

Artificial Intelligence

Everything you wanted to know,
but didn't want to ask

AI

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Artificial Intelligence

Everything you wanted to know,
but didn't want to ask



What is AI?



AI Policies



Privacy and
Security



Impact on
Jobs



AI Agents



AI Use Cases



What is AI?



What is AI?

General Purpose Technology (GPTs)

Technologies that can affect an entire economy (usually at a national or global level). GPTs have the potential to drastically alter societies through their impact on pre-existing economic and social structures.



Steam engine



Electricity



Information
Technology



What is AI?

Artificial Intelligence is the **simulation** of **human intelligence** by computer systems.



Predictive Analytics

Predictive Analytics

Predictive analytics uses **historical data**, **statistical algorithms**, and machine learning techniques to **identify patterns** and **predict future** outcomes.



Predictive Analytics

Limits



Incorrect Results



Data Quality



Overfitting



Missing Data



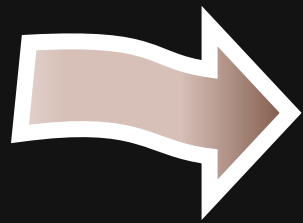
GenAI

Generative AI (GenAI)

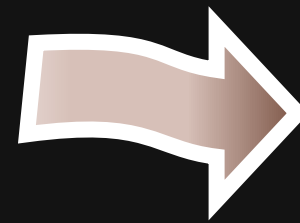
Generative Artificial Intelligence is a subset of AI focused on **creating new content**—such as text, images, audio, video, or code—based on patterns it has learned from existing data



