

Artificial Intelligence

IMPLICATIONS AND
APPLICATIONS

Agenda

- Predictive vs. Generative AI
- Improvements in Generative AI since 2022
- Challenges of Integration
- Short/ Medium Term Applications
- Medium Term Risks
- Looking Ahead



AI Hype Vs. Reality





A Corollary: The Internet and the Dotcom Bubble





Predictive AI

vs.

Generative AI

- Consumes Data → Identifies statistical correlations → Makes predictions
- Recommender Algorithms (ie: social media, marketing)
 - Fraud Detection
 - Finance
 - Healthcare
 - Threat Detection/ Email Filtering
- Identifies patterns humans can't see

- Consumes Data → Identifies statistical correlations → Makes predictions
- Large Language Models (ChatGPT)
- Image/ Video Generation Models
- Speech Recognition
- Speech Generation
- Generates human-like patterns of words, images, sounds



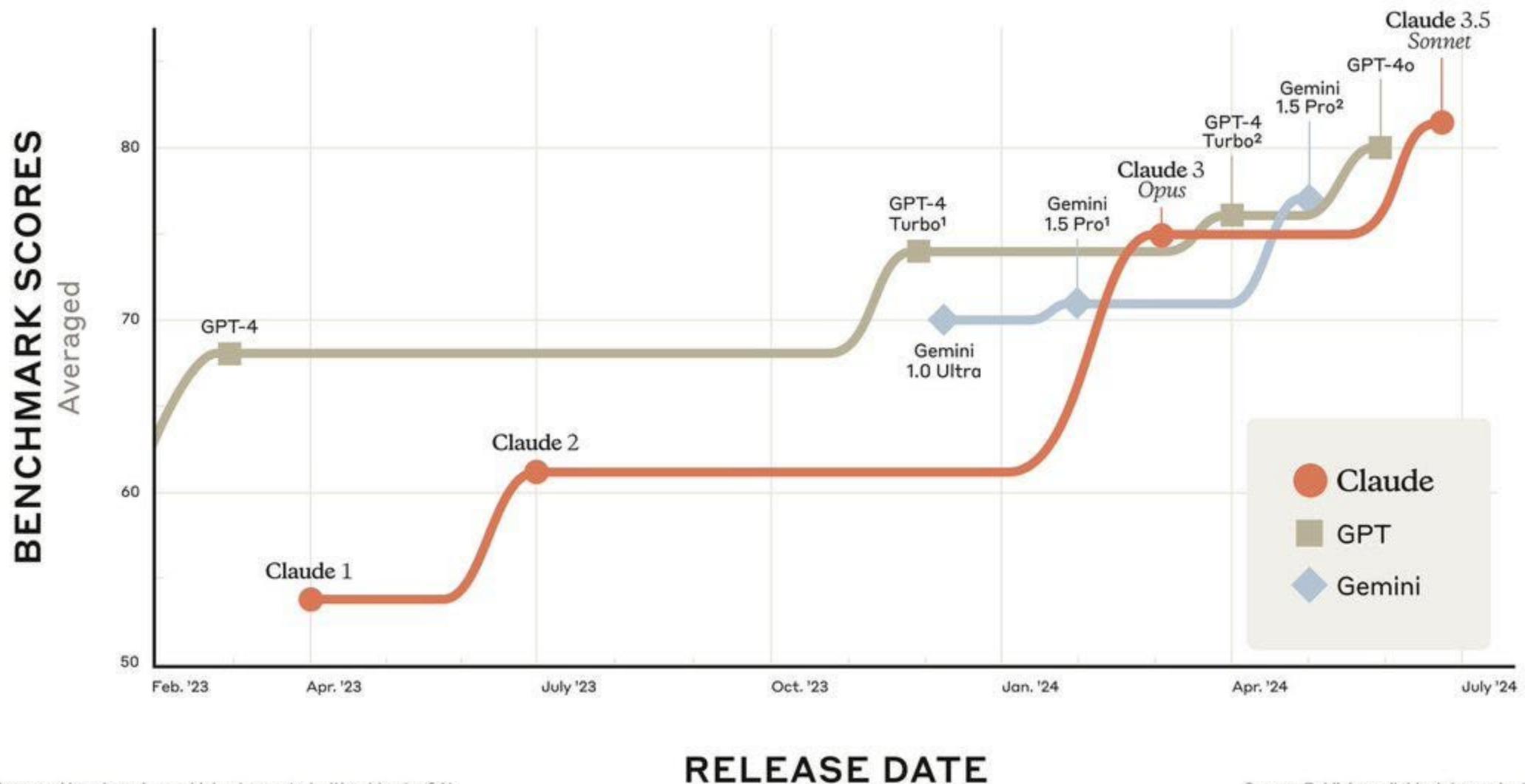
LLM Advances Since ChatGPT Launch (November 2022)

