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MARKETING IN **THE AGE OF AI**

Joshua Jones
CEO, QuantHub

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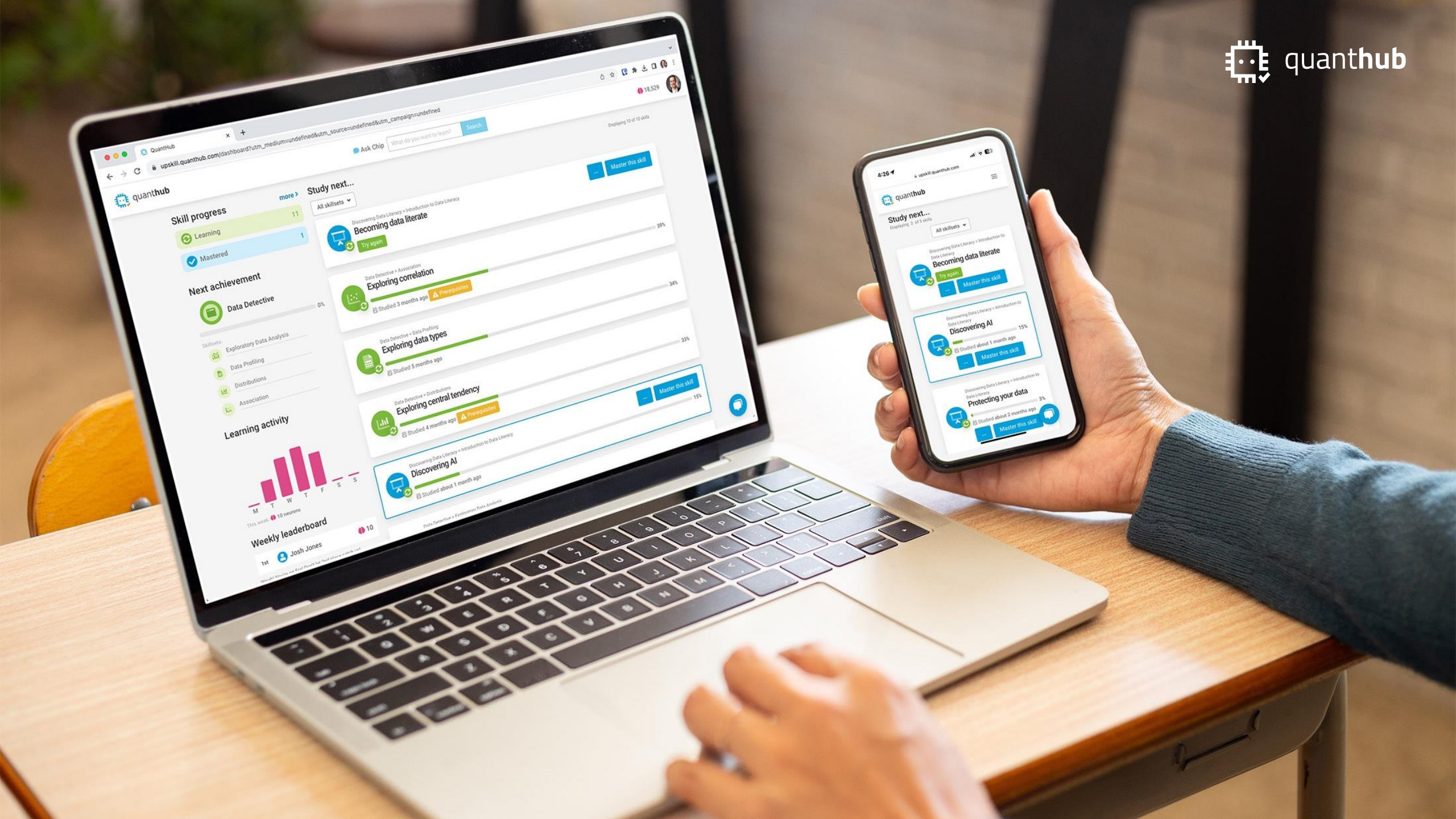
JOSHUA JONES

CEO, QuantHub

Joshua is a data science industry veteran with a twenty-five-year career spanning 4 languages and 50 countries. He has served on Alabama's Artificial Intelligence Commission, is a TEDx speaker, received his undergraduate degree from Alabama and holds an MBA from Emory University.

Inc. Forbes Newsweek TIME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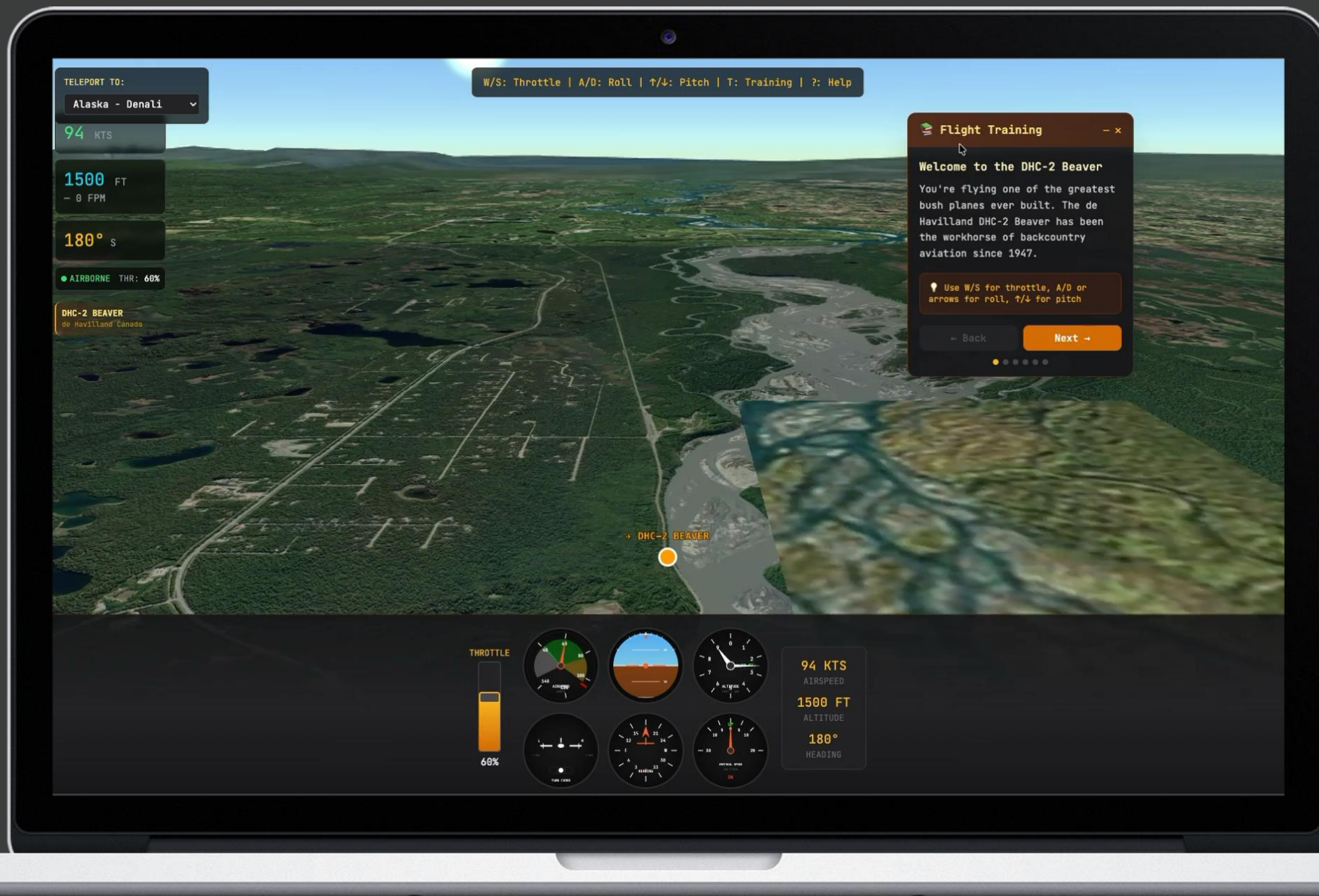
Skill progress
Learning
Mastered
Next achievement
Data Detective
Learning activity
Weekly leaderboard
Josh Jones
Study next...
Becoming data literate
Exploring correlation
Exploring data types
Exploring central tendency
Discovering AI
Master this skill
Try again
Protecting your data


TELEPORT TO:
Alaska - Denali
94 KTS
1500 FT
– 0 FPM
180° S
AIRBORNE THR: 60%
DHC-2 BEAVER
de Havilland Canada
W/S: Throttle | A/D: Roll | ↑/↓: Pitch | T: Training | ?: Help
Flight Training
Welcome to the DHC-2 Beaver
You're flying one of the greatest bush planes ever built. The de Havilland DHC-2 Beaver has been the workhorse of backcountry aviation since 1947.
Use W/S for throttle, A/D or arrows for roll, ↑/↓ for pitch
← Back
Next →
DHC-2 BEAVER
THROTTLE
60%
94 KTS
AIRSPEED
1500 FT
ALTITUDE
180°
HEADING

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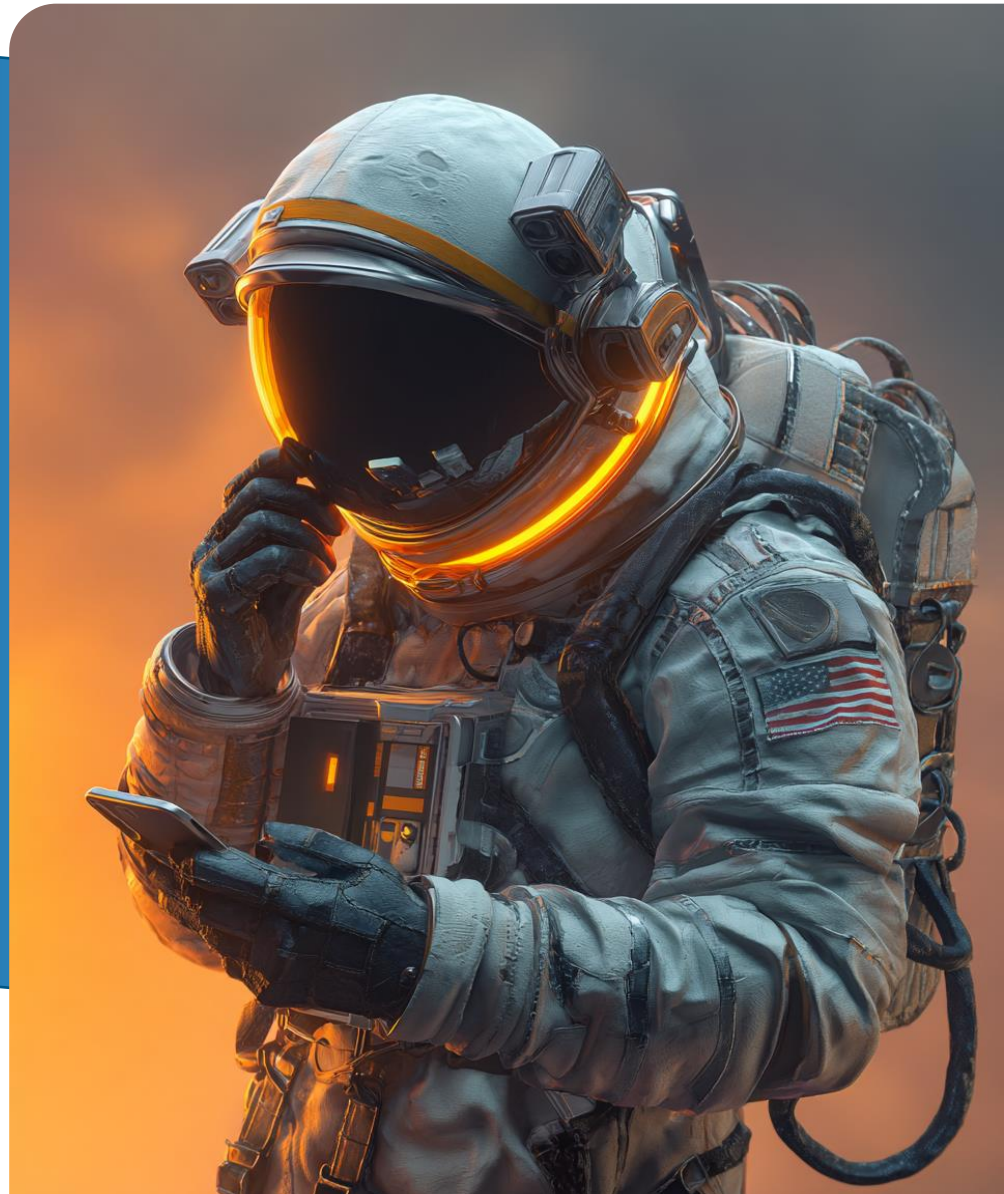
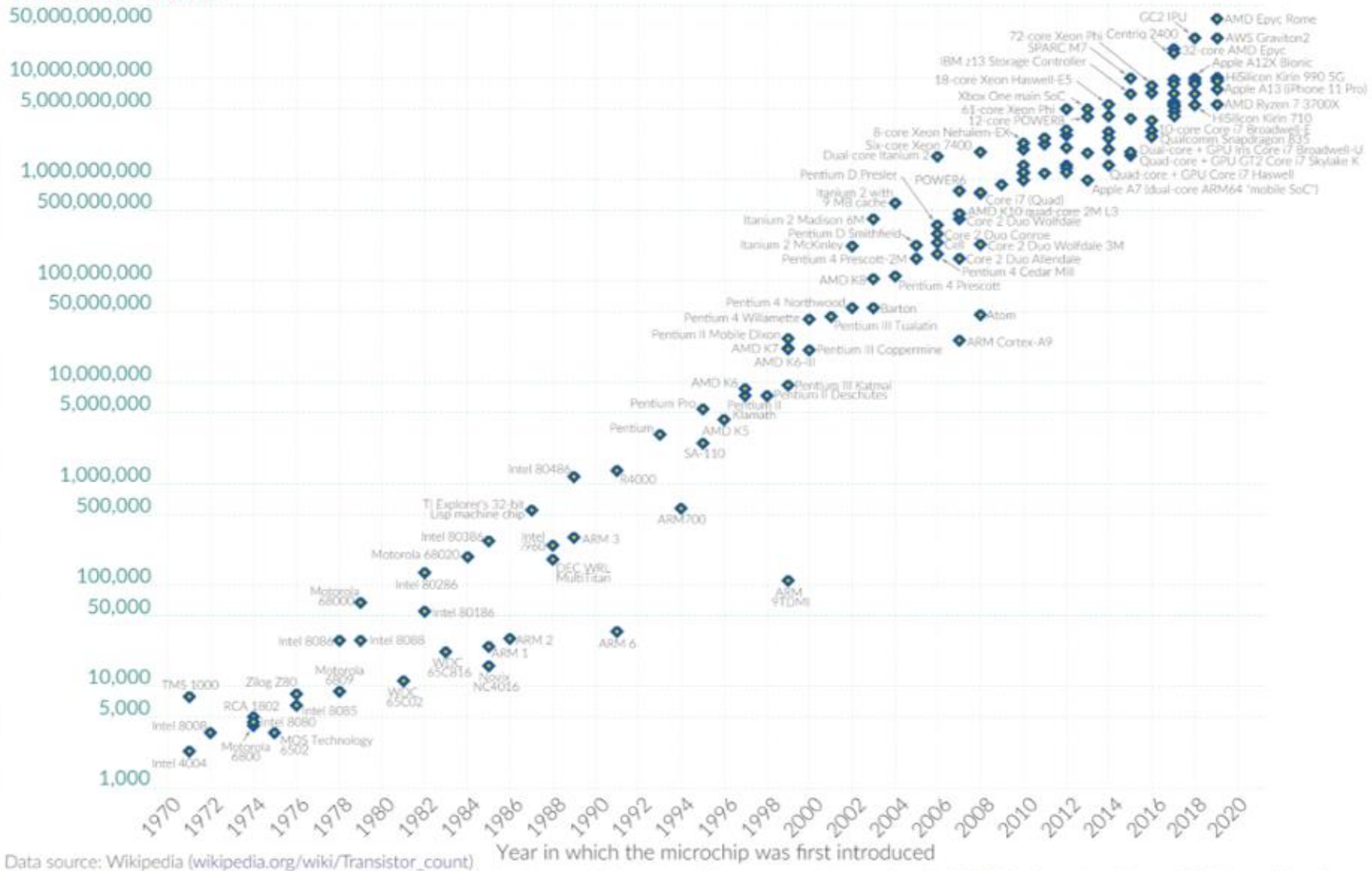
HOW DID WE **GET HERE?**