Prompt



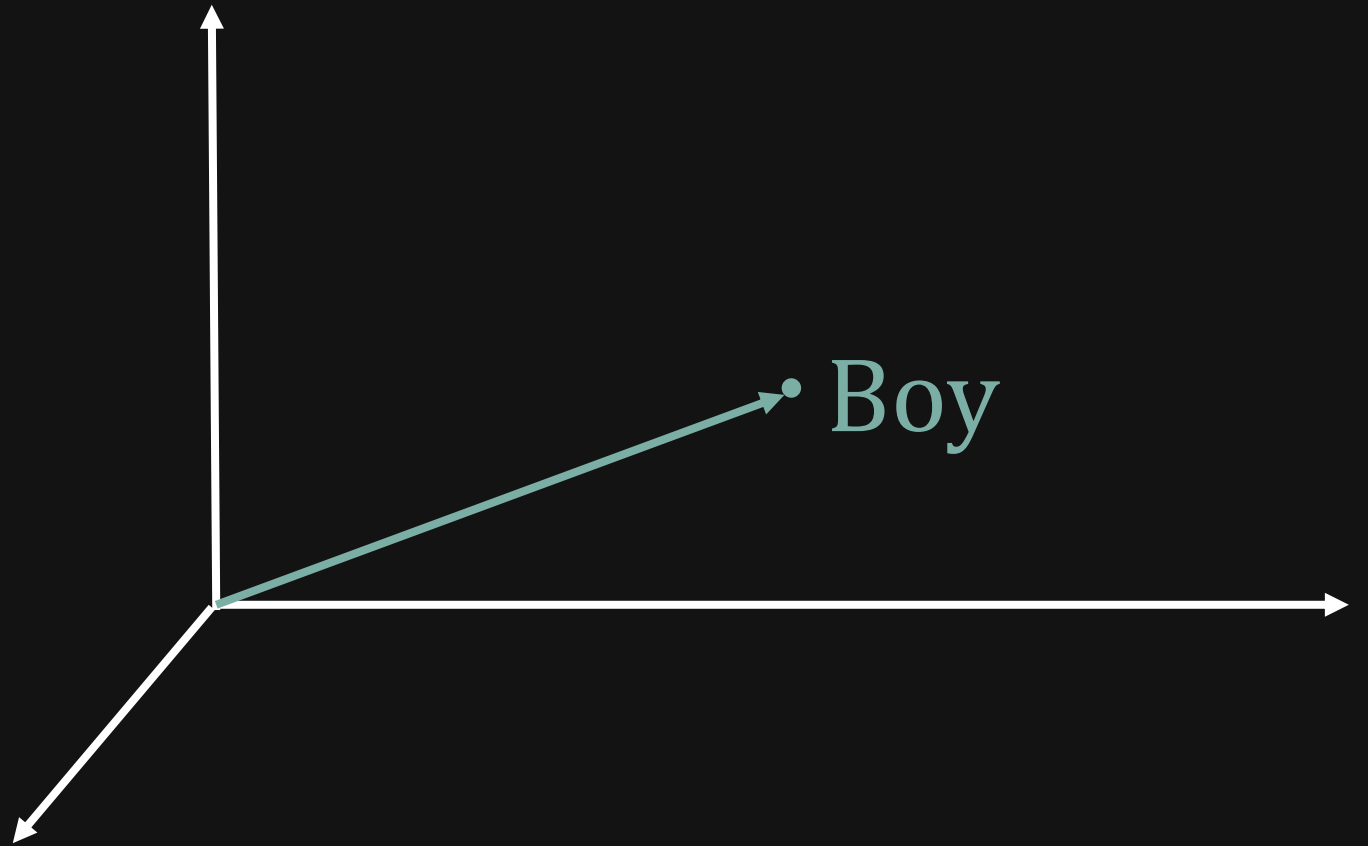
LLM



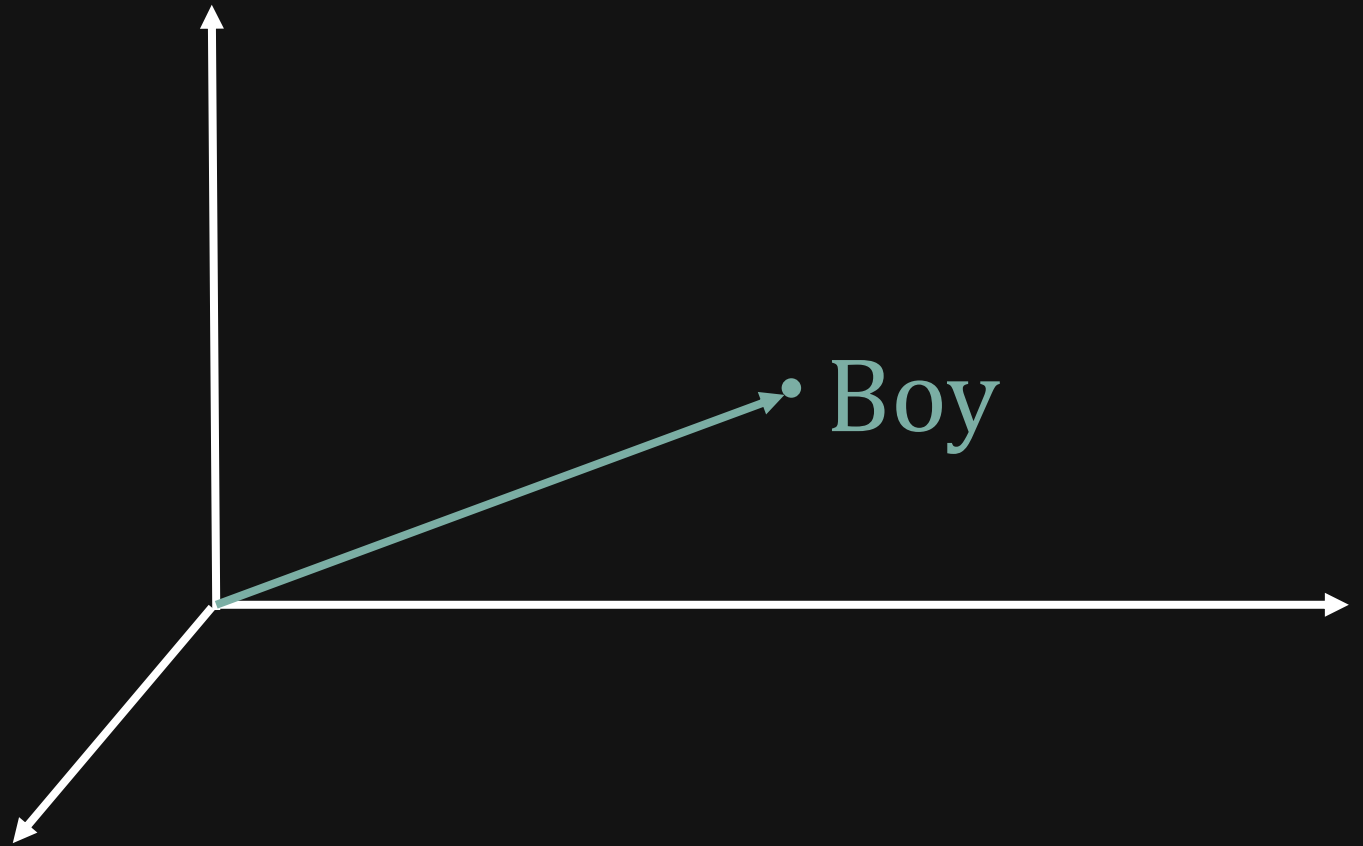
