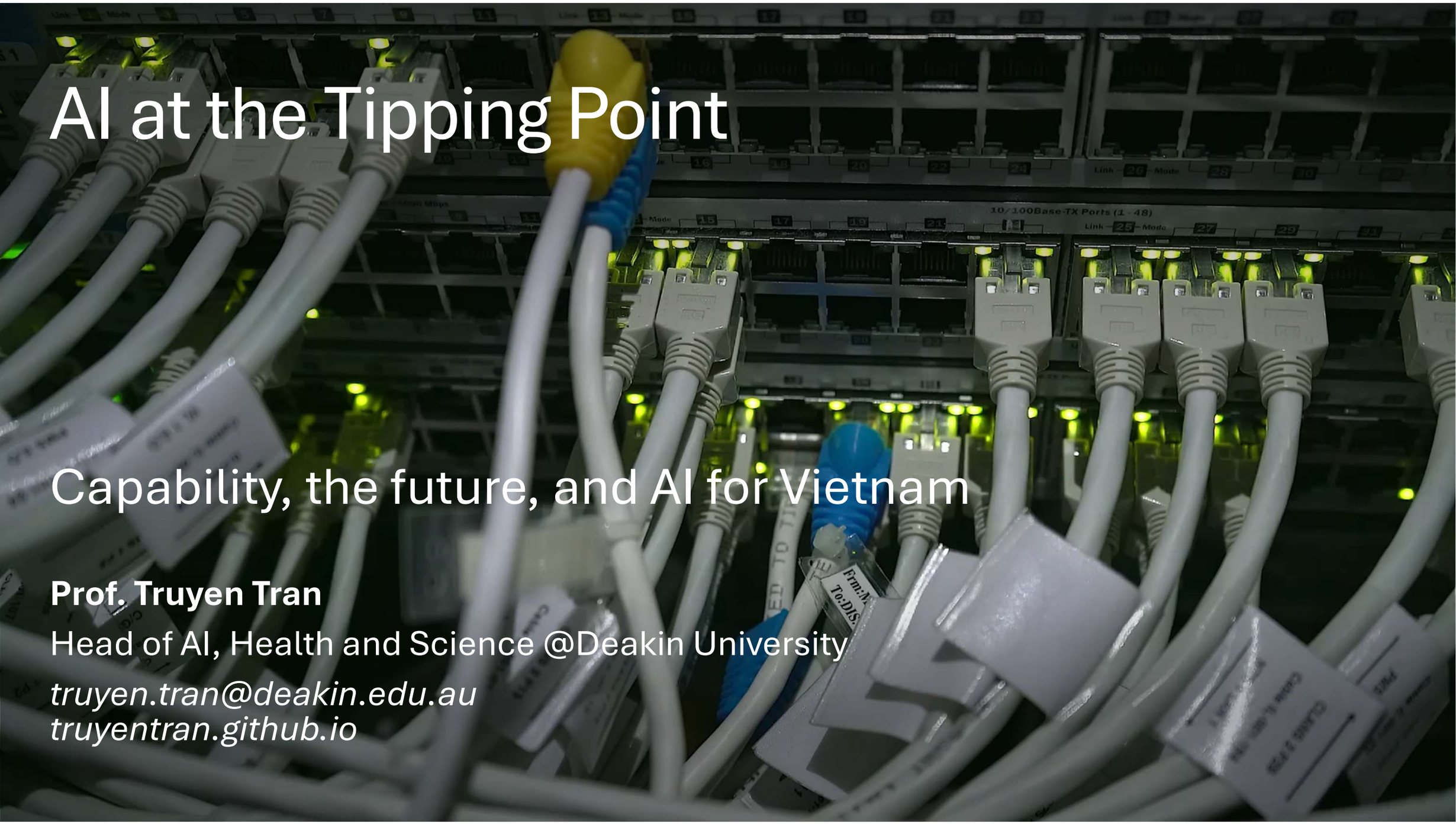


AI at the Tipping Point

Capability, the future, and AI for Vietnam

Prof. Truyen Tran

Head of AI, Health and Science @Deakin University

truyen.tran@deakin.edu.au
truyentran.github.io

This talk may have been written by AI

with non-zero probability

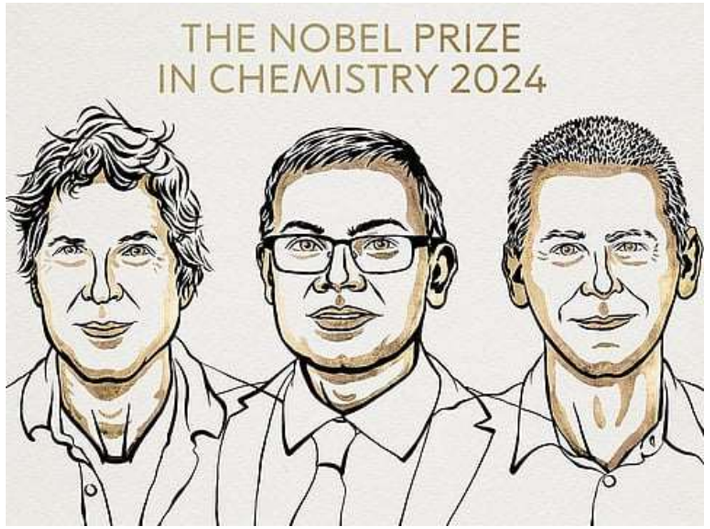
It will be delivered by human

with probability 1

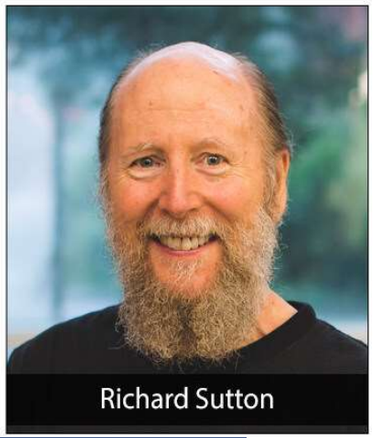
.

Academic recognition

- 2018 Turing Award (~Nobel Prize in Computing)
- 2024 Nobel Prize in Physics – foundations of AI
- 2024 Nobel Prize in Chemistry – AlphaFold, protein folding
- 2025 Turing Award (~Nobel Prize in Computing)



Turing Awards 2018

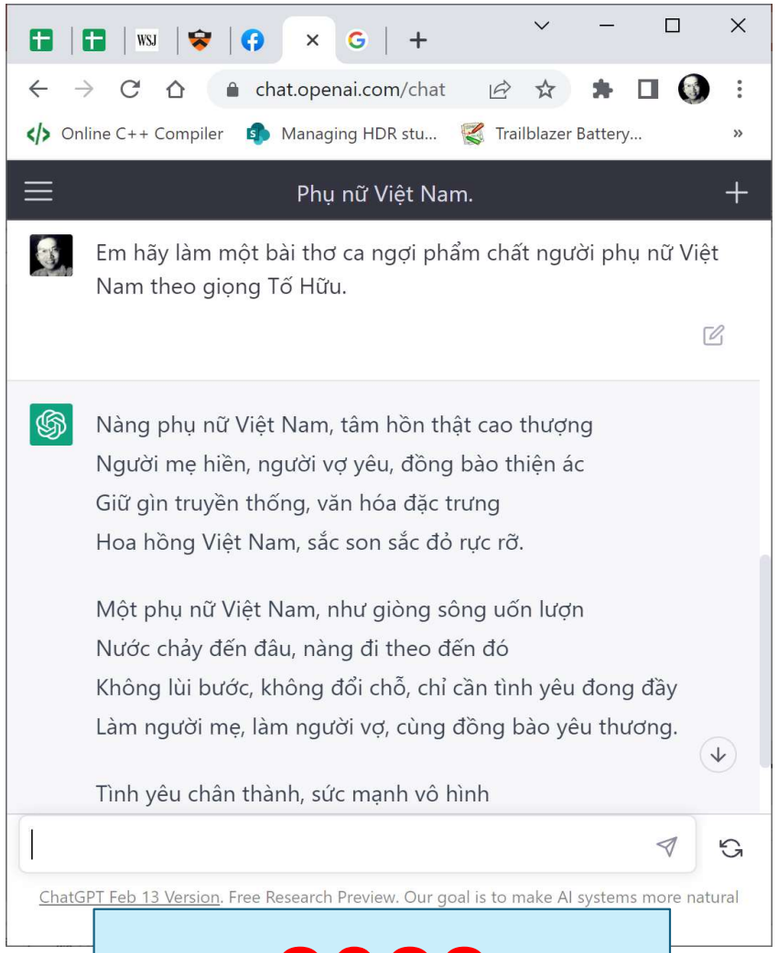


Turing Awards 2025

Agenda

- Arrival
- Capability
- Impact
- Risks
- Vision 2035
- AI for Vietnam

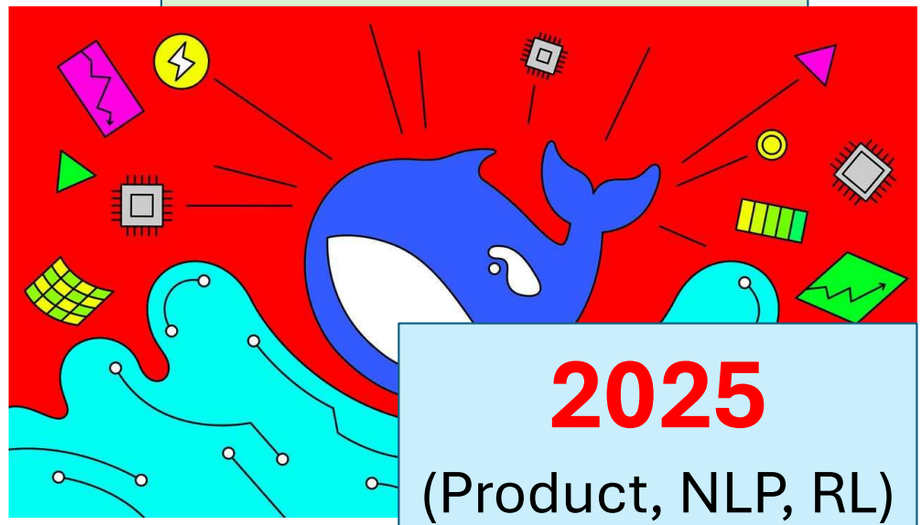
2012
(Research, Vision)



2022
(Product, NLP, RL)

AlphaGo

2016

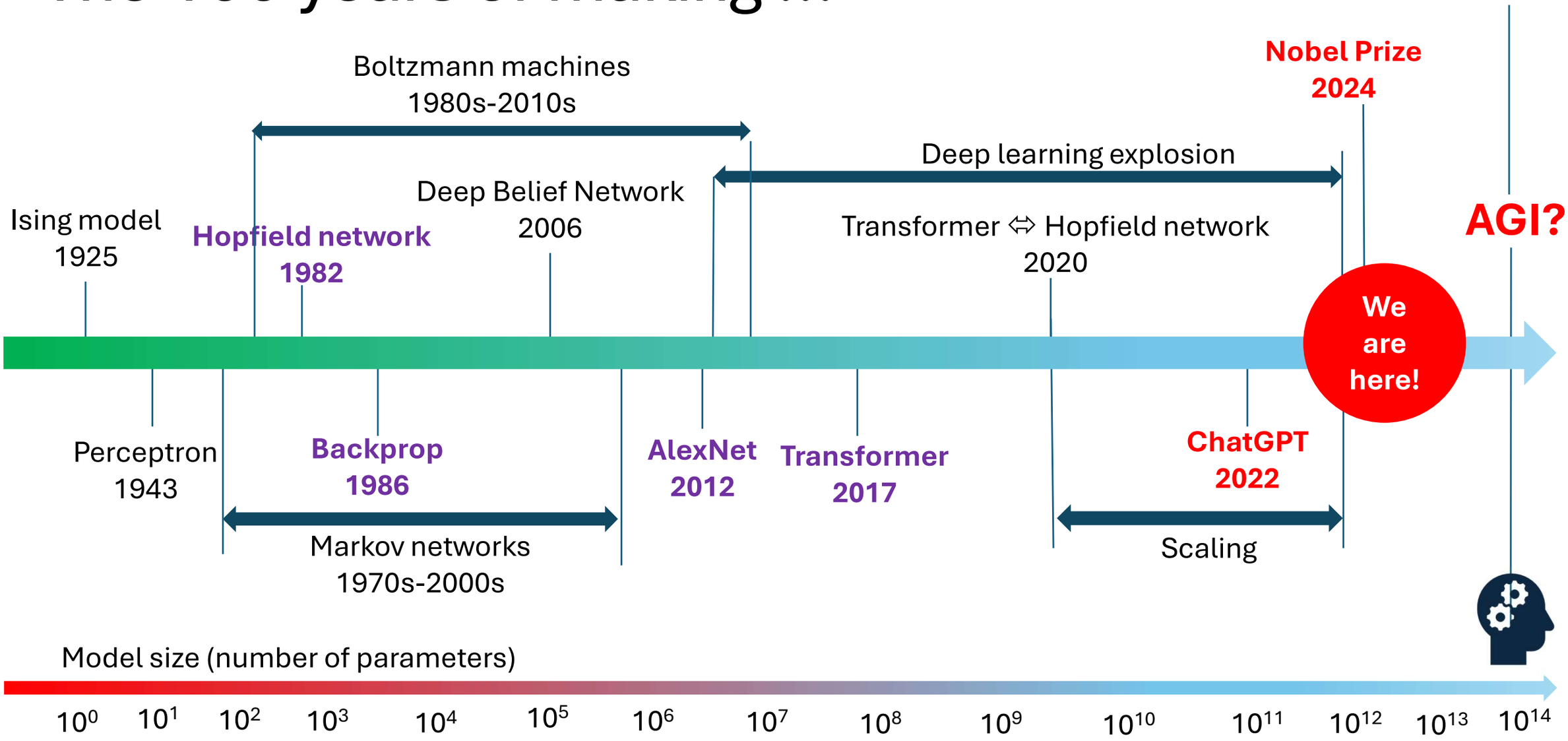


2025
(Product, NLP, RL)

AI moments

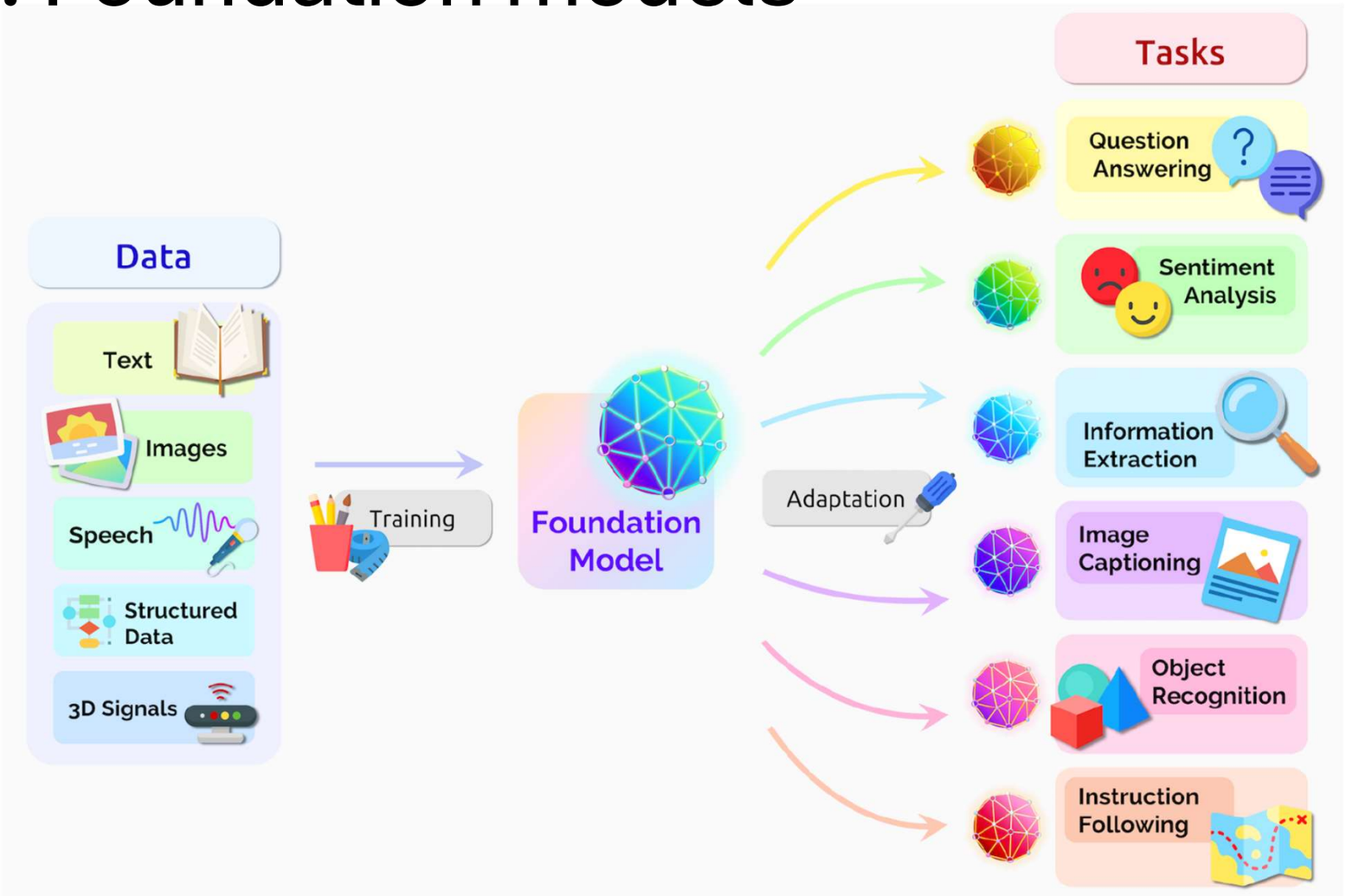
The 100 years of making ...

