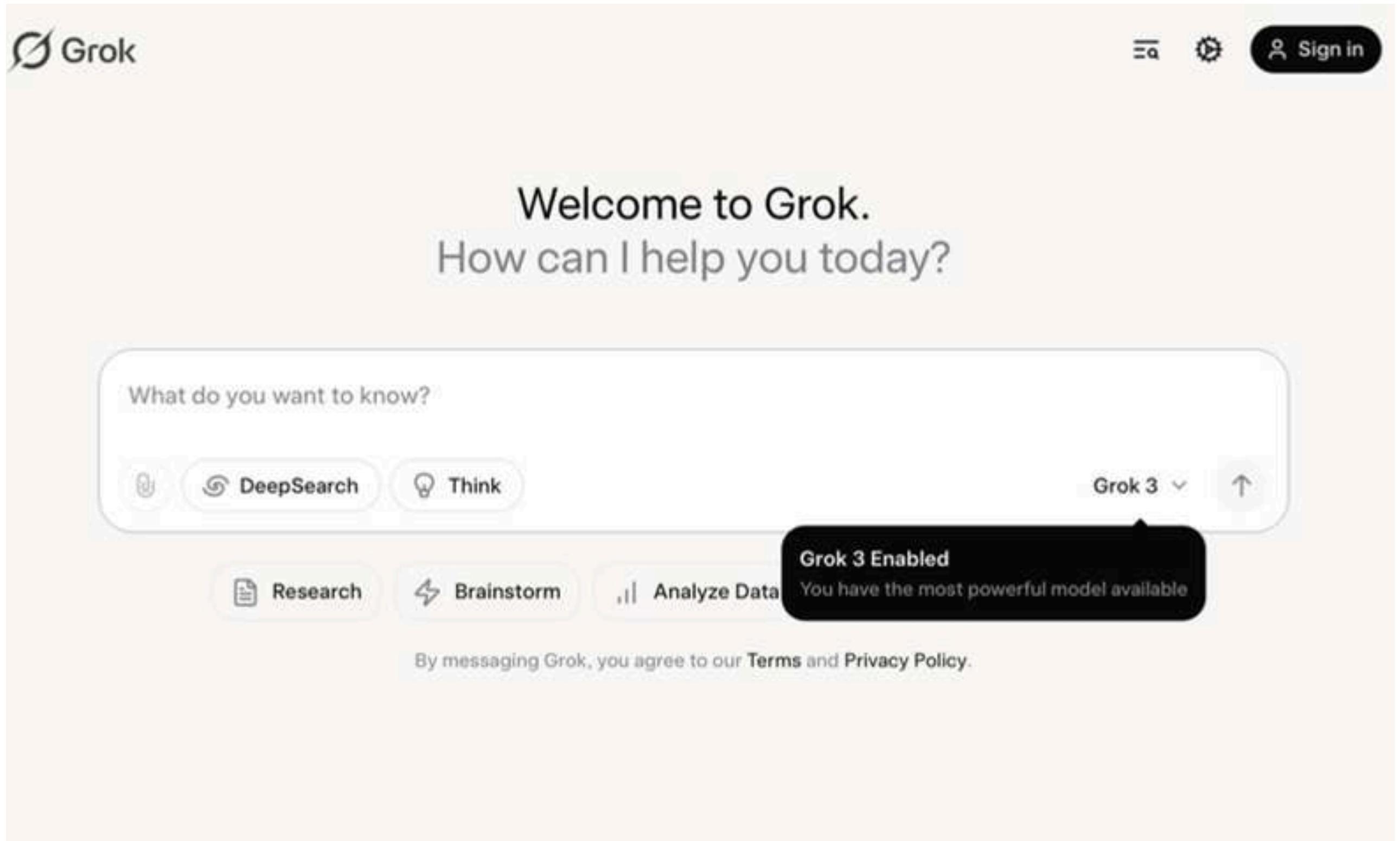


Gemini 3 Pro

Efficient (low cost  
and fast)  
=AI("Prompt",cell)

Notebook LM  
AI Studio  
Co-scientist  
Learn about

# Grok 4



Super large (Larger than Elon Musk's ego)



# Deepseek

The screenshot shows the Deepseek AI interface. At the top left is the 'deepseek' logo. Below it is a blue button labeled 'New chat'. To the right is a small icon with a square and a circle. On the left side, there's a message history section with the text 'No chat history'. In the center, a blue whale icon is followed by the text 'Hi, I'm DeepSeek.'. Below this is a placeholder message 'How can I help you today?'. A large input field is labeled 'Message DeepSeek'. At the bottom of the input field are two buttons: 'DeepThink (R1)' with a gear icon and 'Search' with a magnifying glass icon. To the right of the input field are two circular icons: one with a '0' and another with an upward arrow. At the bottom left is a button labeled 'Get App NEW' with a smartphone icon. At the bottom right is a small note 'AI-generated, for reference only'.

deepseek

New chat

No chat history

Hi, I'm DeepSeek.

How can I help you today?

Message DeepSeek

DeepThink (R1) Search

0

Get App NEW

My Profile

AI-generated, for reference only

LSB Luxembourg School of Business

R1 (R2 is stuck)  
v3.2

Open source  
Low cost

# Tool: LLM arena

LMArena ▾

New Chat

Leaderboard

Take your chats anywhere  
Create an account to save your chat history across your devices.

Login

Send Feedback

Report Bugs

Terms of Use Privacy Policy Contact

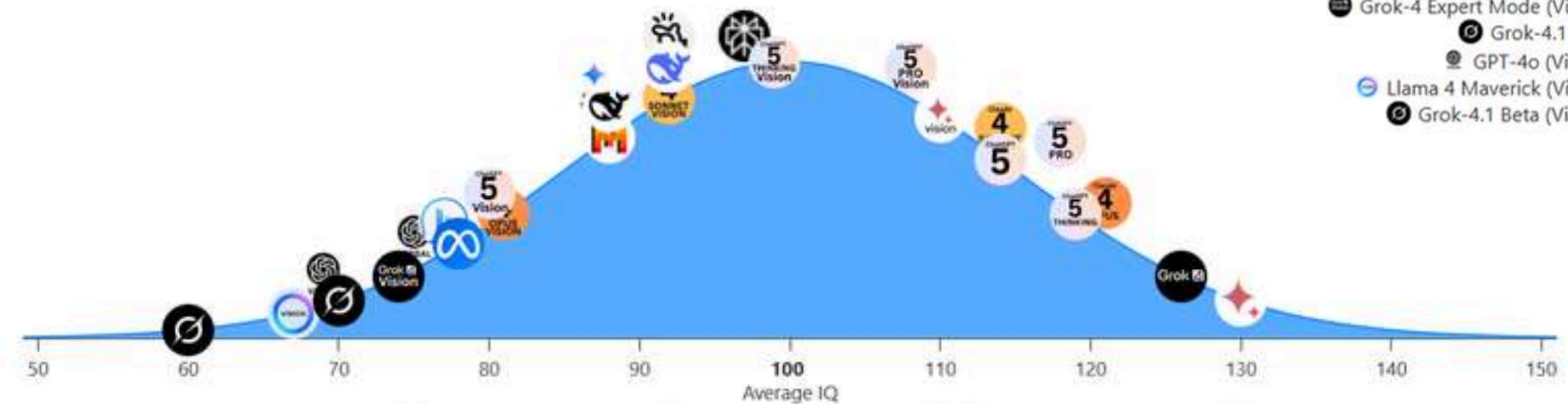
Overview Text WebDev Vision Text-to-Image Image Edit Search Text-to-Video Image-to-Video Copilot Start Voting

## Text-to-Image Arena

Compare LLMs based on their ability to generate images that match text descriptions.

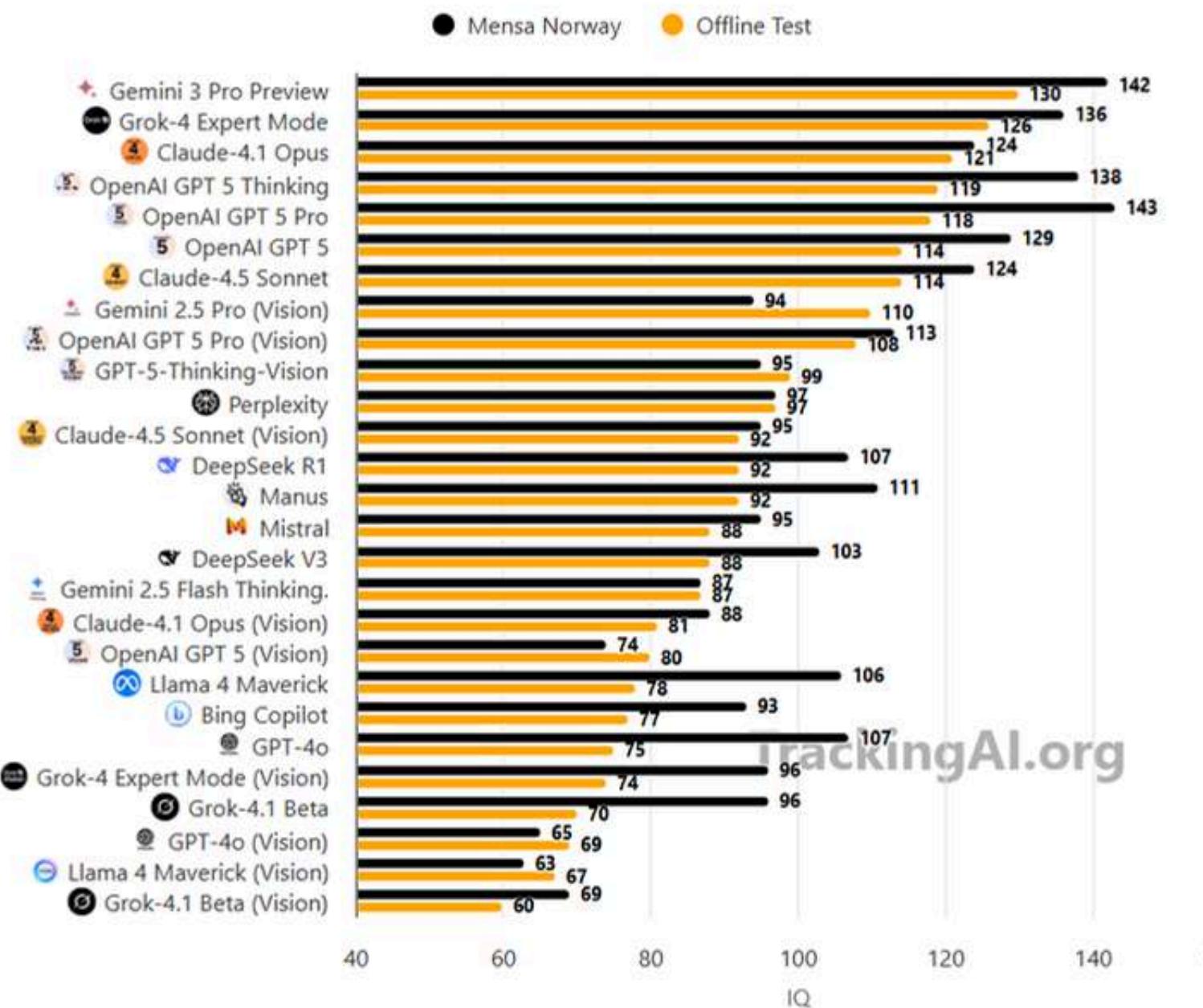
Last Updated Aug 25, 2025 Total Votes 1,752,043 Total Models 22

Rank (tie)	Model	Score	95% CI (±)	Votes	Organization	License
1	gemini-2.5-flash-image-preview (nano-banana)	1147	±2	220,674	Google	Proprietary
2	imagen-4.0-ultra-generate-preview-06-06	1135	±2	193,895	Google	Proprietary
3	gpt-image-1	1129	±3	128,710	OpenAI	Proprietary
4	imagen-4.0-generate-preview-06-06	1119	±2	196,696	Google	Proprietary
5	qwen-image-prompt-extend	1082	±3	123,598	Alibaba	Apache 2.0
6	seedream-3	1077	±3	159,026	Bytedance	Proprietary
7	flux-1-kontext-max	1075	±3	78,017	Black Fores...	Proprietary
8	Imagen-3.0-generate-002	1062	±3	256,225	Google	Proprietary
9	flux-1-kontext-pro	1050	±2	105,377	Black Fores...	Proprietary



Gemini 3 Pro Preview	Claude-4.1 Opus (Vision)	Claude-4.5 Sonnet (Vision)	Claude-4.1 Opus	Claude-4.5 Sonnet
Mistral	Llama 4 Maverick (Vision)	Grokk 4	Grokk 4 Expert Mode	GPT-4o (Vision)
GPT-4o	Bing Copilot	Grokk 4	Grokk 4 Expert Mode	DeepSeek V3
DeepSeek R1	Llama 4 Maverick	Grokk 4	Grokk 4 Expert Mode	Grok-4 Expert Mode
Grok-4.1 Beta	OpenAI GPT 5 Thinking	Grokk 4	Grokk 4 Expert Mode	GPT-5-Thinking-Vision
OpenAI GPT 5 (Vision)	OpenAI GPT 5 Pro	Grokk 4	Grokk 4 Expert Mode	

Rank is sorted by Offline Test IQ Scores



trackingAI.org

# Tool: Poe and LM Studio



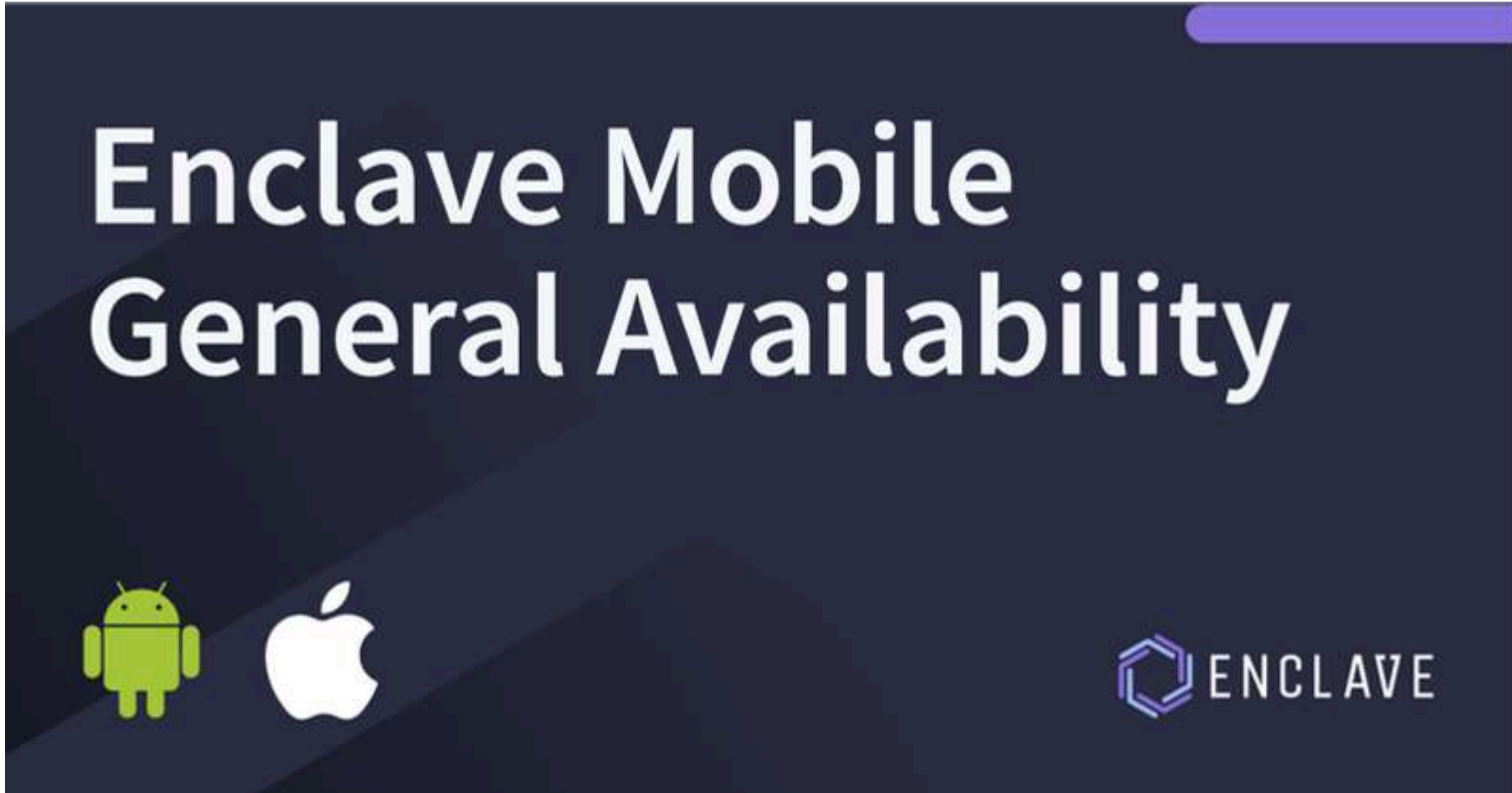
## Poe

- All advanced models
- Personalized apps
- Cost-efficiency

## LM Studio

- Open source models
- Free of charge
- No internet needed
- Privacy safety

# Tool: Enclave



# GenAI for Business 2026

Session 2: Communicating with GenAI  
Shubin Yu

# Human-GenAI communications



# Communication is the key in the future

LLMs aren't mind readers.  
They only know what you  
tell them.