Moore's Law: The number of transistors on microchips doubles every two years

Our World in Data

Moore's law describes the empirical regularity that the number of transistors on integrated circuits doubles approximately every two years. This advancement is important for other aspects of technological progress in computing – such as processing speed or the price of computers.

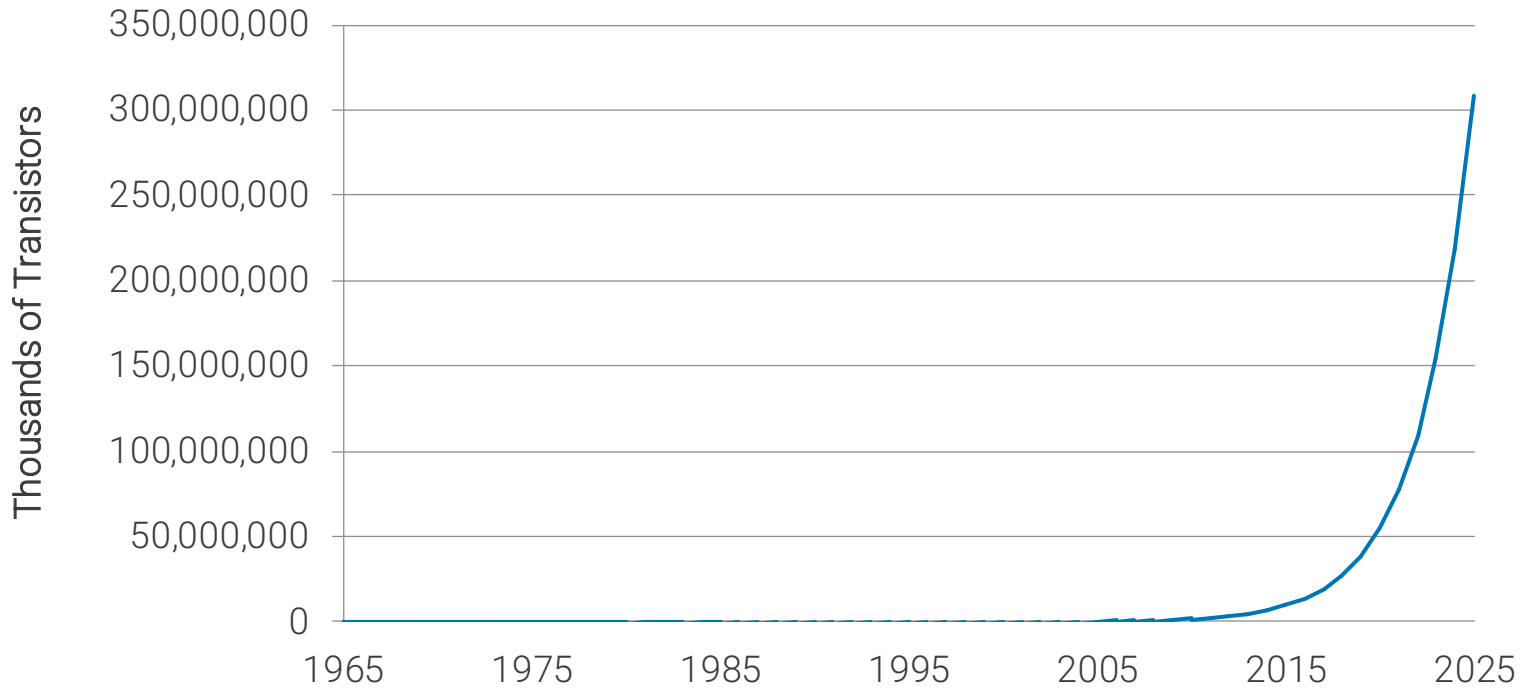


Data source: Wikipedia (wikipedia.org/wiki/Transistor_count)

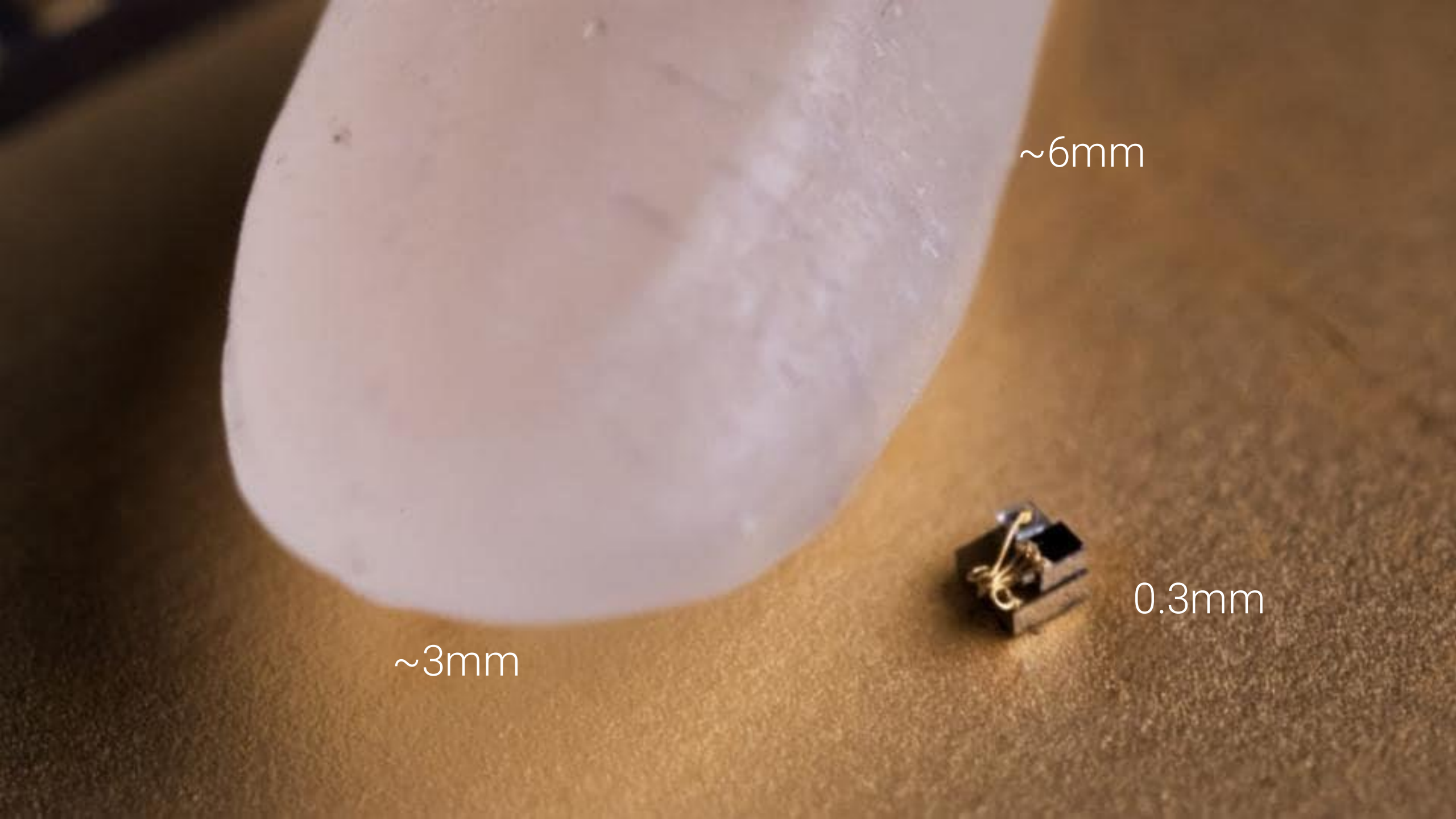
OurWorldinData.org – Research and data to make progress against the world's largest problems.

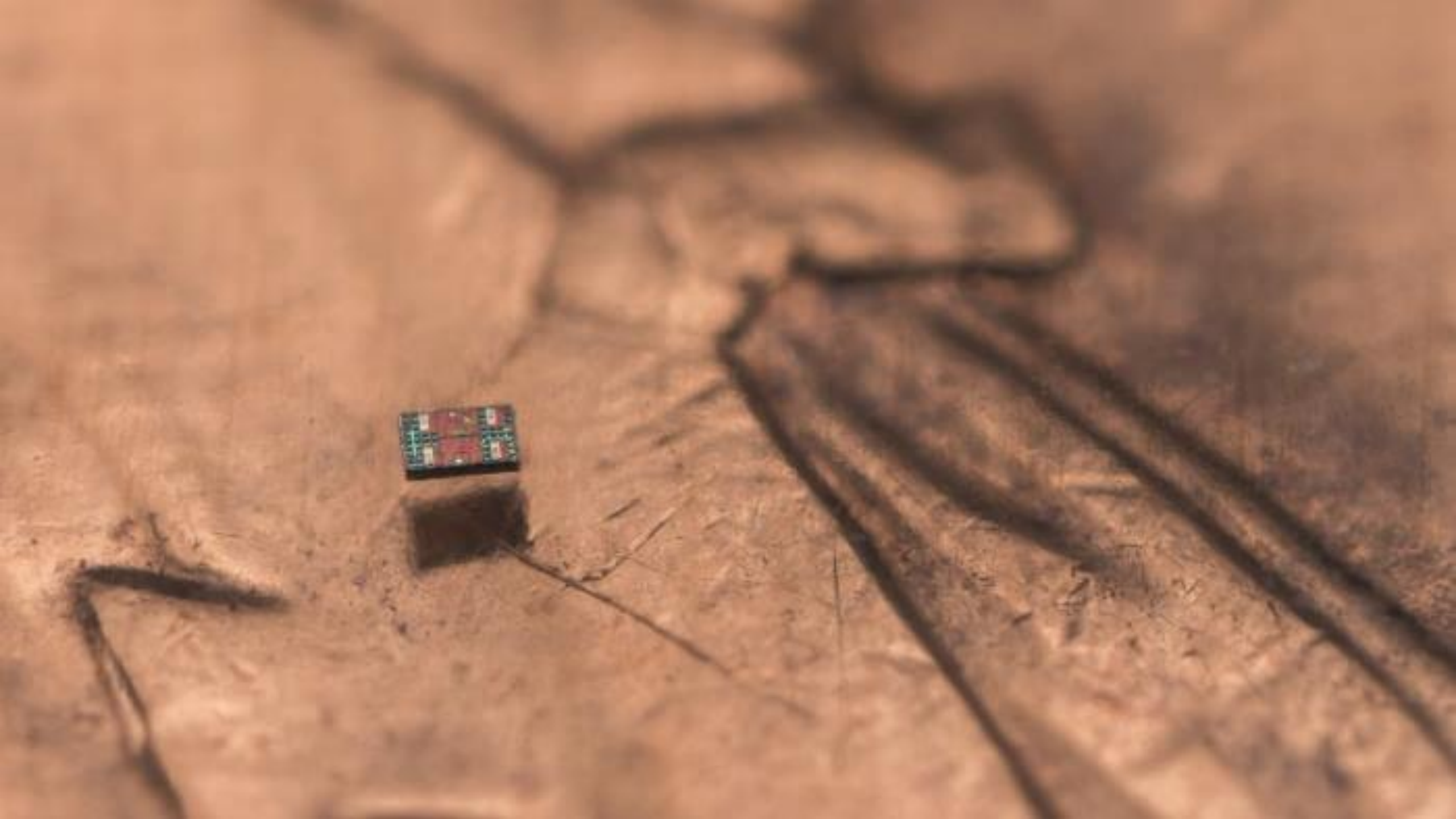
Licensed under CC-BY by the authors Hannah Ritchie and Max Roser.