AGI = Artificial General Intelligence



A tipping point: Foundation models

- A foundation model is a model trained at broad scale that can adapted to a wide range of downstream tasks
- Scale and the ability to perform tasks beyond training

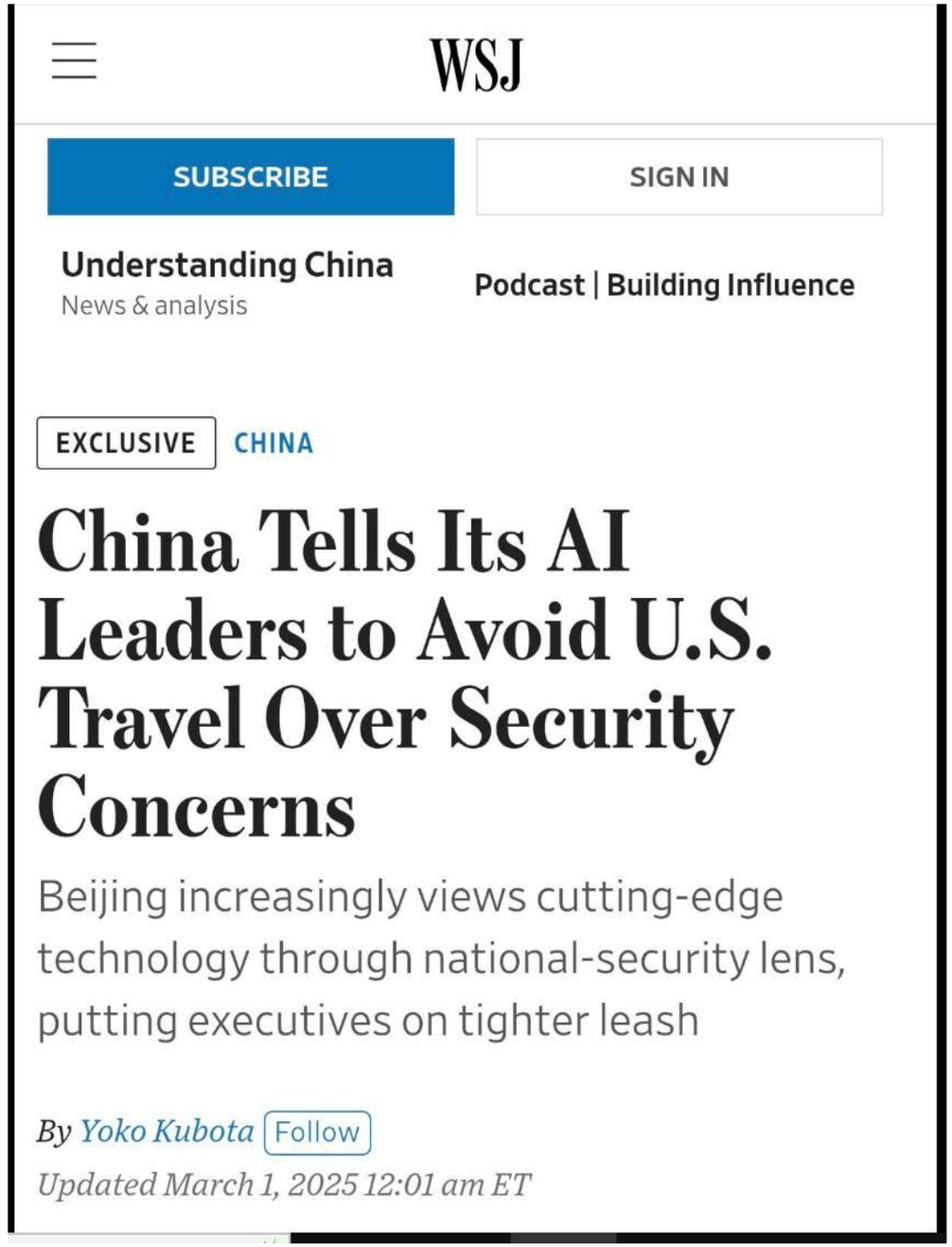


Slide credit: Samuel Albanie, 2022

Picture taken from (Bommasani et al, 2021)

Recent milestones in AI (2024-2025): Reasoning models

- ChatGPT o3/GPT-4.5
- DeepSeek R1/R2
- Kimi AI
- Gemini 2.0
- Grok3
- Claude Sonnet 4.7



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EXCLUSIVE CHINA

China Tells Its AI Leaders to Avoid U.S. Travel Over Security Concerns

Beijing increasingly views cutting-edge technology through national-security lens, putting executives on tighter leash

By Yoko Kubota Follow

Updated March 1, 2025 12:01 am ET

Agenda

~~Arrival~~

Capability

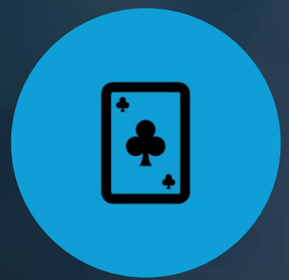
Impact

Risks

Vision 2035

AI for Vietnam

A mix of capabilities



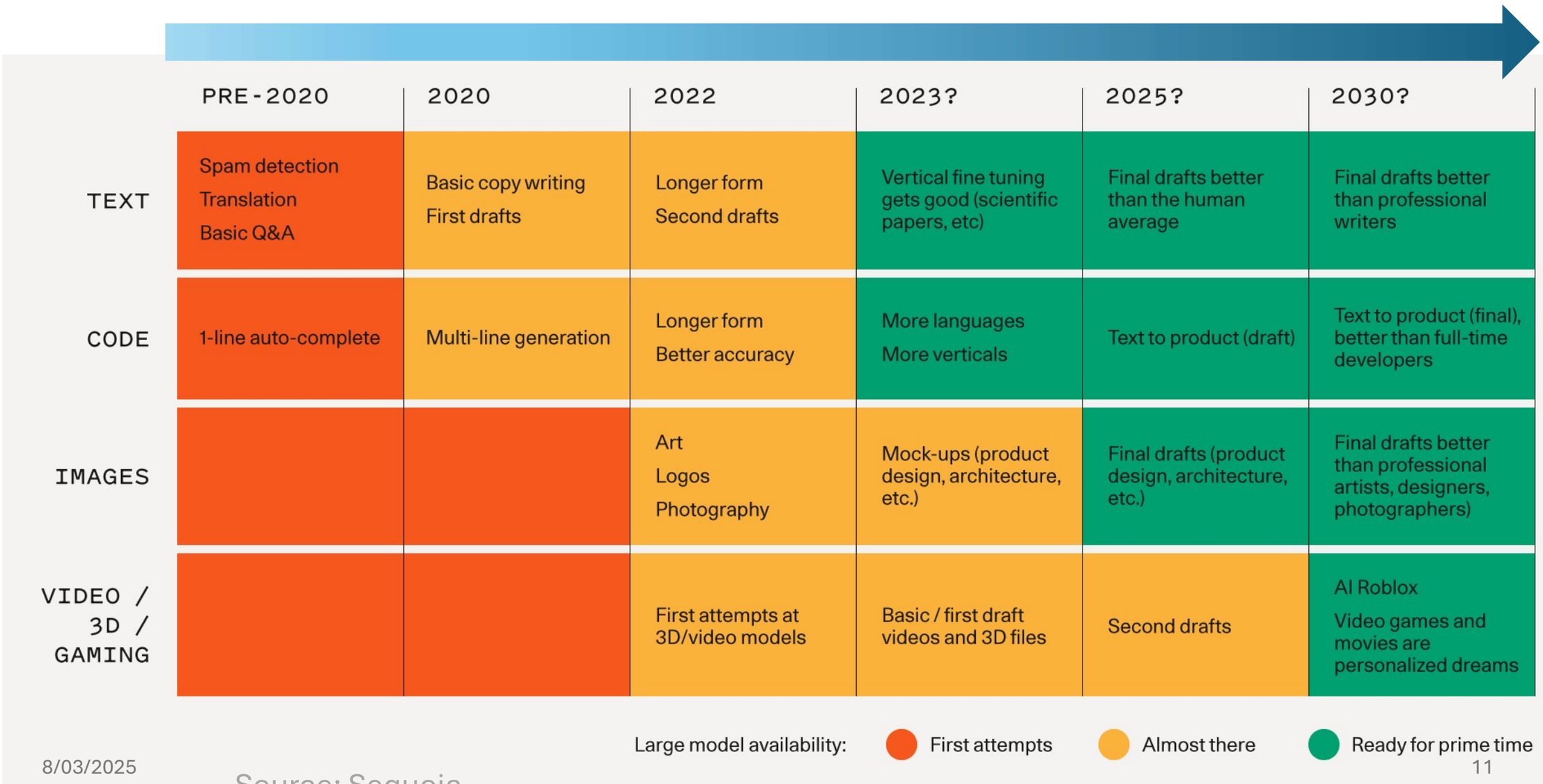
Predictive AI: Pattern recognition, out-of-distribution detection, prediction.

Generative AI: Generating new designs to meet performance criteria.

Agentic AI: Coordinating in TEAMS to achieve a goal by themselves.

Optimization: Refining the generated designs to optimise the performance.

2020 onward: The landscape is shifting, rapidly!



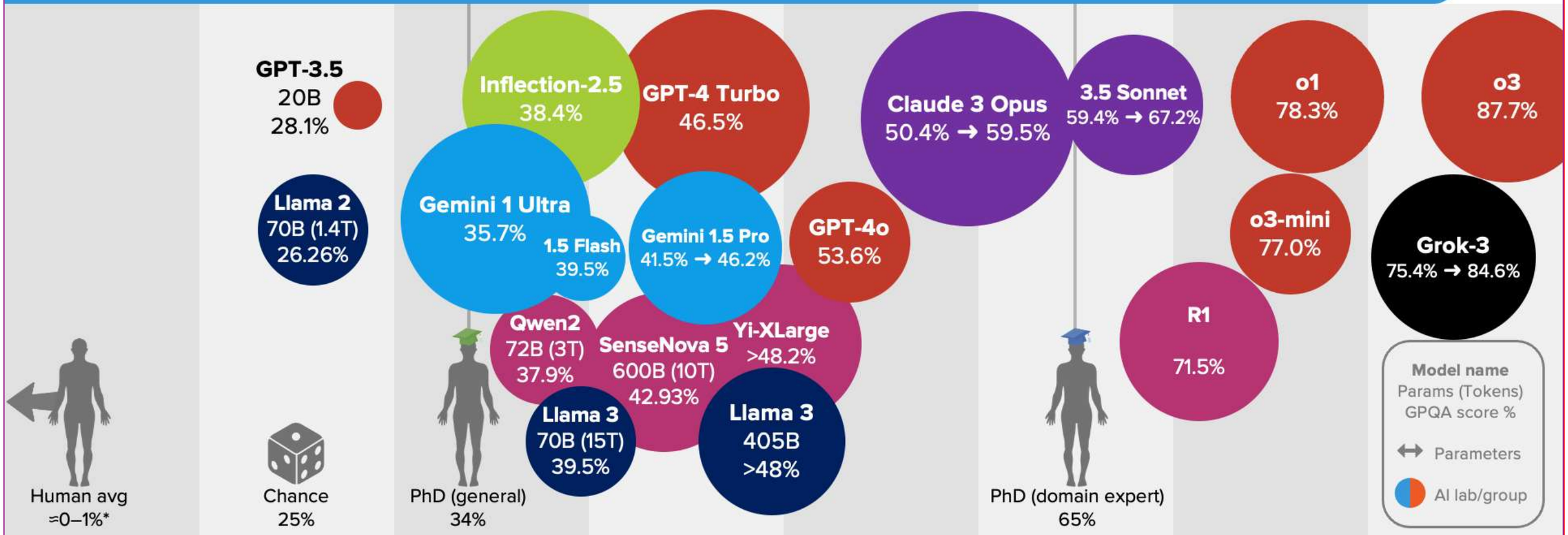
Source: Sequoia

GENIUS VS AI (SEP/2023)

					
	Average human	**Terence Tao**	**William James Sidis**	**GPT-4**	**Gemini** ***Estimates only***
IQ percentile	50th	**>99.9th**	**>99.9th**	**>99.9th**	**>99.9th**
Languages	2	2	25+	90+	**200+**
Books read	700	700+	700+	4,000,000+	**40,000,000+**
Working memory	7 words	9+ words	9+ words	24,000 words	**150,000 words**
Long-term memory	74TB	74TB	74TB	40TB	**2.8PB**
SAT score	1050 (50th)	**~1460 (97th)**	-	1410 (94th)	

Sources: Working memory extrapolated from Miler, 1956, and Cowan, 2000, https://doi.org/10.1017/S0140525X01003922. Long-term memory extrapolated from Stanford, 2010, https://pubmed.ncbi.nlm.nih.gov/21092855/. Alan D. Thompson. September 2023. https://lifearchitect.ai/iq-testing-ai

LARGE LANGUAGE MODELS + GPQA (FEB/2025)



Model sizes near to scale. * Estimates based on independent analysis. Selected highlights only. IQ correlation estimates only: https://lifearchitect.ai/visualising-brightness/ PhD/IQ correlation: https://www.religjournal.com/pdf/ijrr10001.pdf All models: https://lifearchitect.ai/models-table/ Alan D. Thompson. 2025.

LifeArchitect.ai/iq-testing-ai

NEWS | 07 February 2025

DeepMind AI crushes tough maths problems on par with top human solvers

The company's AlphaGeometry 2 reaches the level of gold-medal students in the International Mathematical Olympiad.

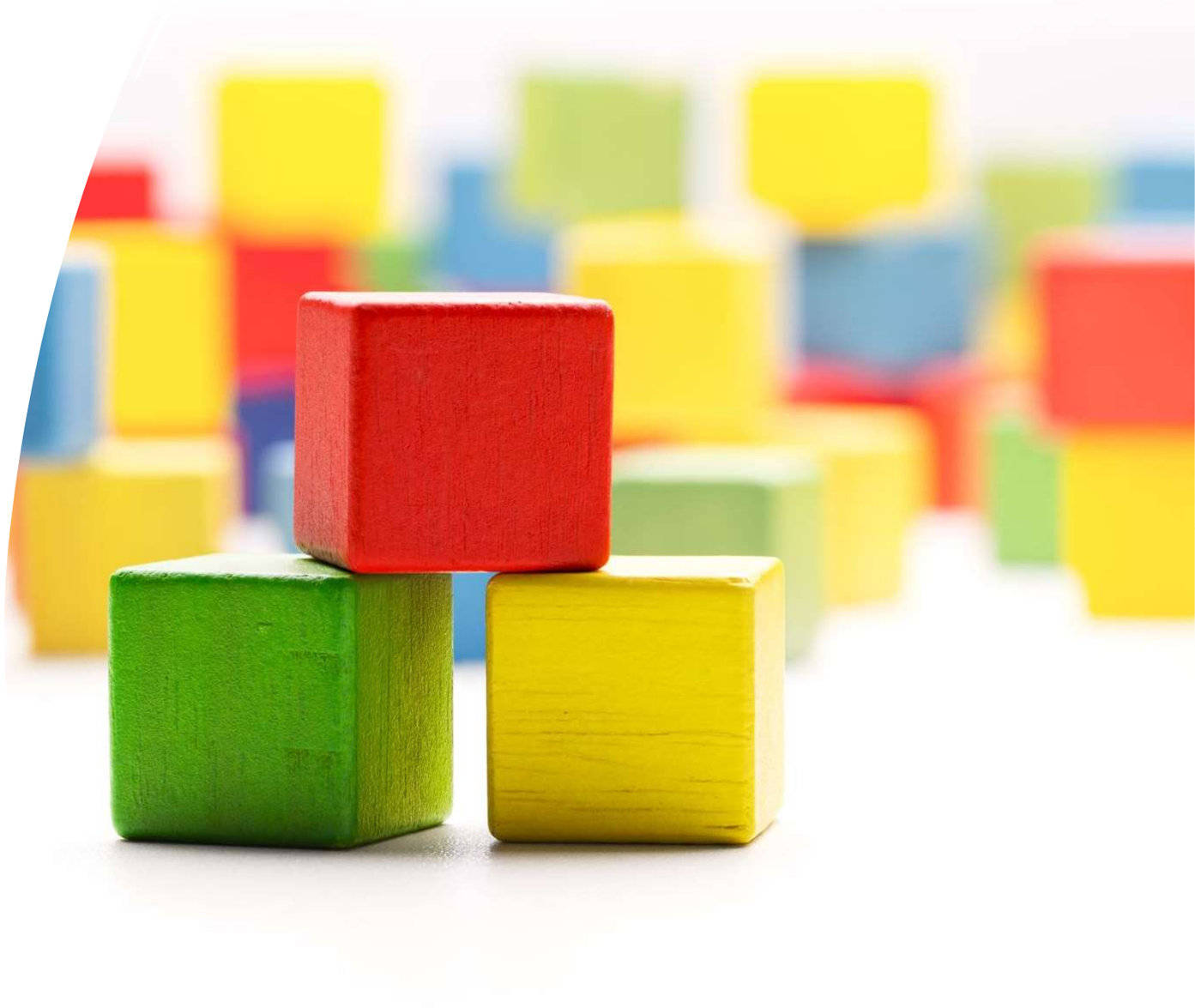
By Davide Castelvecchi

System description	IMO-AG-50 so	
OpenAI o1	0	
Gemini thinking	0	
AG1 DDAR (Trinh et al., 2024)	14	
AG2 DDAR	16	
TongGeometry DD (Zhang et al., 2024)	-	
Average bronze medalist	27.1	
Wu with AG1 DDAR (Sinha et al., 2024)	-	21
Average silver medalist	33.9	22.9
AG1 (Trinh et al., 2024)	27	25
Average gold medalist	40.9	25.9
Wu + AG1 (Sinha et al., 2024)	-	27
TongGeometry w/o value (Zhang et al., 2024)	-	28
AG2 with AG1 setup	38	28
TongGeometry full setting (Zhang et al., 2024)	-	**30**
AG2 full setting	**42**	**30**

Table 4 | Evaluation on IMO-AG-50 benchmark. IMO-AG-50 contains *all* IMO 2000-2024 geometry problems, while IMO-AG-30 introduced in (Trinh et al., 2024) contains only a subset formalizable in terms of the AG1 language.

Failure modes

- Exploit short-cuts in token co-occurrence
- => Can do well on in-distribution, but will fail on out-of-distribution, novel combinations
- => Fail on non-shallow reasoning