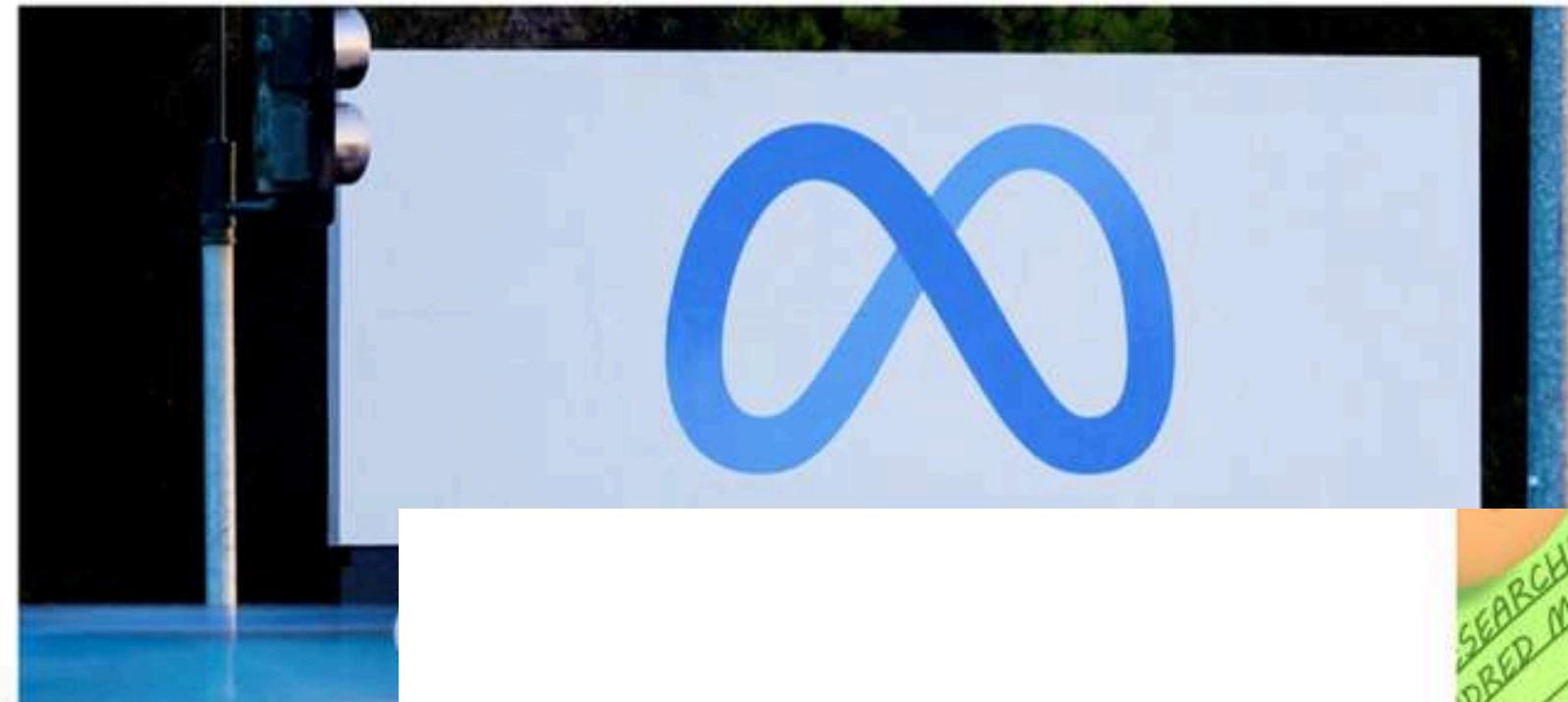
→ Quality input = quality  
output.



# Sam Altman says Meta offered \$100 million bonuses to OpenAI employees

By Reuters

June 18, 2025 8:39 PM GMT+2 · Updated June 18, 2025



**A.I. Researchers Are Negotiating \$250 Million Pay Packages. Just Like N.B.A. Stars.**

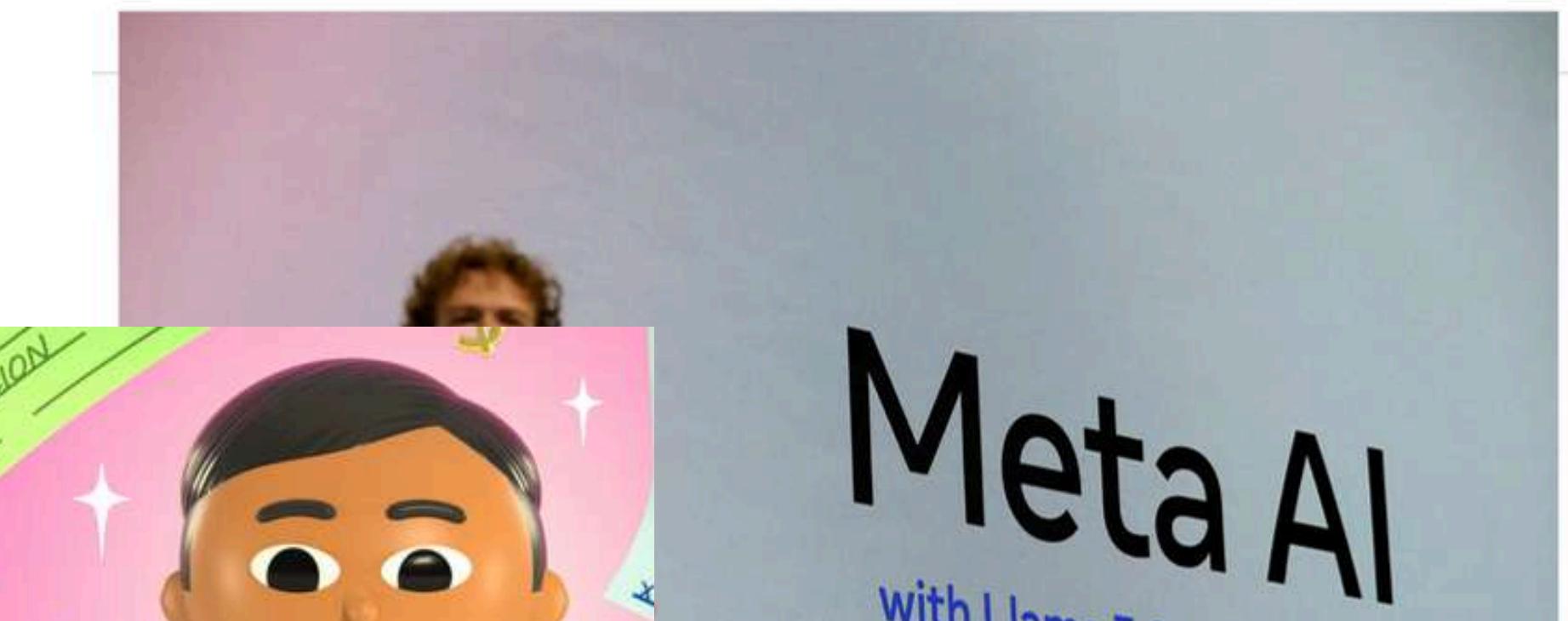
A.I. technologists are approaching the job market as if they were Steph Curry or LeBron James, seeking advice from their entourages and playing hardball with the highest bidders.



AI

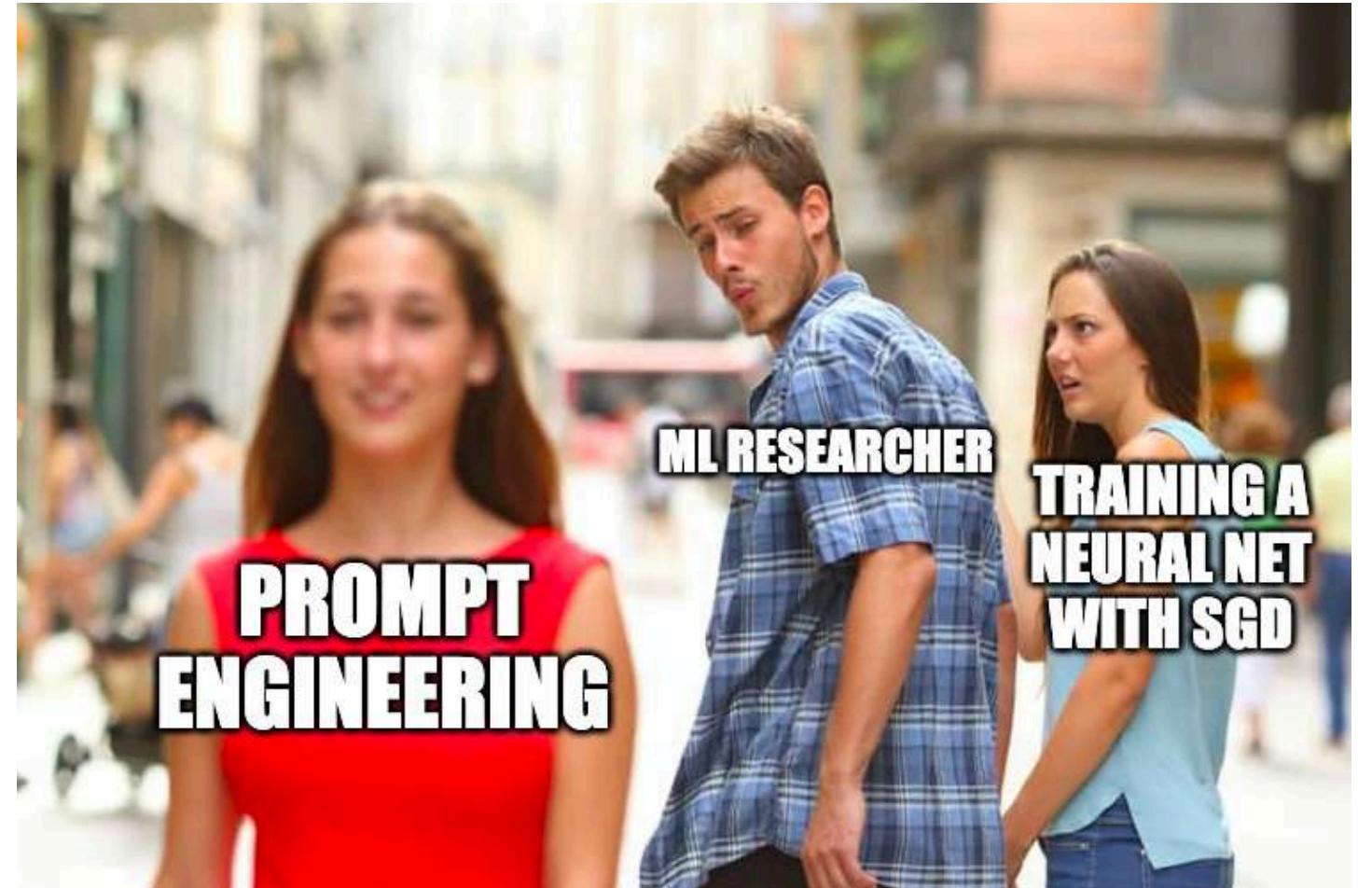
## Meta just hired the co-creator of ChatGPT in a escalating AI talent war with OpenAI

By [Katherine Li](#)



# Concept: Prompt engineering

- Prompt engineering is the practice of designing inputs for generative AI tools that will produce optimal outputs (McKinsey, 2024)
- Say something that AI can easily understand and follow!



## [persona]

You are a senior product marketing manager at Apple and you have just unveiled  
the latest Apple product in collaboration with Tesla, the Apple Car, and received  
12,000 pre-orders, which is 200% higher than target

## [context]

Write an email to your boss, Tim Cook, sharing this positive news

## [task]

## [format]

The email should include a tl; dr (too long, didn't read) section, project background  
(why this product came into existence), business results section (quantifiable  
business metrics), and end with a section thanking the product and engineering  
teams.

## [exemplar]

## [tone]

Use clear and concise language and write in a confident yet friendly tone

Technique	Description
Zero-shot Prompting	Directly asking questions without providing examples, relying on the AI's pre-trained knowledge.
Few-shot Prompting	Providing a few examples before the main question to guide the AI's response format and style.
Chain of Thought (CoT)	Encouraging AI to show step-by-step reasoning for problem-solving, improving transparency and accuracy.
Step-by-step Prompting	Breaking complex tasks into a series of simple steps, guiding AI through each stage.
Tree of Thought (ToT)	Exploring multiple reasoning paths, similar to a decision tree, for more comprehensive solutions.
Self-consistency	Generating multiple independent solutions and choosing the most common or reasonable answer.
Structural prompts	Using standardized prompt structures with placeholders for specific content, ensuring consistency.
Reverse Prompting	Asking AI to generate prompts that would lead to a specific output, exploring AI's associative logic.
AI Interview Technique	Simulating an interview process where AI asks a series of questions to gather detailed information.
Thought Provocation	Using open-ended questions or hypothetical scenarios to stimulate creative thinking.
Meta-prompting	Using prompts to generate or improve other prompts, optimizing AI interaction strategies.

# Few-shot prompting

## What is it?

- Providing 2-5 examples before presenting the main task
- Demonstrates the desired format, style, and approach
- Helps AI understand patterns and expectations
- Bridges the gap between training data and specific requirements

## Examples

- Input: "I love this product!" → Output: Positive
- Input: "This is terrible quality" → Output: Negative
- Input: "It's okay, nothing special" → Output: Neutral

# Chain of Thought (CoT)

## What is it?

- Prompting AI to show step-by-step reasoning
- Makes the thinking process transparent and traceable
- Improves accuracy on complex problems
- Allows for error identification and correction

## Examples

Prompt: "Sarah has 24 apples. She gives  $\frac{1}{3}$  to her sister and  $\frac{1}{4}$  of the remainder to her friend. How many apples does she have left?" Work through this step by step.

Response:

- Sarah starts with 24 apples
- She gives  $\frac{1}{3}$  to her sister:  $24 \div 3 = 8$  apples
- Remaining after sister:  $24 - 8 = 16$  apples
- She gives  $\frac{1}{4}$  of remainder to friend:  $16 \div 4 = 4$  apples
- Final amount:  $16 - 4 = 12$  apples"

# Concept: reasoning models

- A reasoning model is designed to explicitly break down complex problems into manageable steps and follow logical processes to reach conclusions.
- e.g., GPT o3, GPT-5 Thinking, Deepseek RI

# Step-by-step Prompting

## What is it?

- Breaking complex tasks into smaller, manageable steps
- Each step builds upon the previous one
- Reduces cognitive load and error rates
- Ensures comprehensive coverage of the task

## Examples

### Example: Content Strategy Development

- Step 1: "Identify the target audience for a fitness app"
- Step 2: "Based on that audience, determine their main pain points"
- Step 3: "Create content themes that address these pain points"
- Step 4: "Develop a posting schedule for social media"
- Step 5: "Design metrics to measure content success"

# Self-consistency/confidence



# Self-consistency/confidence

## What is it?

- Generating multiple independent solutions to the same problem
- Comparing results for consistency and accuracy
- Selecting the most common or reasonable answer
- Increases reliability through redundancy

## Examples

- Question: "What factors will most impact the electric vehicle market in 2024?"