Response

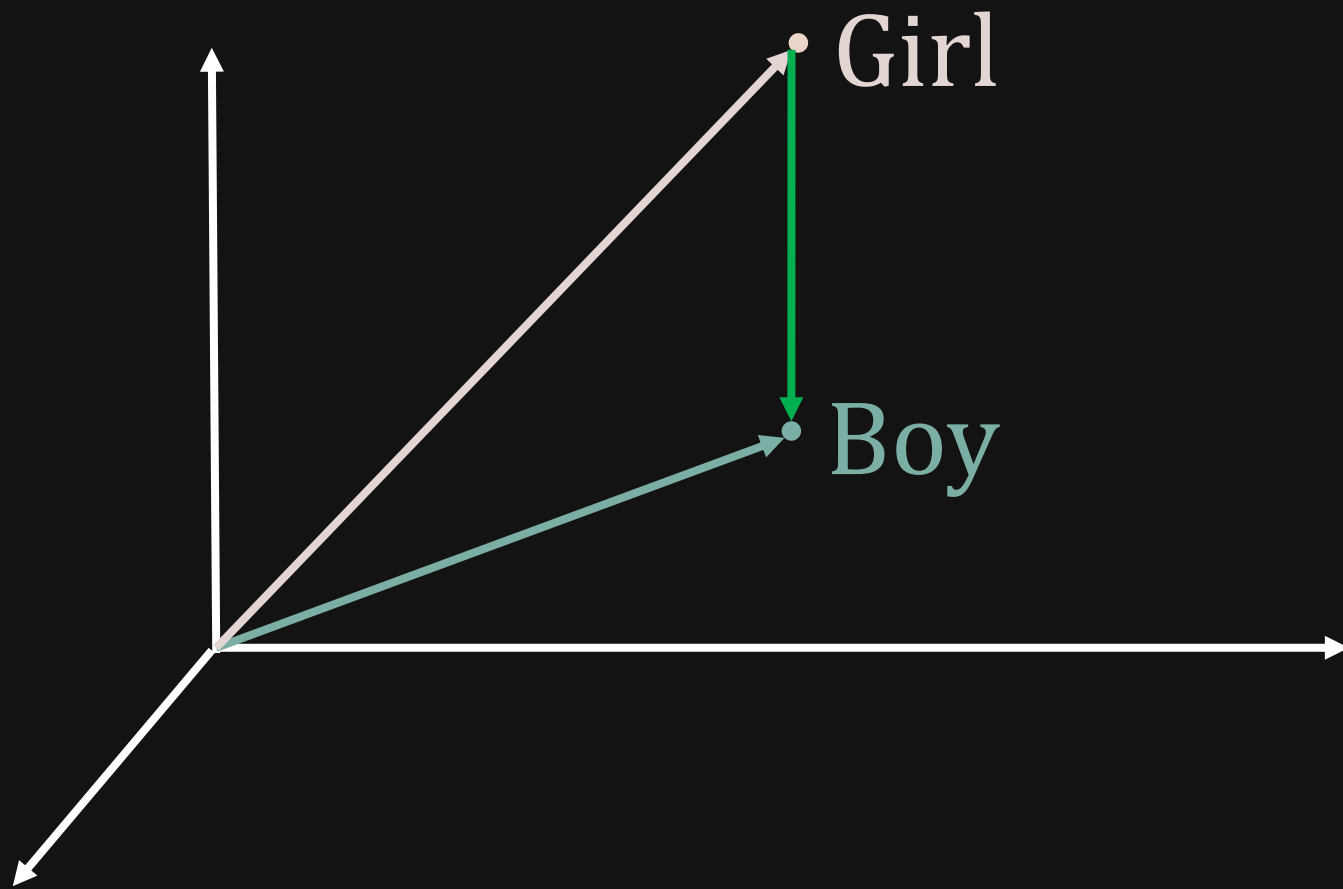
• Boy (0.1, 1.2, 3.6,.....,4.1)