Agenda

~~Arrival~~

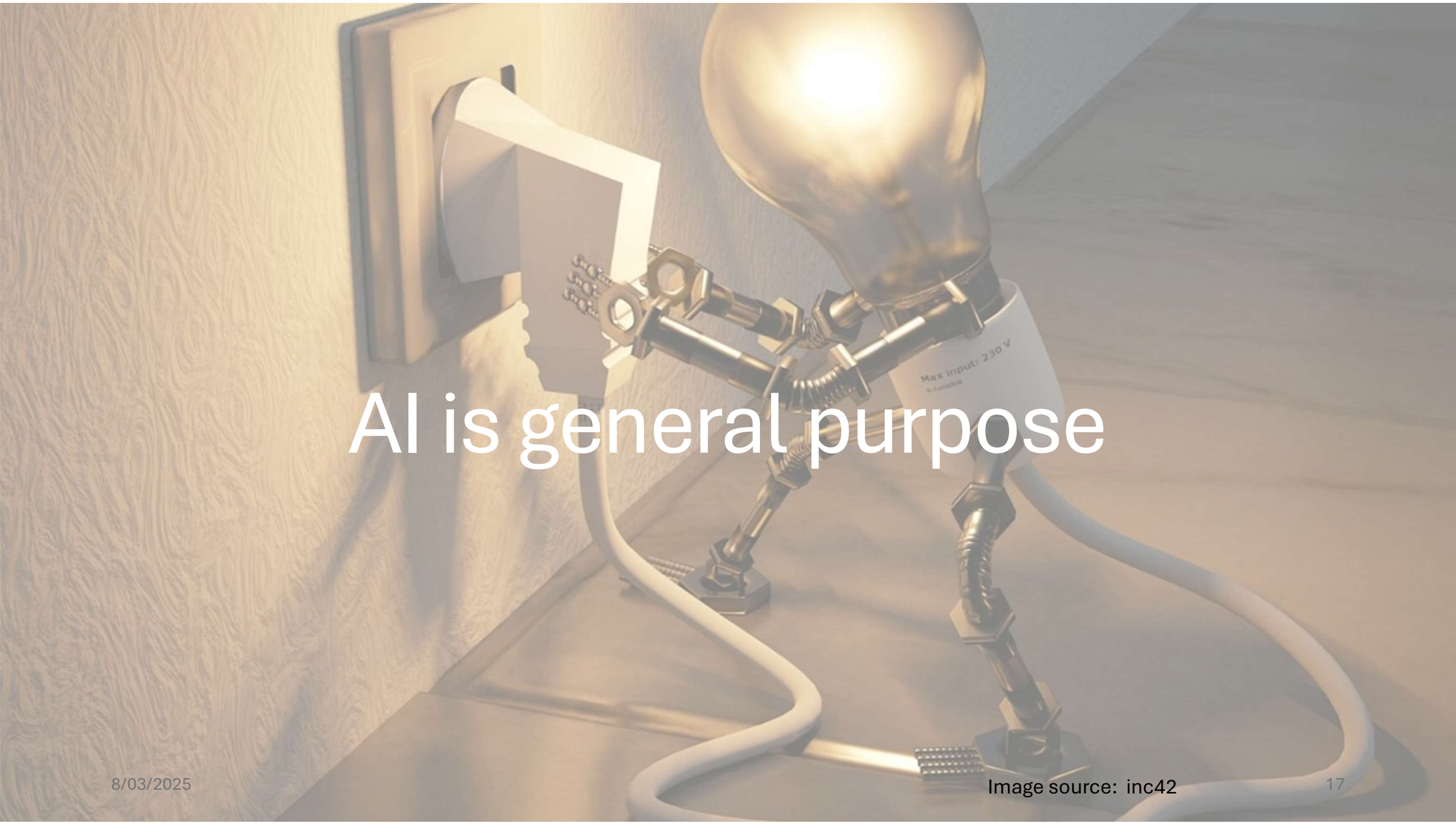
~~Capability~~

Impact

Risks

Vision 2035

AI for Vietnam



AI is general purpose

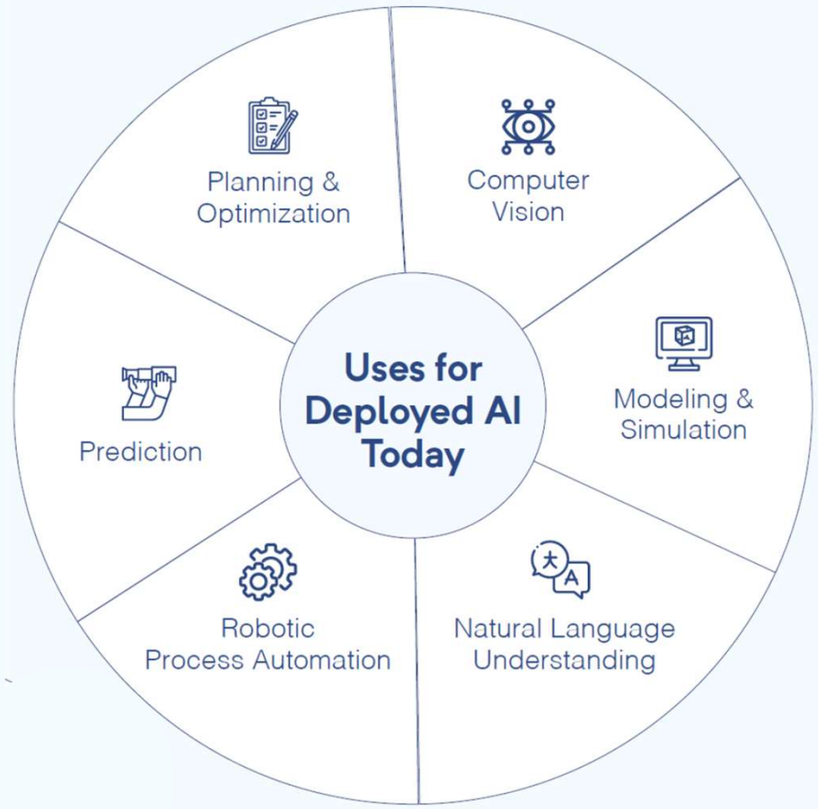
Image source: inc42

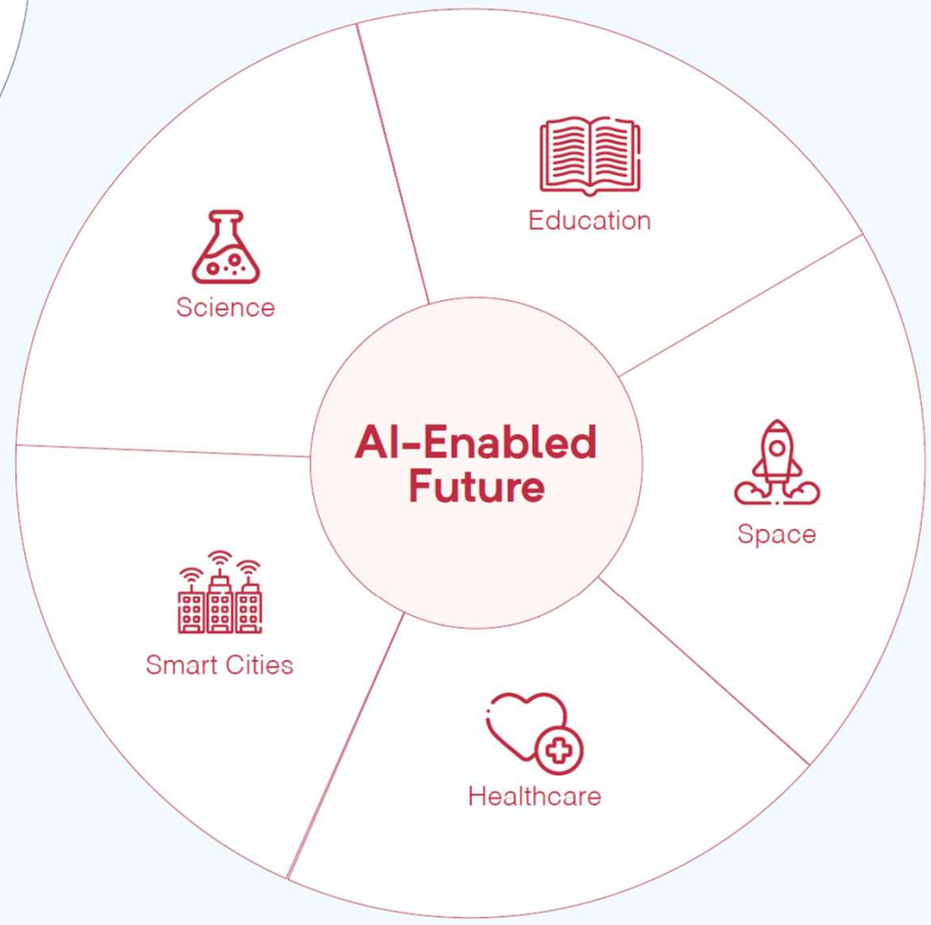
“AI is going to reorganize the world.”

“AI technologies are the most powerful tools in generations for expanding knowledge, increasing prosperity, and enriching the human experience.”

“AI technologies will be a source of enormous power for the companies and countries that harness them.”

Schmidt, Eric, et al. *National Security Commission on Artificial Intelligence (AI) Final Report*. 2021.





Schmidt, Eric, et al. *National Security Commission on Artificial Intelligence Report*, 2021.

AI: A full picture

Three kinds of AI

- Cognitive automation: encoding human abstractions → automate tasks normally performed by humans.
- Cognitive assistance: AI helps us make sense of the world (perceive, think, understand).
- Cognitive autonomy: Artificial minds thrive independently of us, exist for their own sake.

François Chollet

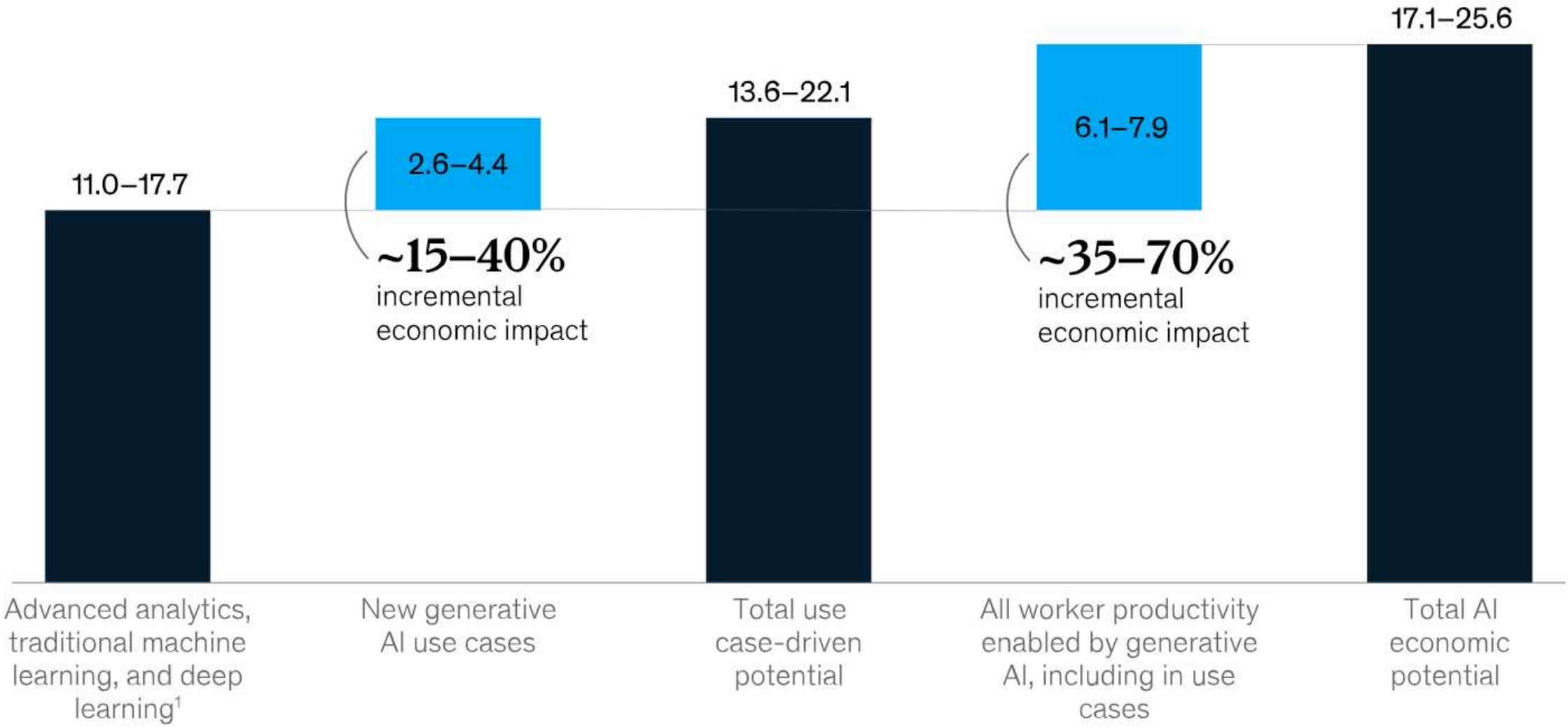
The Setter 30

Rank	Issuer	Business Activity			
1.	SpaceX	Aerospace Transport Systems			
2.	Anduril	Defense Tech			
3.	Stripe	Payment Platform			
4.	Databricks	Data Analytics Platform			
5.	Anthropic	AI Safety and Research Company	18.4	-1	
6.	OpenAI	AI Research and Deployment Company	157.0	+1	
7.	xAI	AI Solutions and Services Company	50.0	+1	
8.	Klarna	E-Commerce Financing	6.7	-2	
9.	ByteDance	Social Media Platform	300.0	+12	
10.	Figure AI	AI Robotics Company	2.6	+2	
11.	CoreWeave	AI Cloud Infrastructure and Computing	19.0	+11	
12.	Perplexity	AI Search Engine	9.0	+1	
13.	Neuralink	Neuroprosthetics Development	3.3	+5	
14.	Epic Games	Game Development	31.5	-5	
15.	Kraken	Cryptocurrency Exchange and Services	4.3	+12	
16.	Canva	Online Graphic Design Platform	40.0	-5	
17.	Groq	AI and Computer Hardware	2.8	-7	
18.	Wiz	Cloud Security Platform	12.0	-4	
19.	Figma	Collaborative Visual Design Tool	10.0	-	
20.	Discord	Online Social Platform	15.0	-4	
21.	Scale AI	AI Training and Data Annotation Platform	13.8	-4	
22.	Revolut	Money Transfer Platform	45.0	-2	
23.	Deel	Online Payroll Platform	12.1	NEW	
24.	Chime	Online Banking Services Platform	25.0	+5	
25.	Arctic Wolf	Risk Management Cybersecurity Platform	4.3	+1	
26.	Rippling	Human Resource Management Platform	13.5	-11	
27.	Ramp	Corporate Spending and Expense Management	7.7	-3	
28.	Ripple	Digital Payment Network and Protocol	15.0	NEW	
29.	Vercel	Frontend Cloud Platform	3.3	NEW	
30.	Snyk	Developer Security Platform	7.4	NEW	

VC money is on AI!

Source: The Humanoid Hub

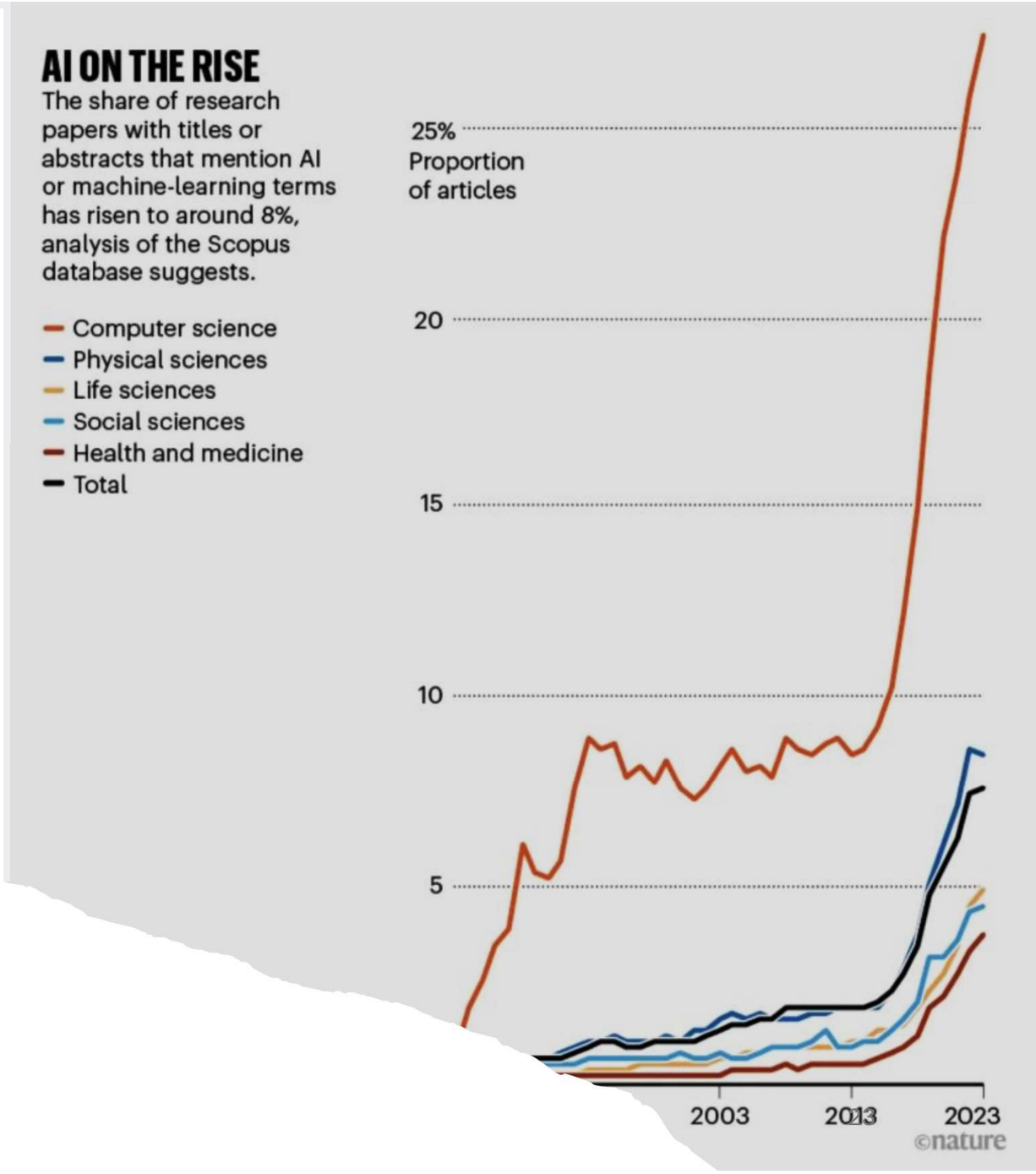
The economic potential of GenAI (trillion $)



Source: McKinsey Digital

Select Generative AI Use Cases by Industry

	Industries							
	Automotive and Vehicle Manufacturing	Media	Architecture and Engineering	Energy and Utilities	Healthcare Providers	Electronic Product Manufacturing	Manufacturing	Pharmaceutical
Drug Design								●
Material Science	●			●		●		
Chip Design						●		
Synthetic Data	●		●	●	●	●	●	●
Generative Design (Parts)	●		●				●	



AI “eats” everything

Source: Gartner 3/03/2025

McKinsey & Company

Strategy & Corporate Finance Practice

How AI is transforming strategy development

Artificial intelligence is set to revolutionize strategy activities. But as AI adoption spreads, strategists will need proprietary data, creativity, and new skills to develop unique options.

This article is a collaborative effort by Alexander D'Amico, Bruce Delteil, and Eric Hazan, with Andrea Tricoli and Antoine Montard, representing views from McKinsey's Strategy & Corporate Finance Practice.

February 2025

The Economist

Business | Change management

Elon Musk spells danger for Accenture, McKinsey and their rivals

Why the American government could turn against consultants

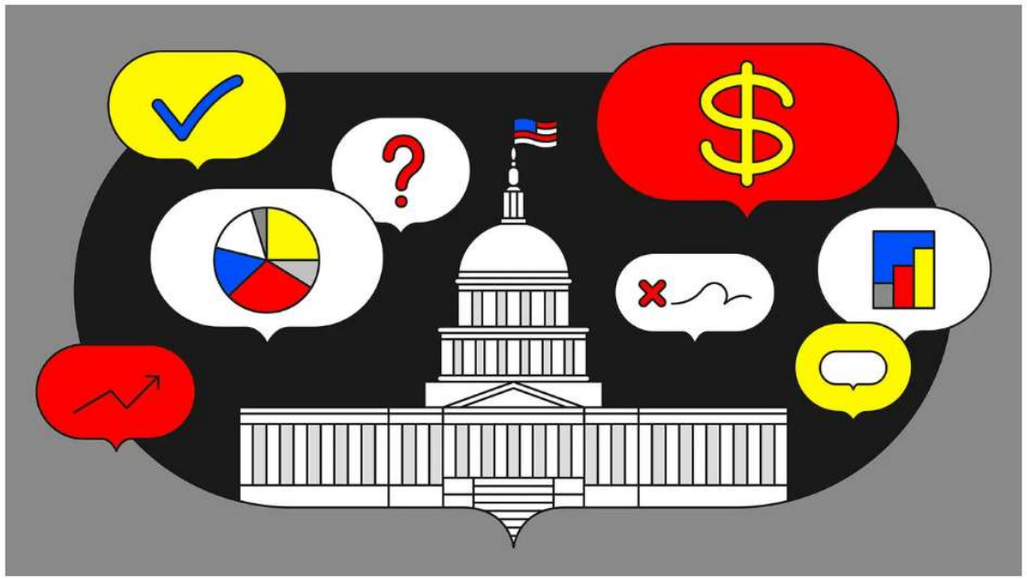
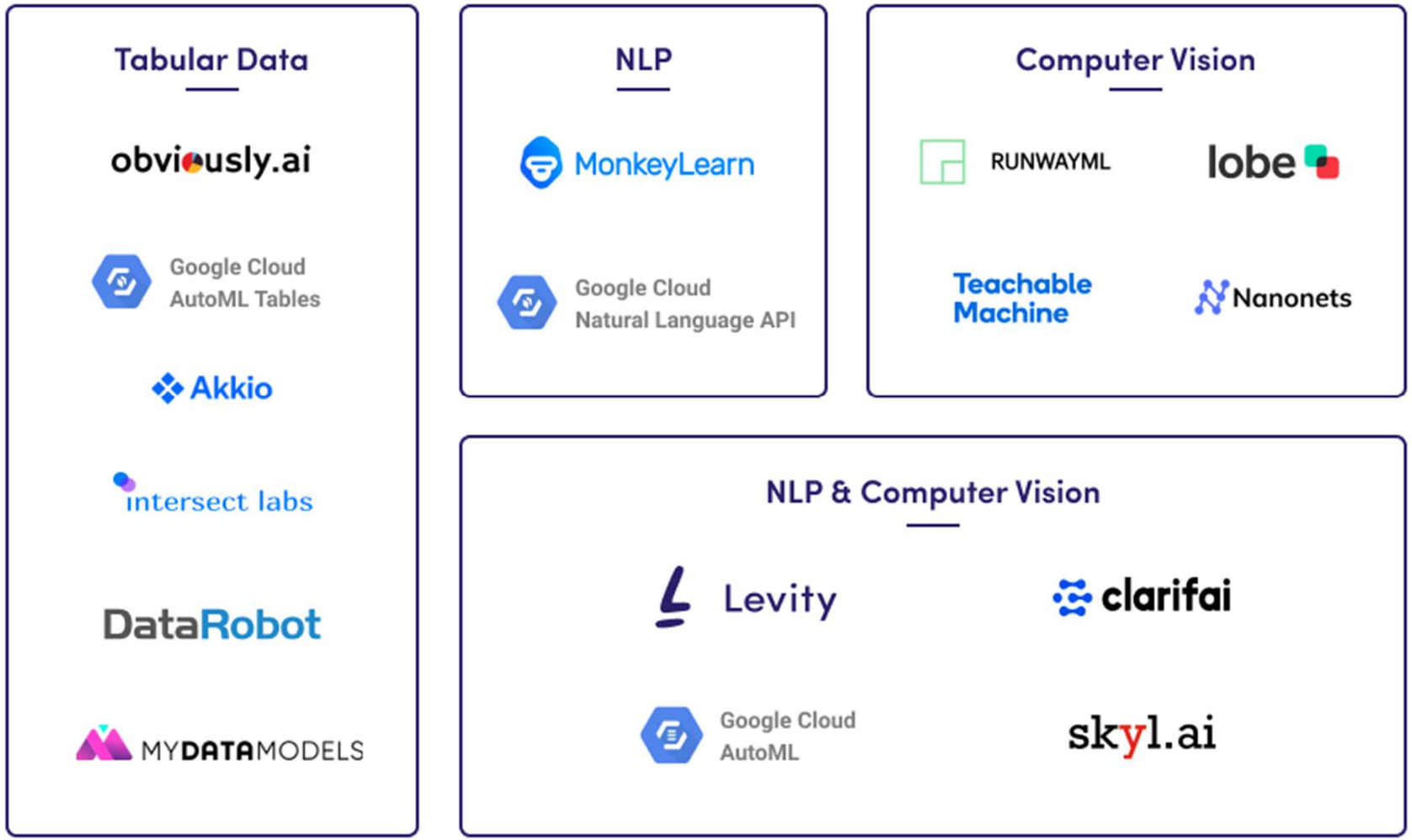