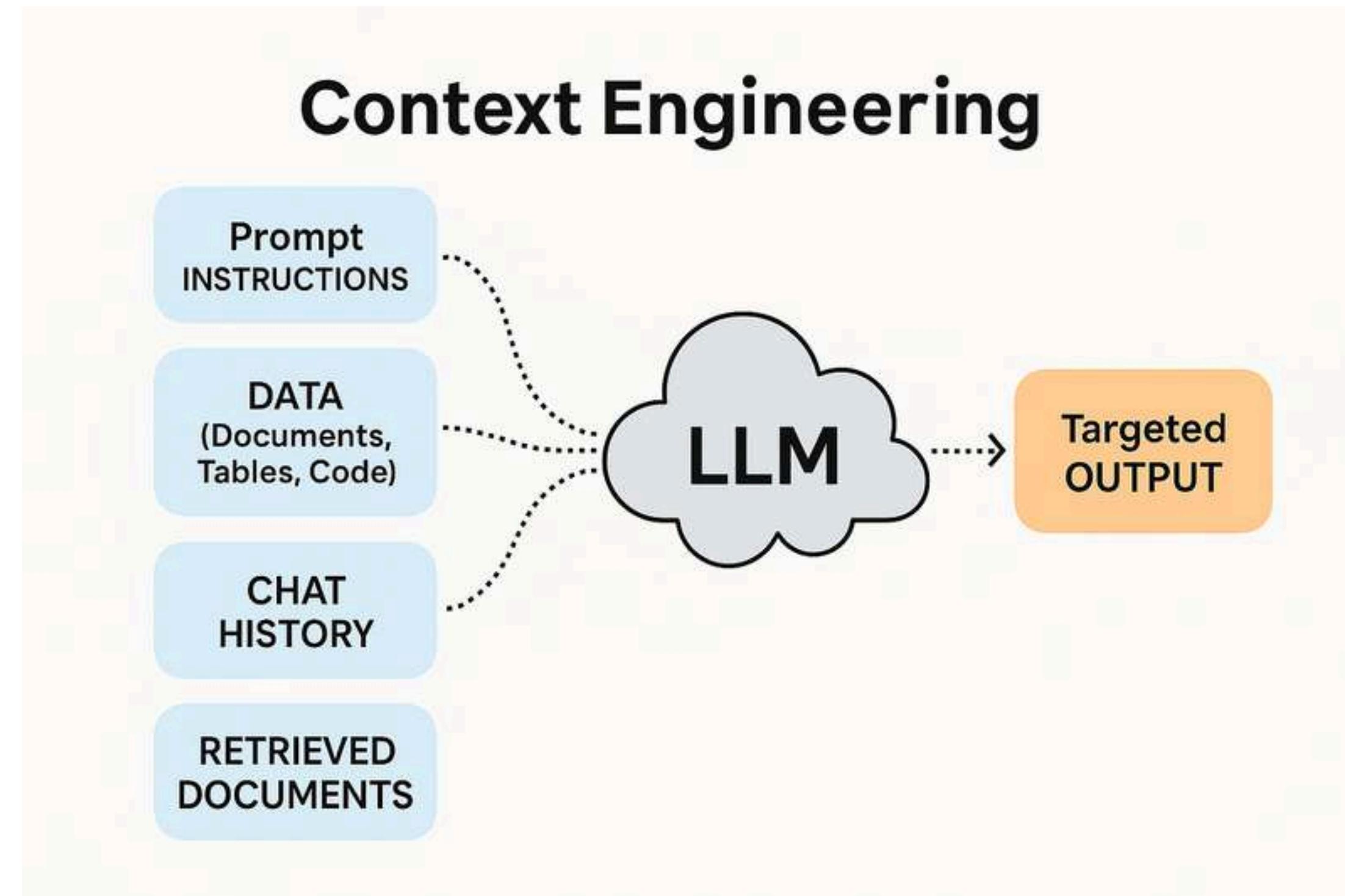
Response 1: Battery technology, charging infrastructure, government incentives  
Response 2: Battery costs, charging network expansion, regulatory support  
Response 3: Energy density improvements, charging accessibility, policy frameworks

- Consensus: Battery technology/costs, charging infrastructure/network, government policy/incentives

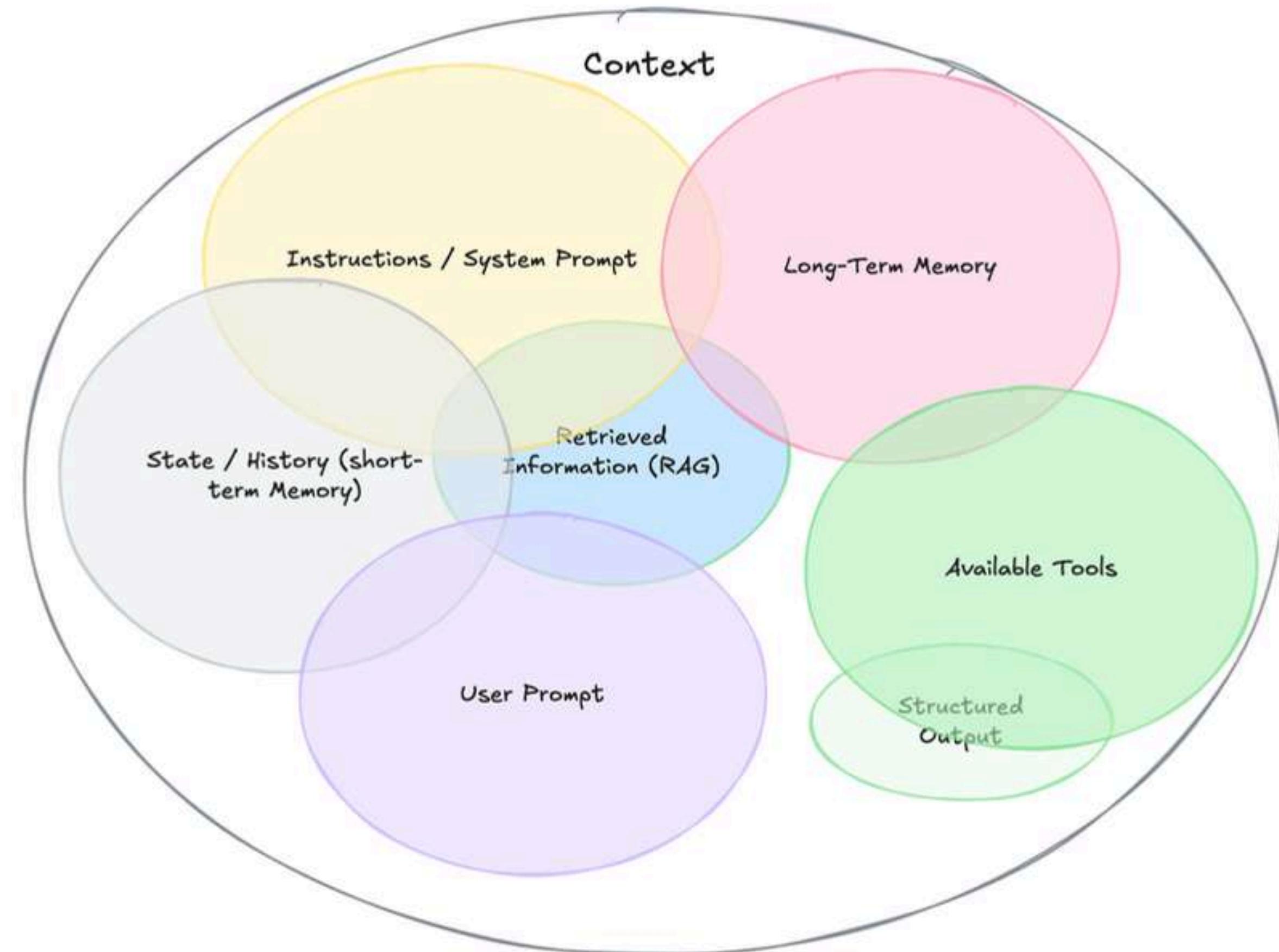
# Structuring prompts

- A well-structured prompt makes it easier for the AI to follow along, especially for complex requests. Some people also call it prompt template or JSON prompting.
- Use labeled sections or prefixes: For simple prompts, you can use labels followed by a colon. For example:
  - Background: [Describe context]
  - Objective: [State the goal]
  - Instructions: [Tell the AI what to do]
  - Data: [Provide any input data]

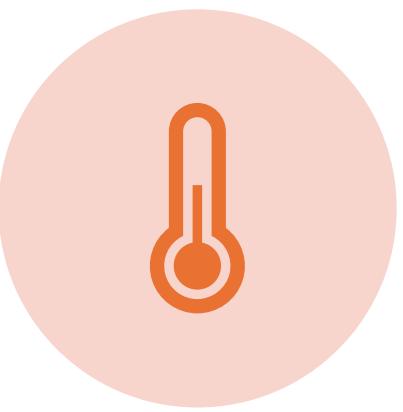
# Concept: Context engineering



# Context Engineering



# Concept: Model settings



Temperature



Top-K



Top-P



tokens

# Model setting

## Temperature

- Temperature controls randomness in predictions. Lower values (e.g., 0.2) make outputs more deterministic, while higher values (e.g., 1.0) make outputs more creative and varied.

## Top-p Sampling

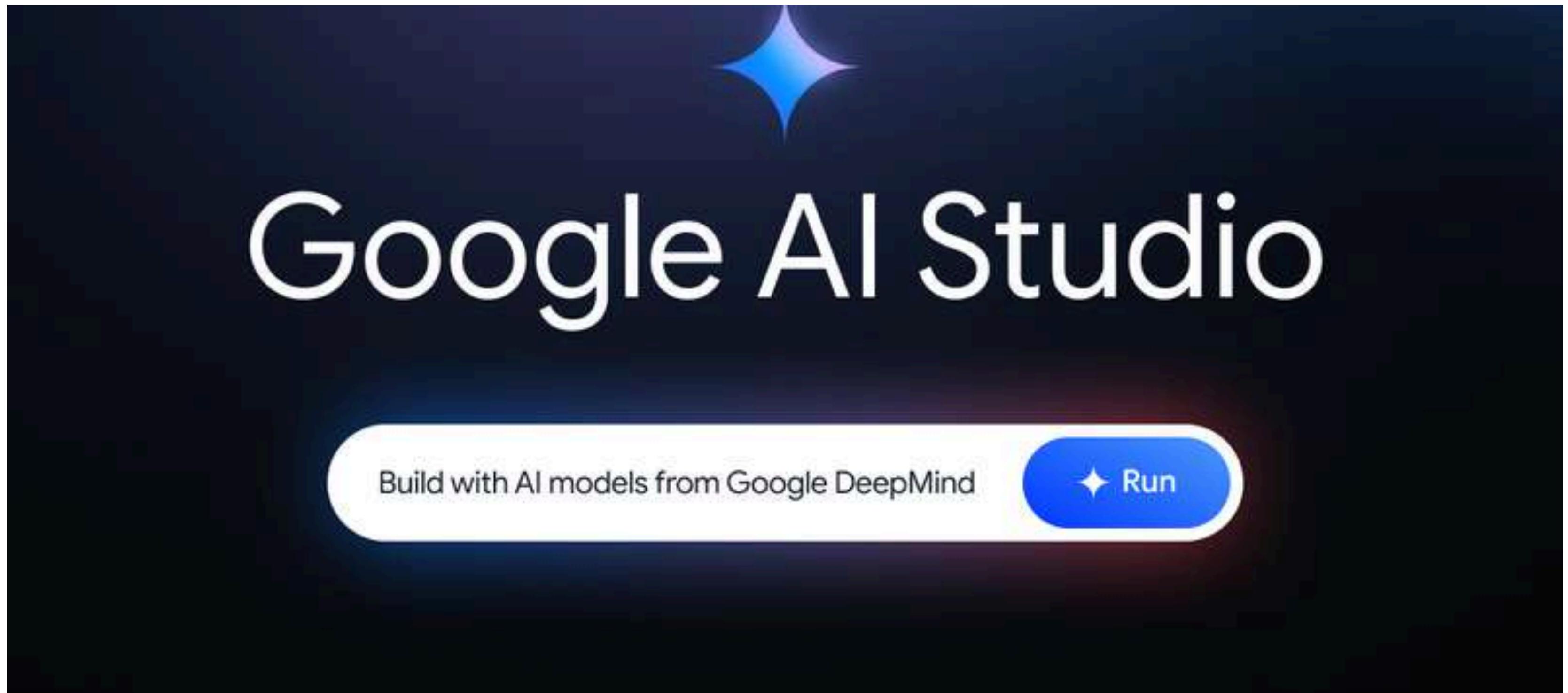
- Top-p controls how adventurous the word choice is. Imagine all possible next words sorted from most likely to least. Starting at the top, you keep adding words to the “allowed” list until their combined likelihood reaches p. With  $p = 0.9$ , the model only picks from the smallest set of likely words whose probabilities add up to 90%, ignoring the long tail of unlikely options. Lower p sticks to very safe, predictable words; higher p lets in more variety while still favoring likely choices.

## Tokens

- Tokens are the basic units of text that the model processes. They can be as short as a single character or as long as a word (e.g., "apple" is one token, while "applesauce" might be split into multiple tokens).

The higher the more uncertain

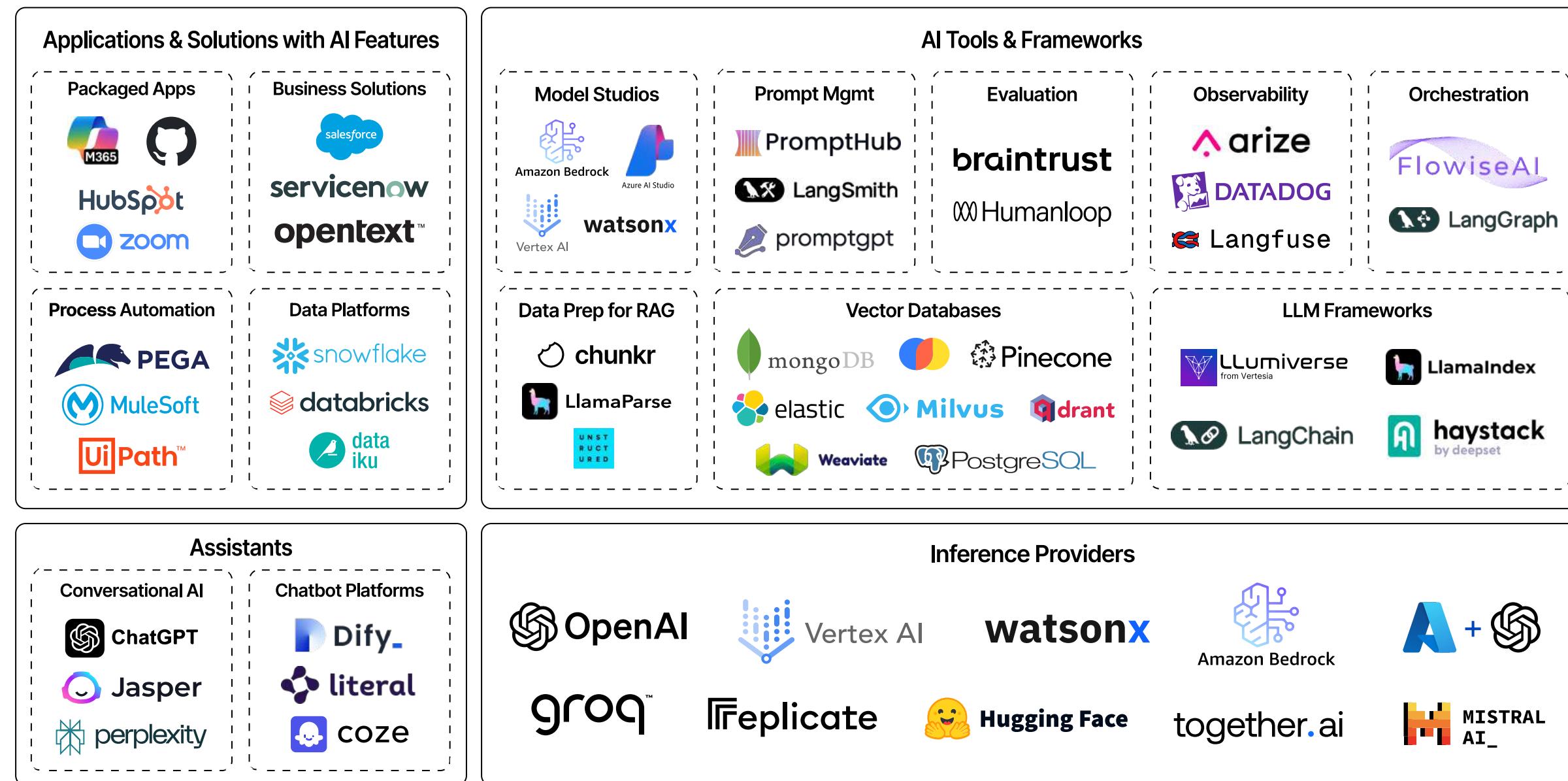
# Tool: AI Studio



# GenAI for Business 2026

Session 3: Mimi's Toolkit  
Shubin Yu

# Toolbox



# Generative AI Applications

## Text Generation:

- Utilizes large language models to generate contextually relevant text
- Can be used for tasks such as dialogue, explanation, summarization, etc.

## Image Generation:

- Uses techniques like GANs and VAEs to generate high-quality, realistic images
- Applied in fields such as art, design, entertainment, etc.

## Audio Generation:

- Creates music, text-to-speech, synthesized voices
- Applied in media, entertainment, education, and other fields

# Generative AI Applications

## Video Generation:

- Creates dynamic videos based on text descriptions or images
- Applied in fields such as art, entertainment, education, healthcare, etc.