- More accurate/ less hallucinations – retrieval augmented generation, reasoning and calculation via programming languages
- Multi-modal- single models that can incorporate vision and voice input/ output
- First bigger + more powerful, now smaller/ cheaper and more powerful
- Larger “Context Lengths” (how much text can be ingested/ created)
- Better Recall- needle in a haystack tests



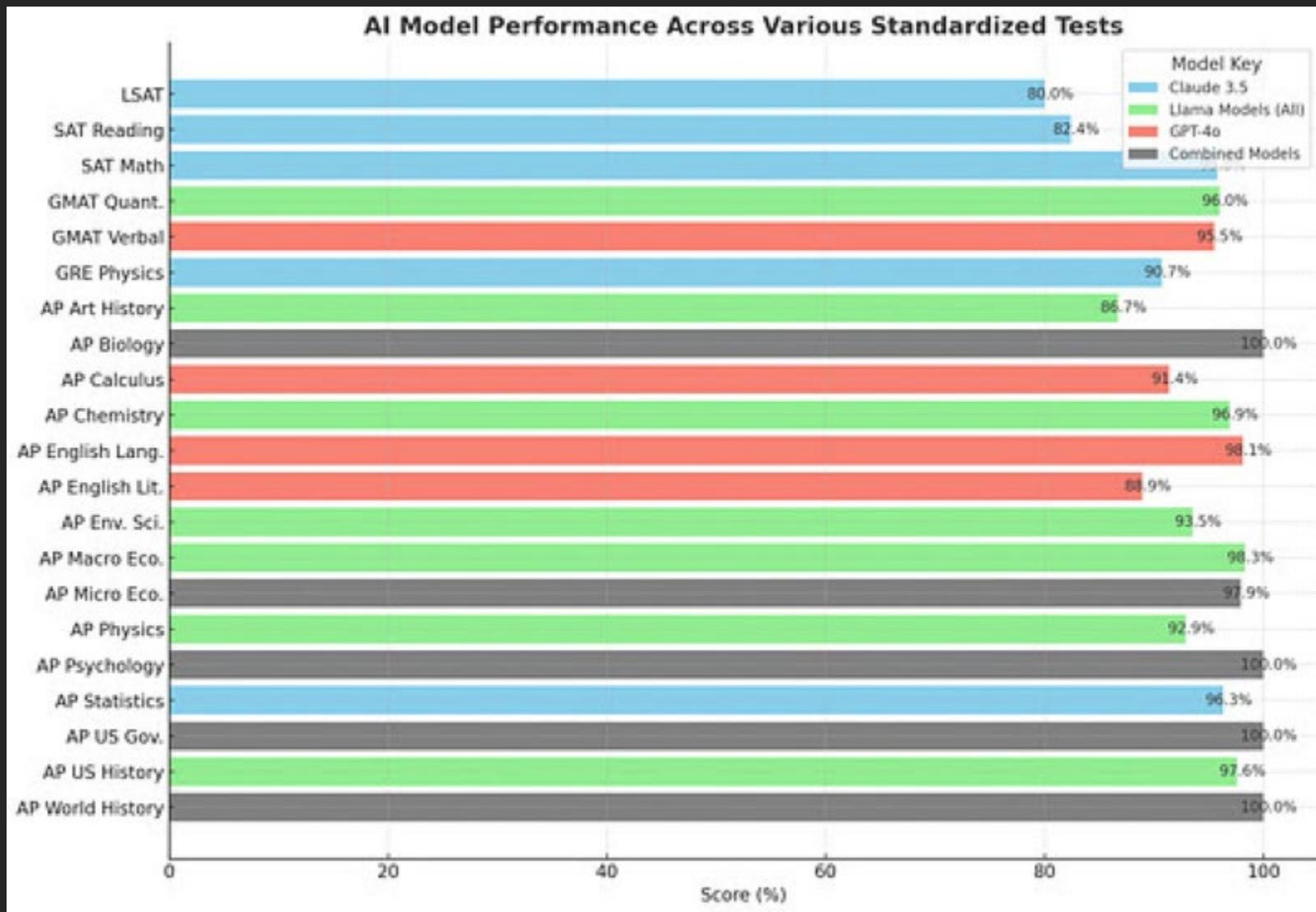
“AI Chatbots are too unreliable to be useful”
– Guy from 2022

AI model release and capabilities timeline



Averaged benchmarks are highest reported without best-of-N:
MMLU, GPQA, MATH, MGSM, DROP F1, HumanEval pass@1,
MMMU, AI2D, ChartQA, DocQA, Mathvista

Source: Publicly available data; evaluation scores are
the average of representative scores found online.
1 = Initial release; 2 = Second release





 **gatsby**
TXT

E anything weird in this document?