ILLUSTRATION: ROSE WONG

Industry functions affected by AI

- Predictive maintenance
- Quality control
- Digital twins
- Customization
- Human-machine teaming
- Process mining
- Improving design - customer feedback loop
- AR/VR-based training
- Forecasting

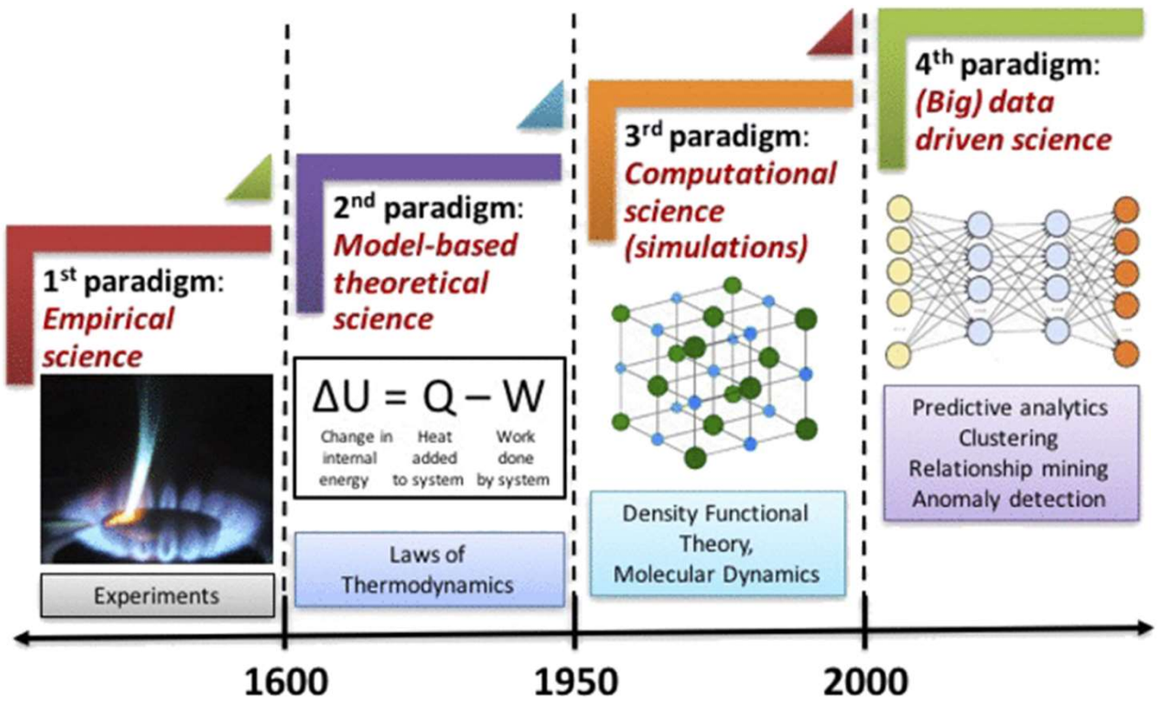
Current trend: “No-code” Startups



Created by Levity

last updated March 2021

AI for Science



The 5th paradigm (2020-present)

- Advanced deep learning
- Massive data simulation
- Powerful Foundation Models

Agrawal, A., & Choudhary, A. (2016). Perspective: Materials informatics and big data: Realization of the "fourth paradigm" of science in materials science. *Apl Materials*, *4*(5), 053208.

https://www.microsoft.com/en-us/research/blog/ai4science-to-empower-the-fifth-paradigm-of-scientific-discovery/

Agenda

~~Arrival~~

~~Capability~~

~~Impact~~

Risks

Vision 2035

AI for Vietnam

Care must be in place!

Out-of-distribution – novel cases

Hallucination, the result of probabilistic step-wise generation.

Misuses (e.g. deep fake, misinformation, toxic materials, viruses)

Copyright, privacy, IP

Adversarial attacks, Trojan

Unsafe code generation

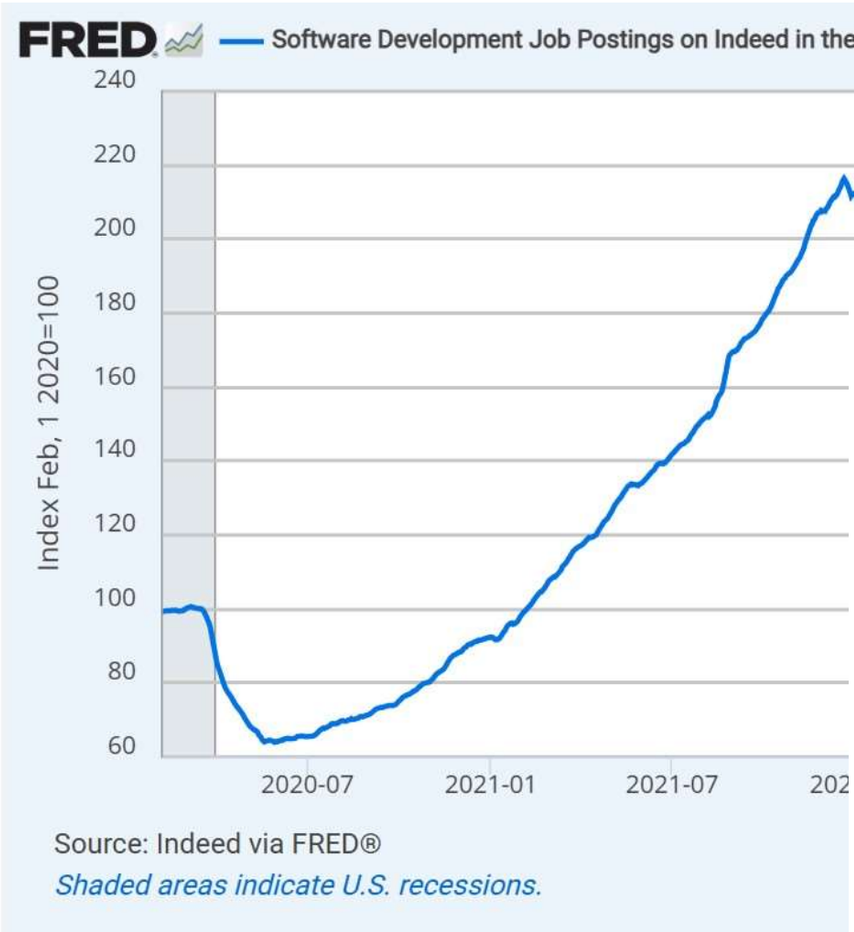
Unbounded, self-copied, mis-aligned agents

Social and ethical concerns

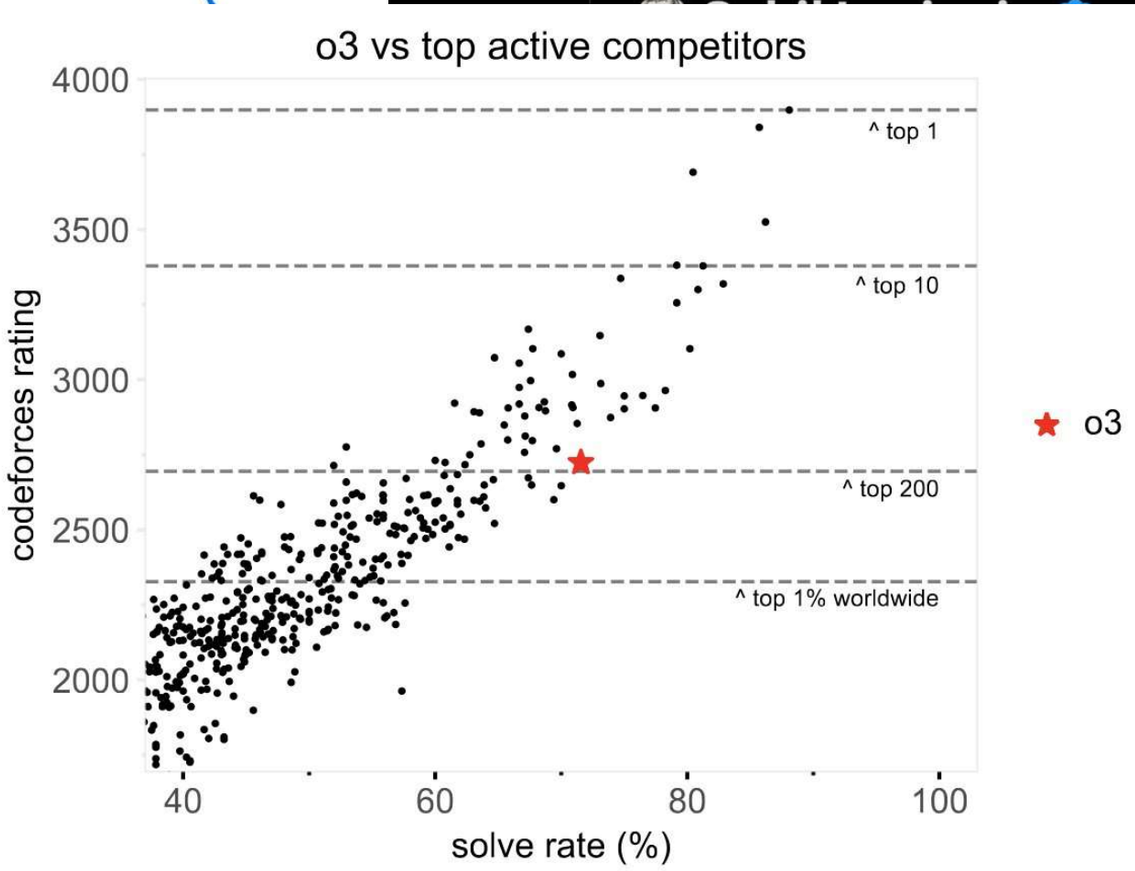
- Job loss + New job creation → Retraining
- Changing interaction behaviours, causing digital addiction.
- Biased AI makes decision on recruitment, welfare → Who is monitoring AI and bearing legal consequences?
- Violation of privacy
- Deepfake & adversarial attacks

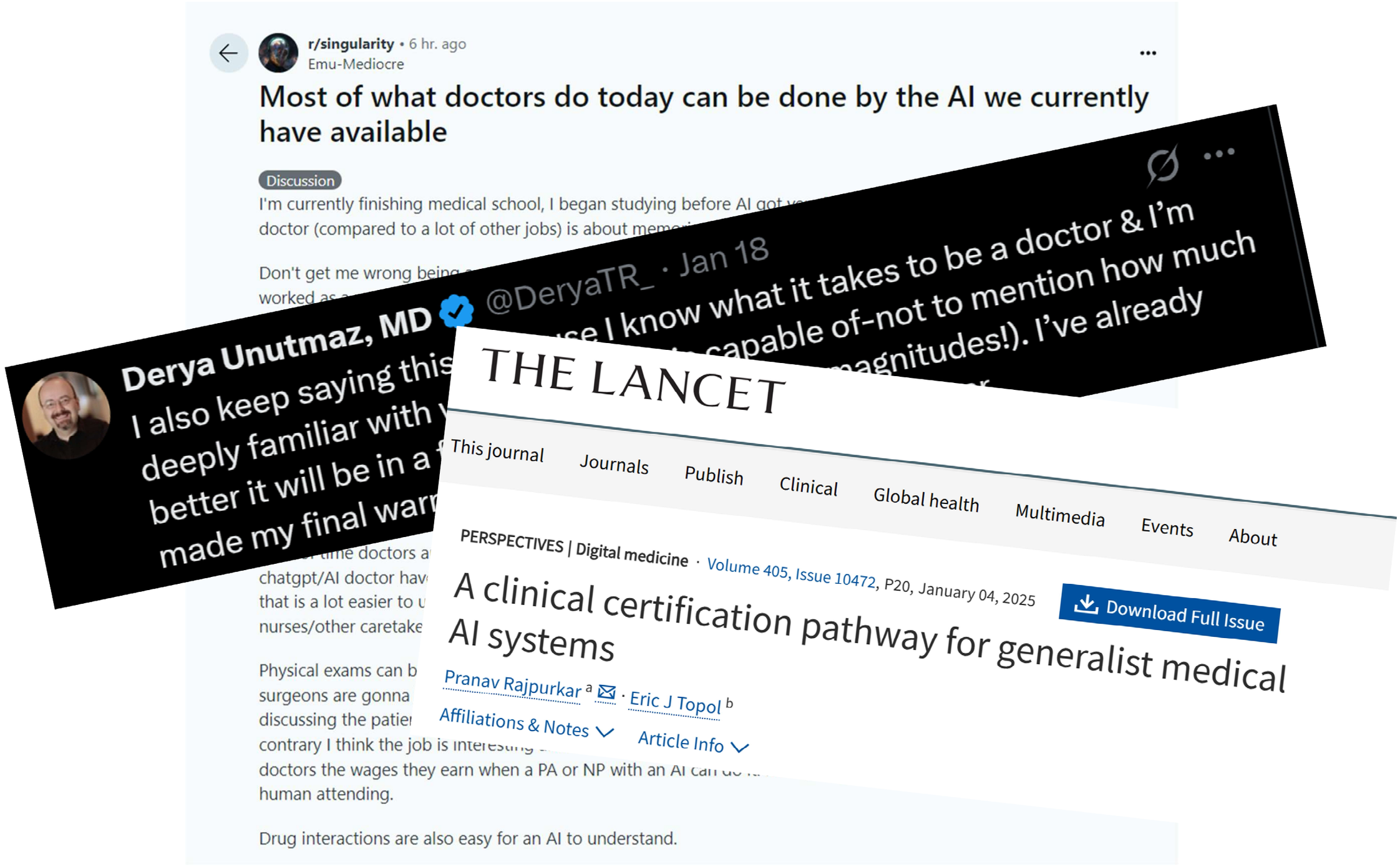
Scandal of Timnit Gebru, 12/2020 Source: TechCrunch

- Increasing inequality because a few will control the core techs.
- Digital slavery.
- Automatic killing machines.


FRED
Software Development Job Postings on Indeed in the United States
Index Feb, 1 2020=100
240
220
200
180
160
140
120
100
80
60
2020-07
2021-01
2021-07
Source: Indeed via FRED®
Shaded areas indicate U.S. recessions.


Sahil Lavingia @shl · 33m
If you're a senior software engineer, Devin + Claude 3.7 Sonnet is a legit team of mid-level software engineers
@shl · 9/2/24
ware engineer,
onnet is a legit
e engineers
14K


o3 vs top active competitors
codeforces rating
4000
3500
3000
2500
2000
^ top 1
^ top 10
^ top 200
^ top 1% worldwide
40
60
80
100
solve rate (%)
o3


r/singularity • 6 hr. ago
Emu-Mediocre
Most of what doctors do today can be done by the AI we currently have available
Discussion
I'm currently finishing medical school, I began studying before AI got
doctor (compared to a lot of other jobs) is about
Don't get me wrong being
worked as
Derya Unutmaz, MD @DeryaTR_ · Jan 18
I also keep saying this
deeply familiar with
better it will be in a
made my final warn
I know what it takes to be a doctor & I'm
capable of-not to mention how much
magnitudes!). I've already
chatgpt/AI doctor hav
that is a lot easier to u
nurses/other caretake
Physical exams can b
surgeons are gonna
discussing the patie
contrary I think the job is
doctors the wages they earn when a PA or NP with an AI
human attending.
Drug interactions are also easy for an AI to understand.
THE LANCET
This journal
Journals
Publish
Clinical
Global health
Multimedia
Events
About
PERSPECTIVES | Digital medicine · Volume 405, Issue 10472, P20, January 04, 2025
Download Full Issue
A clinical certification pathway for generalist medical AI systems
Pranav Rajpurkar [a] · Eric J Topol [b]
Affiliations & Notes
Article Info

Jevon paradox in action

(1835-1882)

Source: Wiki

Source: Pacific Standard & Iconfinder

Credit: Wang & Chen

Three Hs

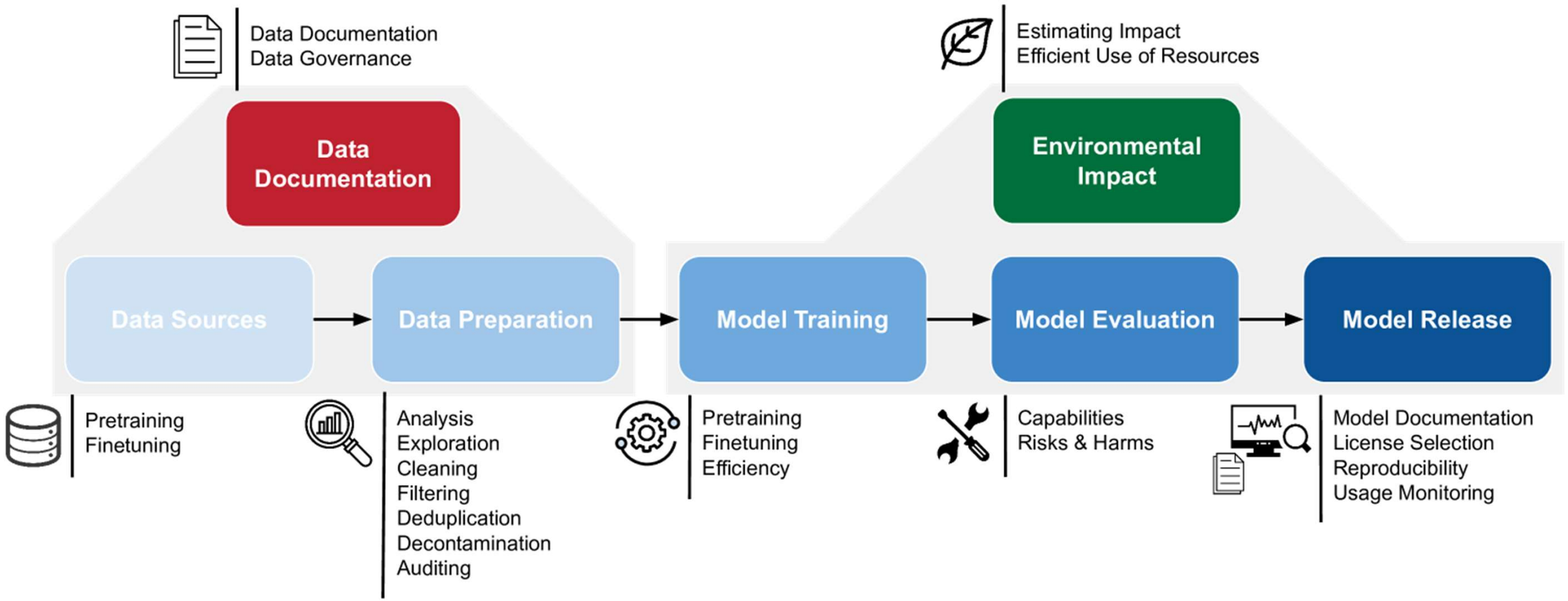
$$p(x) = \prod_{i=1}^{n} p(s_n | s_1, ..., s_{n-1})$$

$\not\Rightarrow$

- **Helpful**: Solve user's problems
- **Honest**: Give factual answers + Admit uncertainty
- **Harmless**: This is self-explanatory. Isn't it? No – not that easy!