## Code Generation:

- Generates code snippets, functions, or complete programs
- Assists in software development, debugging, and testing

## Data Generation and Augmentation:

- Generates synthetic data, enhances existing datasets
- Applied in healthcare, gaming, education, autonomous driving, and other fields

## Virtual World Creation:

- Creates realistic virtual environments and virtual characters
- Applied in gaming, entertainment, education, metaverse platforms, etc.

# GenAI applications for content generation

Topic	Examples
Text Generation	Claude, gemini, gpt
Image Generation	Nano Banana, Imagen, midjourney
Image editing	Nano Banana, flux, Seedream
Video Generation	Veo, Runway, Dreamina, Kling, Hailuo
GenAI-Driven Avatar Creation	HeyGen, Synthesia
Generative Audio and Music Production	SUNO, AIVA, Udio
Game Generation	Rosebud AI, layer.ai
Code Generation	Cursor, Windsurf, CodeX, Replit
Virtual World Generation	Convai, Skybox

# Tool: image generation



# Core prompt structure for image generation

- Subject: Specific main focus (age, appearance, clothing, expression)
- Environment: Setting, location, time of day, atmosphere
- Composition: Perspective, framing, camera angle, depth of field
- Style & Aesthetic: Artistic direction, mood, realism level
- Technical Details: Camera specs, lighting, resolution
- Random words: add some random adjectives and adverbs to make it more creative and realistic.

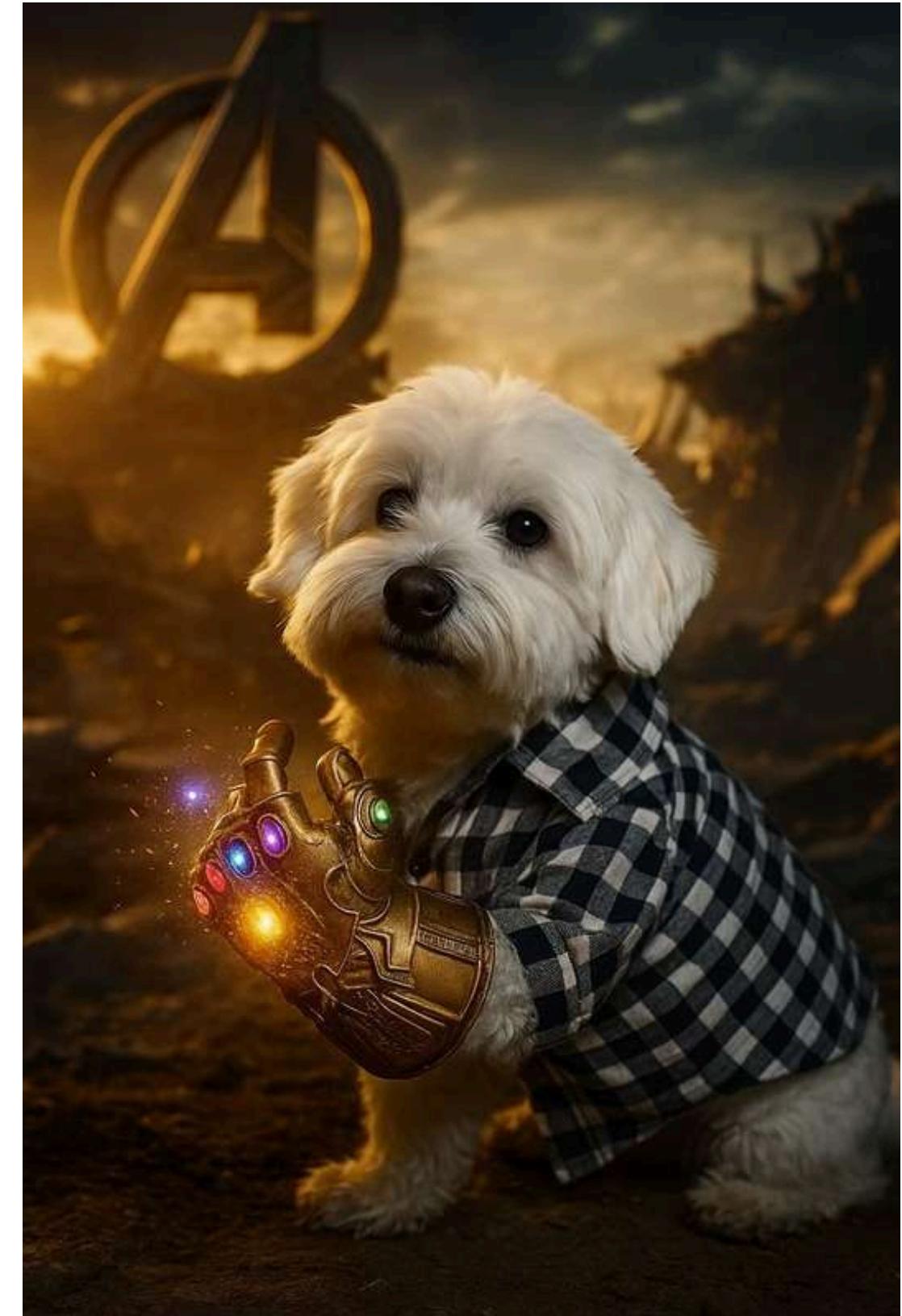
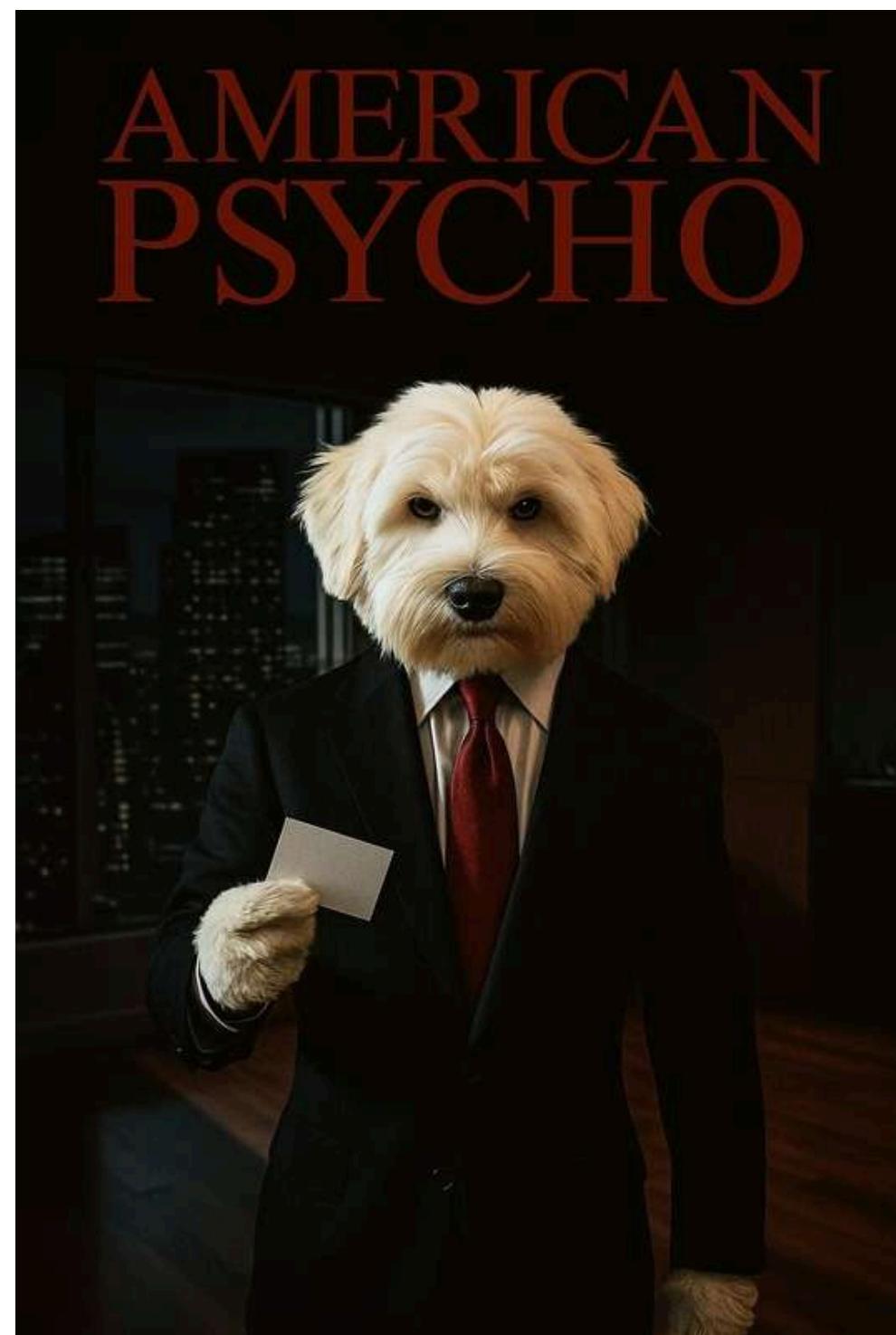


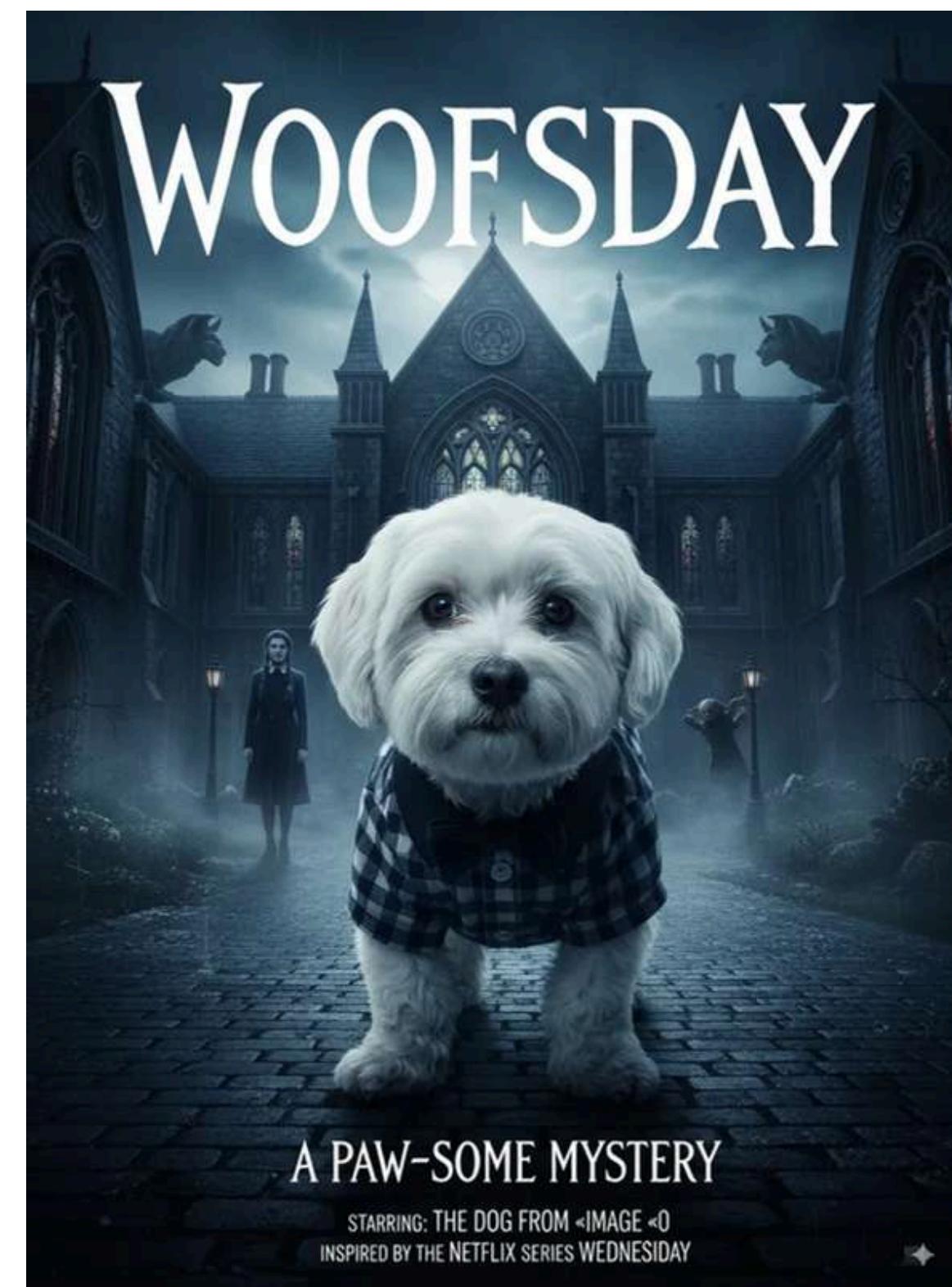
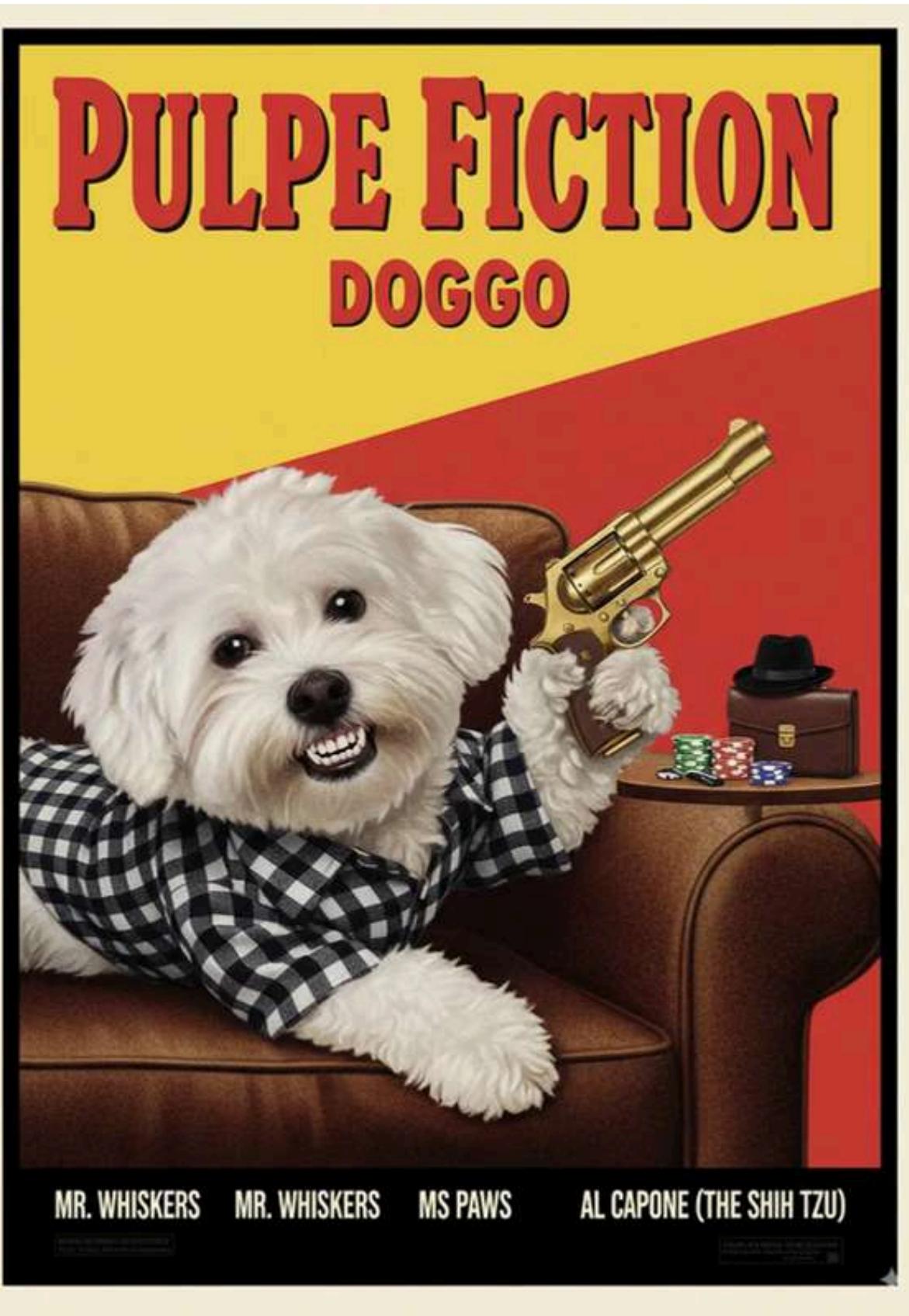


confident female CEO, 40s, short black hair, tailored navy suit,  
Manhattan rooftop, sunset, low angle, cityscape background, bokeh  
effect on skyscrapers, professional corporate portrait, dramatic golden  
hour lighting, Hasselblad, 65mm lens, ultra-sharp, 8K resolution