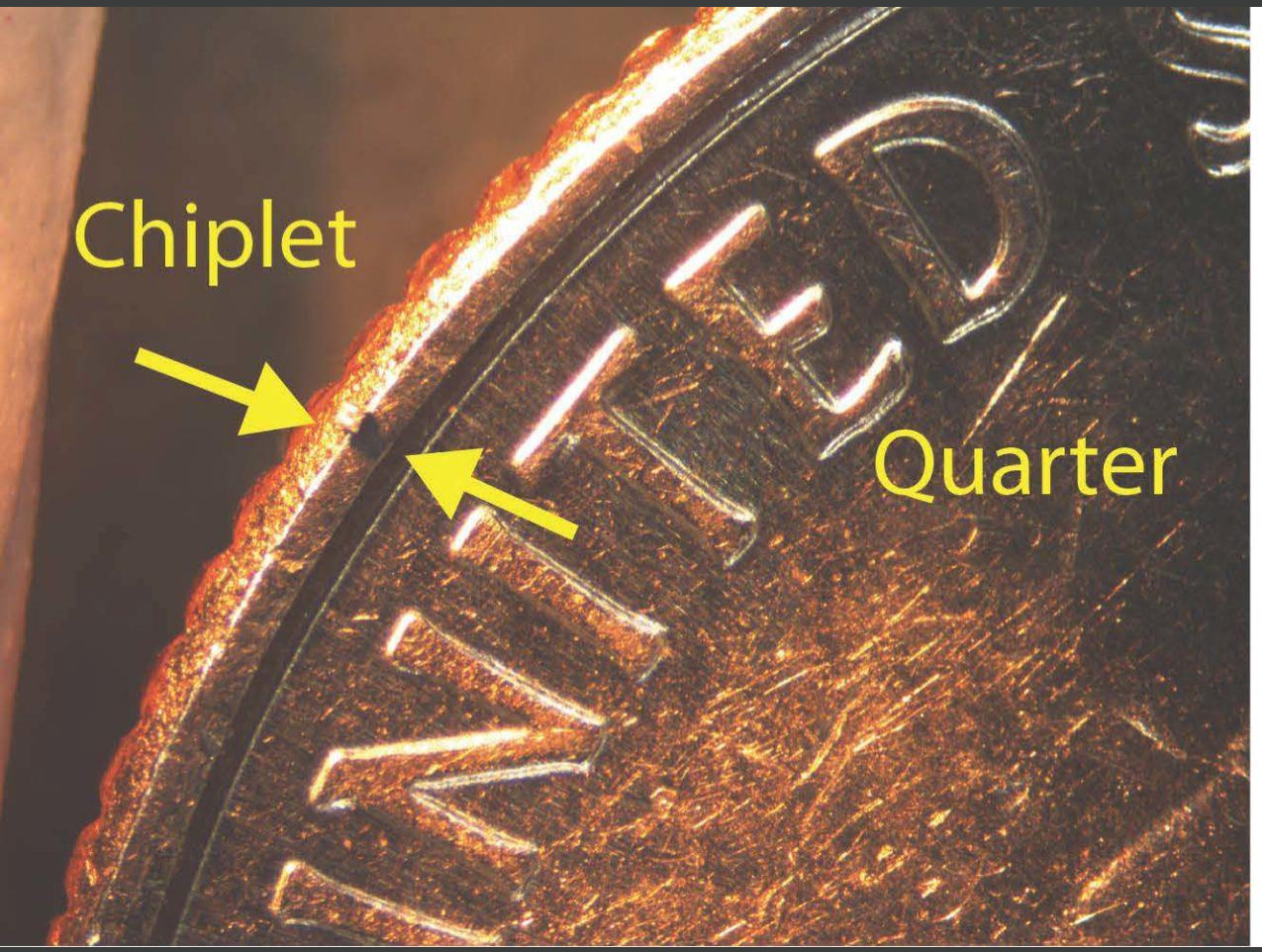
The Number of Microchips on Transistors Doubles Every Two Years