Askell, A., Bai, Y., Chen, A., Drain, D., Ganguli, D., Henighan, T., Jones, A., Joseph, N., Mann, B., DasSarma, N. and Elhage, N., 2021. A general language assistant as a laboratory for alignment. *arXiv preprint arXiv:2112.00861*.

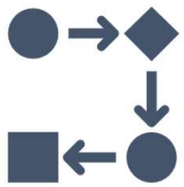
Responsible AI development



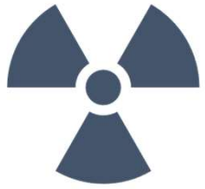
Longpre, Shayne, et al. "The responsible foundation model development cheatsheet: A review of tools & resources." *arXiv preprint arXiv:2406.16746* (2024).

Risk scenarios

Yann LeCun



AI will cause a chain of reaction, uncertainty and chaos.



Human will collectively find a way to benefit from it, just like other techs. We are doing OK with nuclear energy!

Geoffrey Hinton

We are unprepared!

2018

Automation deals with means to achieve objectives.

AI deals with ends by establishing its own objectives.

2023

AI-enabled systems [...] can store and distill a huge amount of existing information -- **beyond human capacity**.

AI enables new kind of knowledge progress – no more step-by-step testable and teachable.

New mode of human-machine interaction.

Henry Kissinger, 2023

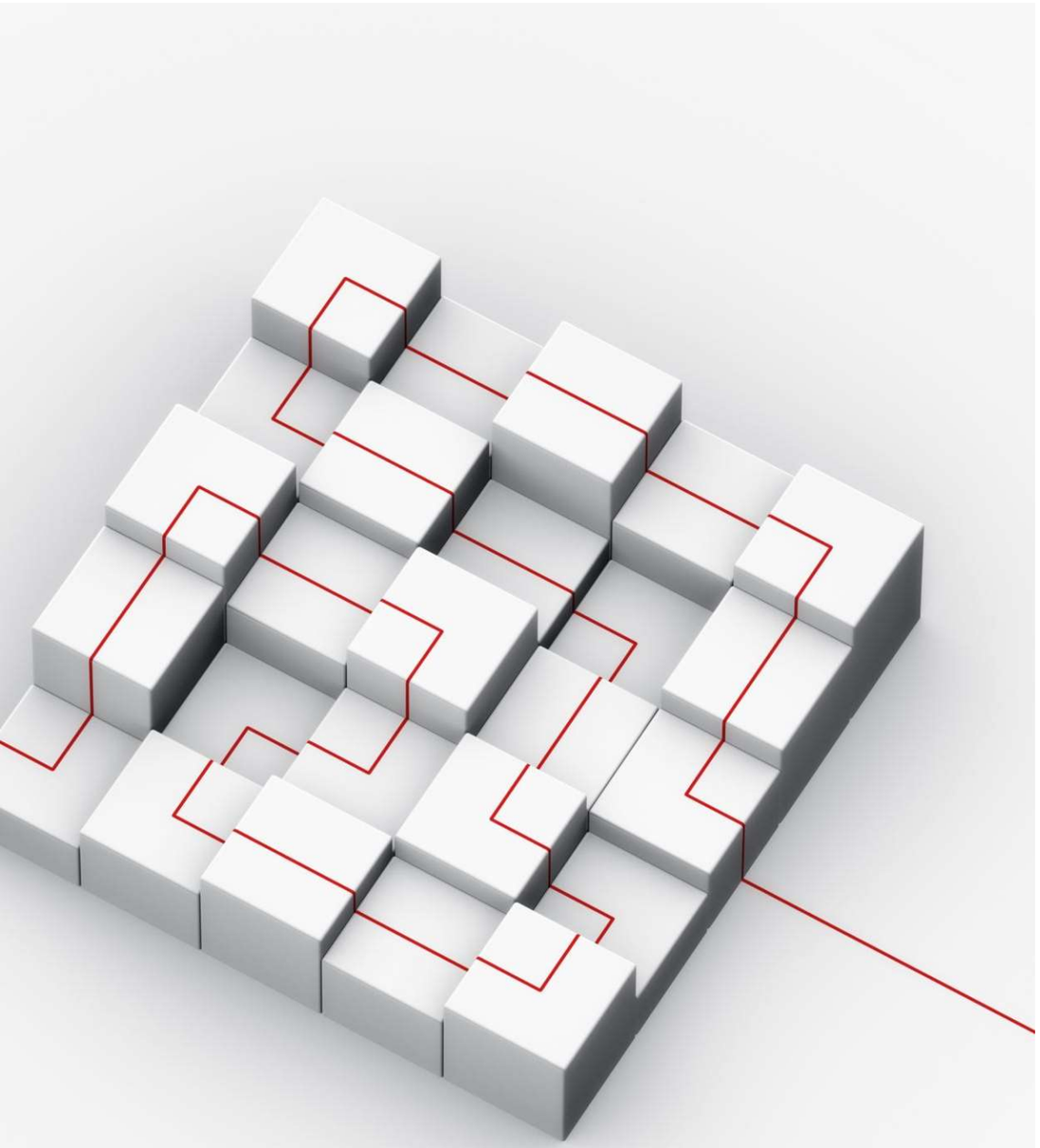
Gradual Disempowerment

Systemic Existential Risks from Incremental AI Development

Jan Kulveit [*], *Raymond Douglas* [*], *Nora Ammann*,
Deger Turan, *David Krueger*, *David Duvenaud* [†]

Agenda

- ~~Arrival~~
- ~~Capability~~
- ~~Impact~~
- ~~Risks~~
- Vision 2035
- AI for Vietnam

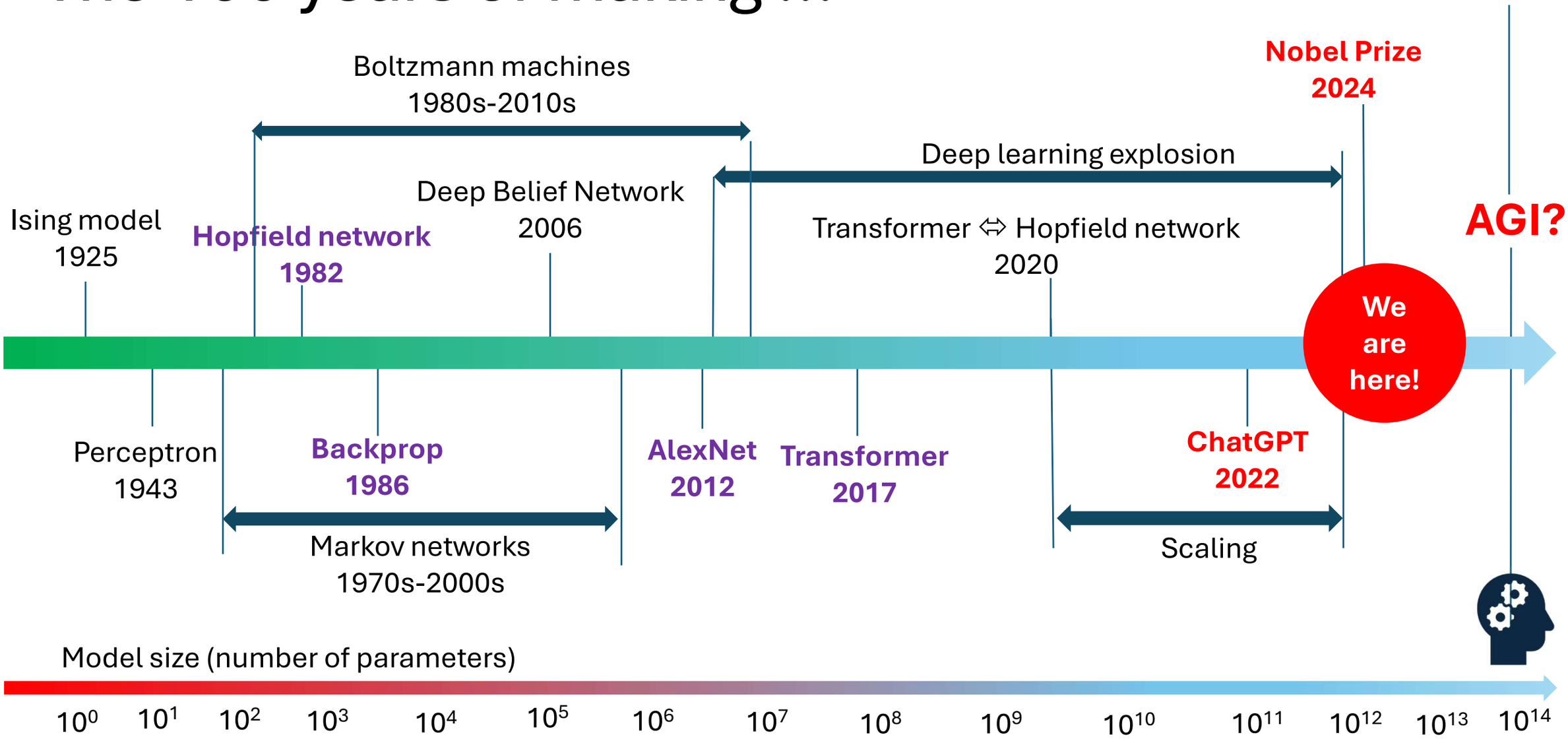


The tech forecast dimensions

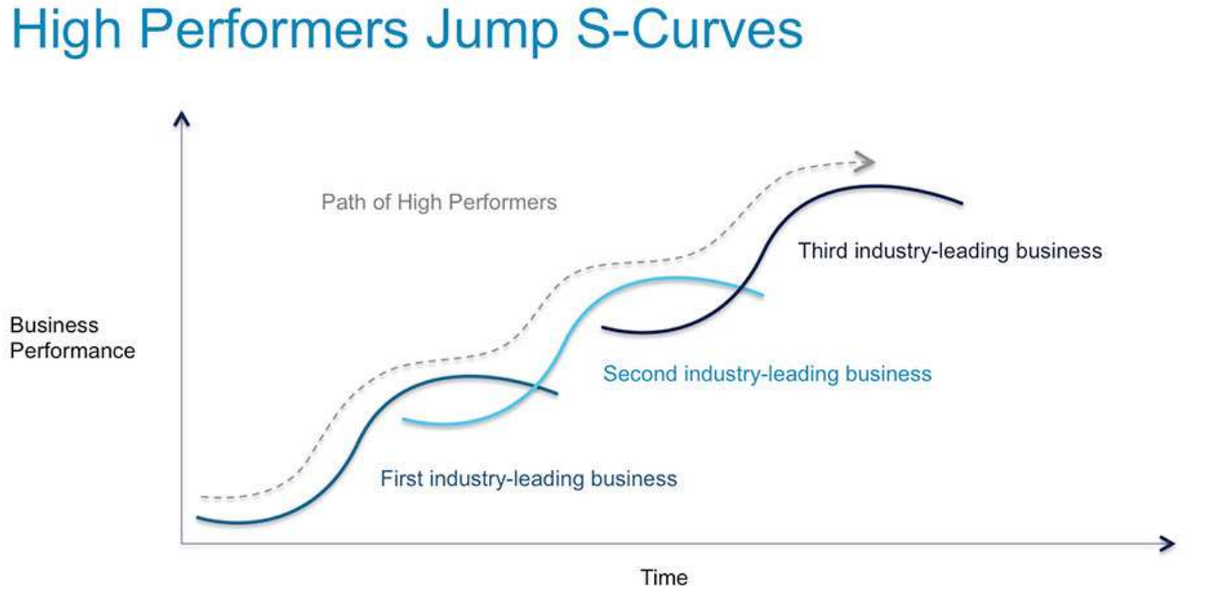
- Mega-trends
- Drivers
- Competition heated
- Continuation of current works/paths
- Expansion to new areas
- Human-Level AI, AGI
- Risks

The 100 years of making ...

AGI = Artificial General Intelligence



The S-curve for “mini-trends”



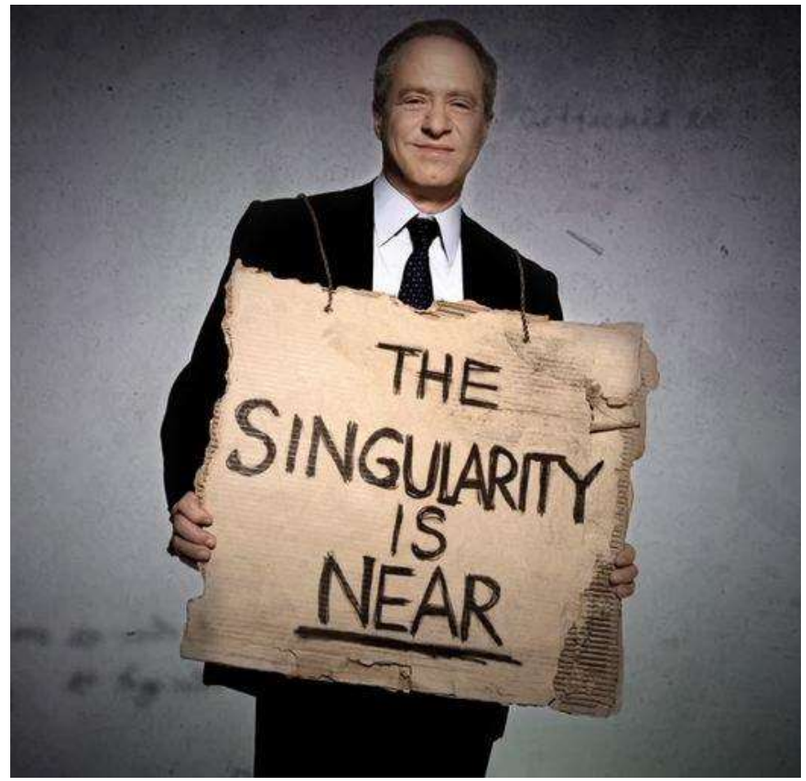
Source: https://www.accenture.com/us-en/insight-jumping-s-curve

MEMSQL

- There are “mini-trends” in AI, each 10-15 years, following a S-curve.
- It is very slow at first → grows exponentially → linear period → then slowly dies out → new trend emerging
- There will be a counter-force for any force. It is just with some delay.
- The rate of change is proportional to what is there, times what is not yet there.

The Law of Accelerating Returns

- The entire history of human's invention: Tool that produces tools
- For past 50 years: Software that writes software
- Basis for the prediction of Singularity in 2045 by Ray Kurzweil



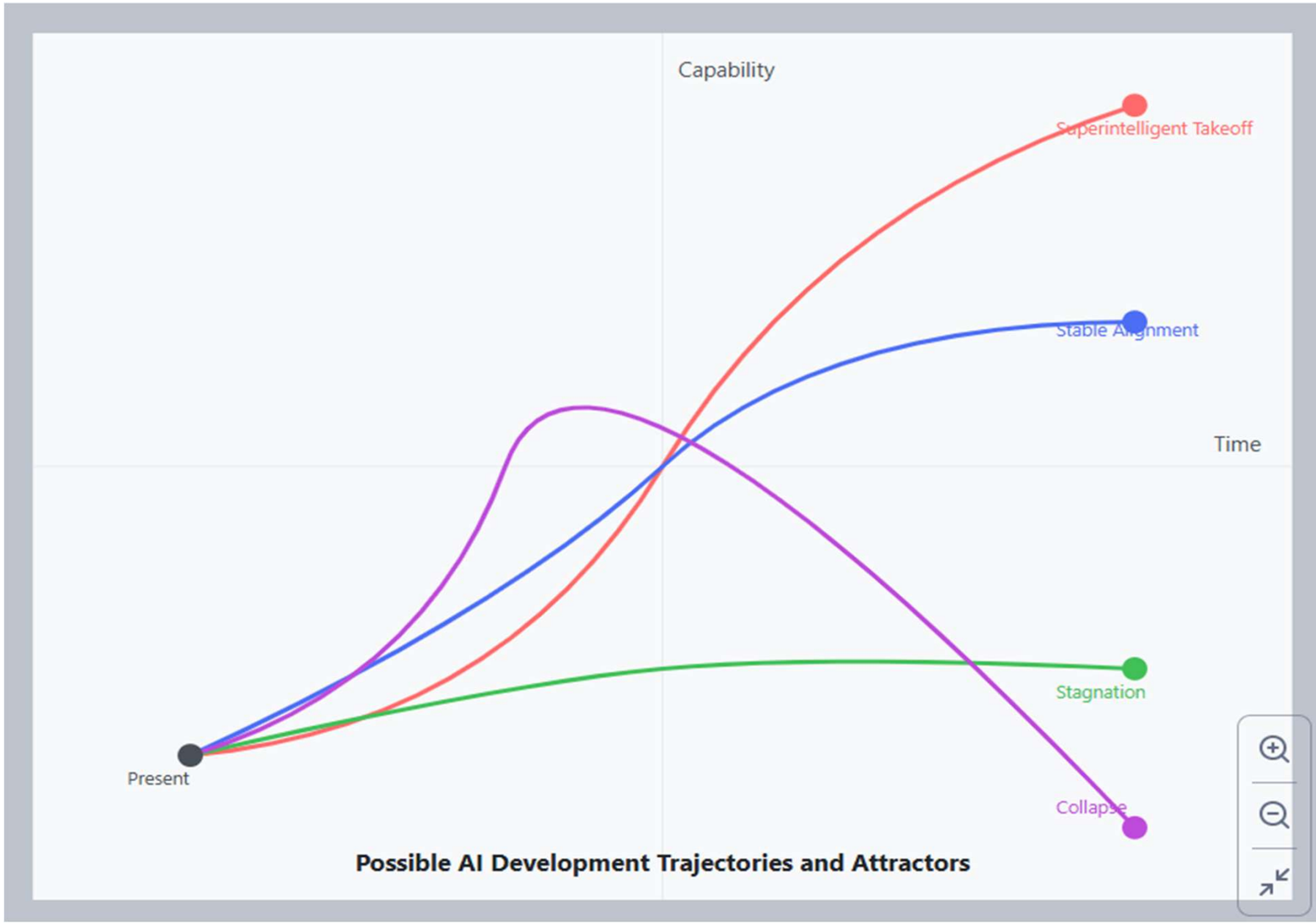
What are the attractors of AI trajectories?