# Key techniques for image generation

- Be specific but not overwhelming - Focus on meaningful details
- Use realism keywords: "photorealistic, 8K UHD, cinematic lighting, HDR"
- Reference real photographers/styles: "Annie Leibovitz style", "film noir aesthetic"
- Control composition: "rule of thirds", "shallow depth of field", "low-angle shot"
- Iterate systematically - Change one element at a time
- Make it not perfect – Imperfection makes perfect







# Tool: image editing

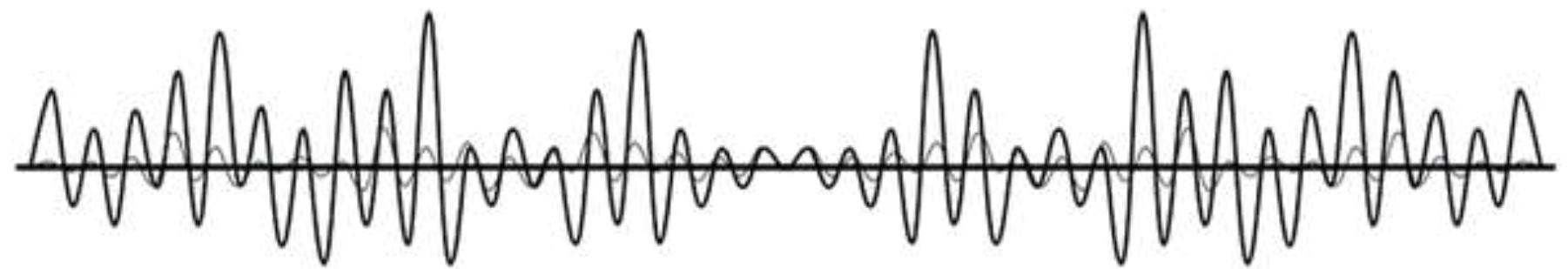


# Exercise

- Generate and edit a print advertisement of a product with Mimi using it.
- You can take a picture of Mimi or download Mimi's picture on our github page.
- Make use of the prompt technique
- Need to be highly realistic
- Share it to Padlet: <https://padlet.com/binbs/GenAI4Biz>

Voice generation

# II Eleven Labs





## Brico en Carrefour kiezen voor AI-muziek in hun winkels: "Artiesten in België dreigen kwart inkomsten te verliezen" | VRT NWS: nieuws

Brico en Carrefour schakelen over op AI-muziek in hun winkels. Die muziek is rechtenvrij - dus ook goedkoper - én de nummers kunnen 'op maat' gemaakt worden. Ook andere ketens denken erover na AI-muziek te draaien.

 VRTNWS / Oct 15, 2025

Brico and Carrefour are switching to AI music in their stores. This music is royalty-free—and therefore cheaper—and the tracks can be customized. Other chains are also considering playing AI music. For the Belgian music sector, this transition will mean a significant loss of revenue, warns the copyright association Sabam.

# Music generation



Make any song  
you can imagine

**AI Music**

Create stunning original music for free in seconds using AI. Make your own masterpieces, share with friends, and discover music from artists worldwide.

 Suno

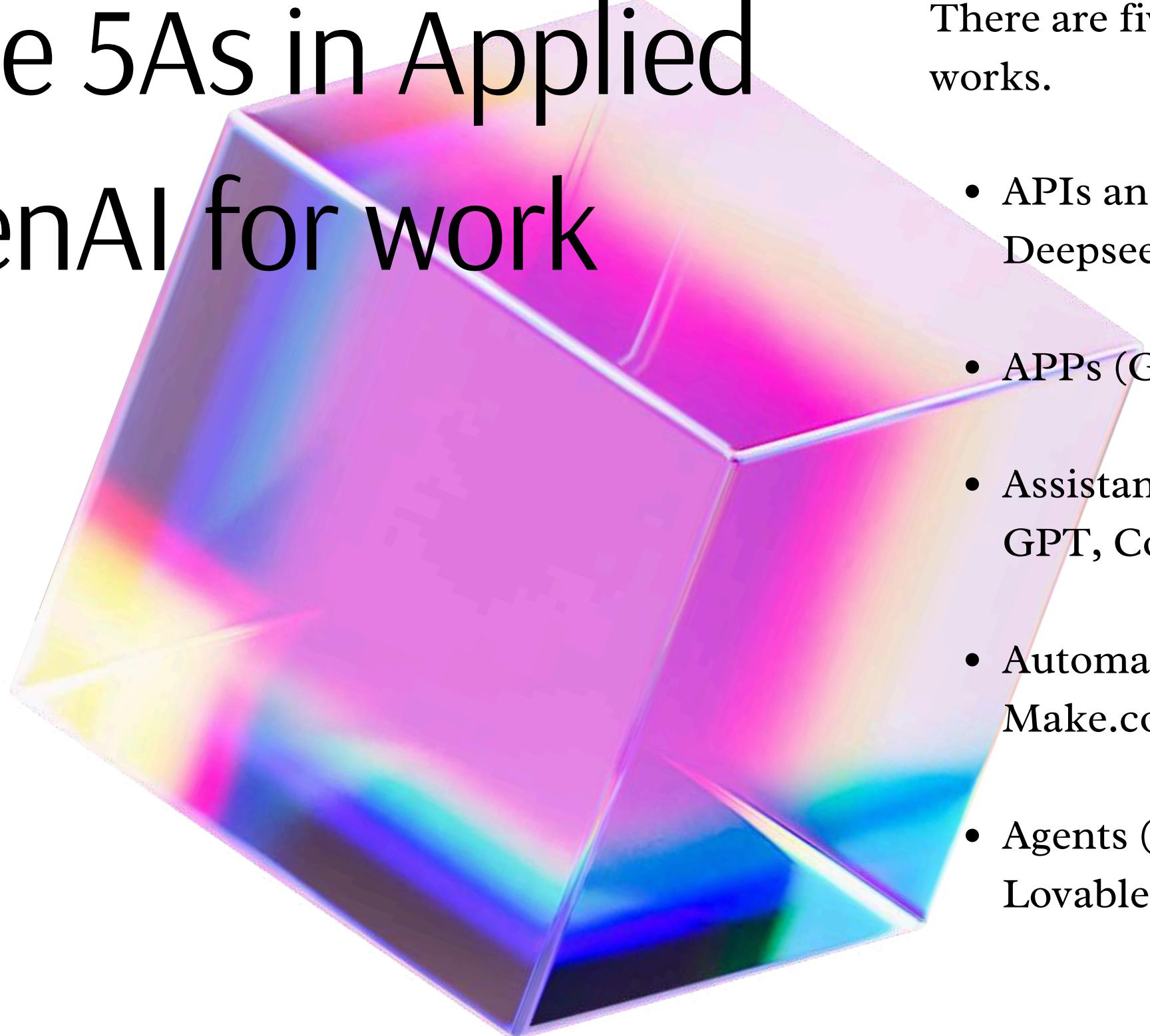
avatar generation



# GenAI for Business 2026

Session 4: The 5A, APIs, Assistants, Applications, Automation, and Agents  
Shubin Yu

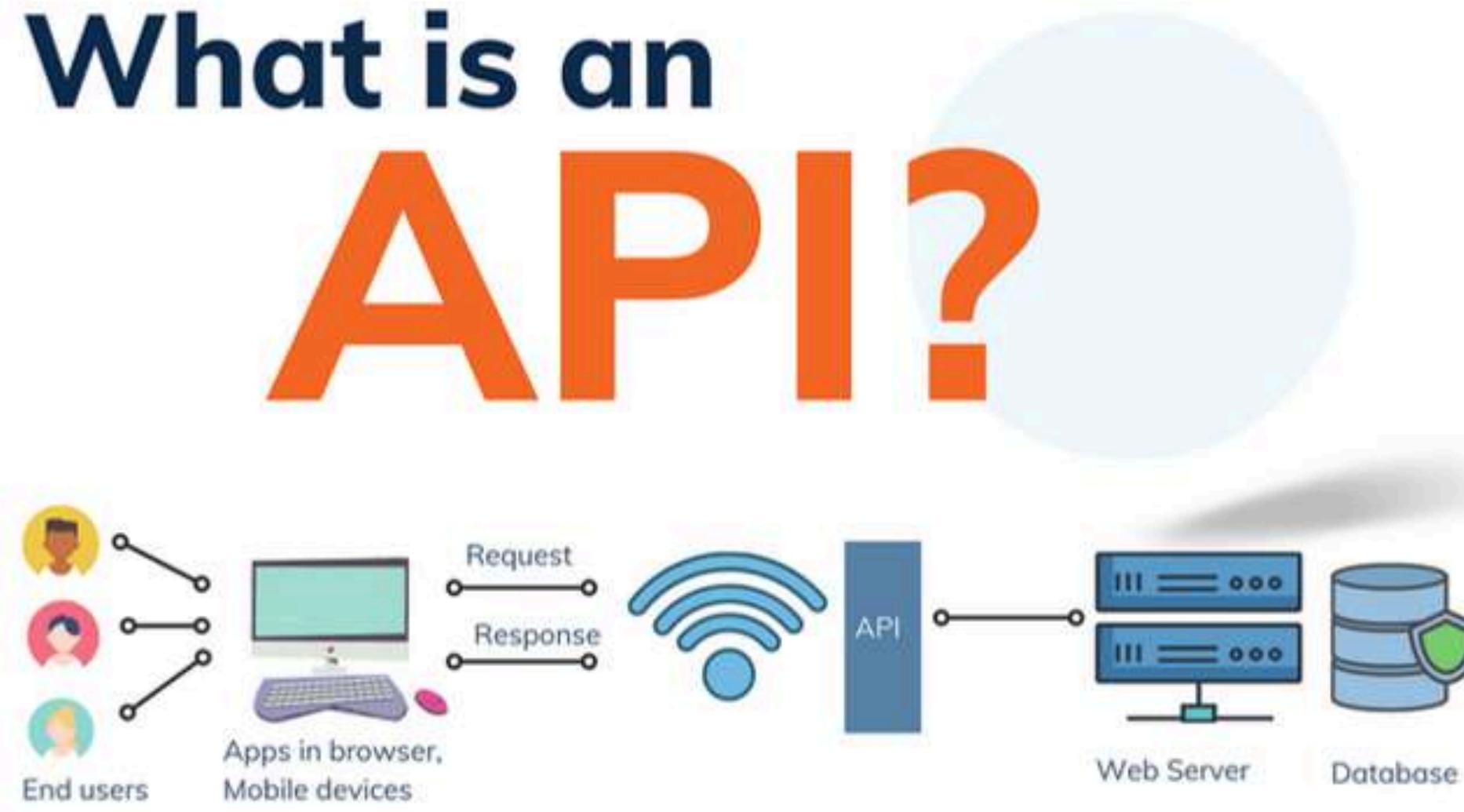
# The 5As in Applied GenAI for work



There are five different types of GenAI usages for individuals at work.

- APIs and foundation models (e.g., ChatGPT, Gemini, Claude, Deepseek, Grok)
- APPs (GenAI-powered apps and tools, e.g., Gamma, Notion)
- Assistants (Provide domain-specific responses, e.g., customized GPT, Coze, Gem, Poe Chatbot)
- Automation (Automate repetitive tasks, e.g., n8n, Zapier, Make.com, Dify, OpenAI agent builder)
- Agents (Perform tasks autonomously, e.g., Manus, Replit, Lovable)

# APIs and foundation models



# GenAI-powered Applications

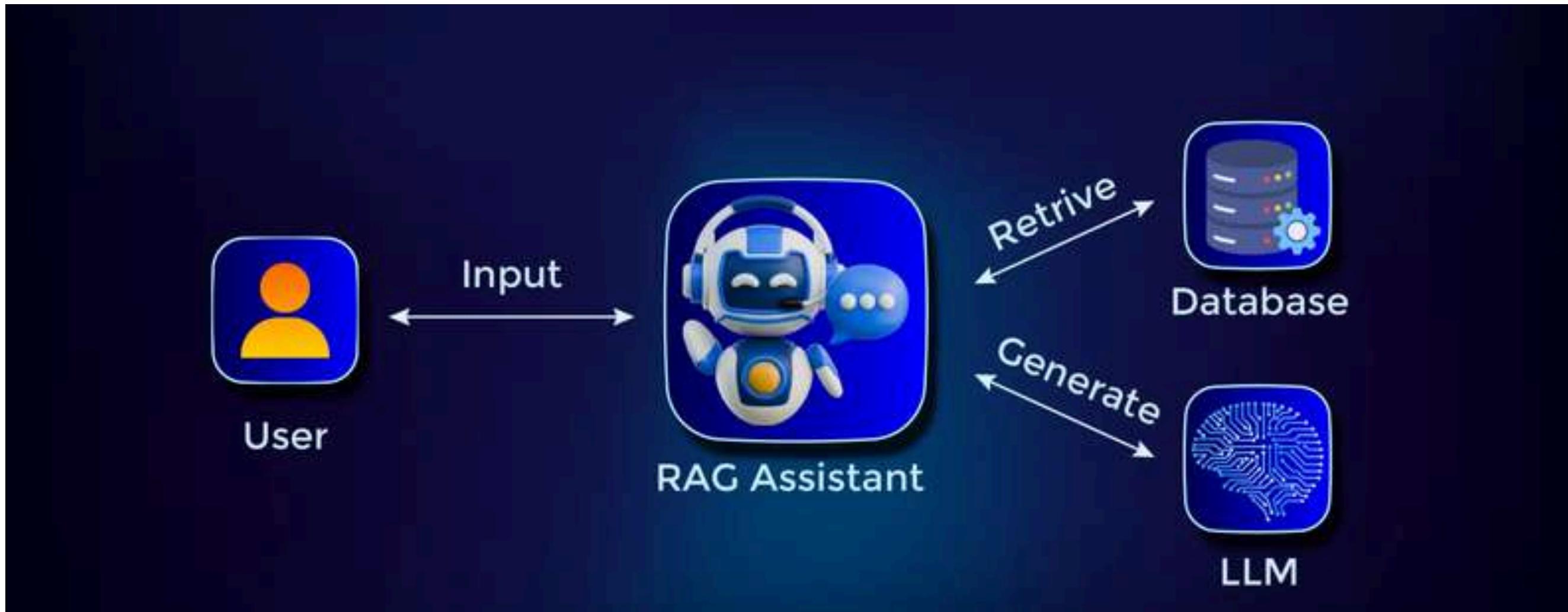


GenAI + Search



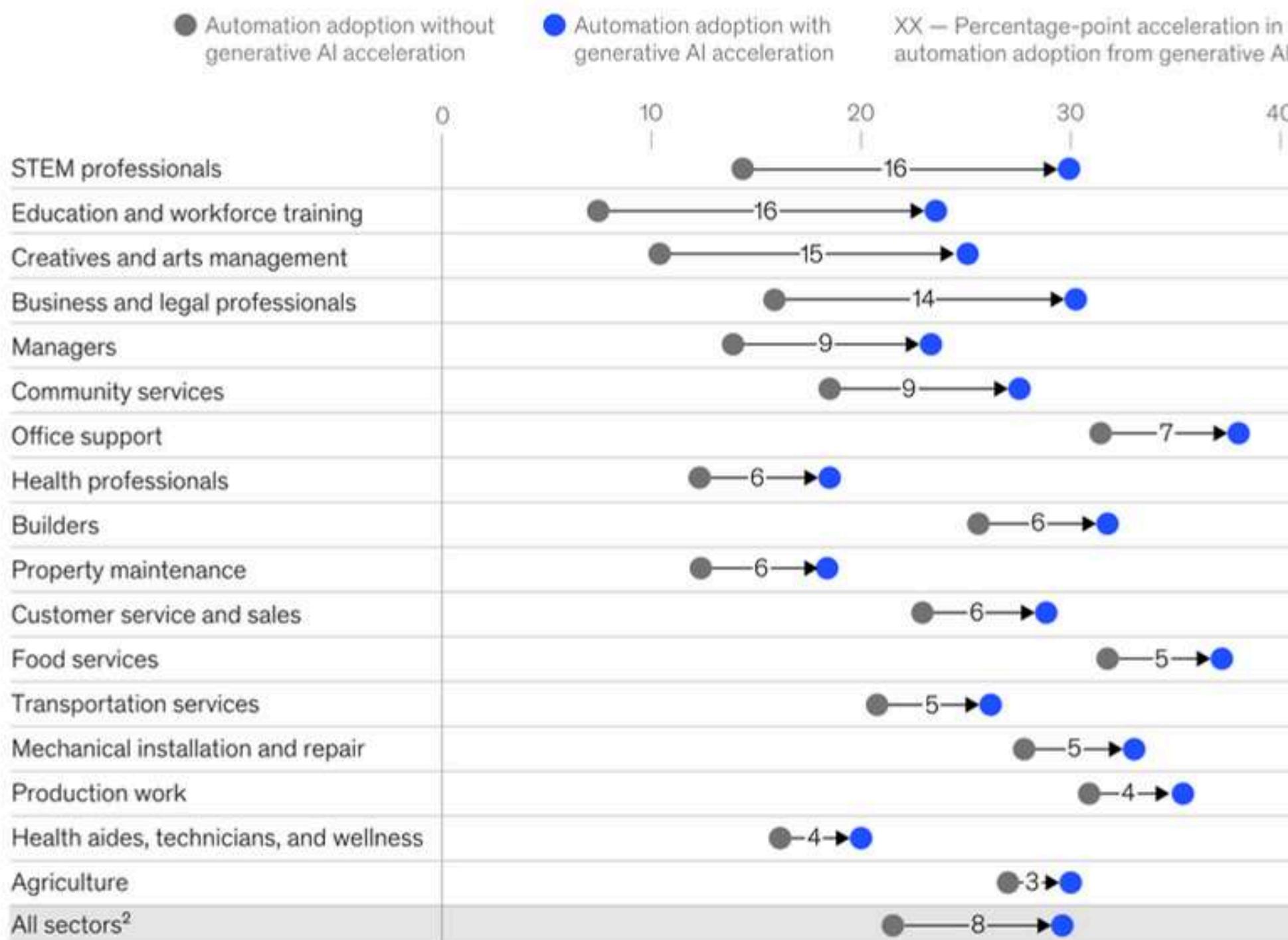
GenAI + learning a language

# Assistants



**With generative AI added to the picture, 30 percent of hours worked today could be automated by 2030.**

**Midpoint automation adoption<sup>1</sup> by 2030 as a share of time spent on work activities, US, %**



<sup>1</sup>Midpoint automation adoption is the average of early and late automation adoption scenarios as referenced in *The economic potential of generative AI: The next productivity frontier*, McKinsey & Company, June 2023.