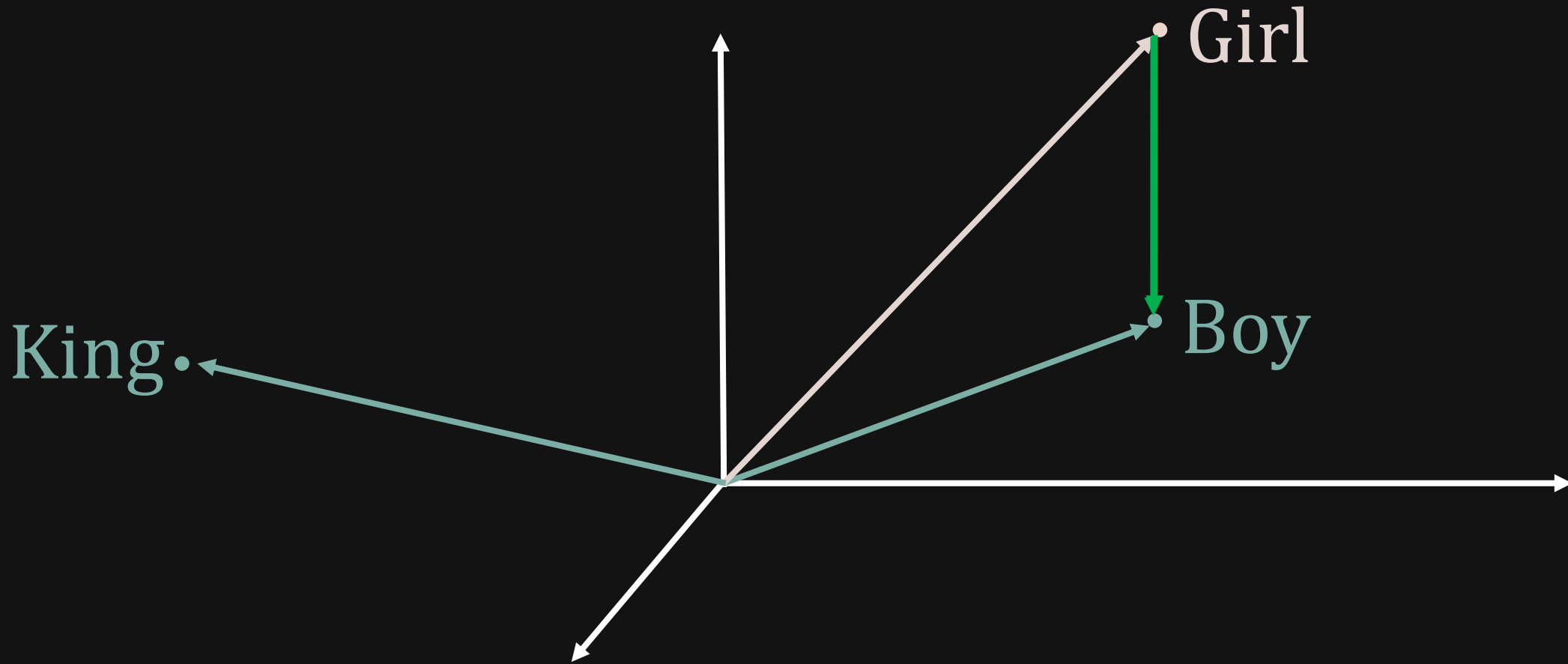


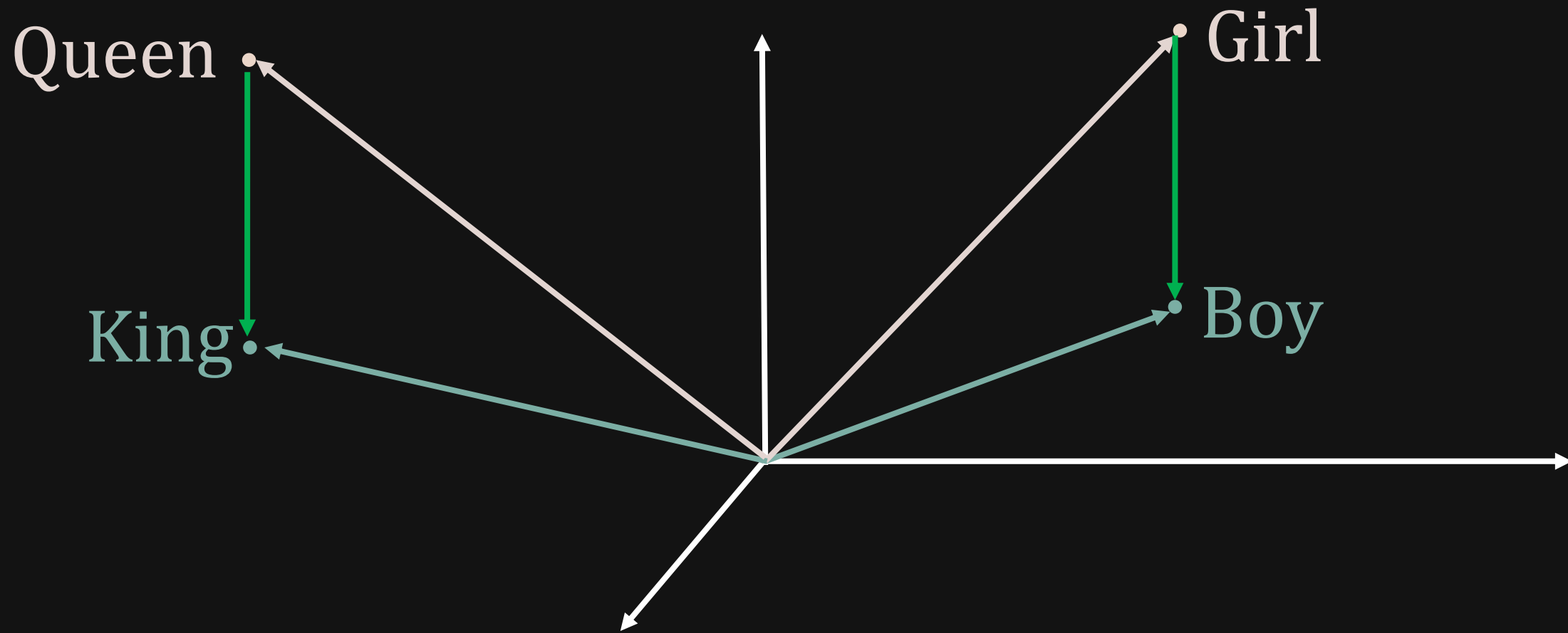


- Girl (1.1, 1.3, 3.6,.....,4.1)