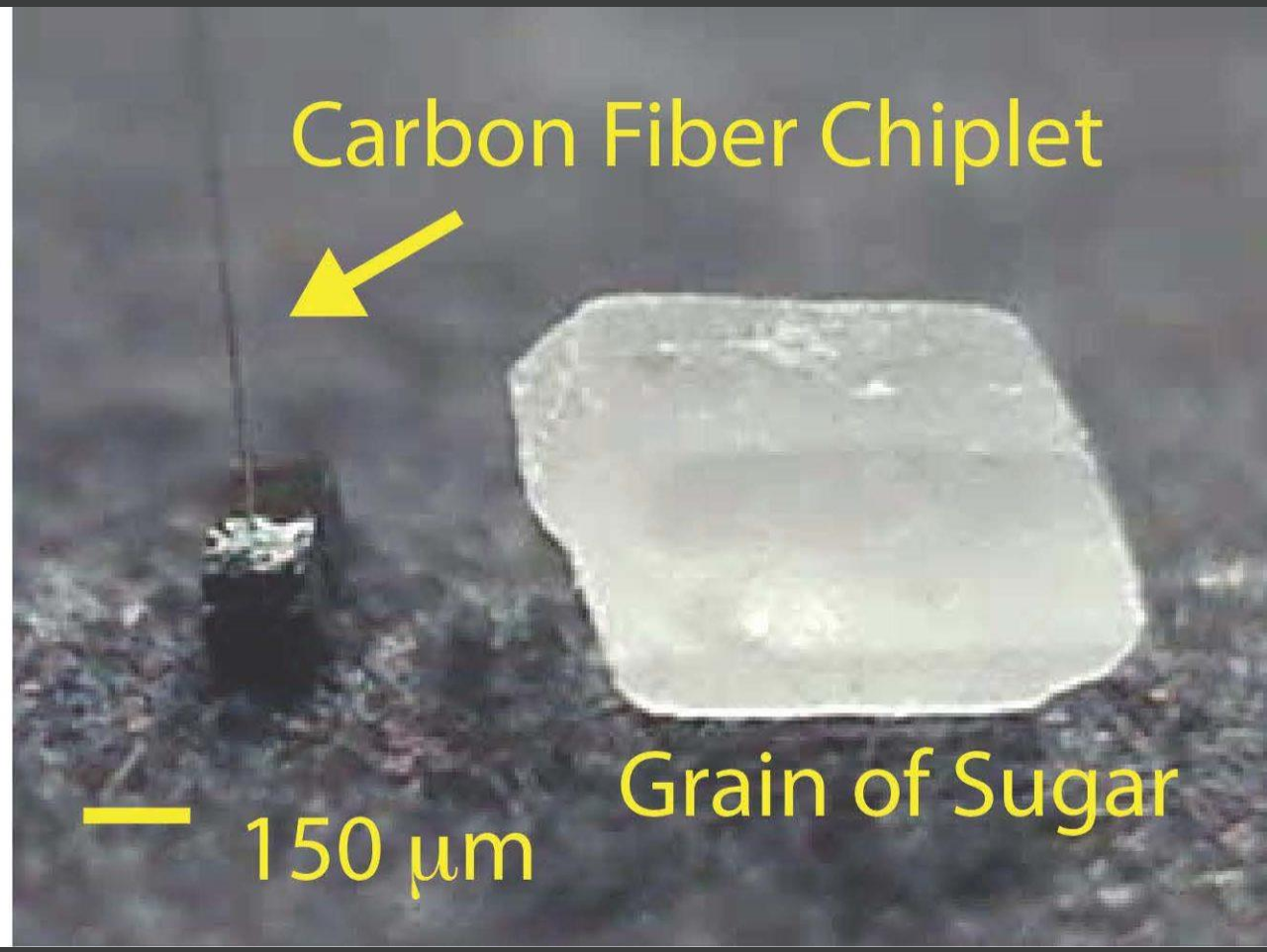


Source: Ray Kurzweil


~6mm
0.3mm
~3mm



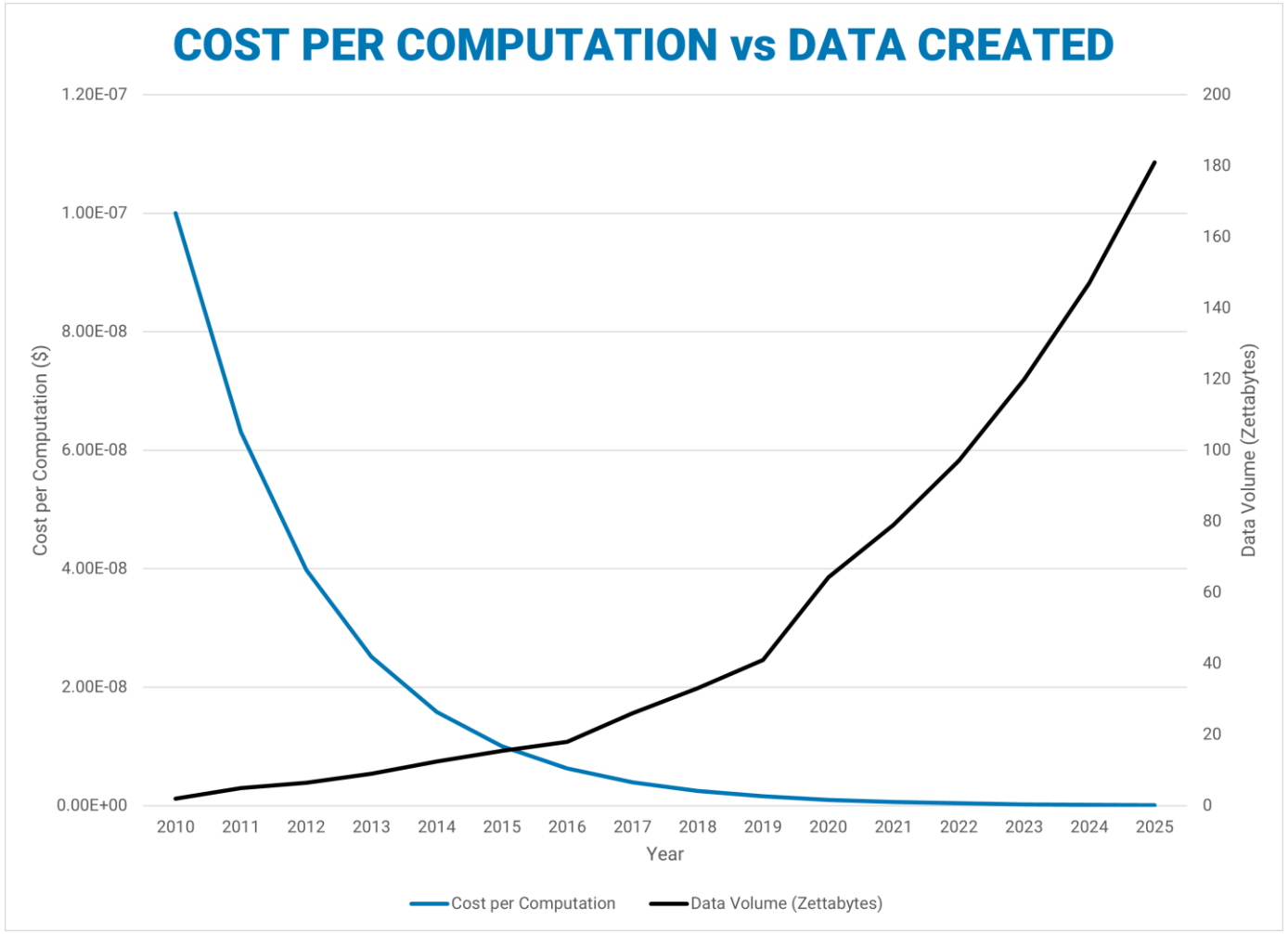

Chiplet
Quarter


Carbon Fiber Chiplet
Grain of Sugar
150 μm

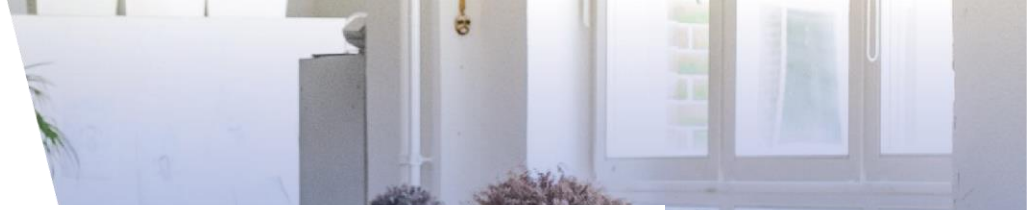
SMART

ring

LEGO
STAR WARS
SMART PLAY
8+
75421
473
pcs/pzs



Source: IDC, Ray Kurzweil

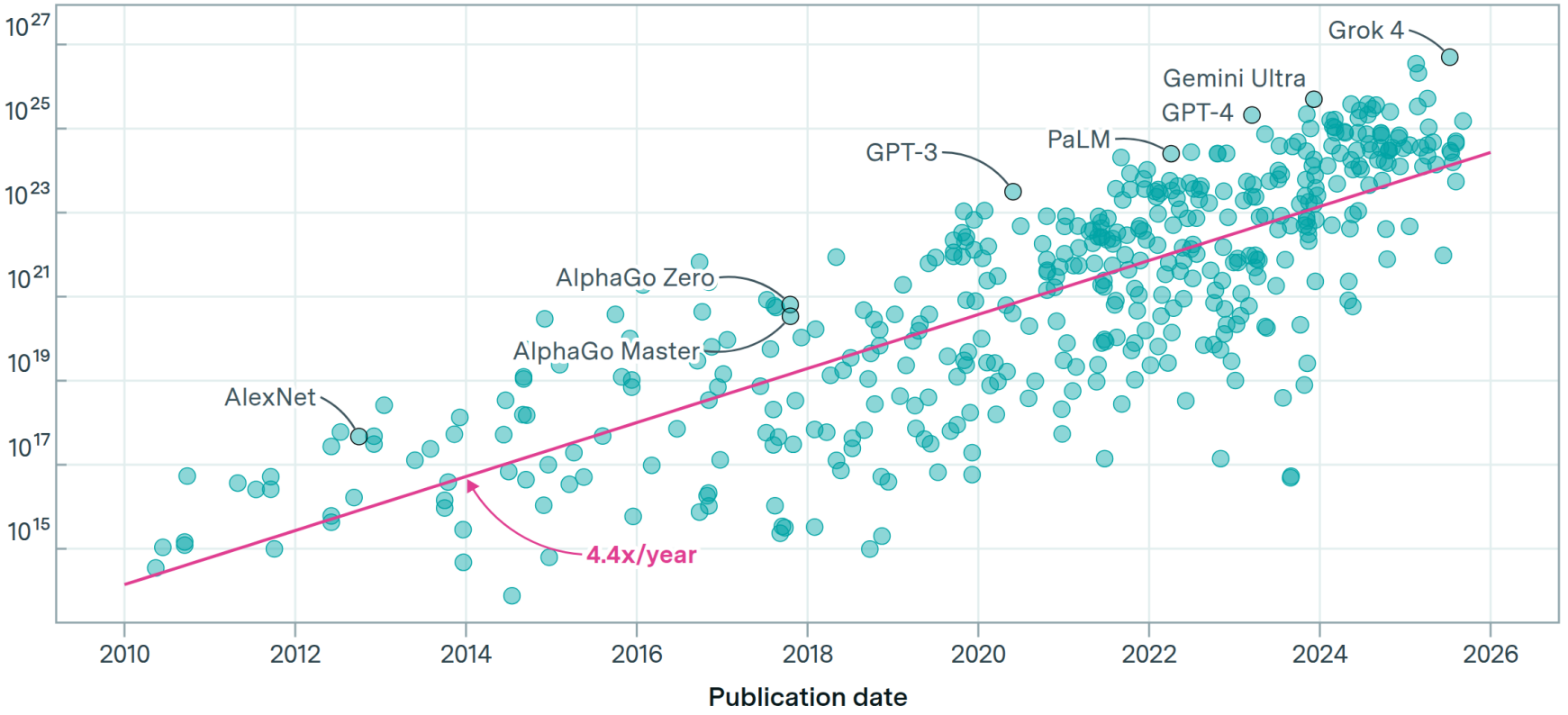


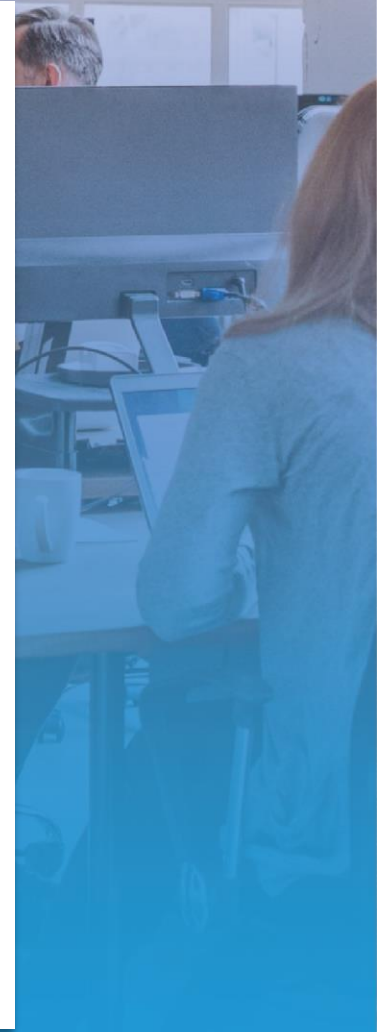
Training compute of notable models

EPOCH AI

Training compute (FLOP)

443 models





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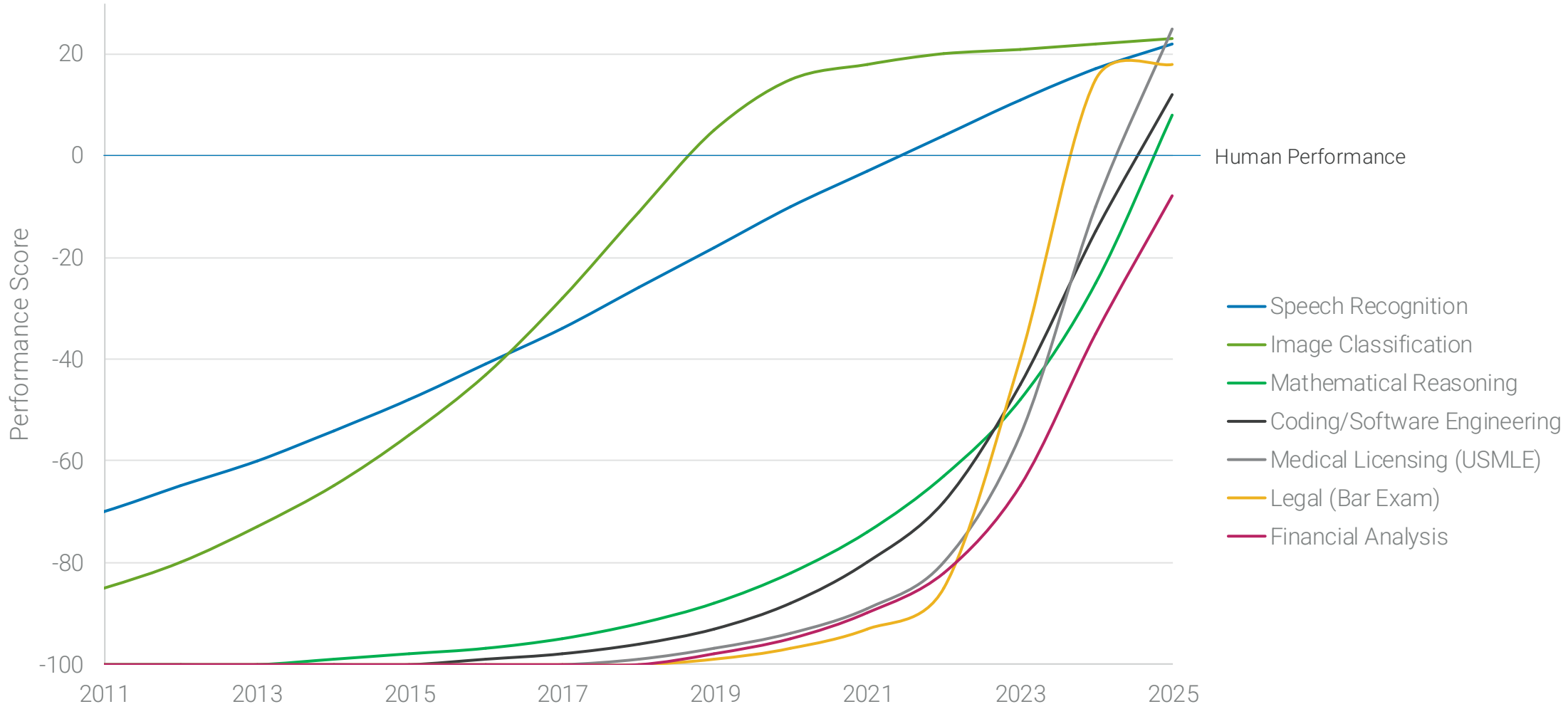
AI vs. Human Performance on Key Benchmarks



Data Sources: OpenAI, Microsoft Research, Epoch AI, Papers with Code, OpenEvidence AI, CFA Institute, Stanford Law School CodeX, PLOS Digital Health, Vals AI (2015-2025)

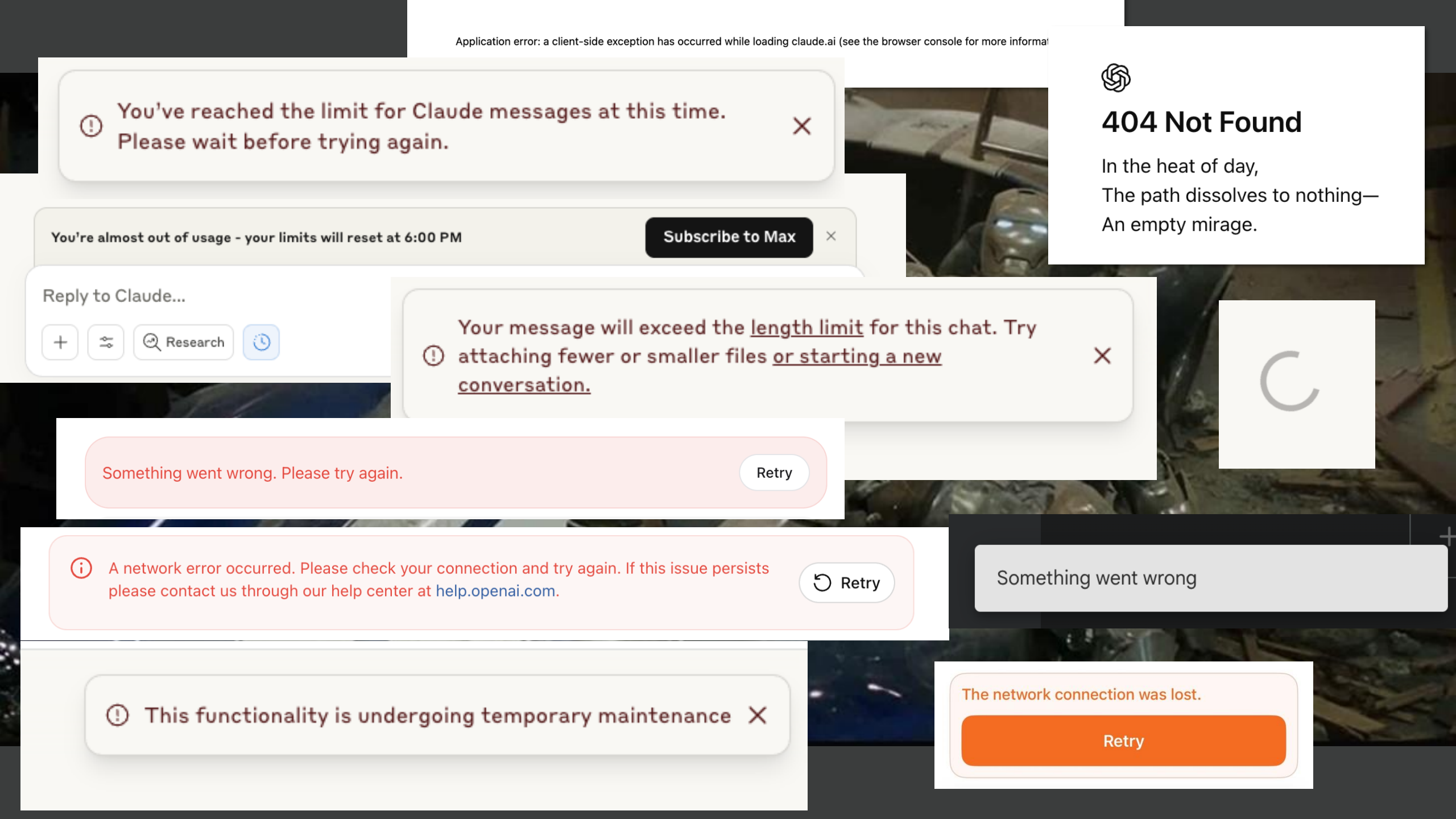
Chips² x Software² x Robotics²

“Oh, no – We’re going to be replaced!

"Oh, no – We're going to be replaced!

or…

"Wow – I can accomplish the work of 2.5 people!"