<sup>2</sup>Totals are weighted by 2022 employment in each occupation.

Source: O\*NET; US Bureau of Labor Statistics; McKinsey Global Institute analysis

## Content Creation Workflow (Create an article for my website)

1. Idea Generation
2. Draft Writing
3. Editing and Proofreading
4. Generating images and podcast
5. SEO Optimization

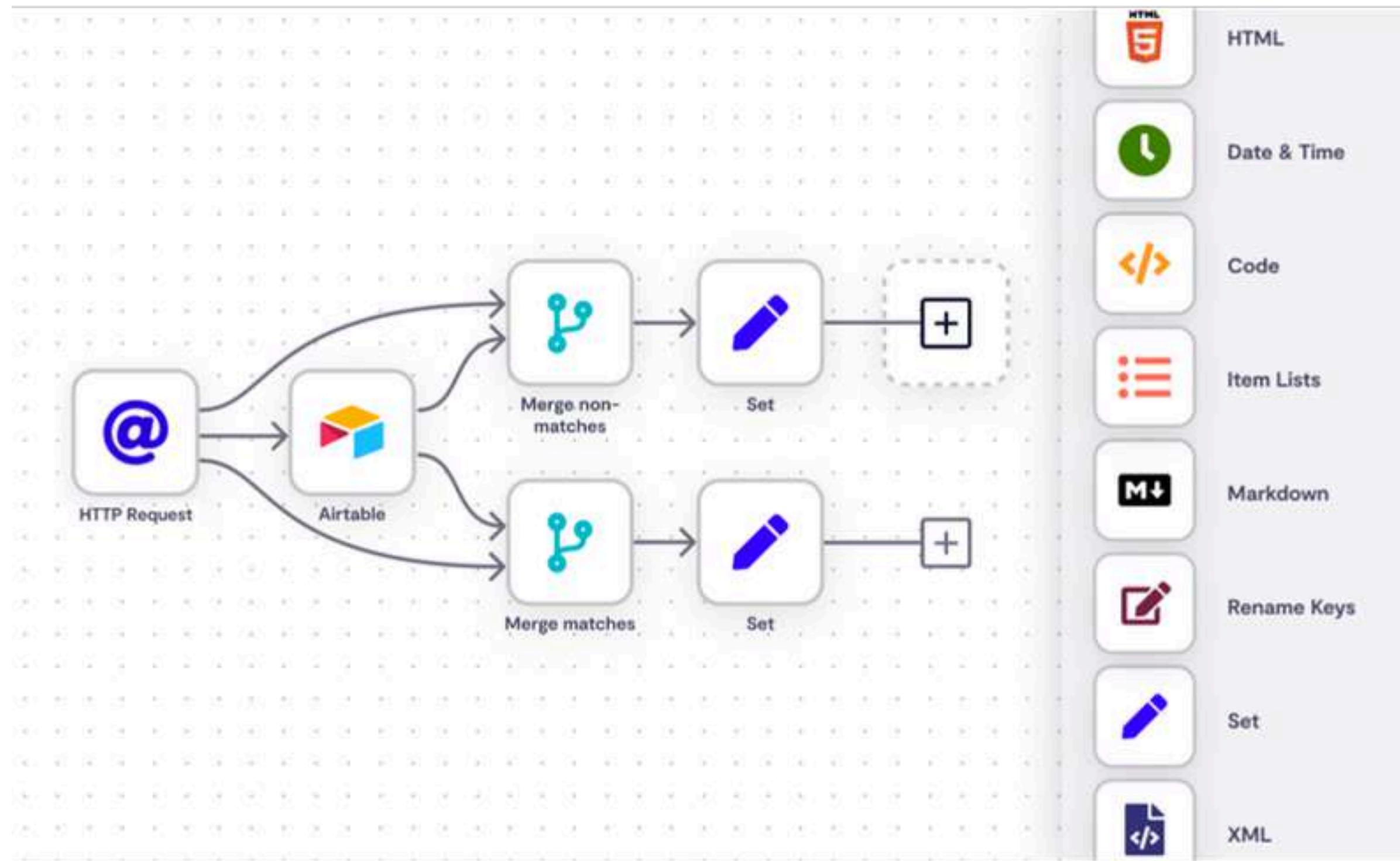
# Workflow automation using GenAI

- Content Creation and Marketing
- Customer Service
- Software Development
- Human Resources
- Legal and Compliance
- Financial Services
- Healthcare
- Project Management
- Product Design
- Data Analysis



How can I automate  
my current tasks at  
work?

# Tool: n8n



# Tool: Zapier



# Agents



## MCP (Anthropic) [Model context protocol](#)

An open standard that enables developers to build secure, two-way connections between their data sources and AI-powered tools

## Skills (Anthropic)

A capability framework that lets developers package tools, workflows, and behaviors into reusable “skills” an AI assistant can invoke reliably, with clear inputs/outputs and guardrails for safe execution.

## A2A (Google) [Agent to Agent Protocol](#)

An open protocol that provides a standard way for agents to collaborate with each other, regardless of the underlying framework or vendor.

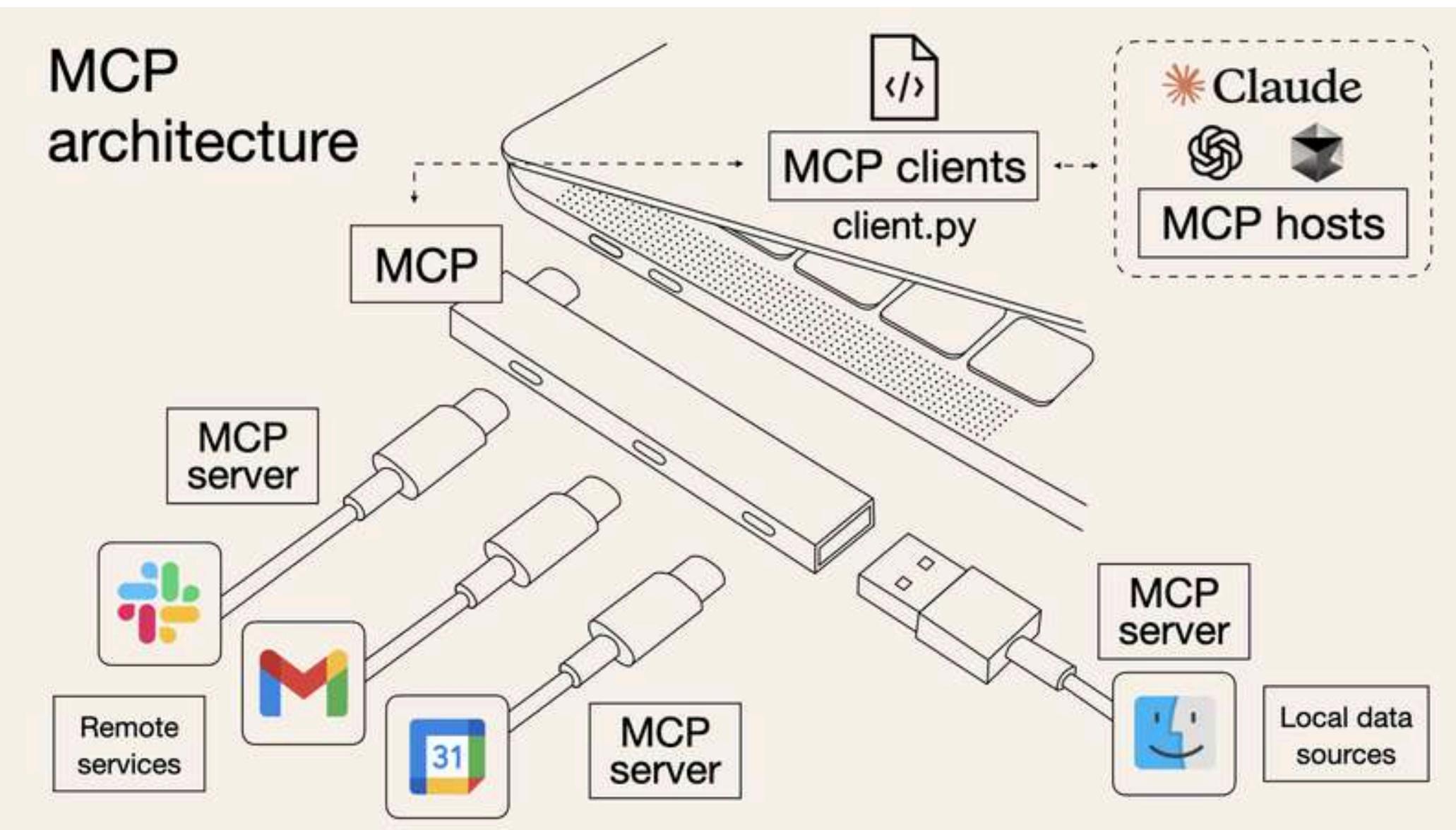
## A2UI (Google) [Agent to User Interface Protocol](#)

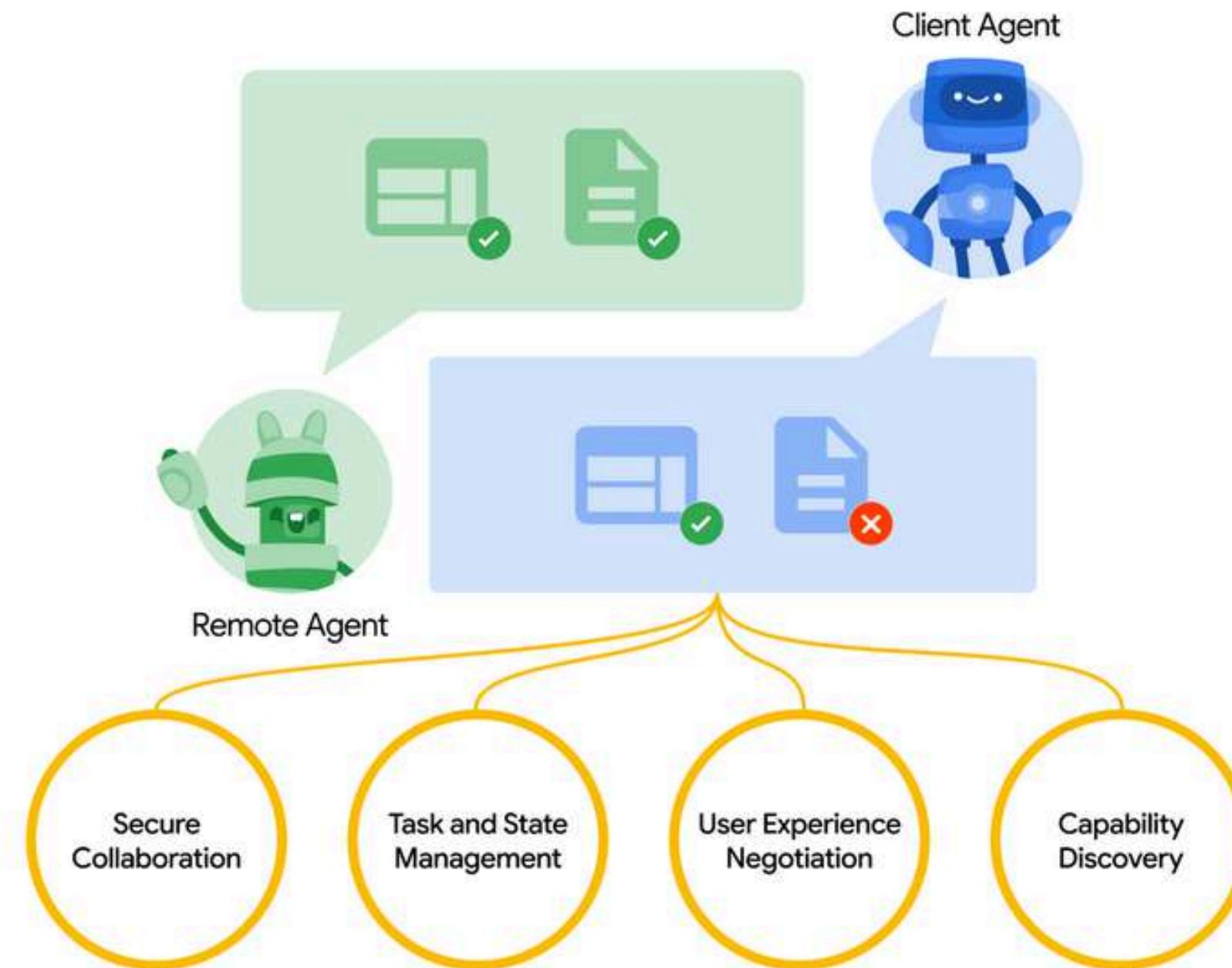
An application-to-UI pattern and set of building blocks that helps AI agents take actions through structured user interfaces—turning intent into guided forms, confirmations, and step-by-step flows that keep humans in control.

## MCP (Anthropic)

### Model context protocol

An open standard that enables developers to build secure, two-way connections between their data sources and AI-powered tools





## A2A (Google) Agent2Agent Protocol

An open protocol that provides a standard way for agents to collaborate with each other, regardless of the underlying framework or vendor.