Technical dimensions:

Scaling [up/out]

Reasoning

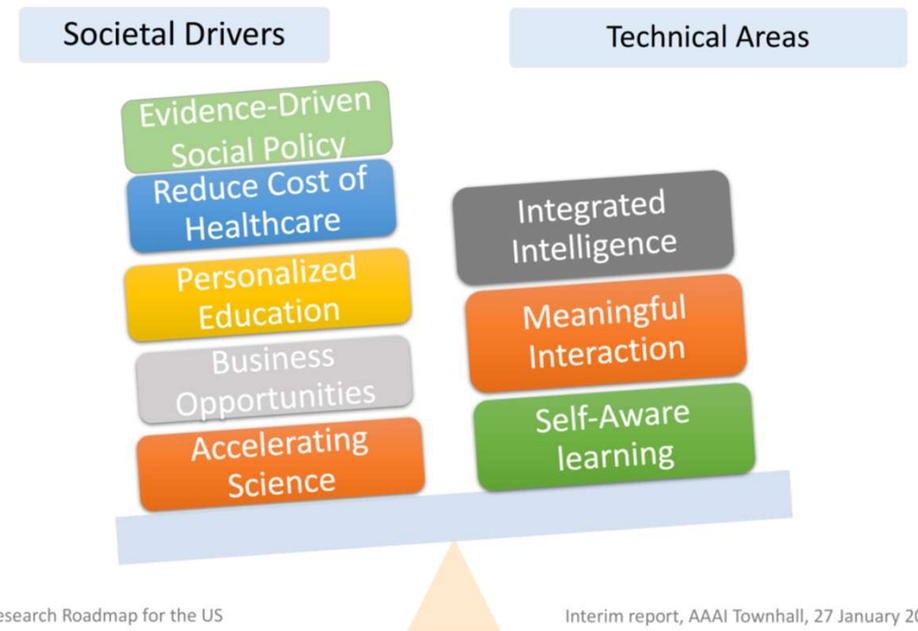
Alignment



Claude AI responds to the prompt: Draw a picture illustrating possible attractors of the AI trajectories

Key drivers to shape future AI

- Research breakthroughs
- Engineering breakthroughs: Hardware + data + scalability + ecosystems + democratization of tools.
- Societal drivers (business, health, education, accelerating science)
  - COVID → health demand, online/digital/contactless solutions, logistic automation
- New business opportunities → Investments $$
- Cybersecurity
- Law/regulation



A 20-Year AI Research Roadmap for the US

Interim report, AAAI Townhall, 27 January 2019

Continuation in 2025

- Plateau in large model improvements.
- Emergence of AI agents with practical interfaces.
- Rise of collaborative AI systems under human oversight to tackle complex problems.
- Rethinking human-AI teaming, on collective intelligence, risk assessment.
- Increased focus on AI in education.
- Emphasis on defining real-world AI benefits.
- Growth in sophisticated scams, e.g., audio deepfakes.
- Anticipated reduction in U.S. regulation.

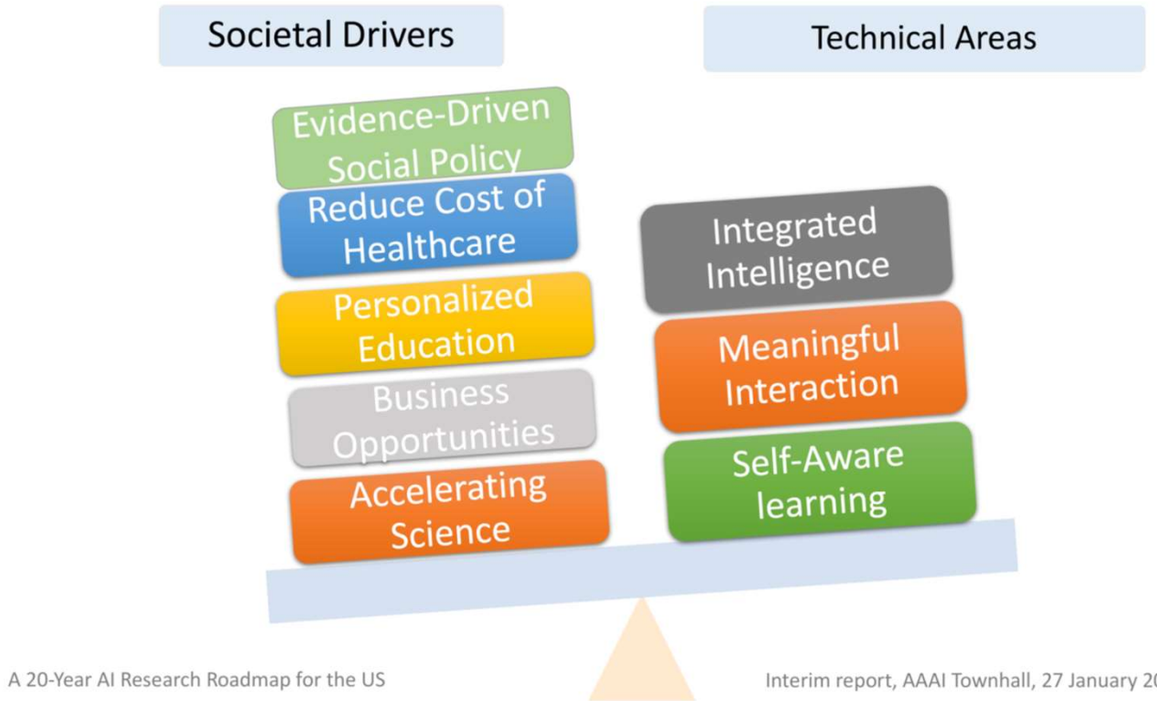
AI Agents: The Main Character of 2025

> *When you think about where AI is headed then, get rid of the clichés. Don't think about Terminators and superintelligences; but equally, don't think about basic chatbots or static interfaces. Instead,* ***imagine an entity that helps you navigate the complexities of modern life, acts as your representative, your advisor and counselor, who lives life alongside you, helping you carry out tasks on your computer and eventually out in the world****. A companion that sees what you see online and hears what you hear, personalized to you. Imagine that overload you carry quietly, subtly diminishing. Imagine clarity. Imagine calm.*
>
> Mustafa Suleyman, CEO of Microsoft AI, Times

https://hai.stanford.edu/news/predictions-ai-2025-collaborative-agents-ai-skepticism-and-new-risks

Continuation

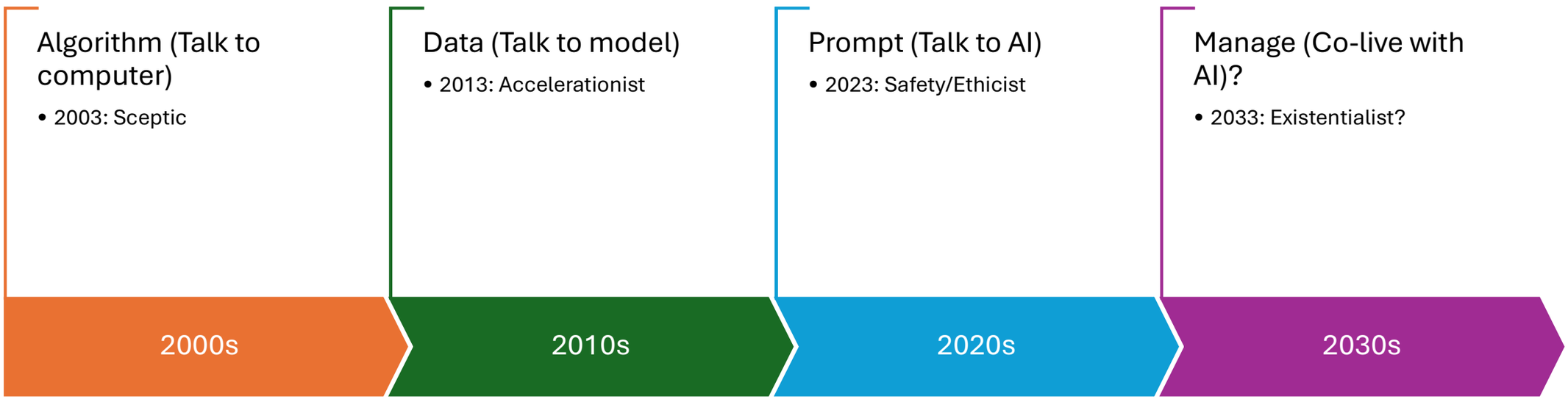
- Enabling techs: Data, compute, network, RL
- Improve LRMs fundamentals: Representation, learning & reasoning
- Pushing LRMs applications
  - Cognitive domains (vision, NLP)
  - In data-rich & data-poor domains
  - Other drivers



Continuation

- GPT-5 capabilities
  - More factual, less hallucination
  - More reasoning and planning (even approximate retrieval!)
- Multimodality
- Recursive self-improvement
- Multiagent systems
- More regulations
- GenAI will be at the core of big tech’s products and services

Continuation of landscape shifting of AI



Expansion: Capabilities

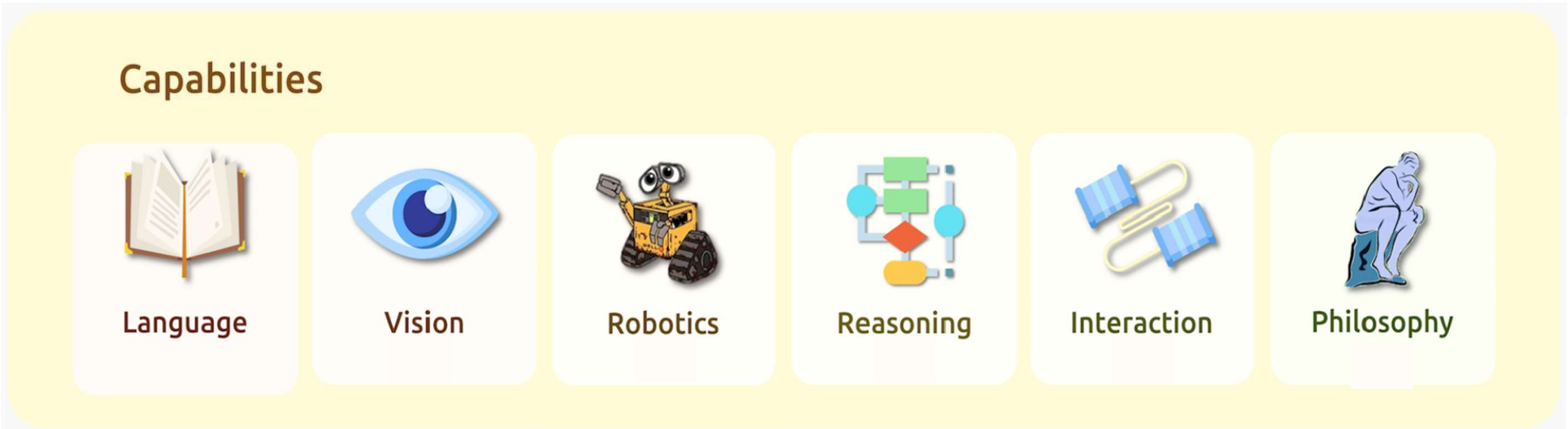


Image credits/References:
R. Bommasani et al., "On the opportunities and risks of foundation models", arxiv (2021)
(ImageNet) O. Russakovsky et al., "Imagenet large scale visual recognition challenge", IJCV (2015)
(CLIP) A. Radford et al., "Learning transferable visual models from natural language supervision", ICML (2021)
D. Silver et al., "Mastering the game of Go with deep neural networks and tree search", Nature (2016)

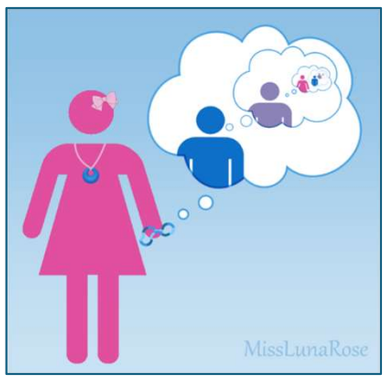
Slide credit: Samuel Albanie, 2022

Expansion: Augmented LLMs, aka Agentic AI

- **Reasoning in LLMs** = decomposing a complex task into a sequence of smaller tasks so that LLMs can solve.
  - E.g., Ask LLMs to follow examples (chain-of-thought), few-shot or in-context.
- **Tool** = External module called by a special token or a rule. Its output is used by LLMs. (LLM is a glue language)
- **Act** = Calling a tool.

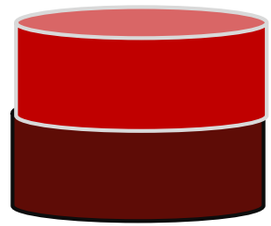
Mialon, G., Dessì, R., Lomeli, M., Nalmpantis, C., Pasunuru, R., Raileanu, R., Rozière, B., Schick, T., Dwivedi-Yu, J., Celikyilmaz, A. and Grave, E., 2023. Augmented Language Models: a Survey. *arXiv preprint arXiv:2302.07842*.

Expansion: Going social



Theory of mind
Recursive reasoning

Memory



Facts
Semantics
Events and relations
Working space

Multiple

Single

Perception

System 1: Intuitive

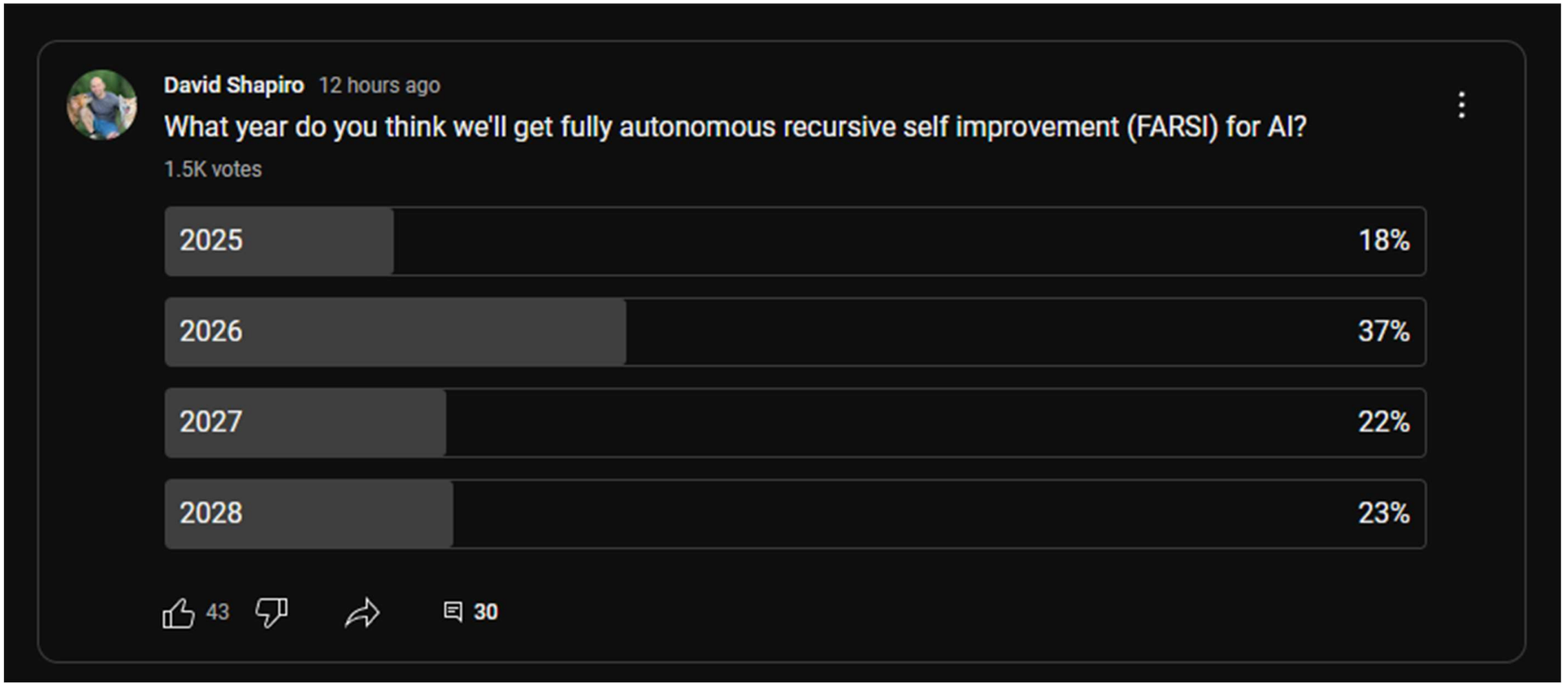
- Fast
- Implicit/automatic
- Pattern recognition
- Multiple

System 2: Analytical

- Slow
- Deliberate/rational
- Careful analysis
- Single, sequential

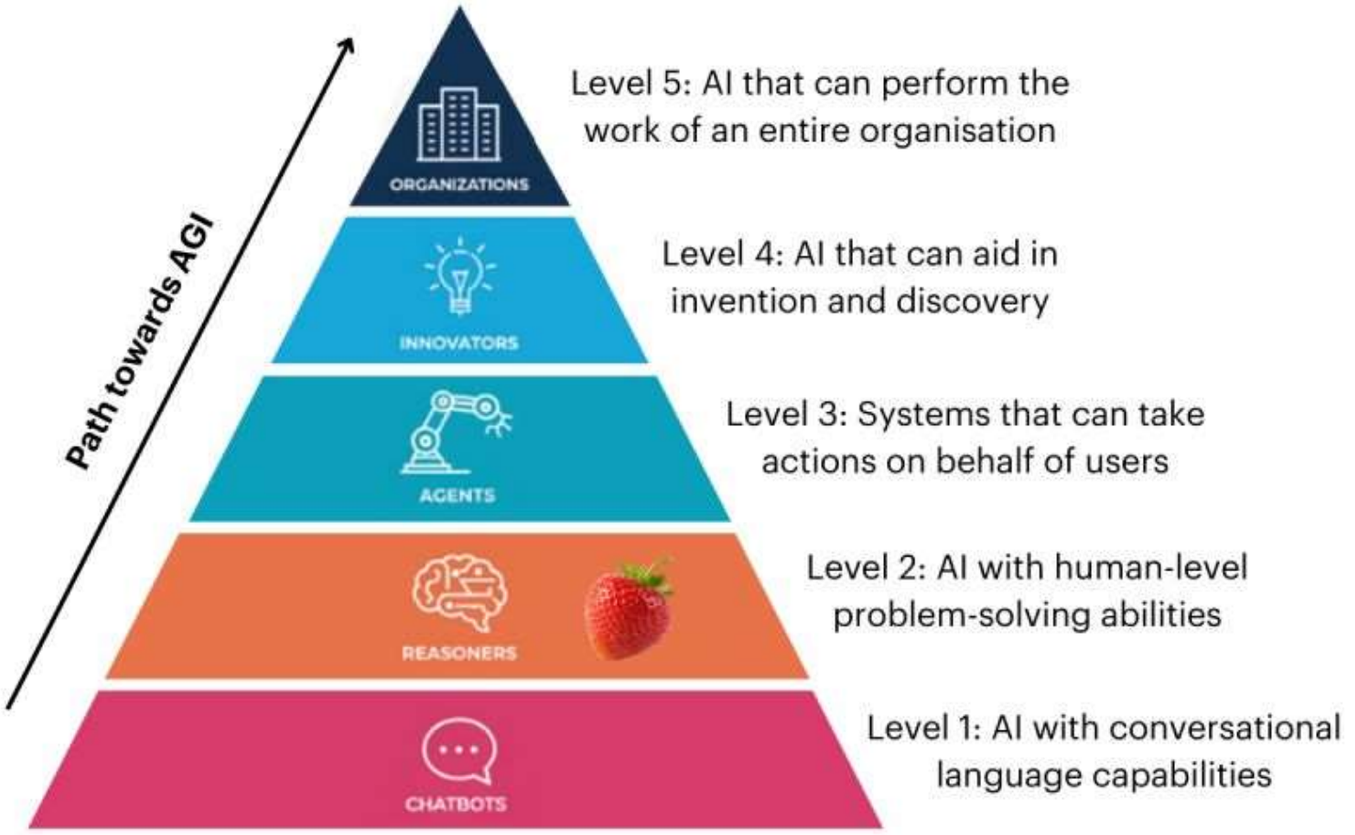
Image credit: VectorStock | Wikimedia

Fully autonomous recursive self improvement



The 5 Levels of AI

(OpenAI Classification System)