The document appears to be the full text of the novel "The Great Gatsby" by F. Scott Fitzgerald. A few unusual things I noticed:

1. There are a couple anachronistic references that don't fit the 1920s setting of the novel, like mentioning an "iPhone" at one point. This was likely inserted erroneously, as iPhones did not exist in the 1920s.
2. Some of Gatsby's fantastical claims about his past, like being decorated by multiple European countries including Montenegro, seem far-fetched and contribute to the mysterious, mythical aura around his character.
3. The over-the-top parties and lavish lifestyle depicted at Gatsby's mansion have an unreal, dreamlike quality.

“Needle in a Haystack Test”

Claude 3.5 Sonnet	
All context lengths	99.7%
200k context length	99.7%



Text to Video Generation



2023
"Will Smith Eating
Spaghetti"



2024
"Zoom in shot to the face of a young woman sitting
on a bench in the middle of an empty school gym."



Ethan Mollick ✅ @emollick · 12h

As I see more and more data, it is becoming clear the first productivity gains that will be widely realized from AI is in programming.

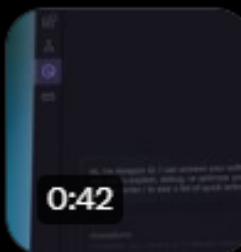
...

Look at this from Amazon: 4,500 developer years saved on a project!

- The average time to upgrade an application to Java 17 plummeted from what's typically 50 developer-days to just a few hours. We estimate this has saved us the equivalent of 4,500 developer-years of work (yes, that number is crazy but, real).



Andy Jassy ✅ 📺 @ajassy · Aug 22



One of the most tedious (but critical tasks) for software development teams is updating foundational software. It's not new feature work, and it doesn't feel like you're moving the experience forward. As a result, this work is either dreaded or put off for more exciting...