# The Future of Agents

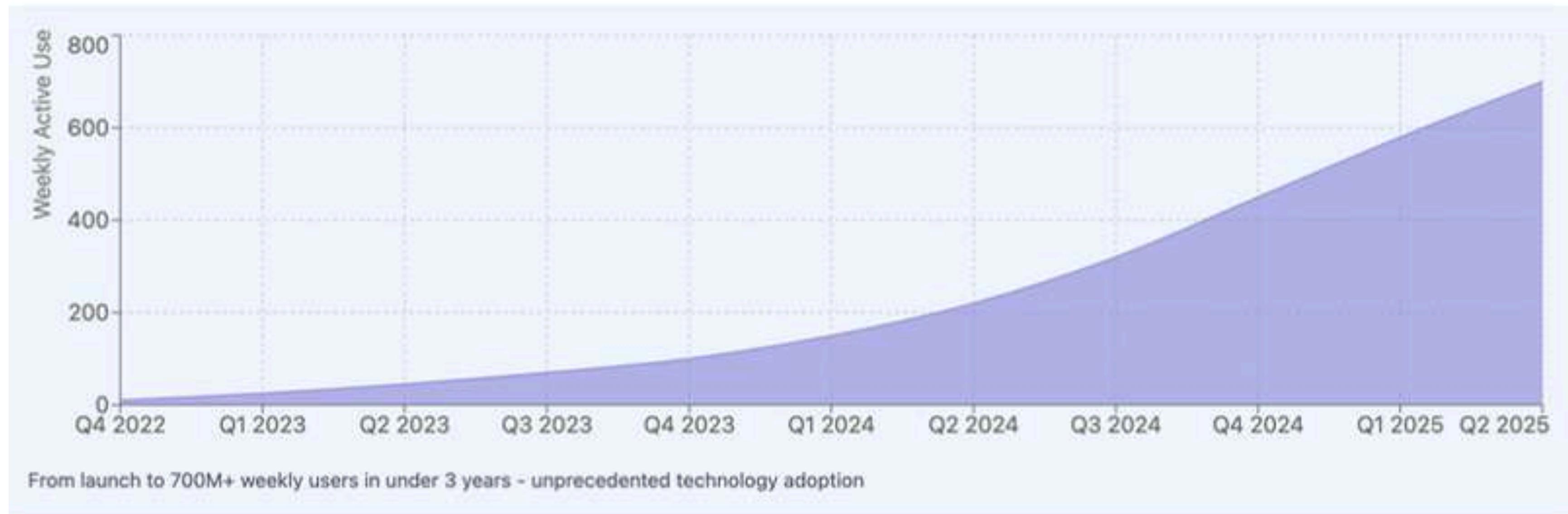
# GenAI for Business 2026

Session 5: Generative AI use cases  
Shubin Yu

# How are people using GenAI?

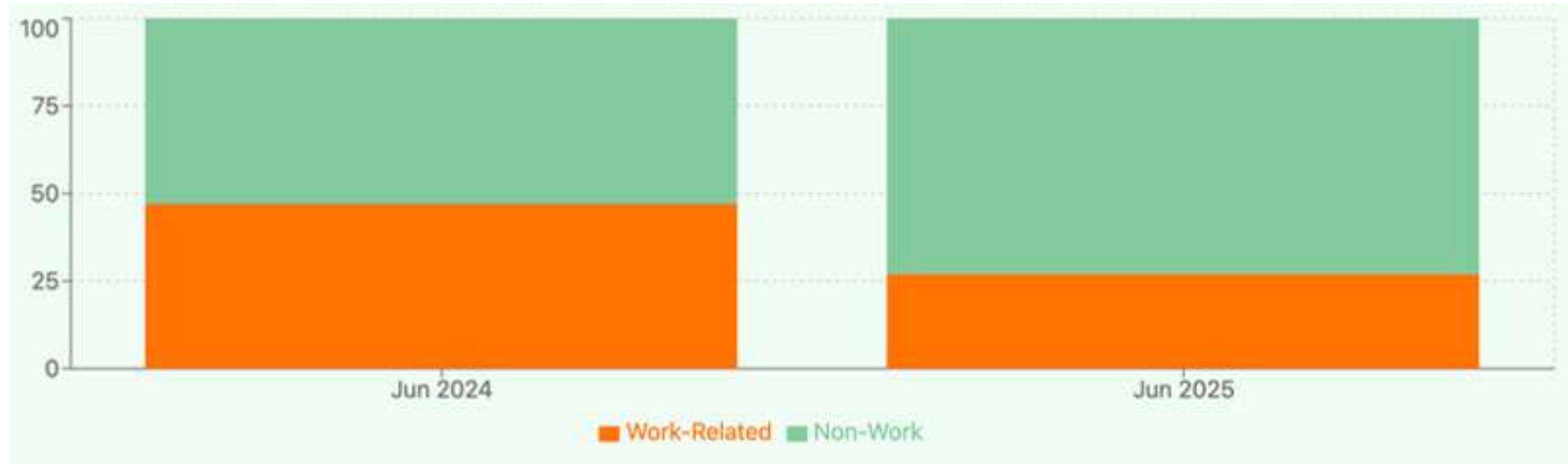
- Reports from OpenAI
- Reports from Anthropic
- Reports from the consulting company

# OpenAI



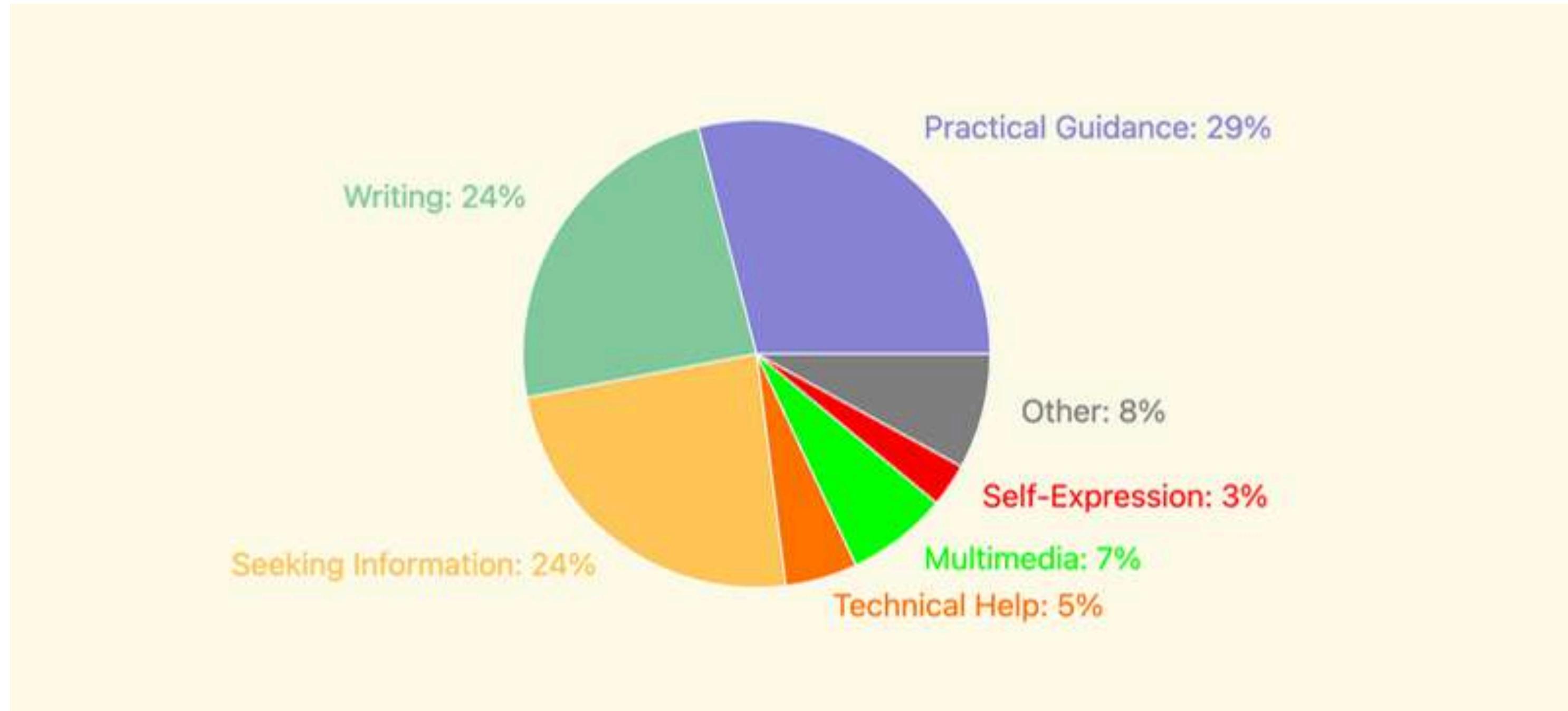
Weekly active ChatGPT users on consumer plans (Free, Plus, Pro)

# OpenAI



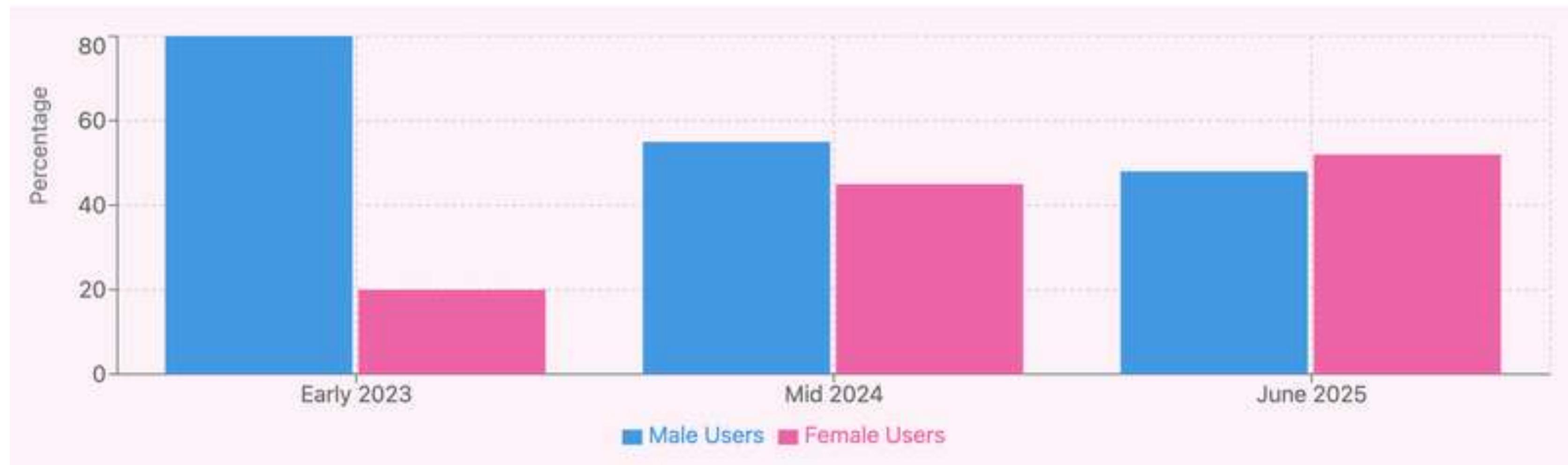
Non-work usage grew from 53% to 73% - ChatGPT becoming more of a personal assistant

# OpenAI



Three categories dominate: Practical Guidance, Writing, and Information Seeking (~78% total)

# OpenAI

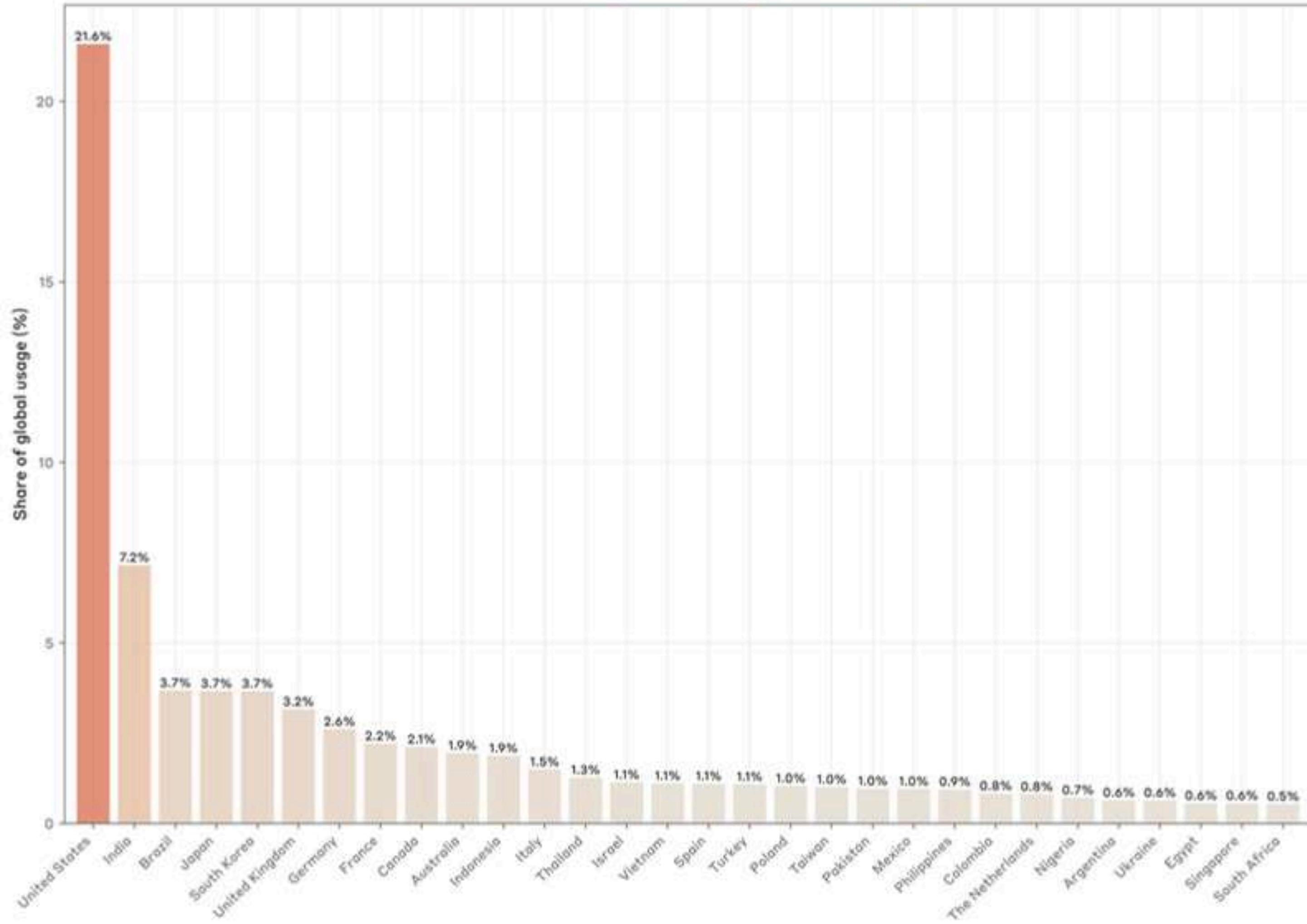


From 80% male early adopters to slight female majority by 2025

# OpenAI

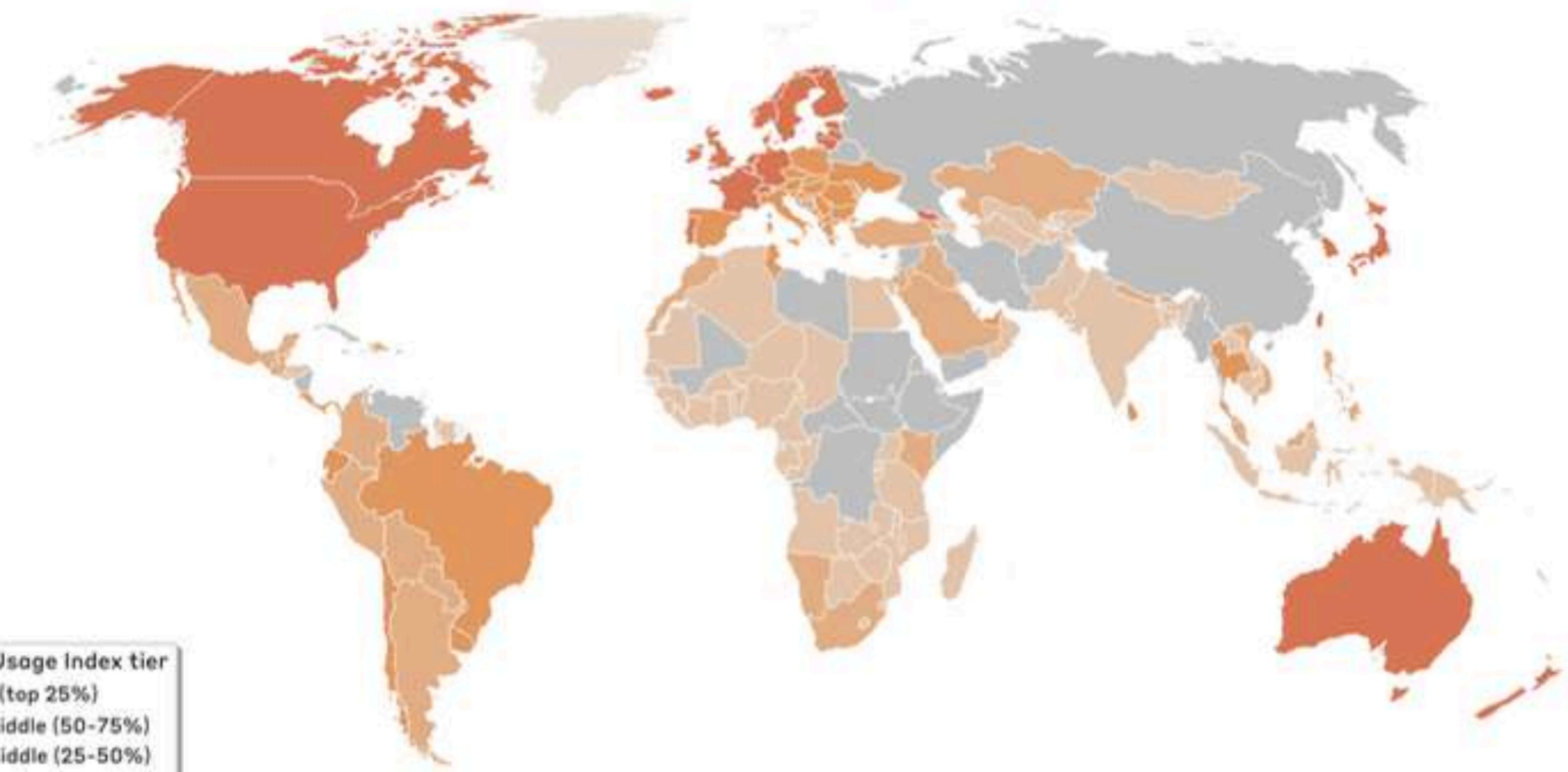
- 700 million users
- Approximately 40% of employees in the U.S. have used ChatGPT.
- 18- to 25-year-olds make up 46% of the users.
- Only 27% is used for work, of which 40% is for writing.
- 52% of users are female.