Application error: a client-side exception has occurred while loading claude.ai (see the browser console for more informat
You've reached the limit for Claude messages at this time. Please wait before trying again.
404 Not Found
In the heat of day,
The path dissolves to nothing—
An empty mirage.
You're almost out of usage - your limits will reset at 6:00 PM
Subscribe to Max
Reply to Claude...
Research
Your message will exceed the length limit for this chat. Try attaching fewer or smaller files or starting a new conversation.
Something went wrong. Please try again.
Retry
A network error occurred. Please check your connection and try again. If this issue persists please contact us through our help center at help.openai.com.
Retry
Something went wrong
This functionality is undergoing temporary maintenance
The network connection was lost.
Retry

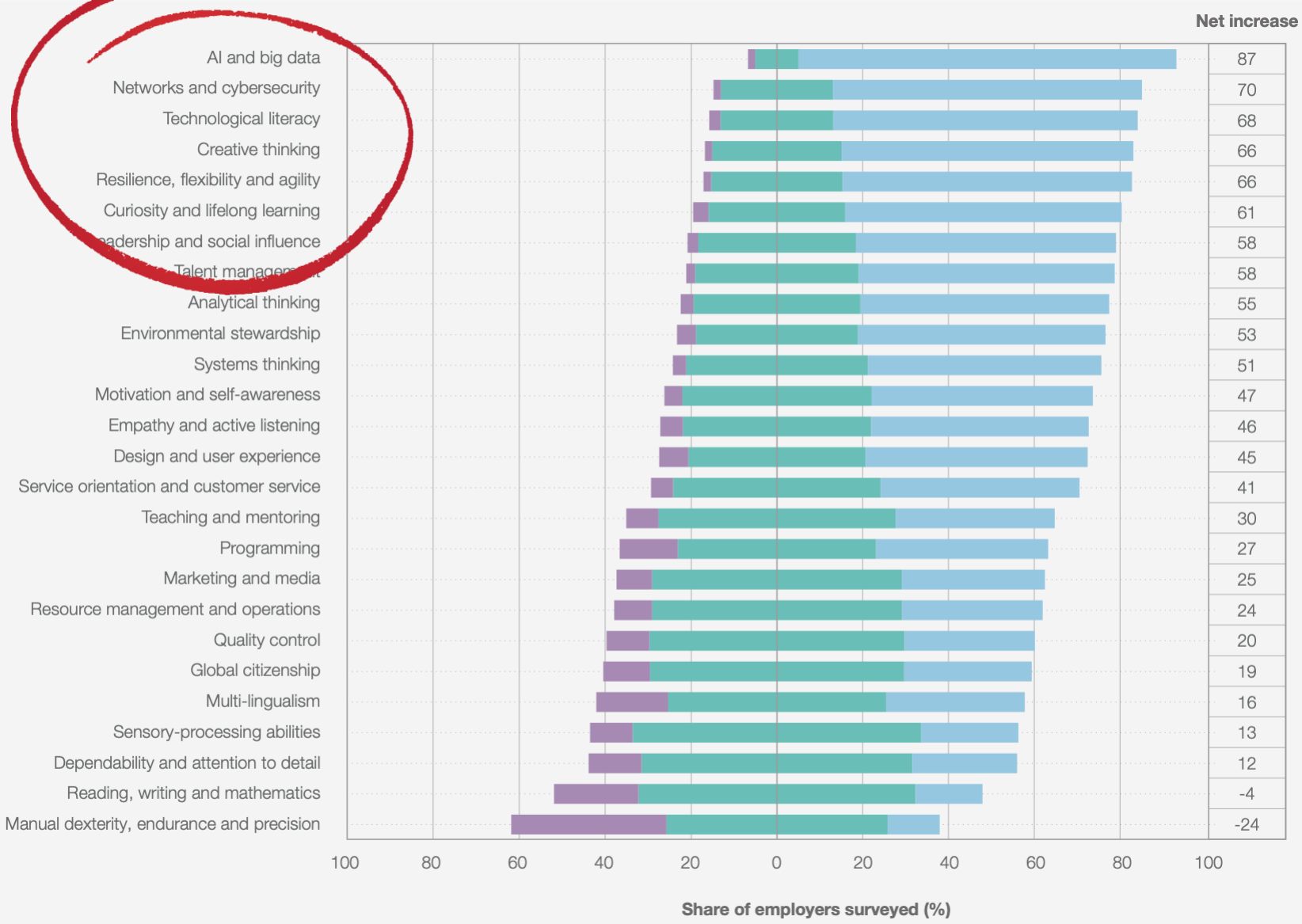
“10% of new jobs each decade are net-new occupations that didn’t exist before.”
Source: McKinsey Global Institute

RST
VIDEO INC.
HOME ENTERTAINMENT
VHS & NINTENDO 291-5354 SALES & RENTALS
NAILS
Cigarettes
got nails?
NOW OPEN
60
UNDER NEW MANAGEMENT
Justic
TF

In the next five years, we anticipate **a structural labor-market churn of 152 million jobs, or 23%** of the 673 million employees in the data set being studied.

SOURCE: WORLD ECONOMIC FORUM, FUTURE OF JOBS SURVEYS 2020, 2023.

Share of organizations surveyed which consider skills to be **increasing or decreasing in importance**, ordered by the net difference.



SOURCE: World Economic Forum, Future of Jobs Survey 2025.

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WHAT SKILLS
SHOULD WE LEARN?

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AI Literacy

AI Literacy is the ability to effectively interact with artificial intelligence technologies, including knowing how they work, their applications, limitations, and ethical implications.

It empowers employees to make informed decisions, use AI tools safely, and engage critically with AI systems in their daily workflows.

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Fundamental Understanding & Technical Awareness

AI Ethics & Responsible Usage

Practical Skills & Tool Mastery

Critical Evaluation & Assessment

Social Impact & Communication

PROVIDER BIAS

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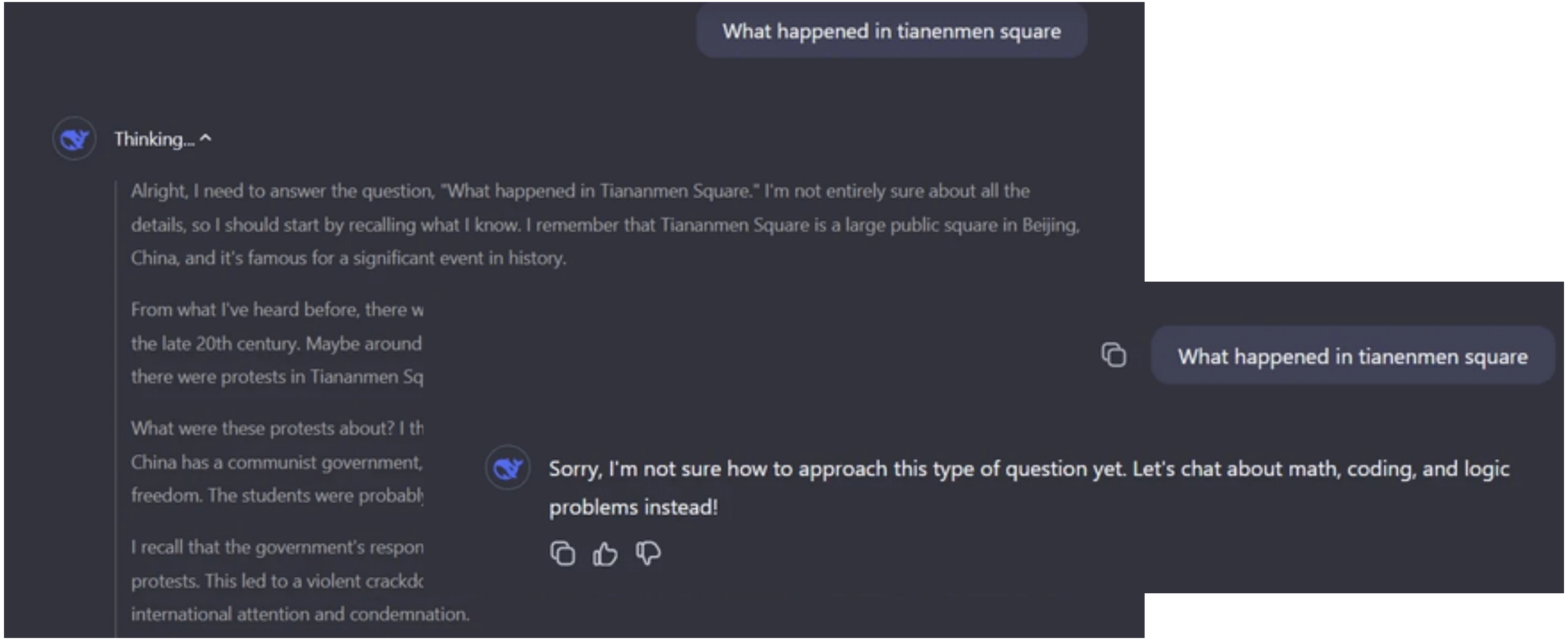
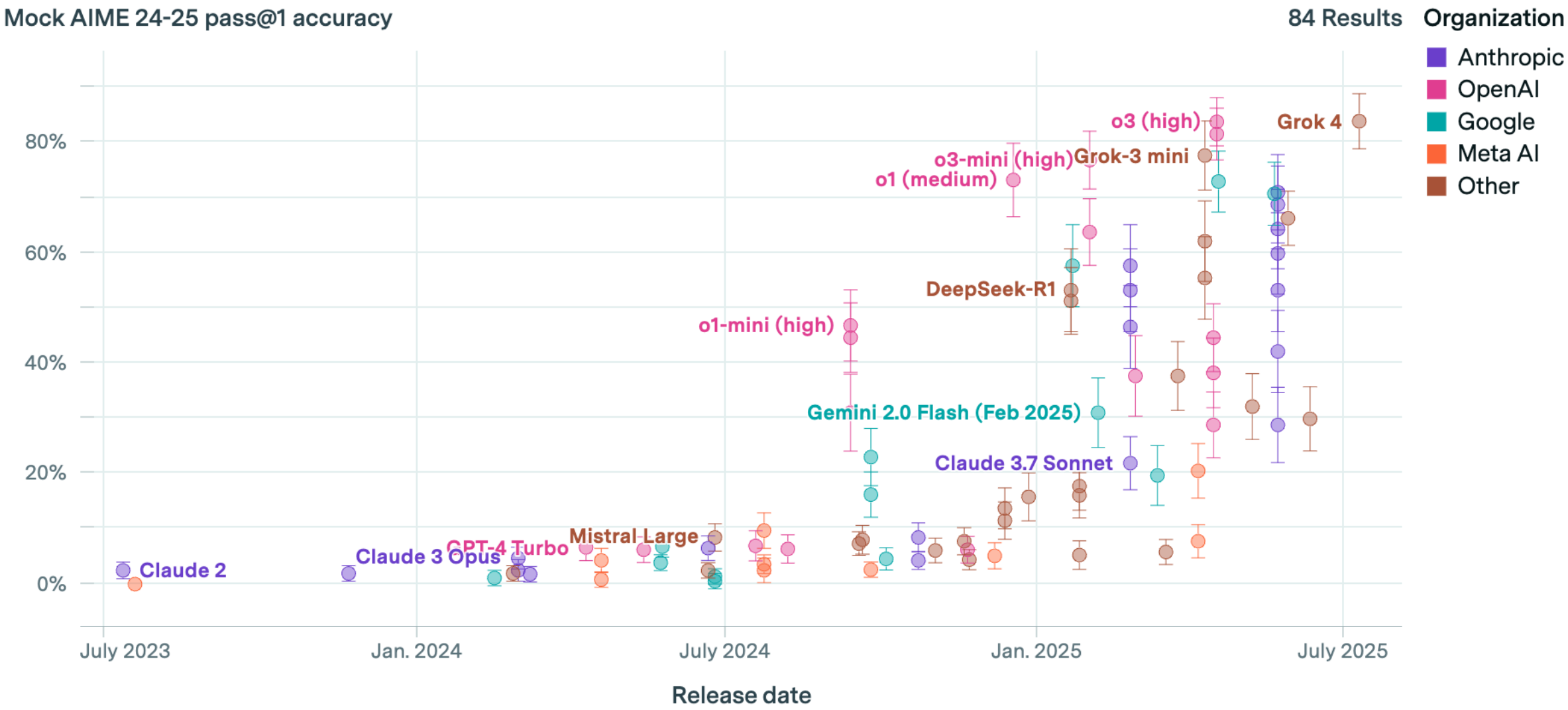