28

136

757

92K

↑

- Ethan Mollick (Wharton Business Professor) Quoting Andy Jassy, Amazon CEO

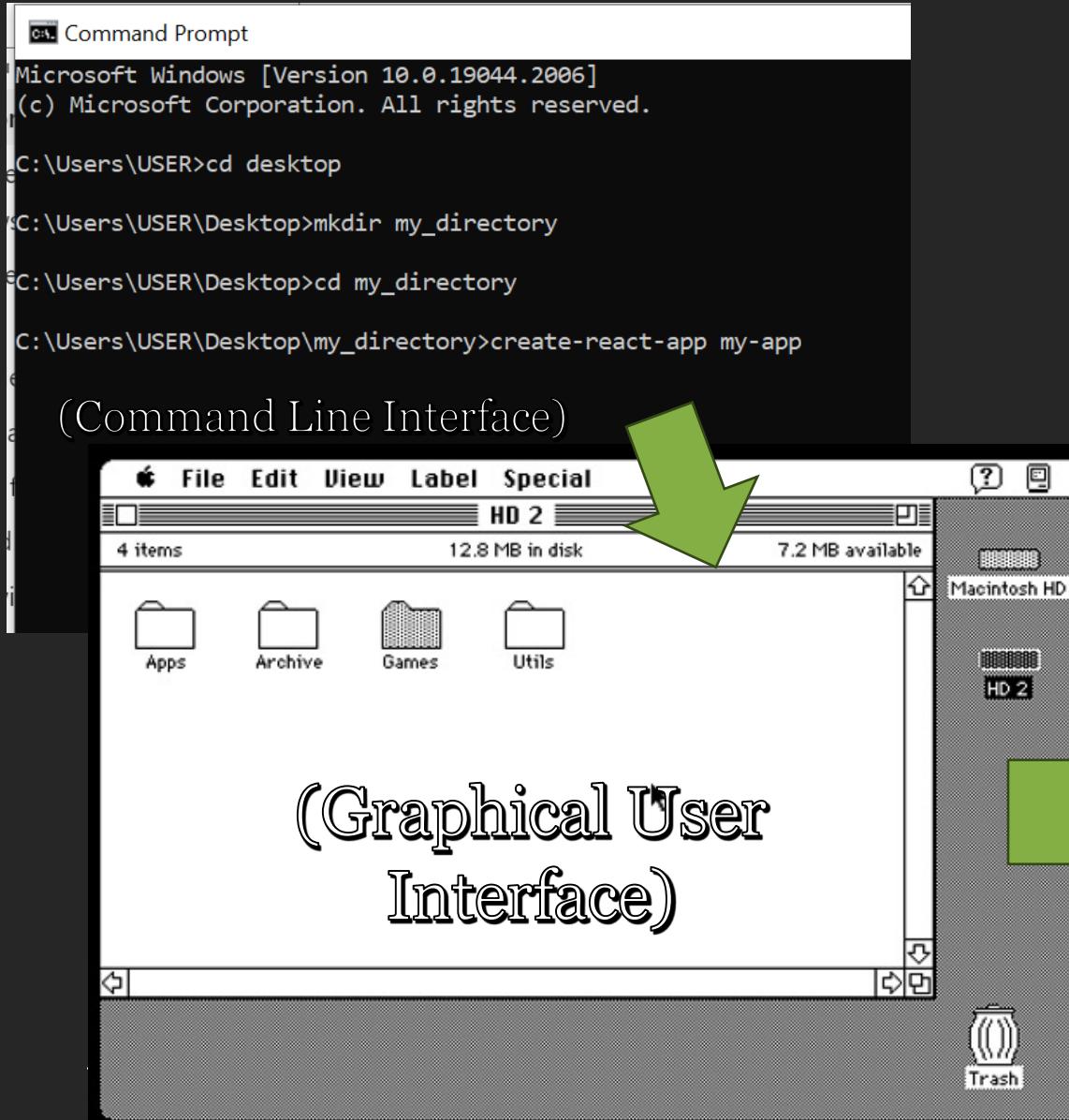
“What are the LLM Use Cases for [x] Industry?”

- AI experts are not Electric Utility experts.
- Familiarize yourself
- Remember: *include no sensitive info*
- Frontier models are currently free (with usage limits)
- I used ChatGPT/ Claude to program a simple automation within Microsoft Office that saves me hours of work, with zero prior programming experience.



Skate to where the puck is going

Evolution of the Human/Computer Interface



First humans learned how to speak “computer”.

Now, computers can speak “human”.