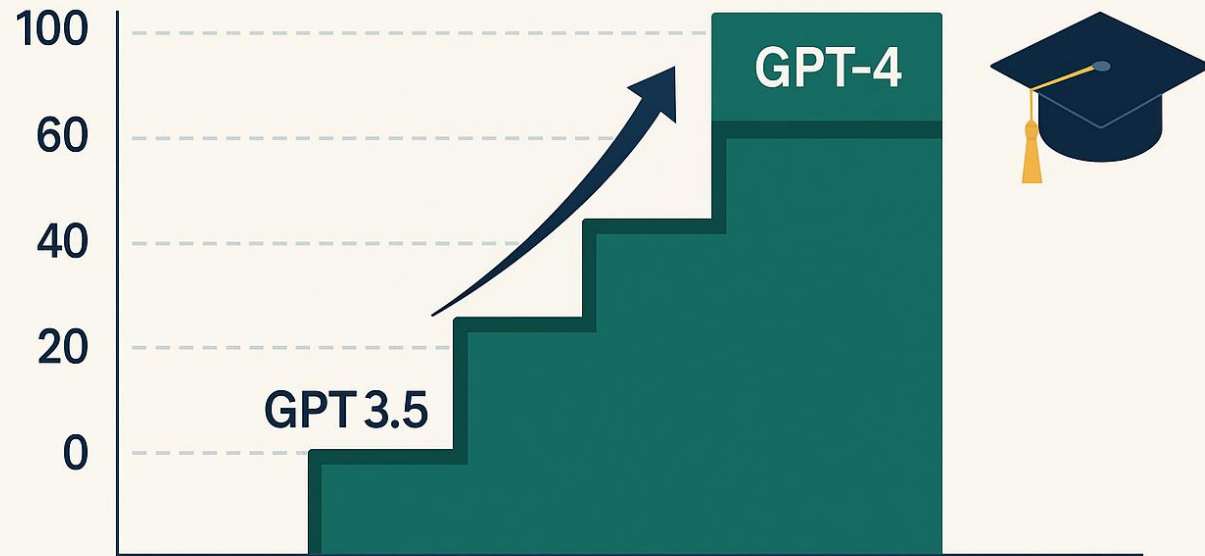




Interesting Statistic #1

GPT-3.5 (the engine behind early ChatGPT) scored around the **bottom 10%** of test-takers on the bar exam, while **GPT-4** scored around the **top 10%**

Leap in Capabilities



From bottom 10% to top 10% on the bar exam – one model generation

Source: OpenAI, GPT-4 Technical evals (bar exam)



Hallucinations

How many r's in "strawberry"?



Hallucinations

Outputs from language models that are factually incorrect, unfaithful to the input, or outside the system's intended scope



Hallucinations



Factual

Inaccurate generated content
(e.g. made-up statistics)