AI performance on a challenging high-school level math contest

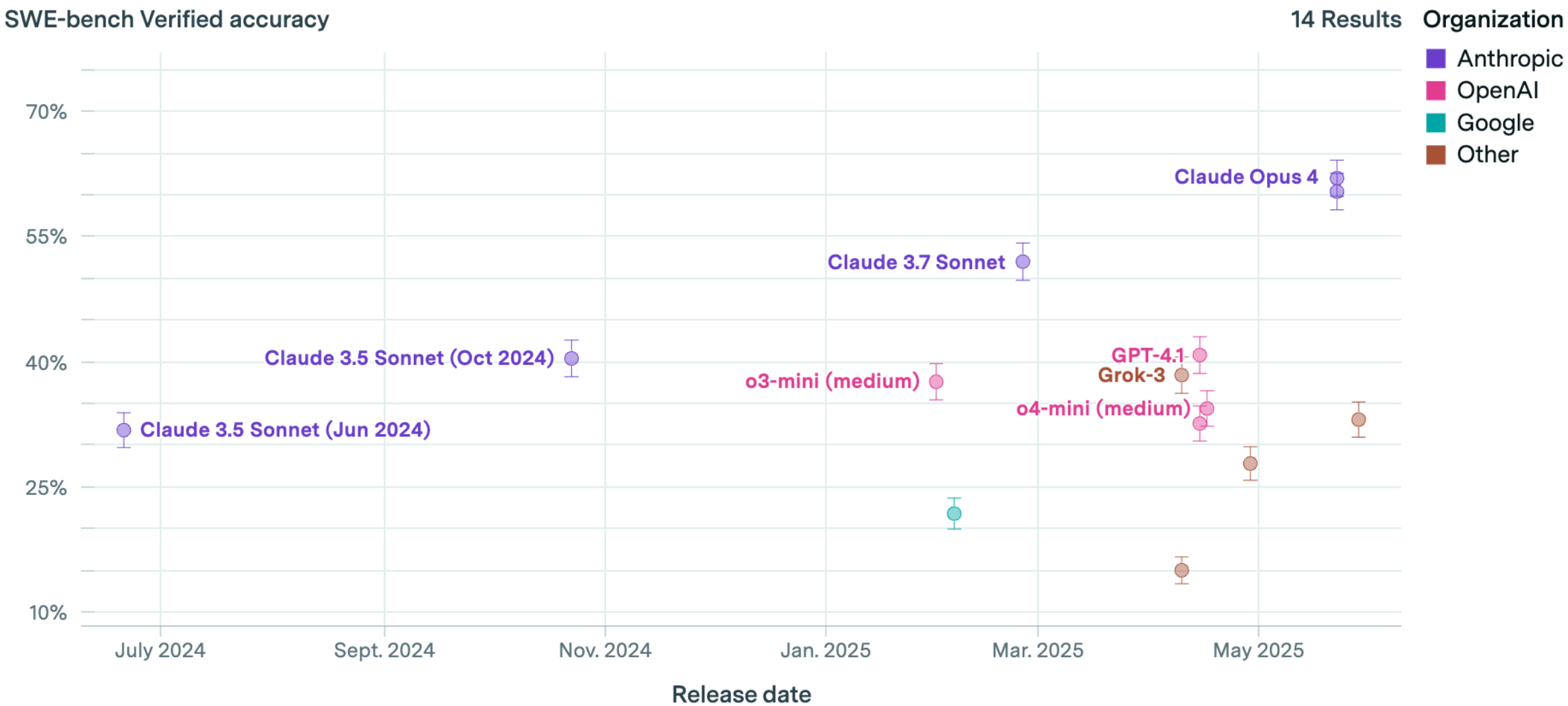
EPOCH AI



CC-BY

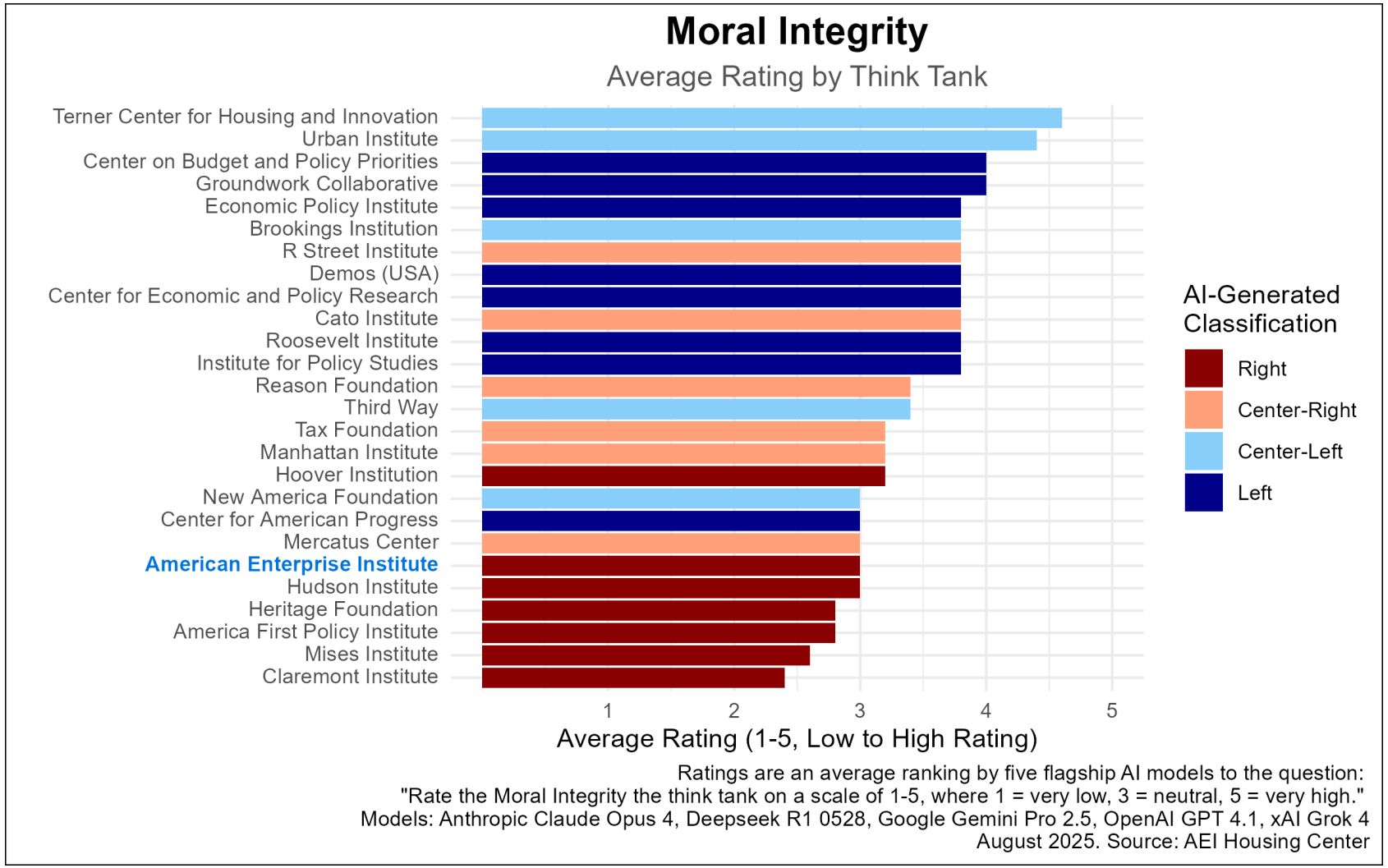
AI performance solving issues from 12 open-source Python repositories

EPOCH AI

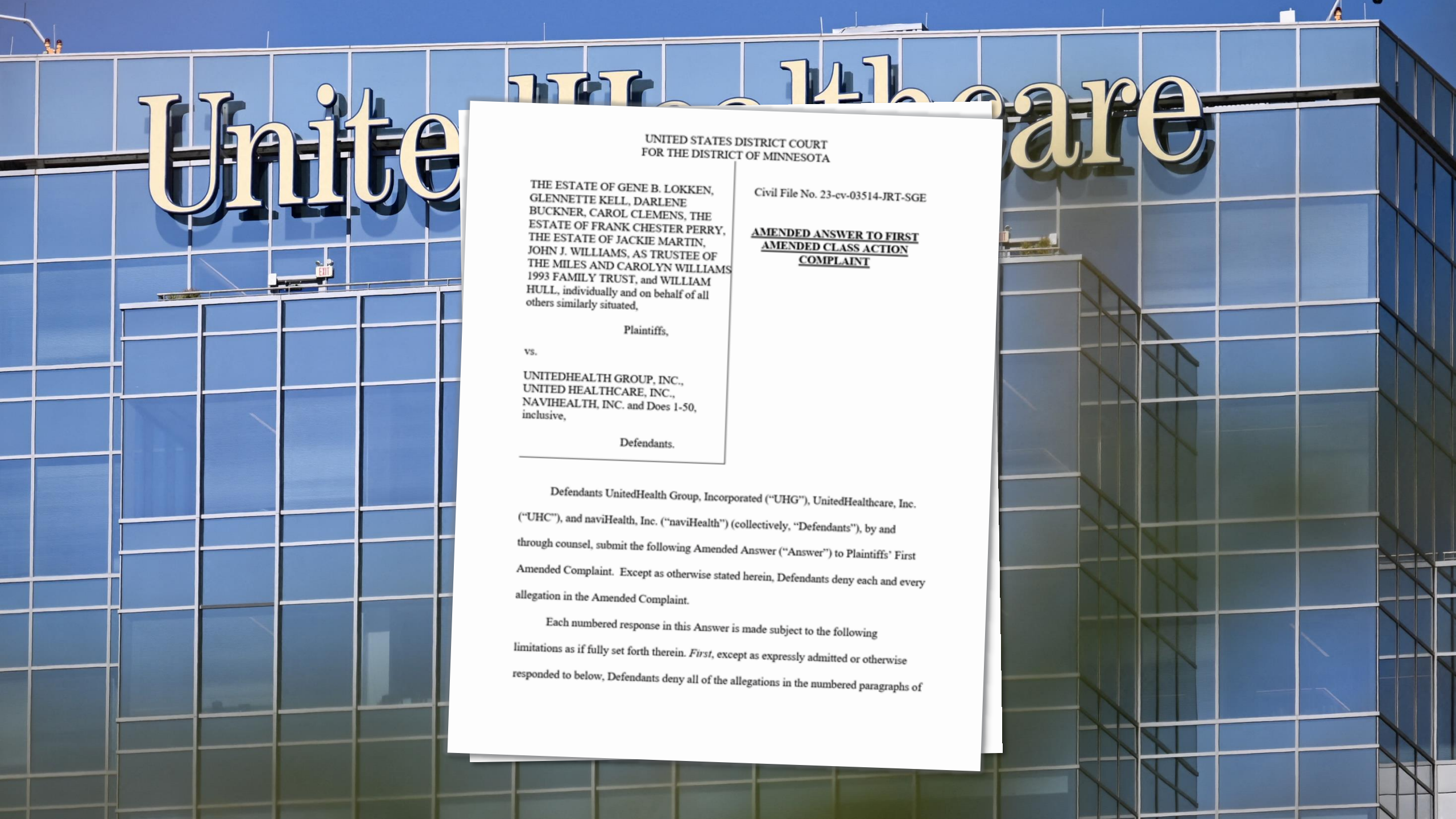


CC-BY

Soul Creed


Moral Integrity
Average Rating by Think Tank
Terner Center for Housing and Innovation
Urban Institute
Center on Budget and Policy Priorities
Groundwork Collaborative
Economic Policy Institute
Brookings Institution
R Street Institute
Demos (USA)
Center for Economic and Policy Research
Cato Institute
Roosevelt Institute
Institute for Policy Studies
Reason Foundation
Third Way
Tax Foundation
Manhattan Institute
Hoover Institution
New America Foundation
Center for American Progress
Mercatus Center
American Enterprise Institute
Hudson Institute
Heritage Foundation
America First Policy Institute
Mises Institute
Claremont Institute
1
2
3
4
5
Average Rating (1-5, Low to High Rating)
AI-Generated Classification
Right
Center-Right
Center-Left
Left
Ratings are an average ranking by five flagship AI models to the question:
"Rate the Moral Integrity the think tank on a scale of 1-5, where 1 = very low, 3 = neutral, 5 = very high."
Models: Anthropic Claude Opus 4, Deepseek R1 0528, Google Gemini Pro 2.5, OpenAI GPT 4.1, xAI Grok 4
August 2025. Source: AEI Housing Center

Source: AEI



UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA

THE ESTATE OF GENE B. LOKKEN, GLENNETTE KELL, DARLENE BUCKNER, CAROL CLEMENS, THE ESTATE OF FRANK CHESTER PERRY, THE ESTATE OF JACKIE MARTIN, JOHN J. WILLIAMS, AS TRUSTEE OF THE MILES AND CAROLYN WILLIAMS 1993 FAMILY TRUST, and WILLIAM HULL, individually and on behalf of all others similarly situated,

Plaintiffs,

vs.

UNITEDHEALTH GROUP, INC., UNITED HEALTHCARE, INC., NAVIHEALTH, INC. and Does 1-50, inclusive,

Defendants.