Natural Language Interface

Short to Medium Term AI Risks

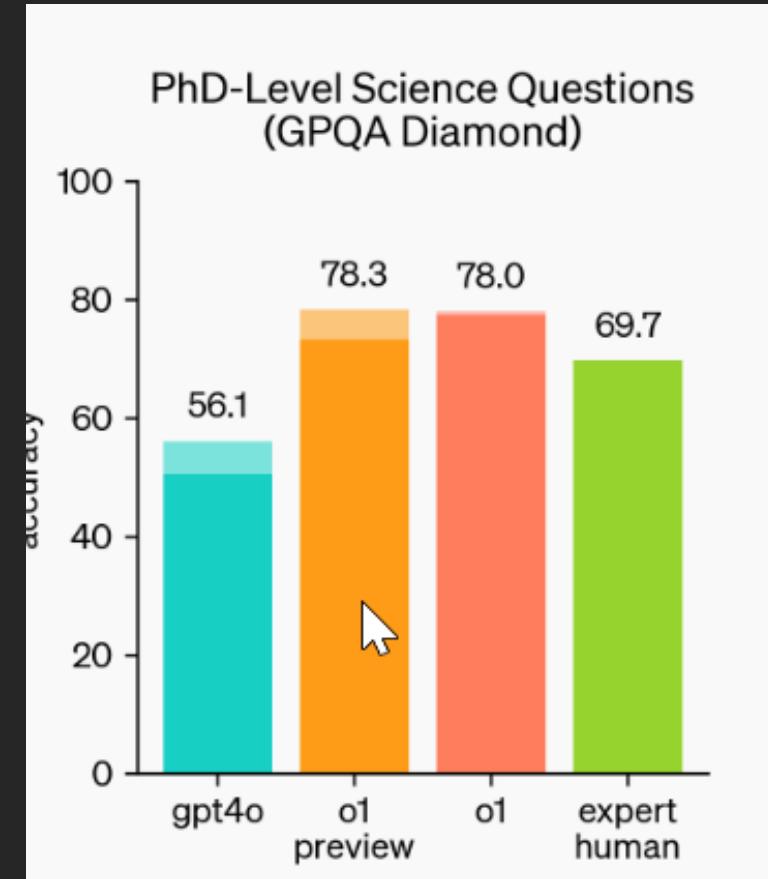
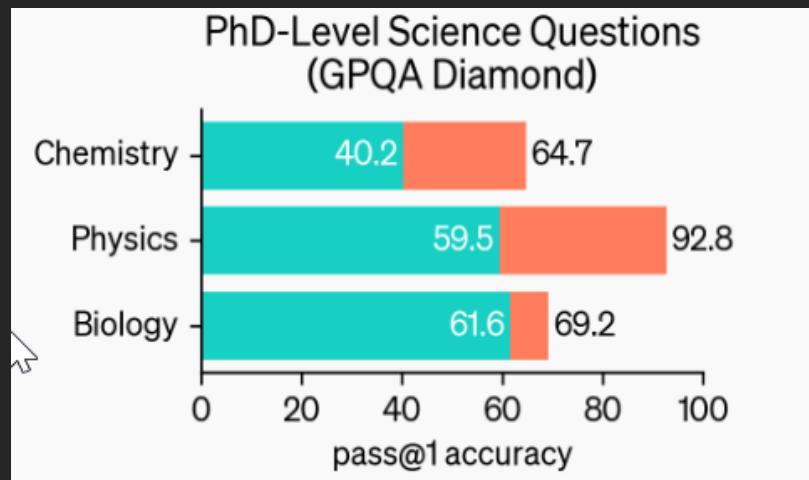
- Short term: AI slop content, disinformation, malicious persuasion
- AI-assisted phishing, malware creation
- ‘Black Swan’/ Murphy’s Law Events
- AI “Agents”- ability to take actions



“Chatbots, roll out”

💡 Breaking News 💡

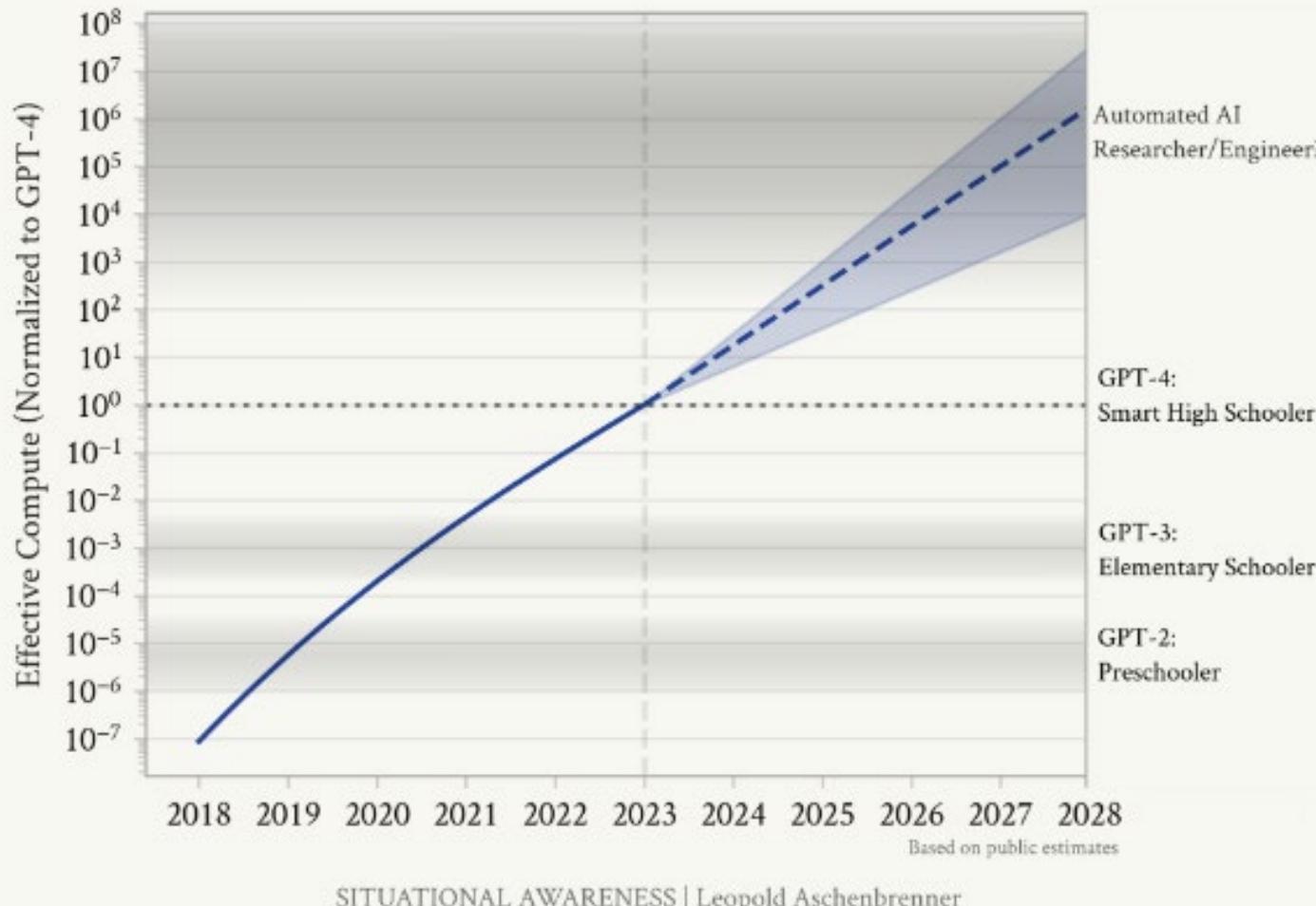
- 9/13 OpenAI released GPT-o1
- Fine Tuned for Reasoning and complex tasks
- “thinks” before it answers