Functional

Behaviors outside of the
scope of the system



Hallucinations



Give the source



Ask for receipts



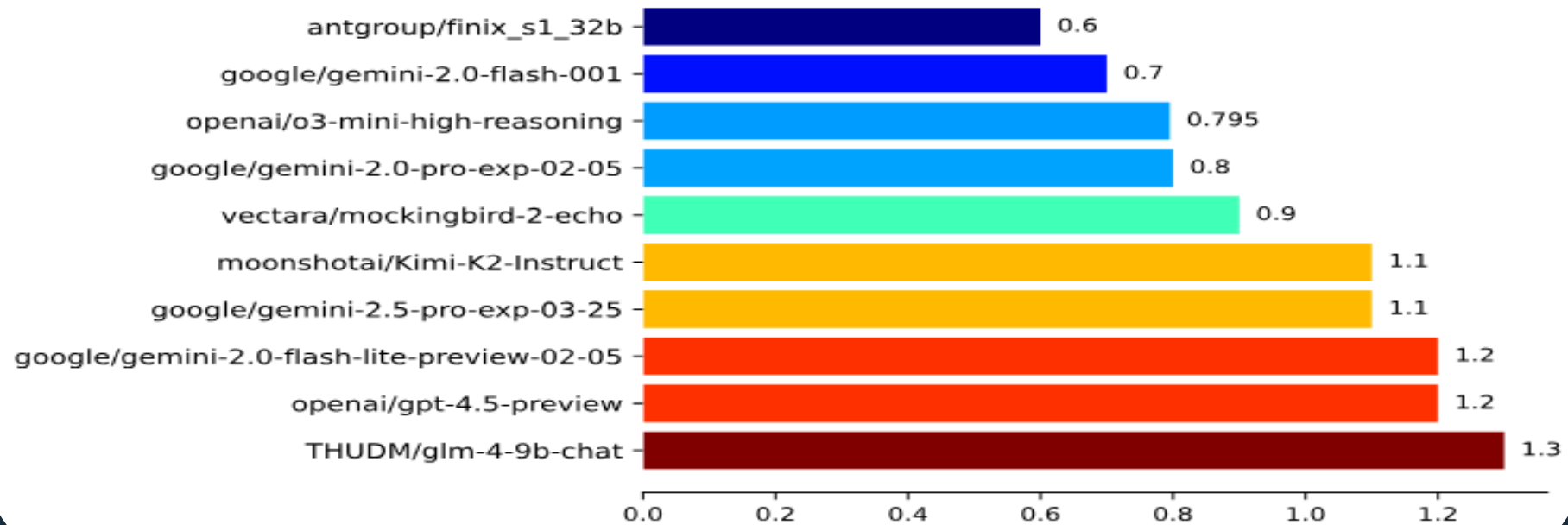
Narrow the task



Human in the loop

GenAI

Grounded Hallucination Rate of Best LLMs



Copyright (2025) Vectara, Inc. Plot generated on: November 03, 2025



AI Policies



AI Governance



Fair



Accountable



Secure



Transparent



Educated



Relevant



AI Policies

Environmental Impacts



High Energy



Water Consumption

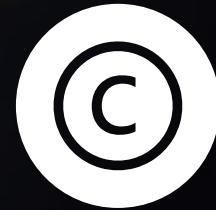


AI Ethic

Environmental Impacts



Model Biases



Copyright

Interesting Statistic #2

Department of Energy projects that data centers could use 6.7%-12% of the total U.S. electricity by 2028. That is about as much power used by Canada.

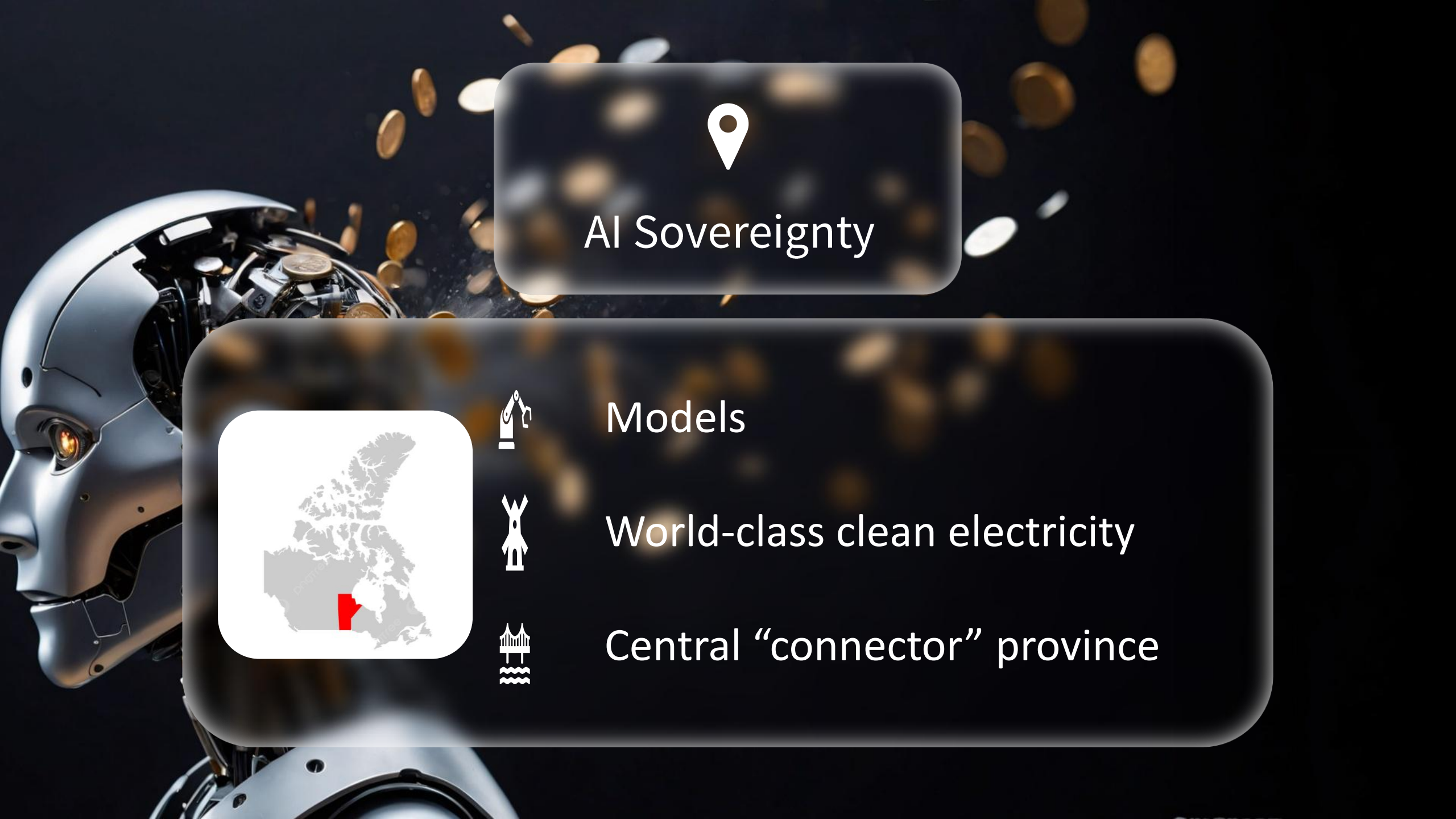
(DoE, December 2024)