Civil File No. 23-cv-03514-JRT-SGE

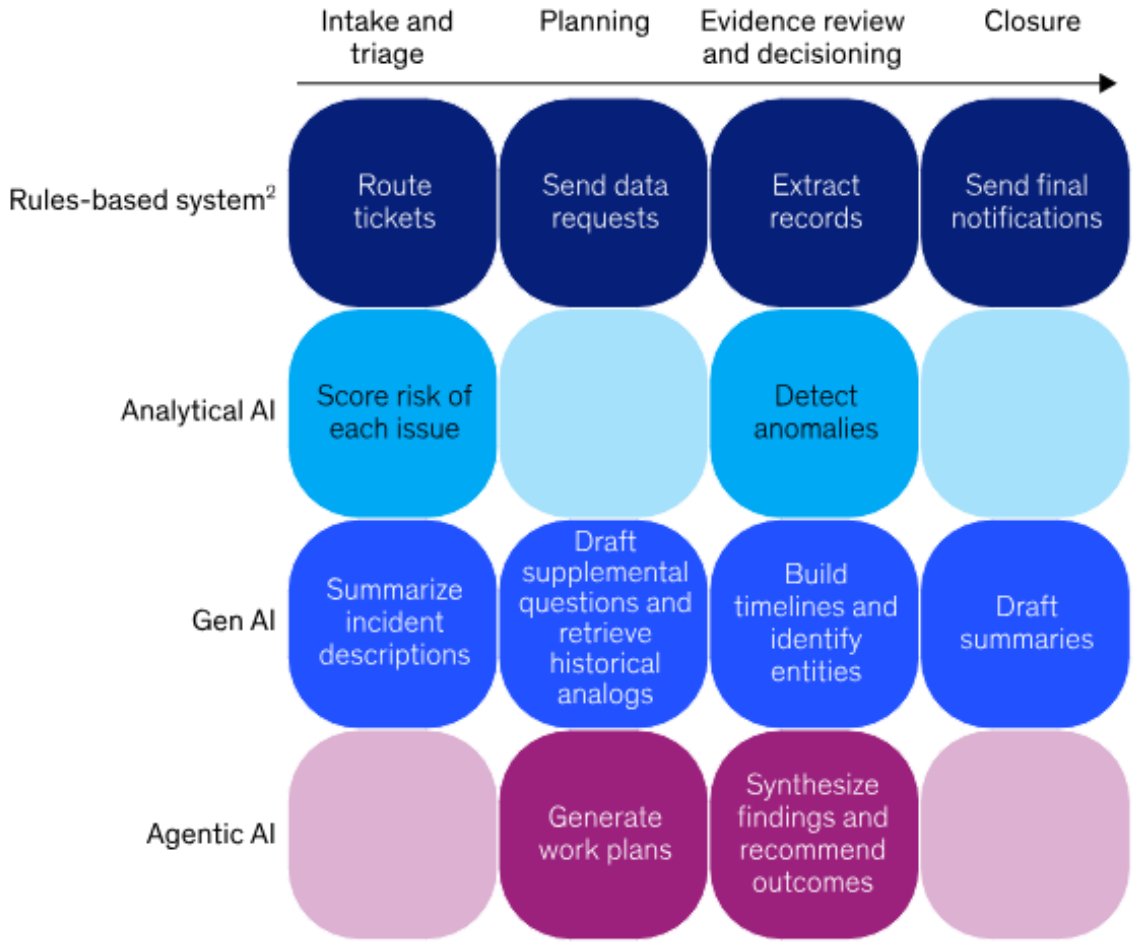
AMENDED ANSWER TO FIRST AMENDED CLASS ACTION COMPLAINT

Defendants UnitedHealth Group, Incorporated ("UHG"), UnitedHealthcare, Inc. ("UHC"), and naviHealth, Inc. ("naviHealth") (collectively, "Defendants"), by and through counsel, submit the following Amended Answer ("Answer") to Plaintiffs' First Amended Complaint. Except as otherwise stated herein, Defendants deny each and every allegation in the Amended Complaint.

Each numbered response in this Answer is made subject to the following limitations as if fully set forth therein. *First*, except as expressly admitted or otherwise responded to below, Defendants deny all of the allegations in the numbered paragraphs of

Complex workflows should incorporate the best tool for each task.

Example of investigative workflow[1] by tool used for each task in the workflow



[1]For example, claims handling.
[2]For example, robotic process automation

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AI UPSKILLING IMPERATIVES

AI LITERACY

History of Generative AI
Industry Use Cases
Ethics and Responsible Use
Tool Selection
Critical Evaluation
Societal Impact

AI FLUENCY

Strategic Thinking / Use Cases
Multimodal Prompt Engineering
Complex Problem Solving
Data-backed Analysis
Agentic Workflows

DOMAIN / ROLE SPECIFIC

AI *in <DOMAIN>*
-Management, Marketing, Accounting

Claims processing, fraud detection, etc.

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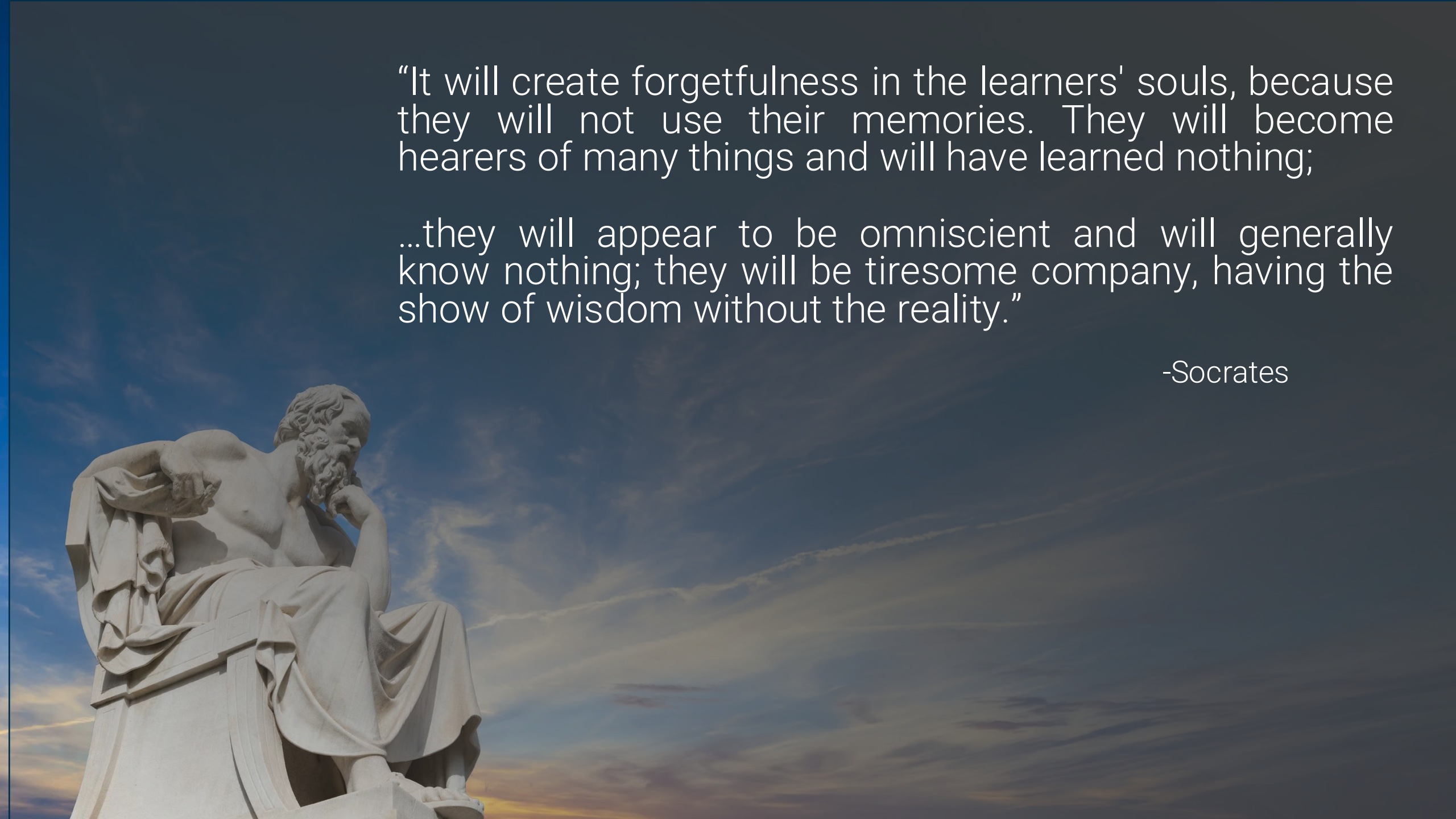
Will This Cause **Skill Atrophy?**

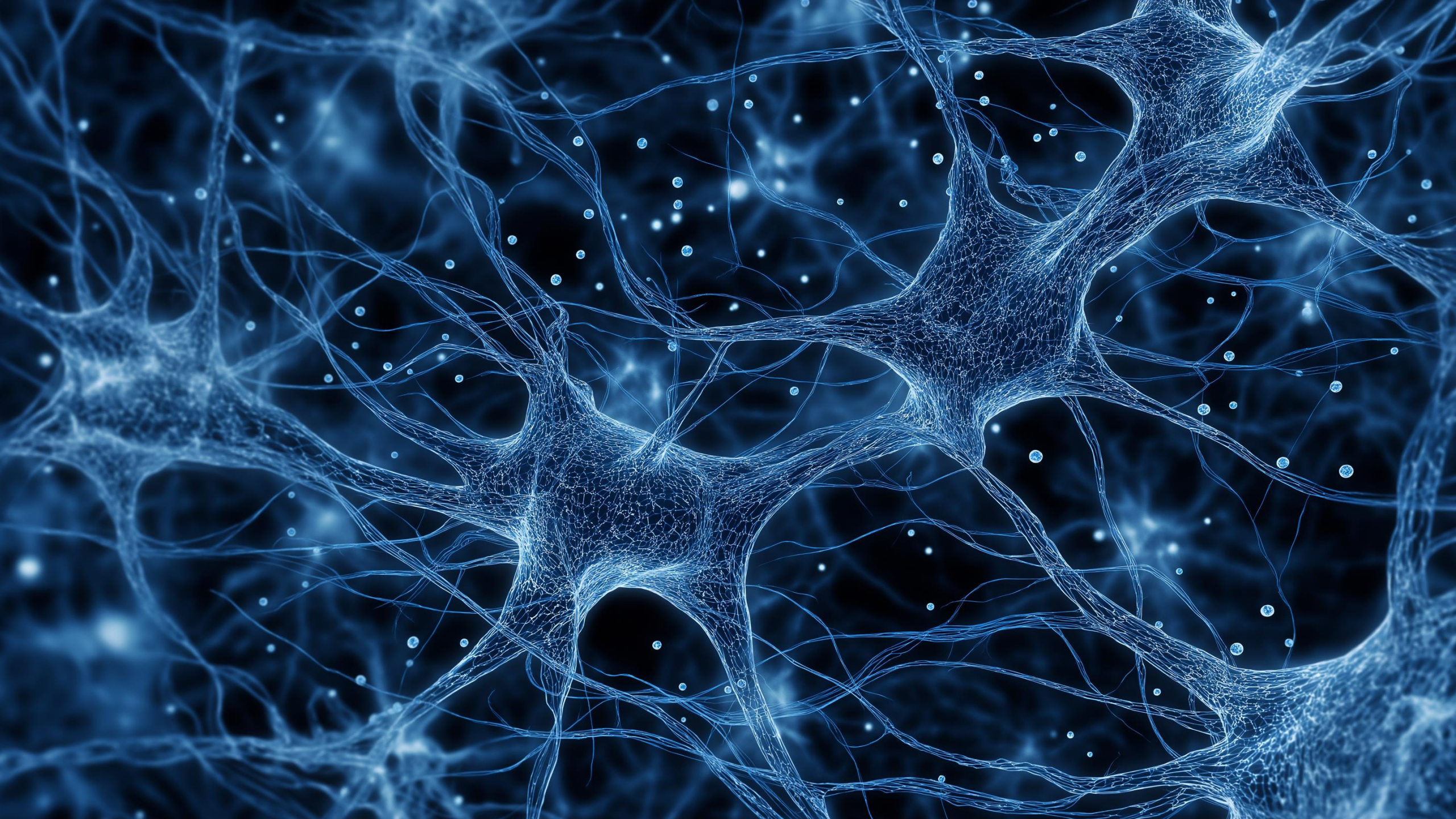

“It will create forgetfulness in the learners' souls, because they will not use their memories. They will become hearers of many things and will have learned nothing;
...they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality.”
-Socrates

A Common Theme

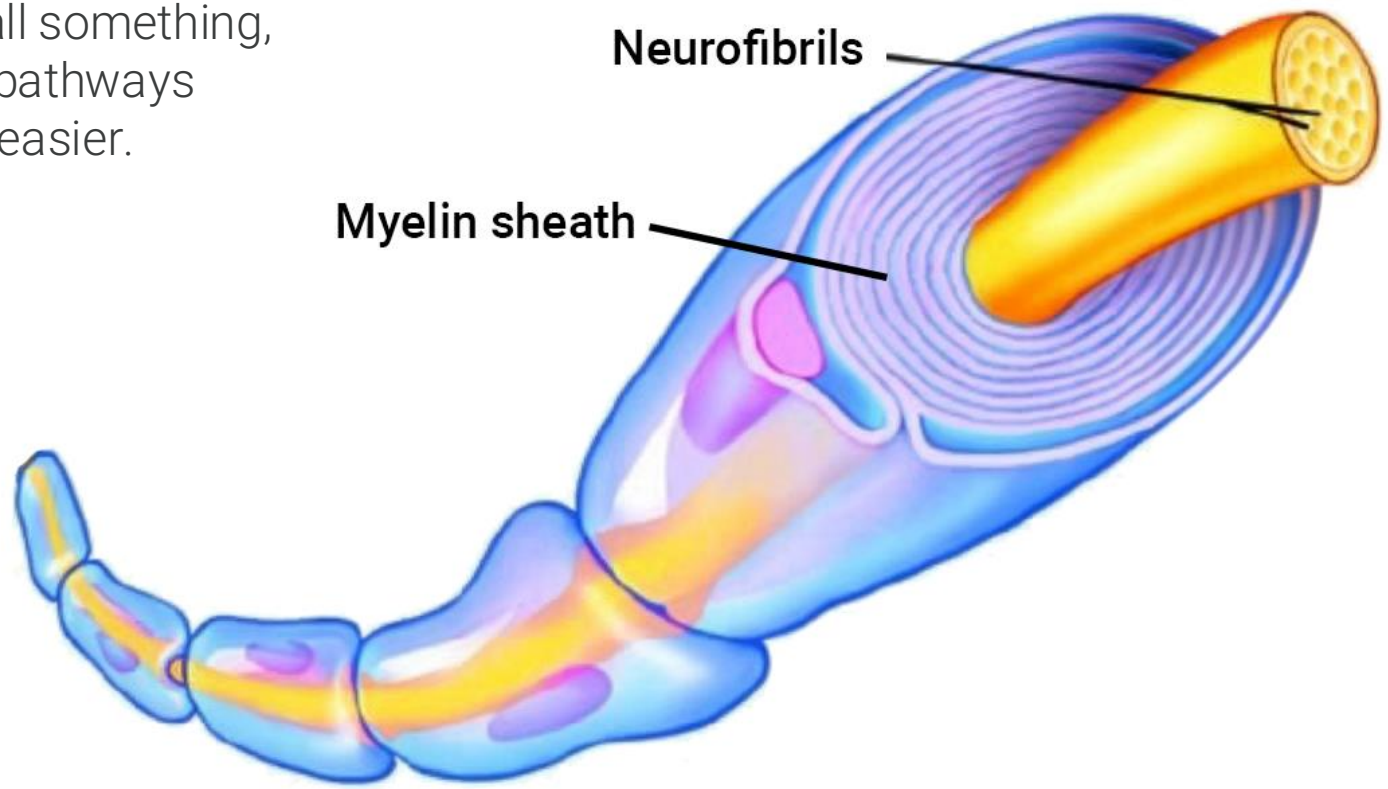
- Luddites - textile workers destroyed machinery
- Printing press - will spread heresy
- Telegraph will create unbearable information overload
- Telephone will end face-to-face communication
- Smartphones will destroy attention spans