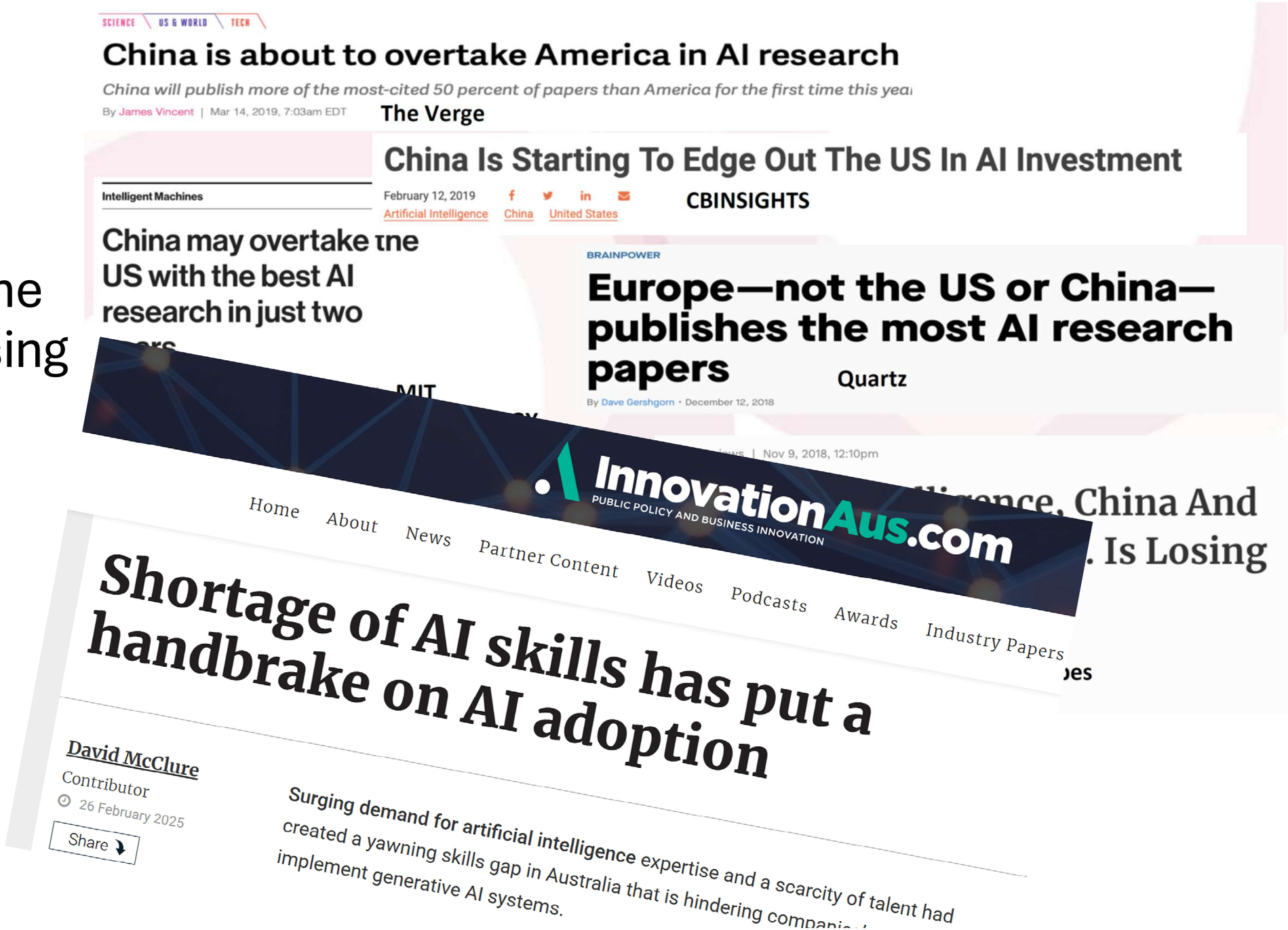


Credit: McLennan

Agenda

- ~~Arrival~~
- ~~Capability~~
- ~~Impact~~
- ~~Risks~~
- ~~Vision 2035~~
- AI for Vietnam

In AI, everyone fears of missing out



SCIENCE | US & WORLD | TECH

China is about to overtake America in AI research

China will publish more of the most-cited 50 percent of papers than America for the first time this yea

By James Vincent | Mar 14, 2019, 7:03am EDT The Verge

China Is Starting To Edge Out The US In AI Investment

Intelligent Machines

February 12, 2019 Artificial Intelligence China United States CBINSIGHTS

China may overtake the US with the best AI research in just two

BRAINPOWER

Europe—not the US or China—publishes the most AI research papers Quartz

By Dave Gershgorn • December 12, 2018

Nov 9, 2018, 12:10pm

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Shortage of AI skills has put a handbrake on AI adoption

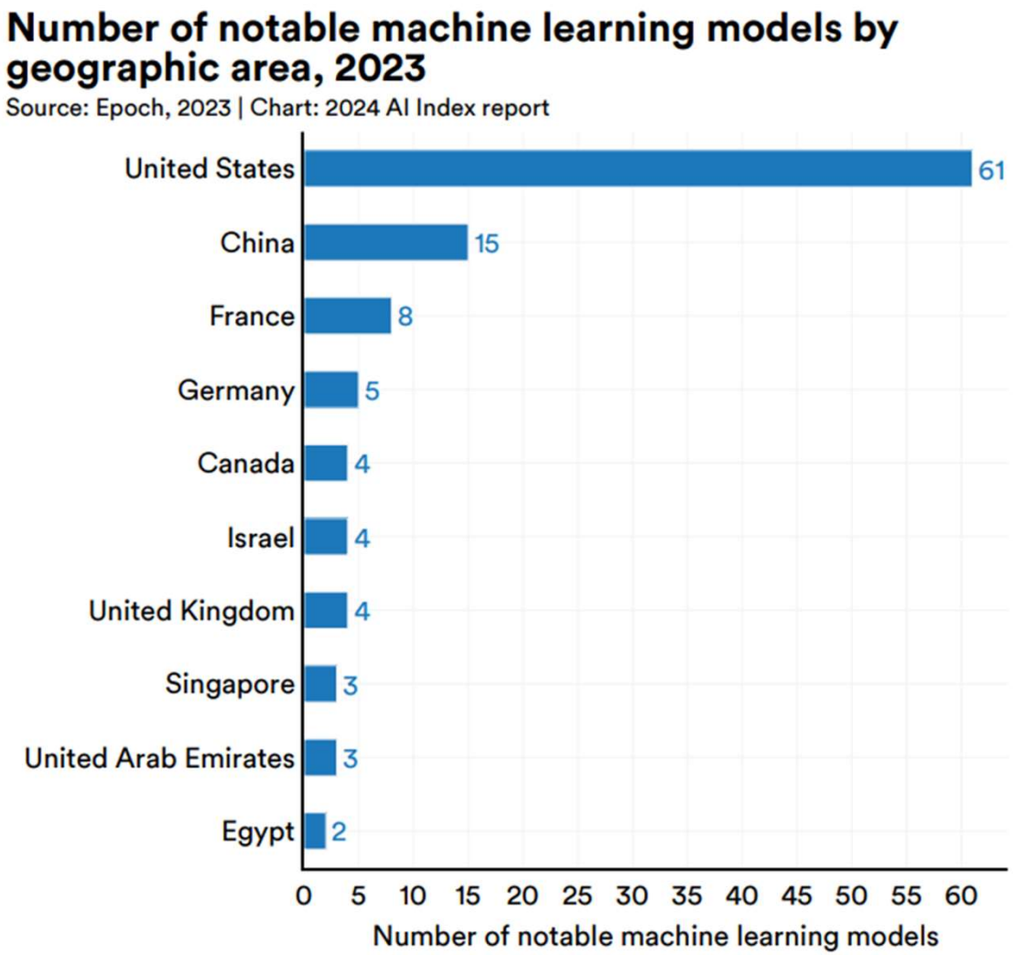
David McClure Contributor

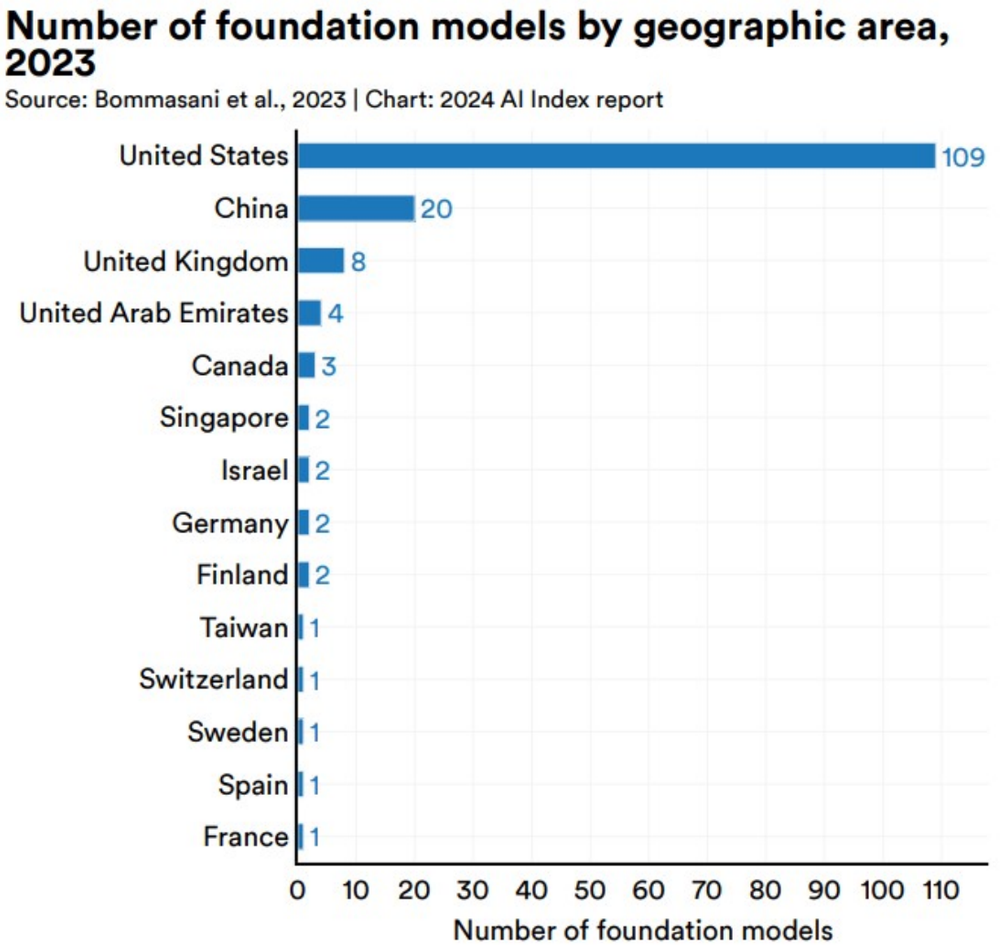
26 February 2025

Share

Surging demand for artificial intelligence expertise and a scarcity of talent had created a yawning skills gap in Australia that is hindering
implement generative AI systems.