AI Sovereignty

AI sovereignty is a country's ability to control the data, computing power, and AI systems it depends on, instead of relying on foreign control.



AI Sovereignty



Models



World-class clean electricity



Central “connector” province



Privacy and Security



Privacy and Security



Unintended Data Exposure



Potential Data Reuse



Best Practices for Security



Privacy and Security

Prompt Injections

Prompt injection is the insertion of malicious inputs to manipulate AI system outputs unpredictably and undesirably.



Privacy and Security

Prompt Injections



Direct Prompt Injection



Indirect Prompt Injection



Tool/ Action Injection

Interesting Statistic #3

GPT-3 needs to “drink” a 500ml bottle of water for roughly 10 – 50 medium-length responses (Li, March 2025)



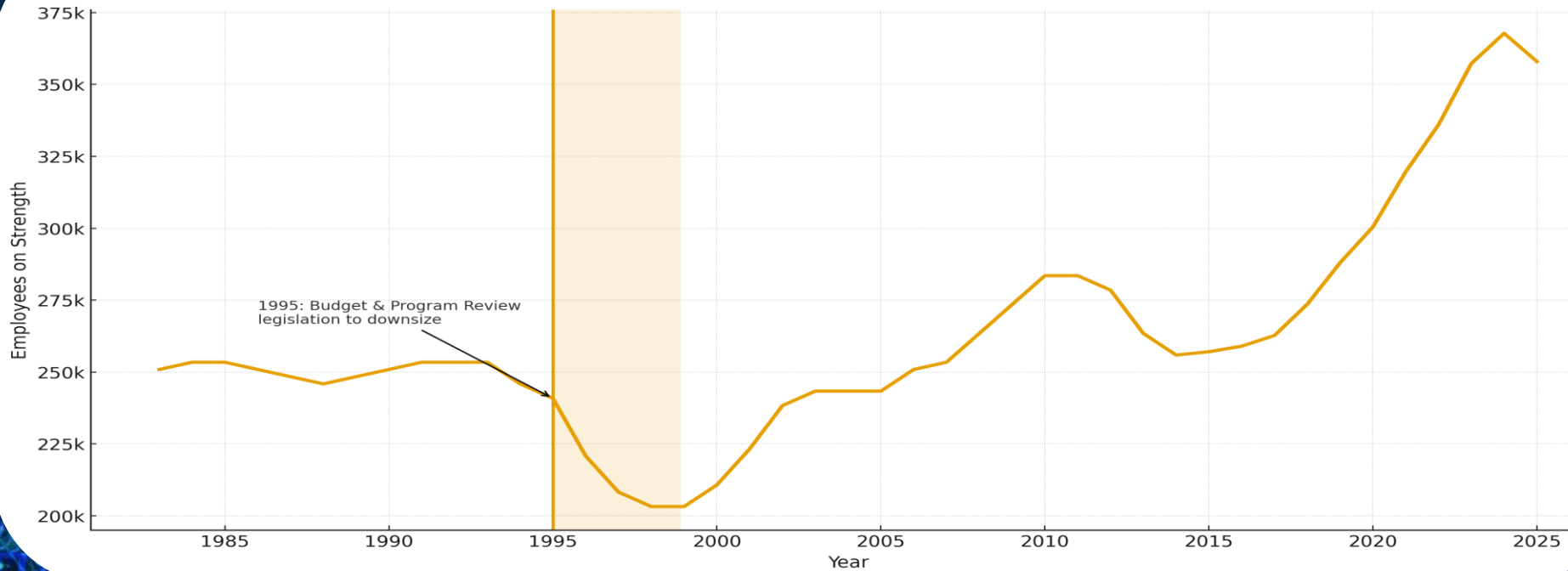


Impact on Jobs



Impact on Jobs

Federal Public Service Headcount (March 31), 1983-2025
Program Review downsizing highlighted





Impact on Jobs



Job Automation by AI



Job Augmentation



Workforce Transition Policies

Interesting Statistic #4

The World Economic Forum's *Future of Jobs 2025* estimates that technological change (with AI as a key driver) will **produce a net gain of 78 million jobs** globally by 2030 (about +7% of today's employment).