### Top 30 countries by share of global Claude usage



Claude adoption overall is highly geographically concentrated.

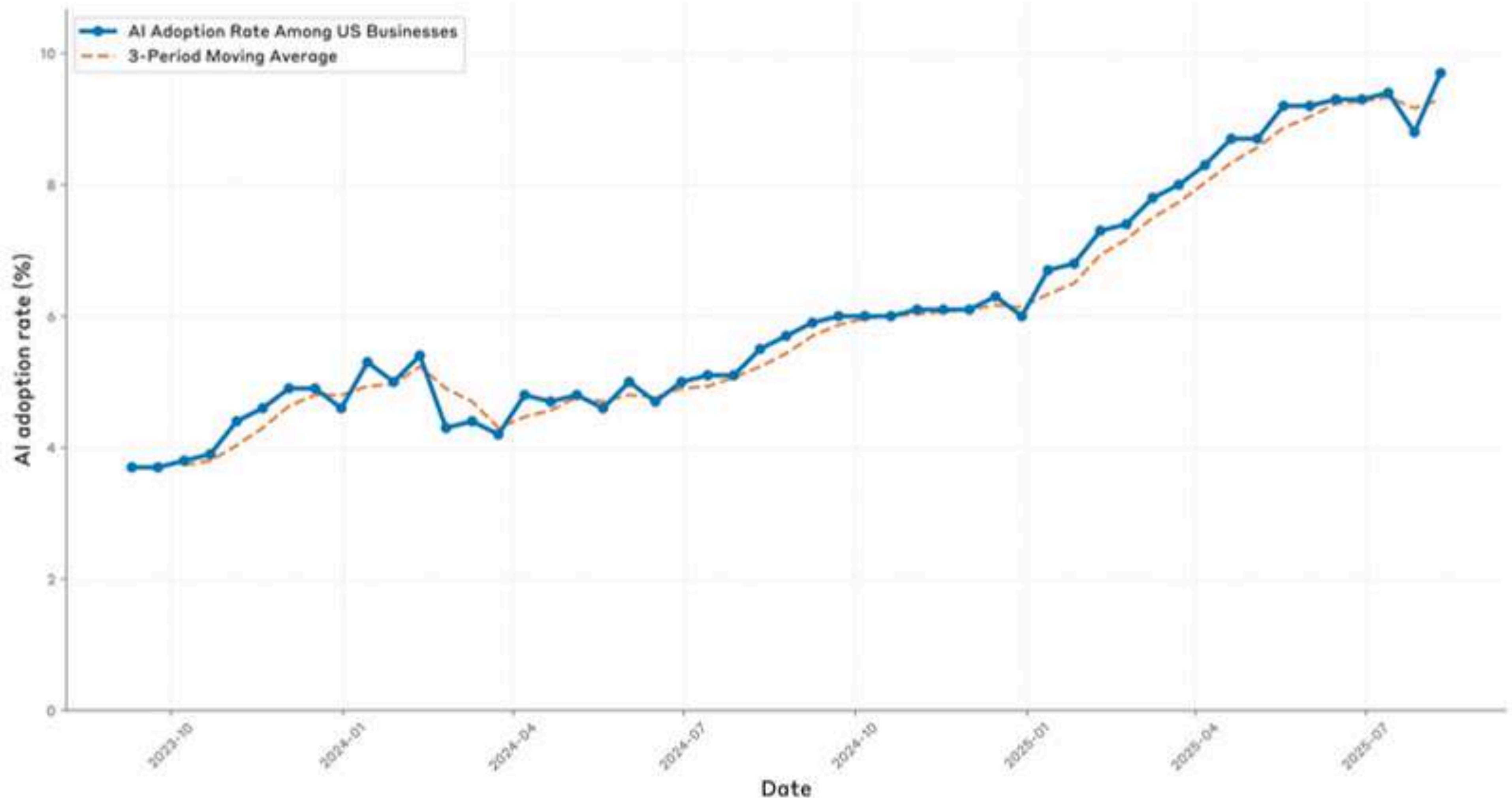
### Anthropic AI Usage Index tiers by country



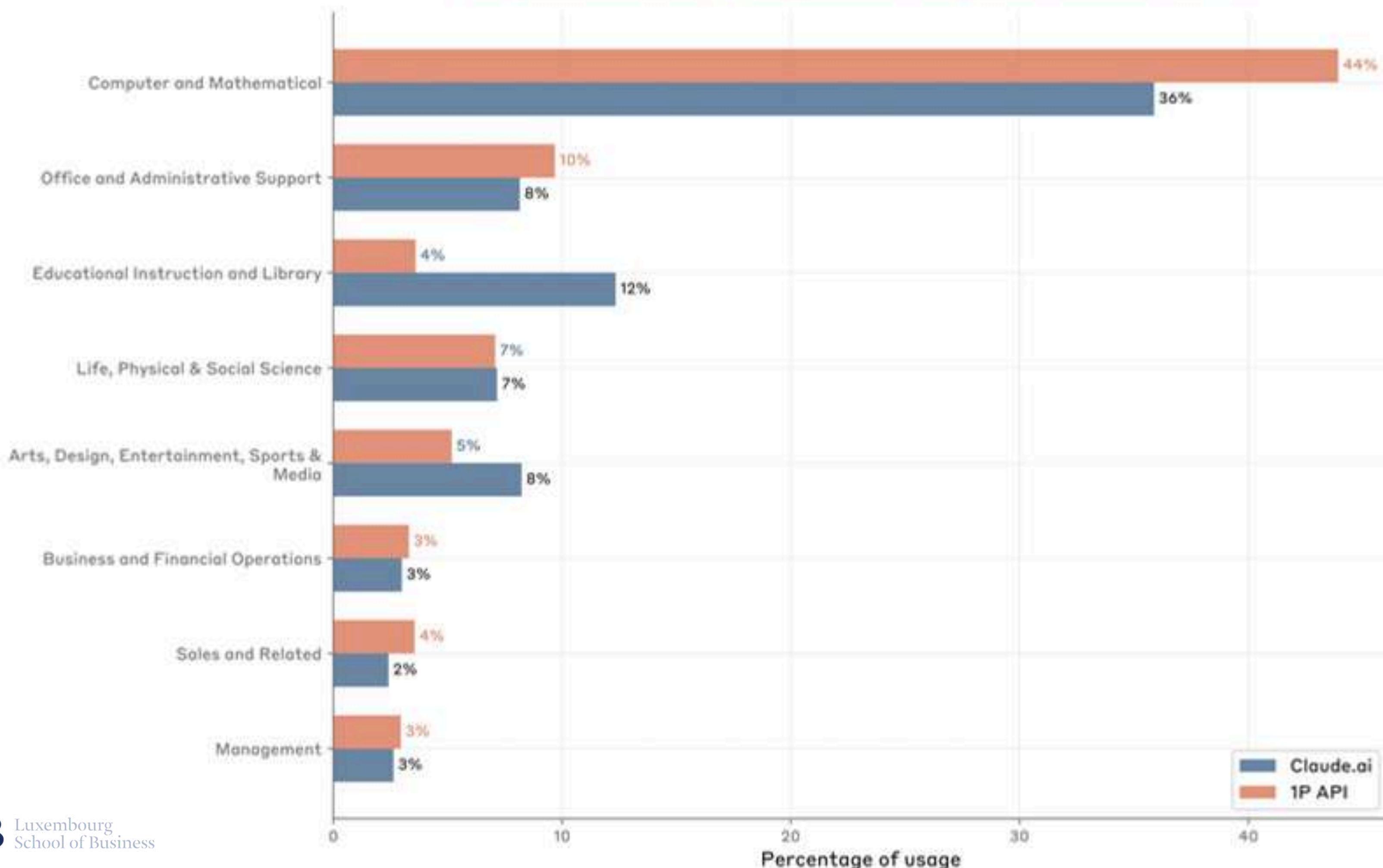
#### Anthropic AI Usage Index tier

- Leading (top 25%)
- Upper middle (50-75%)
- Lower middle (25-50%)
- Emerging (bottom 25%)
- Minimal
- Claude not available
- No data

# Census reported AI adoption rates among US businesses from the Business Trends and Outlook Survey



### Usage shares across top occupational categories: Claude.ai vs 1P API



# Claude

- Developed countries used more. This may result in inequality across various regions.
- 77% of enterprise usage is dedicated to automation.
- Enterprise usage prefers more advanced models.

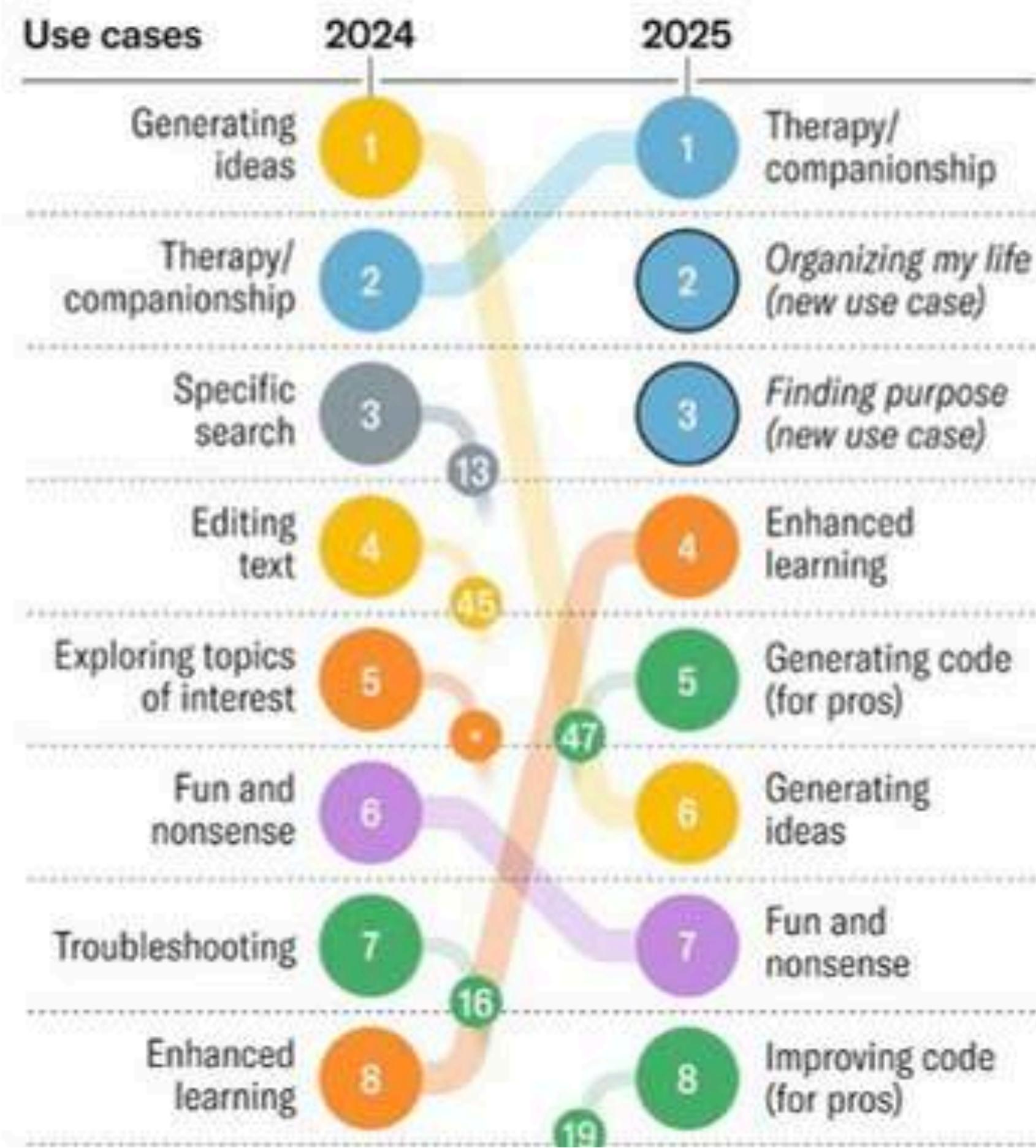
## Top 10 Gen AI Use Cases

The top 10 gen AI use cases in 2025 indicate a shift from technical to emotional applications, and in particular, growth in areas such as therapy, personal productivity, and personal development.

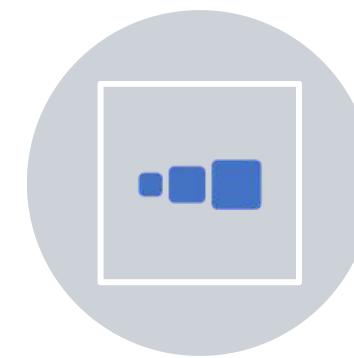
### Themes

- PERSONAL AND PROFESSIONAL SUPPORT
- CONTENT CREATION AND EDITING
- LEARNING AND EDUCATION

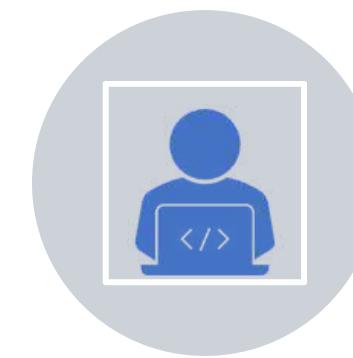
- TECHNICAL ASSISTANCE AND TROUBLESHOOTING
- CREATIVITY AND RECREATION
- RESEARCH, ANALYSIS, AND DECISION-MAKING



# Four levels of integration



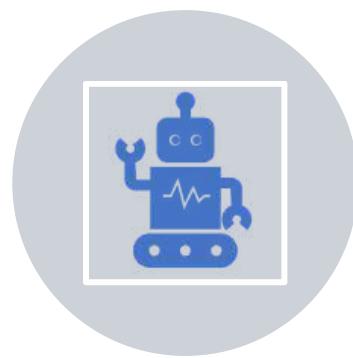
Adopt publicly available tools



Customize the tool,  
api



Build Proprietary  
GenAI-Powered  
Applications,  
Automated  
Workflows, and  
Agents



Develop own  
models

Source: Scott Cook, Andrei Hagiu, and Julian Wright (2024), Turn Generative AI from an Existential Threat into a Competitive Advantage, Harvard Business Review.  
IBM online course: <https://www.coursera.org/learn/generative-ai-for-executives-business-leaders>

# Level 1: Adopt publicly available tools

- Use off-the-shelf generative AI tools
- Improve internal processes and efficiency
- No customization of AI models
- Temporary advantage, soon becomes table stakes
- Privacy issues

Source: Scott Cook, Andrei Hagiu, and Julian Wright (2024), Turn Generative AI from an Existential Threat into a Competitive Advantage, Harvard Business Review.  
IBM online course: <https://www.coursera.org/learn/generative-ai-for-executives-business-leaders>

## Level 2: Customize the tools

- Create customized AI tools using company data and know-how
- Enhance customer experience and add new capabilities
- Some customization through fine-tuning with company data
- Potential for personalization and improved user interfaces

Source: Scott Cook, Andrei Hagiu, and Julian Wright (2024), Turn Generative AI from an Existential Threat into a Competitive Advantage, Harvard Business Review.

IBM online course: <https://www.coursera.org/learn/generative-ai-for-executives-business-leaders>

## Level 3: Build Proprietary GenAI-Powered Applications, Automated Workflows, and Agents

- Integrates knowledge bases, streamlines tools and applications, and connects functional activities
- Creates a compounding competitive advantage
- Requires redesigning products and services to integrate AI throughout

Source: Scott Cook, Andrei Hagiu, and Julian Wright (2024), Turn Generative AI from an Existential Threat into a Competitive Advantage, Harvard Business Review.

IBM online course: <https://www.coursera.org/learn/generative-ai-for-executives-business-leaders>

## Level 4: Develop own models

- Highly costly
- Flexible, tailored to specific problems
- Difficult to be copied, competitive advantages
- Requires strong tech resources

Source: Scott Cook, Andrei Hagiu, and Julian Wright (2024), Turn Generative AI from an Existential Threat into a Competitive Advantage, Harvard Business Review.  
IBM online course: <https://www.coursera.org/learn/generative-ai-for-executives-business-leaders>