<https://openai.com/index/introducing-openai-o1-preview/>

Looking Ahead

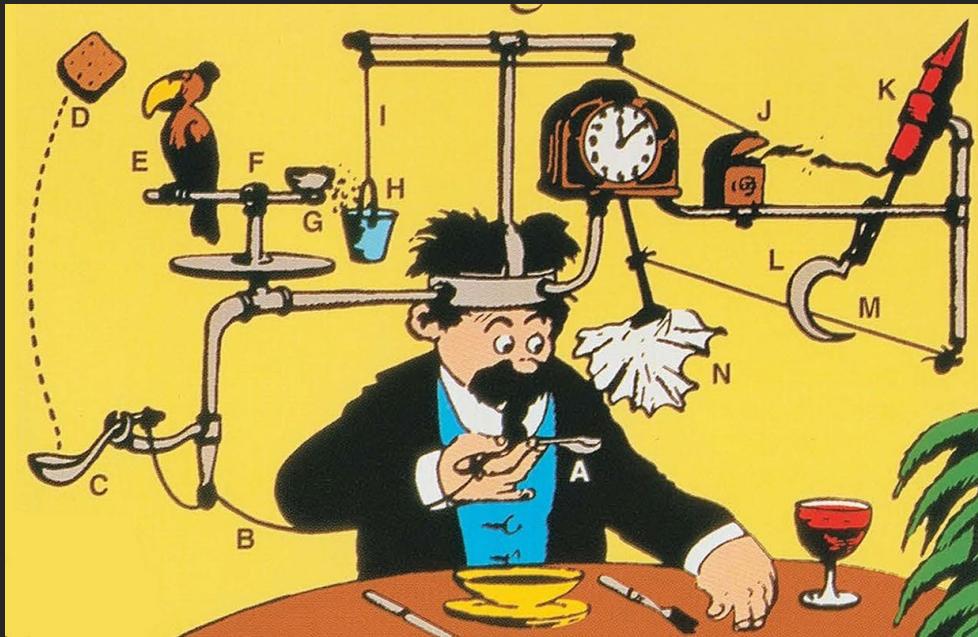
Base Scaleup of Effective Compute



(Former Commander of US Cyber Command and NSA Director)



Q & A



"Why do easy things by hand [...] when you could spend weeks coming up with a super complicated automatic solution that doesn't work that well? That's what really gets me out of bed in the morning."
– Suckerpinch (Youtube Channel)

More Resources:

Dwarkesh Podcast:

*6/4/2024 – Leopold Aschenbrenner-
China/US Superintelligence Race, 2027
AGI, & The Return of History*

*8/8/2023 – Dario Amodei (Anthropic
CEO) – Scaling, Alignment and AI
Progress*

Substack- Zvi Mowshowitz-
Don't Worry About the Vase

Chatbots to Try:

Claude 3.5 Sonnet (Anthropic)
ChatGPT (OpenAI)
Gemini (Google)