AI Agents



AI Agents

Level One: LLMs

Prompt



LLM

Result





AI Agents

Level Two: AI Automation

Prompt



LLM

Workflow

Result





AI Agents

Level Three: AI Agents

Performance = Goal x Ability x
Willingness



AI Agents



Reason



Act

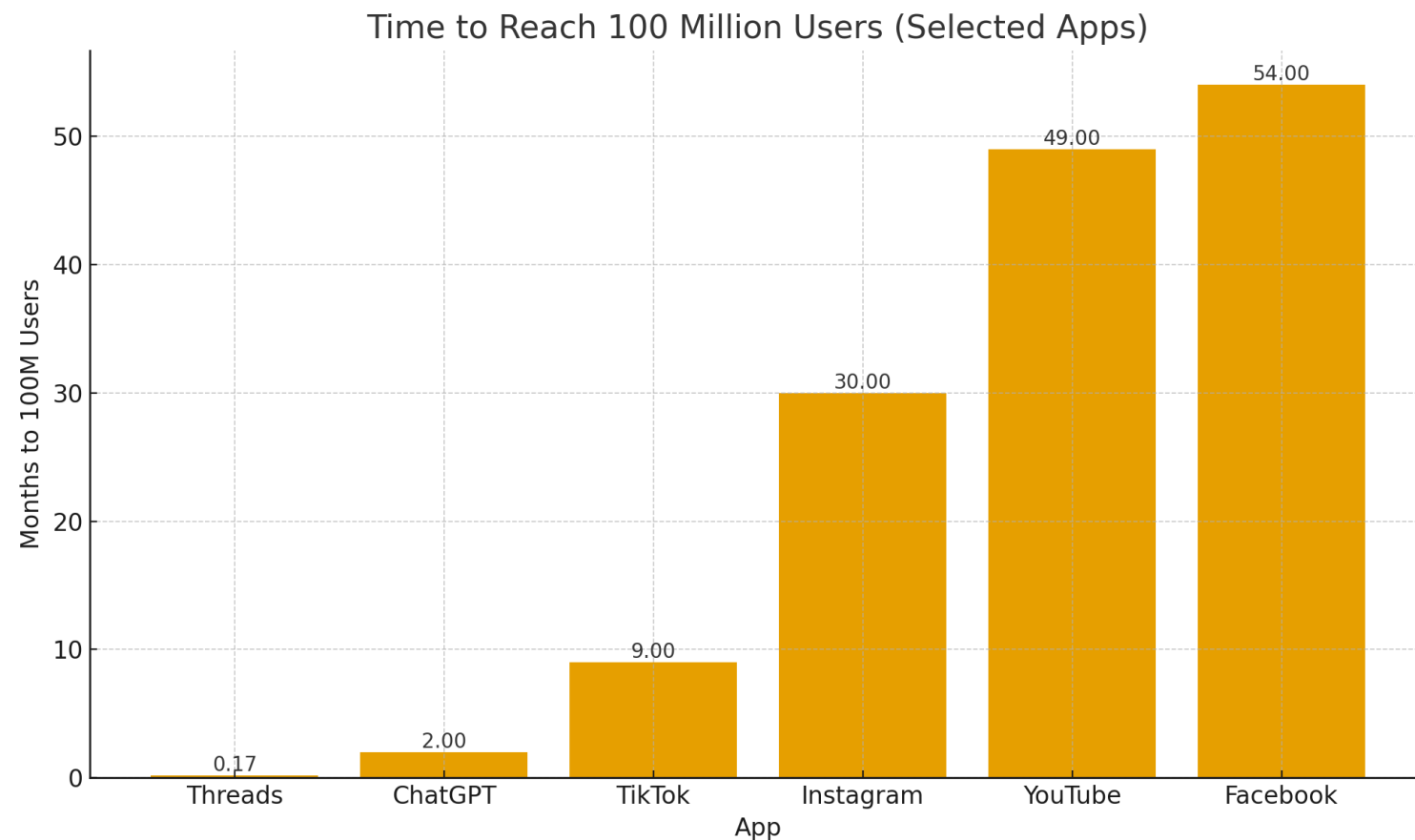


Iterate



Interesting Statistic #6

ChatGPT reached
100 million users
in just **2 months**.





AI Use Cases



AI Use Cases



Automation



Case
Management



Chatbots,
Virtual
Assistants



Internet Of
Things

Interesting Statistic #5

In about one year, people generated **over 15 billion images** using AI tools
That's **one-third of all images** on Instagram

(journal.everypixel.com)





Conclusion



Steam engine



Electricity



Information
Technology



Artificial
Intelligence