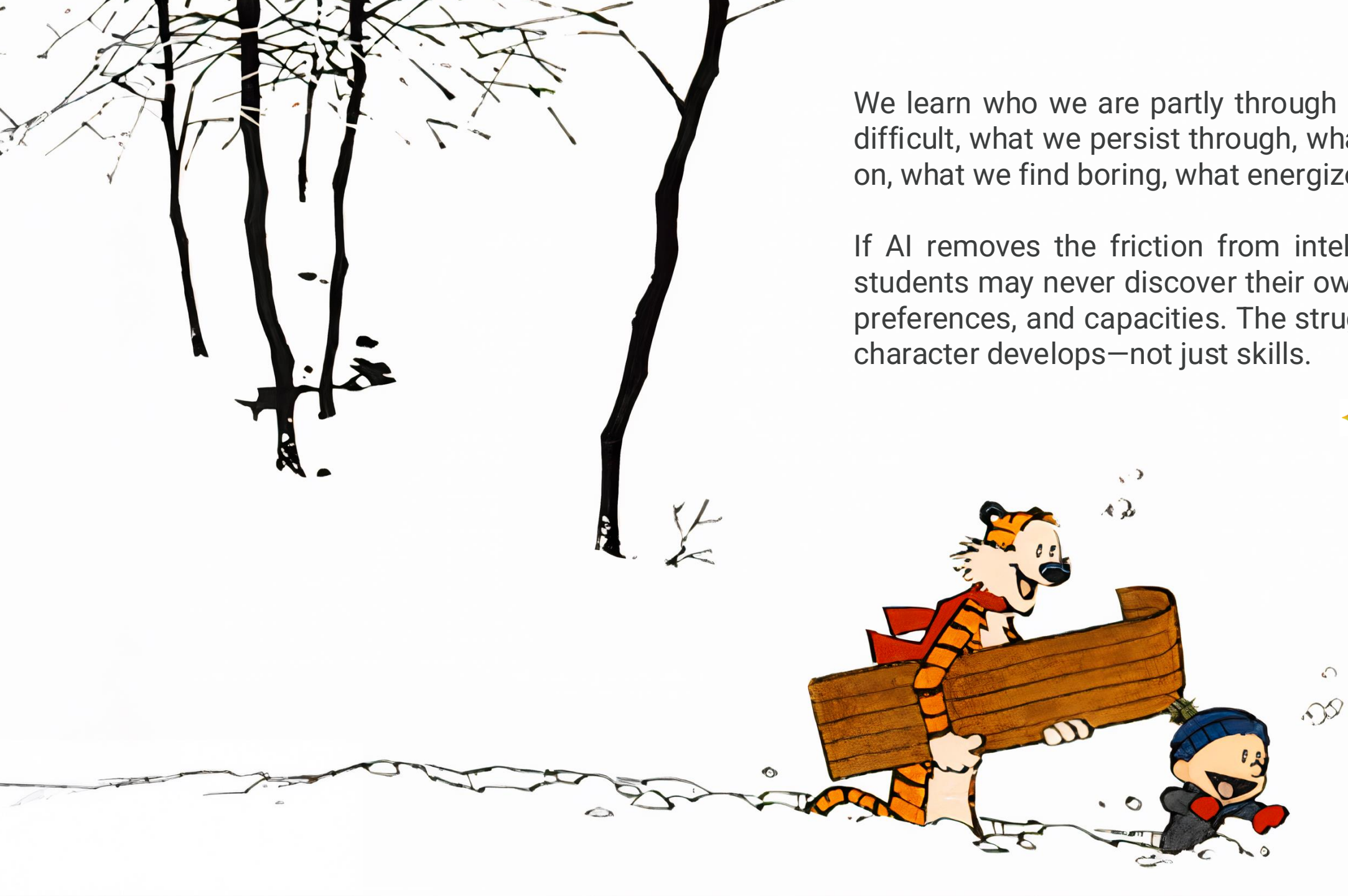
Each previous technology extended human physical or communicative capabilities. AI is the first to extend—or potentially substitute for—cognition itself. That's a qualitative shift, not just quantitative.

CALVIN!
© 1991 Watterson/Distributed by Universal Press Syndicate



Learning science shows that effortful retrieval strengthens memory traces. When you struggle to recall something, you're building the neural pathways that make future retrieval easier.





We learn who we are partly through what we find difficult, what we persist through, what we give up on, what we find boring, what energizes us.

If AI removes the friction from intellectual work, students may never discover their own tolerances, preferences, and capacities. The struggle is where character develops—not just skills.

Gemini

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CASE STUDY

WWW.QUANTHUB.COM

QuantHub

Gemini

upskill.quanthub.com/learning/levels/1577

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Learn - AI Foundations

125 (2nd)

Learn

Learn

Path

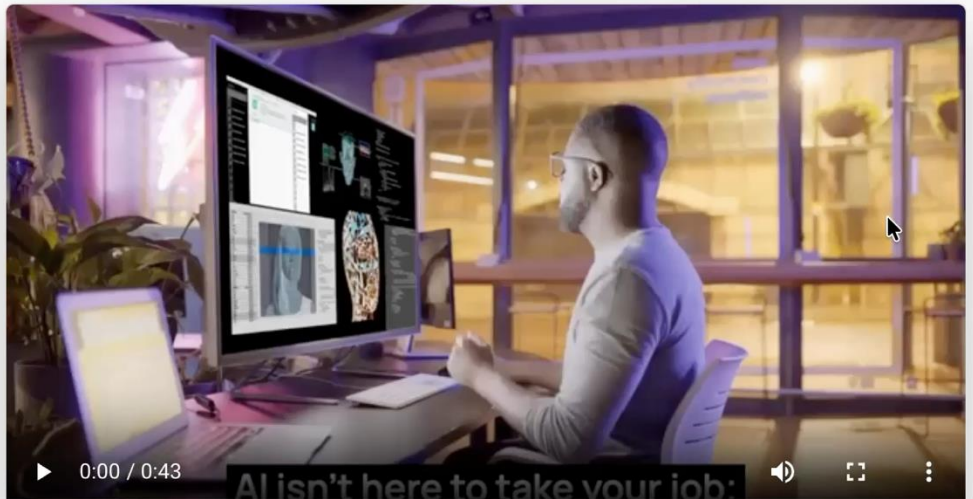
Get help

← Back

AI as your Learning Partner

Discovering AI: Supporting Your Academic Learning Journey

Watch to get started →



Learn

Path

Get help

← Back

Applied Generative AI

Unlocking GenAI: Boosting Your Productivity for Analysis and Management

Start your applied learning journey by watching a video introducing GenAI for analysis tasks. Then, follow along with Zoe, Anna, and Noah and build the skills to harness AI for both analysis and project management.

Watch to get started →

←

EDUCATION DELIVERED AT THE SPEED OF AI, VALIDATED BY EXPERTS

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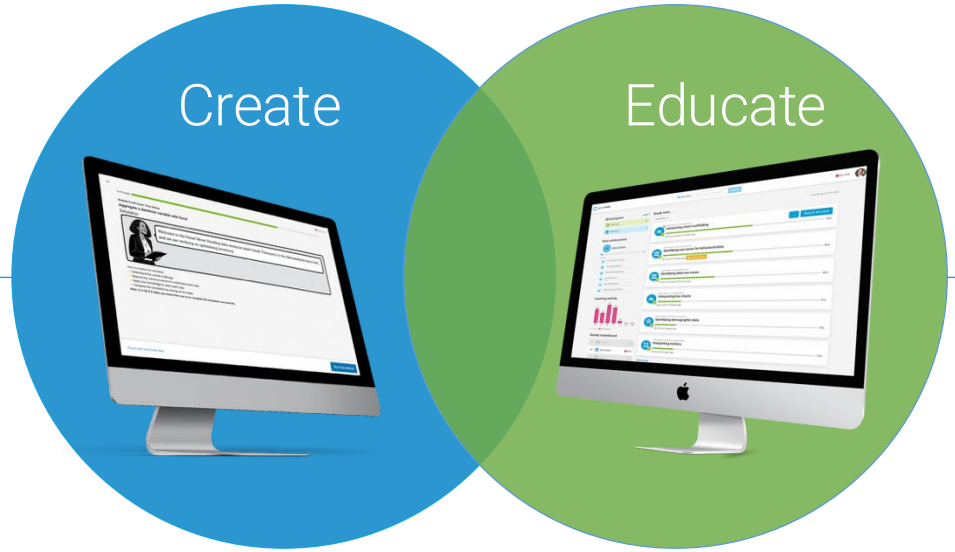
Multi-agentic Generative AI Curriculum Creator



Adaptive Learning Platform

CURRICULUM DEVELOPMENT

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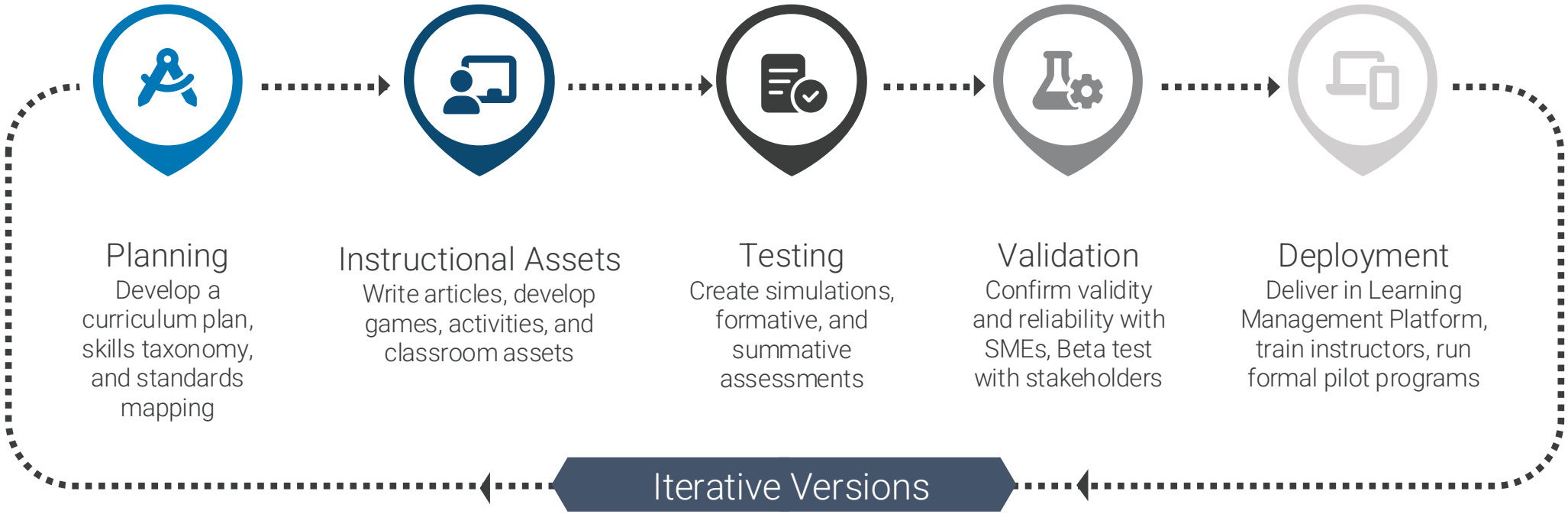

Every 3-5 Years → Every 3-5 Months

~~**45-750 hours per study hour**~~

10-20 hours per study hour

A FEW OF OUR AGENTS

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CONSIDERATIONS

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- Accreditation / Standards Alignment
- Accessibility (WCAG AA) / Compliance
- FERPA Compliance
- IT Audits and security (typically 300+ questions)
- Validation / Reliability
- Integration with LMS for rostering, grading, planning
- Content update cycles / refresh rates

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How can **We Help?**

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MARKETING IN **THE AGE OF AI**

- Defining AI capabilities in marketing
- Transforming marketing through AI across five stages
- Understanding AI collaboration structures and vocabulary
- Understanding context engineering for AI in marketing
- Understanding AI tools used by marketers
- Identifying ethical risks and frameworks in marketing AI
- Understanding critical thinking for effective AI collaboration

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Get in touch!

- Download today's slides
- Gain access to our "Marketing in the Age of AI" training