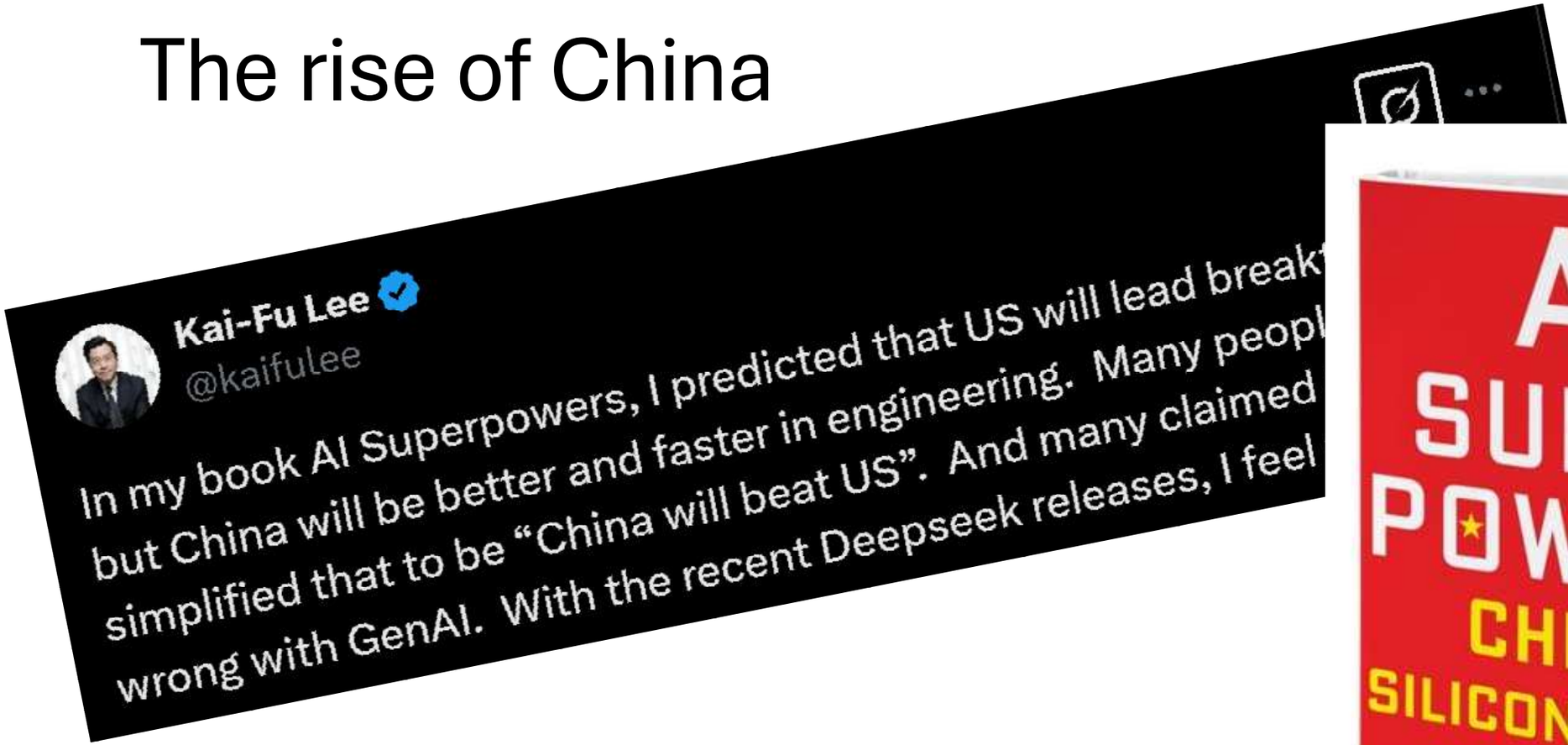
The global race is on

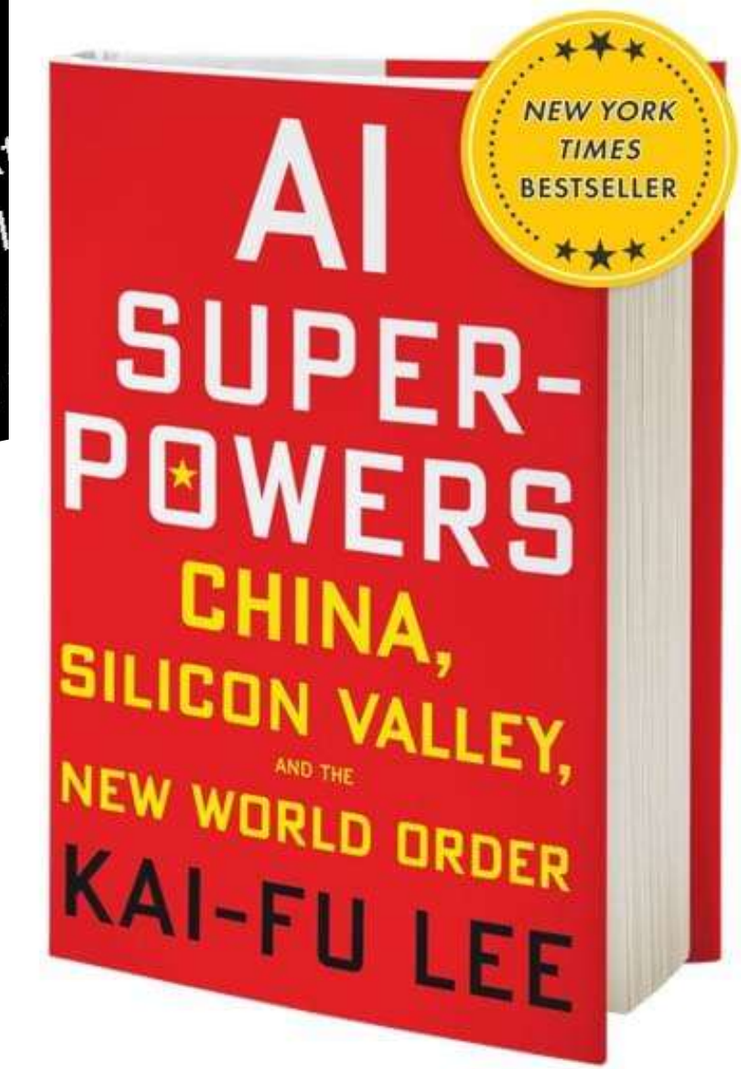




Source: Stanford Institute HAI, AI Index 2024

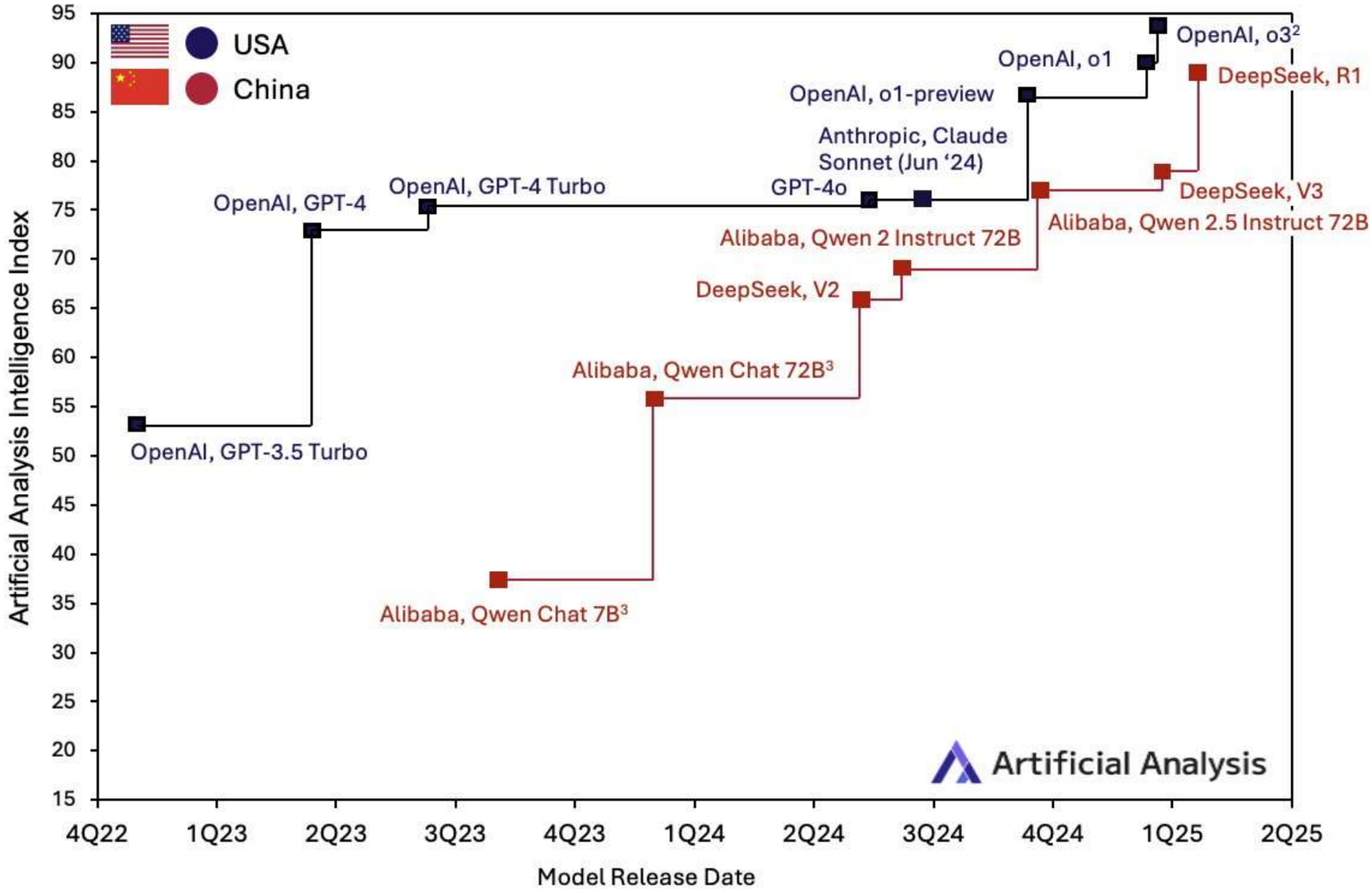
The rise of China



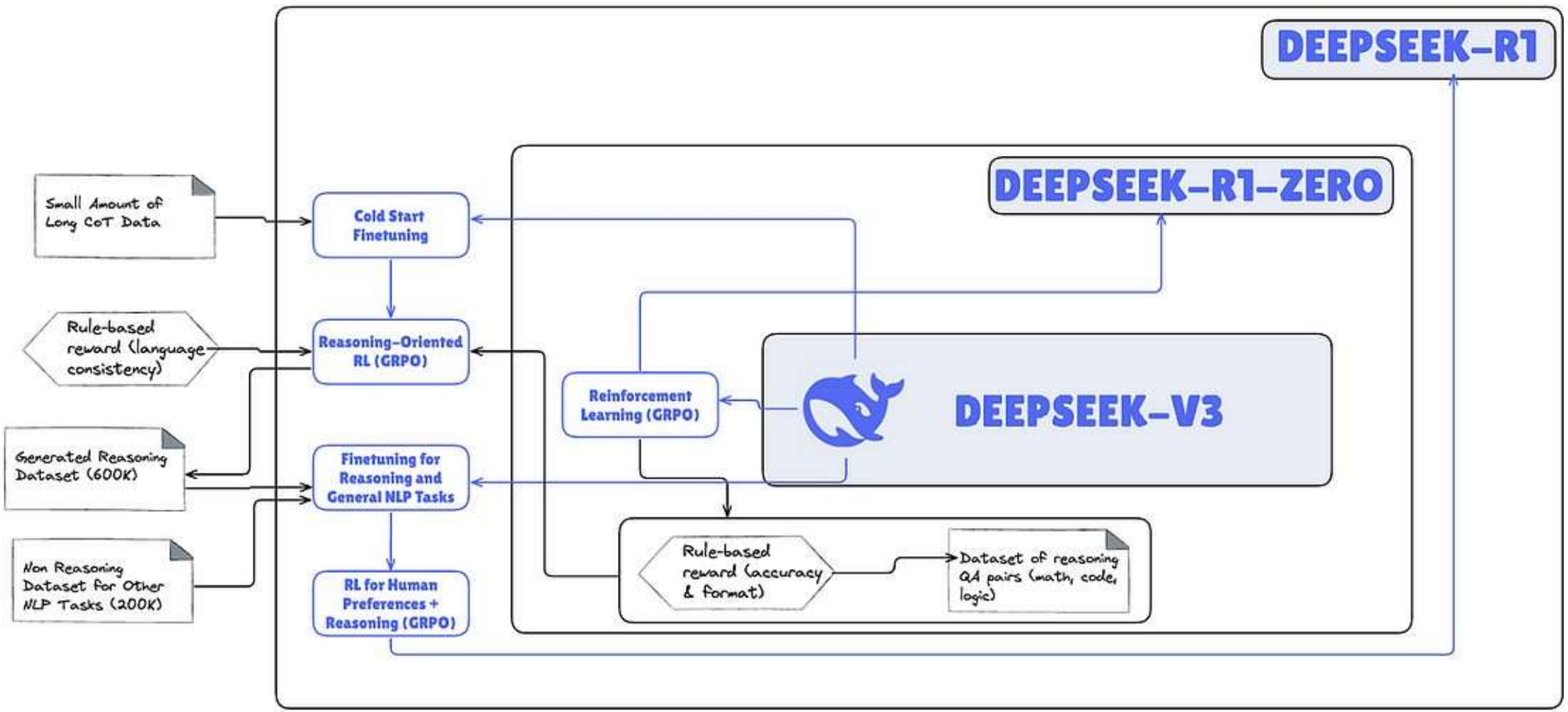


US & China: Frontier Language Model Intelligence, Over Time[1]

Artificial Analysis Intelligence Index: MMLU, GPQA Diamond, MATH-500, HumanEval. Top 5 Labs by Market Share.



It takes time and $$$$



Source: FS Ndzomga

Modern AI is costly! The case of ChatGPT

- ~10K GPU, ~285K CPU
- Data collection: 500G tokens, may take a year or more.
  - An average person may need 18K years to read all these tokens.
- Training time: 3-12 months
- API (as of 1/3/2023): $1 ~ 350K tokens.
- Every day, ChatGPT costs the company @ 10M users * 4c = $400,000.
- **Every month, ChatGPT costs OpenAI $12M**

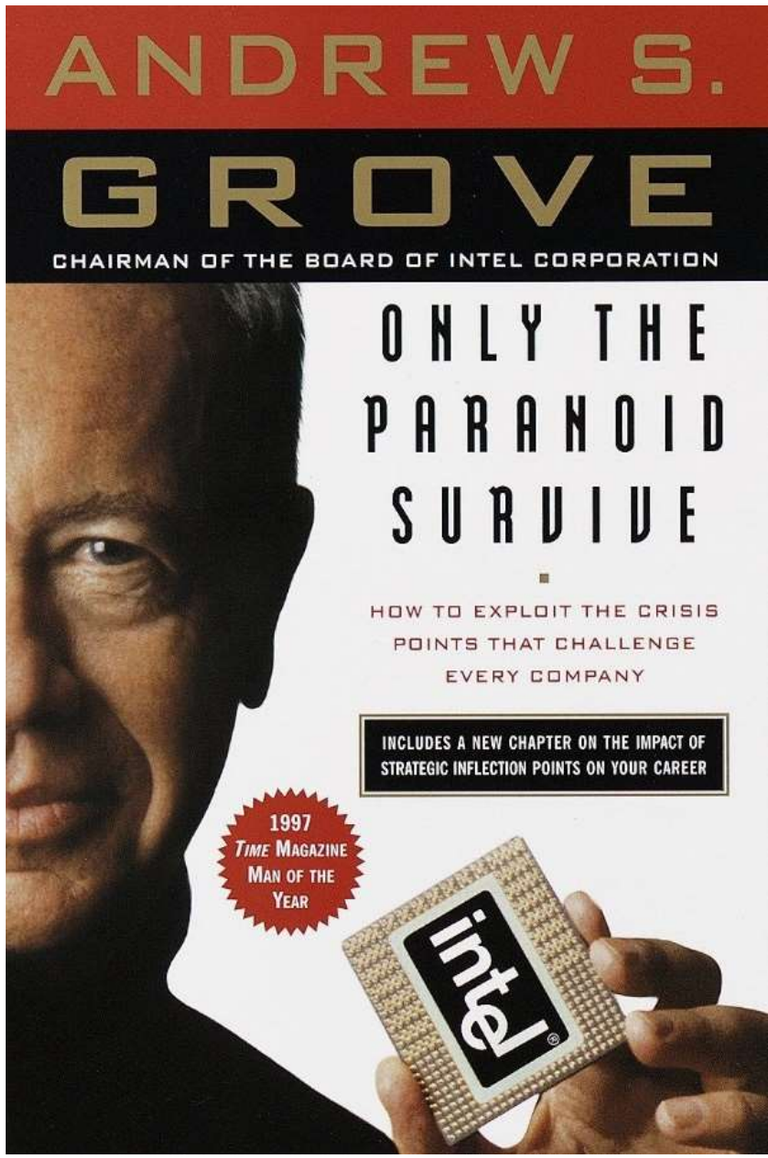
What is in the store for VN?

Remember, no one is waiting!

There is a fear of missing out everywhere.

It is best determined by Vietnamese people living in VN.

But some thinking frameworks can be useful.



“[…] the dynamics of the game will evolve. In the long run, the right way of playing football is to position yourself intelligently and to wait for the ball to come to you” (*Neil Lawrence, 7/2015*)

How to position yourself in a fast ball game

Thinking framework

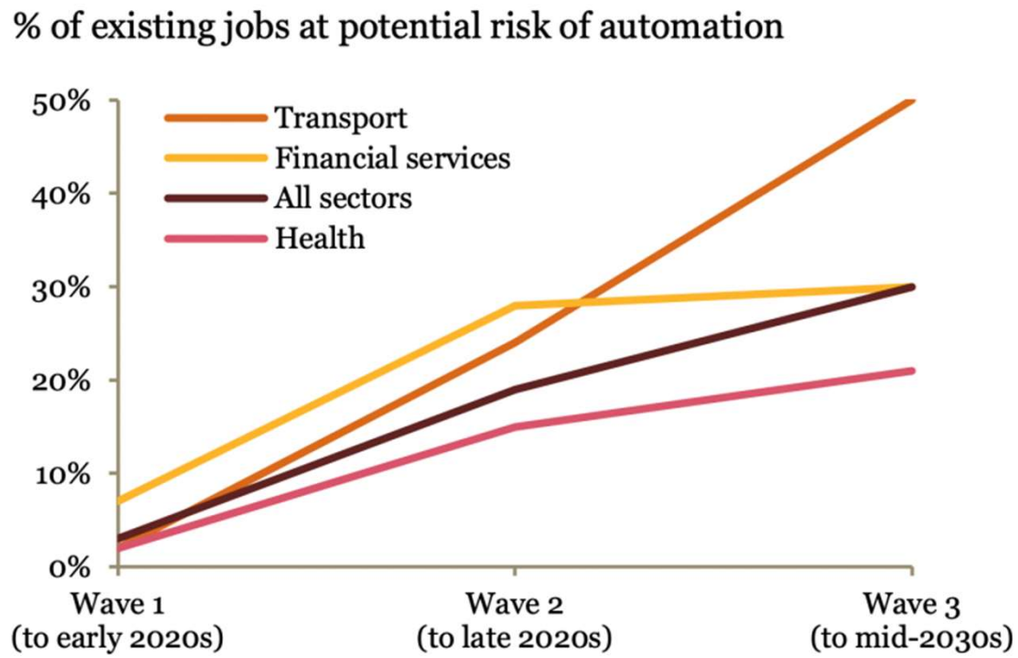
- What can AI offer now and in the future?
  - → Living in the future mindset
  - → Having an AI mindset
- Have a mission of making impact using AI
- Position ourselves in the global ecosystem & global/local value chain
- Have an experimentation and fail-fast mindset

AI’s technical success formula

DATA **KNOWLEDGE** **COMPUTE** **SCALABLE ALGORITHMS** **TALENT**

Questions to ask

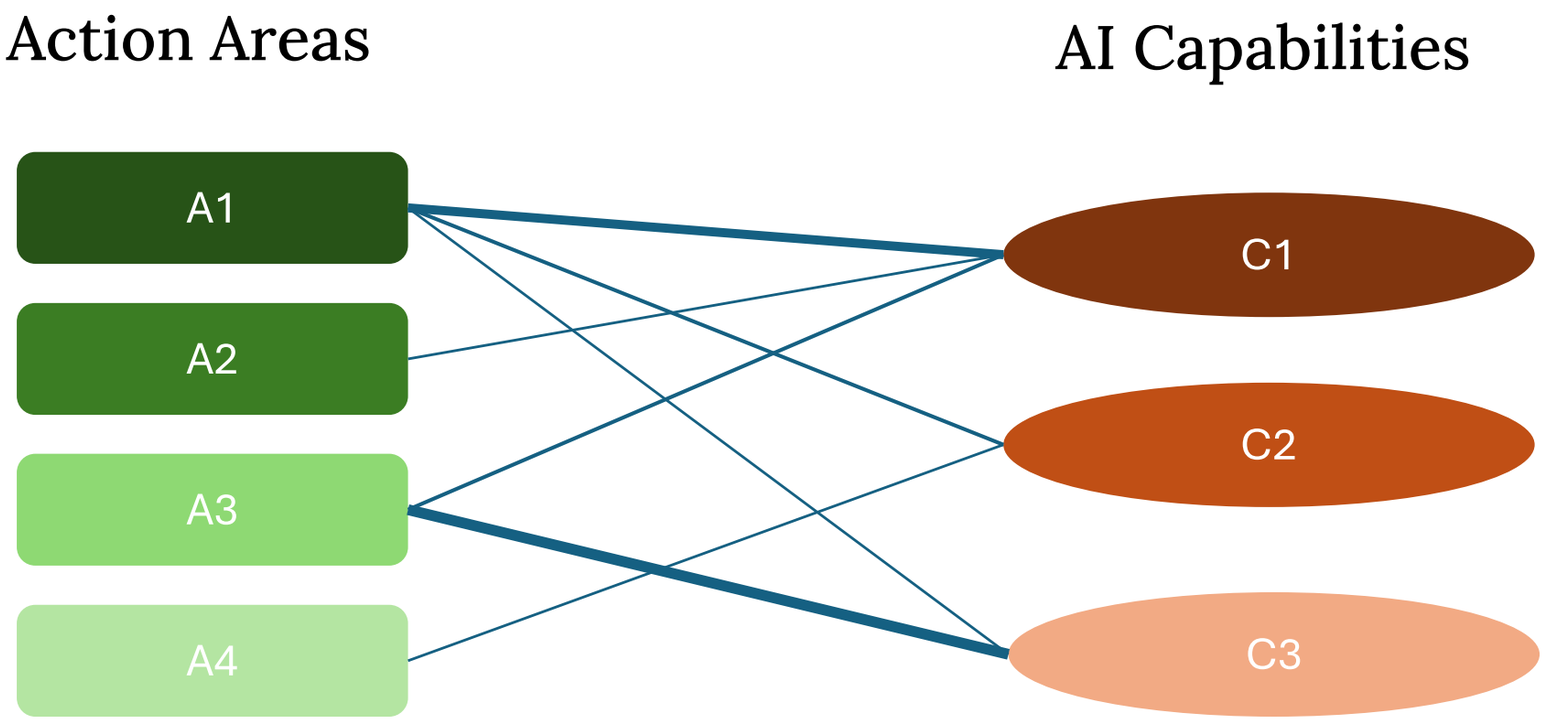
- What processes can we automate?
- What if we have a powerful agent that can do X?
- What are new values to be created?
- What are the opportunities to transform?
- How can we change ourselves internally?



Source: PwC estimates based on OECD PIAAC data (median values for 29 countries)

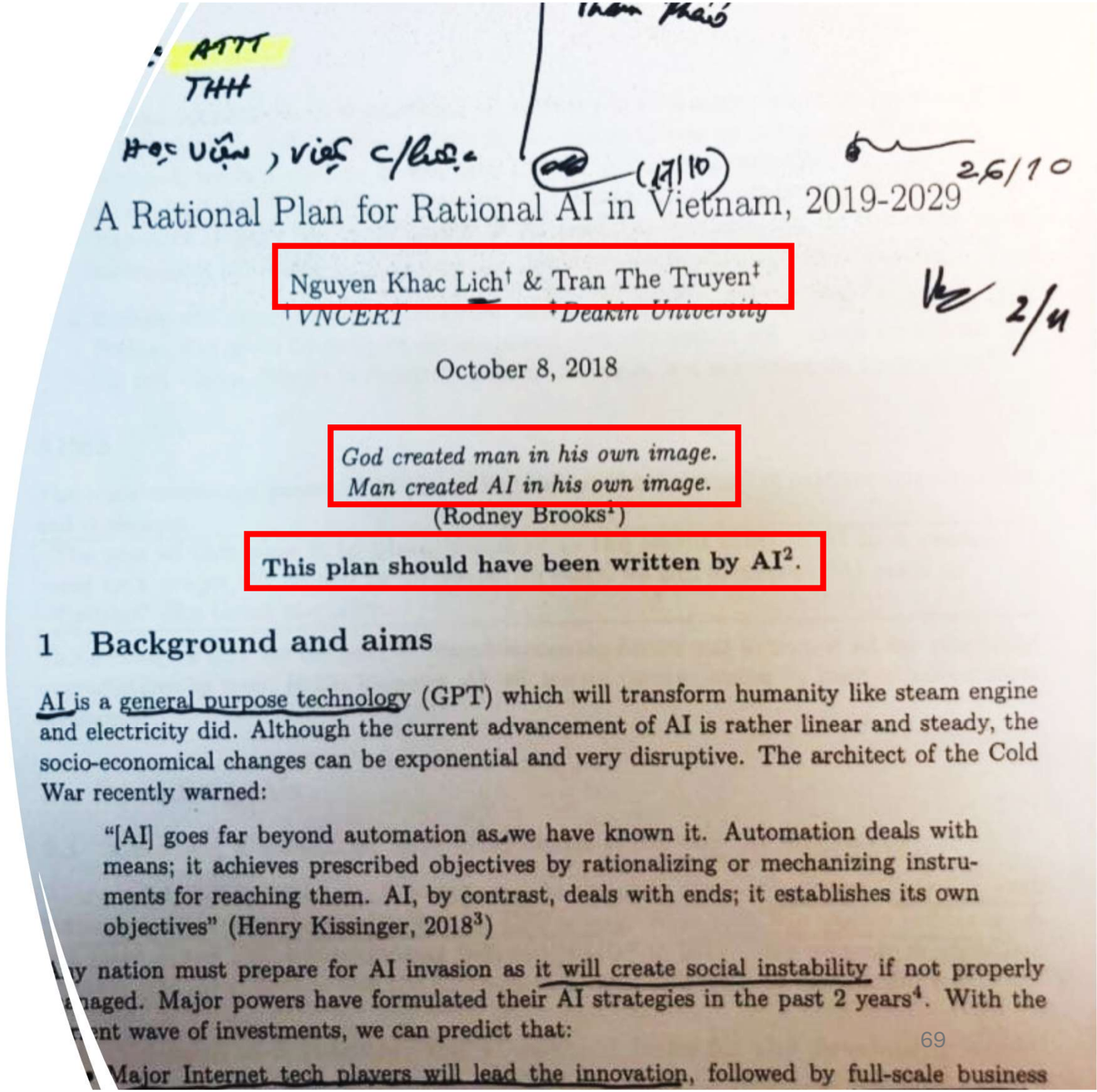
Inspired by: https://www.ericsson.com/en/blog/2019/6/ai-in-telecom

Implementers: What/how can I do?



2018: Vietnam

- “This plan should have been written by AI”
- “Any nation must prepare for AI invasion as it will create social instability if not properly managed”.
- “Major Internet tech players will lead the innovation”.



A Rational Plan for Rational AI in Vietnam, 2019-2029

Nguyen Khac Lich[†] & Tran The Truyen[‡]
[†]VNCERT [‡]Deakin University

October 8, 2018

God created man in his own image.
Man created AI in his own image.
(Rodney Brooks[1])

This plan should have been written by AI[2].

1 Background and aims

AI is a general purpose technology (GPT) which will transform humanity like steam engine and electricity did. Although the current advancement of AI is rather linear and steady, the socio-economical changes can be exponential and very disruptive. The architect of the Cold War recently warned:

> “[AI] goes far beyond automation as we have known it. Automation deals with means; it achieves prescribed objectives by rationalizing or mechanizing instruments for reaching them. AI, by contrast, deals with ends; it establishes its own objectives” (Henry Kissinger, 2018[3])

y nation must prepare for AI invasion as it will create social instability if not properly naged. Major powers have formulated their AI strategies in the past 2 years[4]. With the nt wave of investments, we can predict that:

Major Internet tech players will lead the innovation, followed by full-scale business

Predictions: 2018-2028

- Major Internet tech players will lead the innovation, followed by full-scale business automation.
- The US will still lead methodological development.
- China will lead implementation. Aimed to surpass USA by 2030.
  - VN will “feel” the AI generated heat from China.
  - Chipsets, consumer products & services
  - AI-enabled administration.
- The EU lacks behind – complex structure & obsessed with regulation.
- Largest tech companies → AI-first companies.
- Armed race in Defense technologies.

Reality: 2018-2025

COVID-19 pandemic

- Coordinated effort → Vaccines
- Work from home
- Economy aftershocks

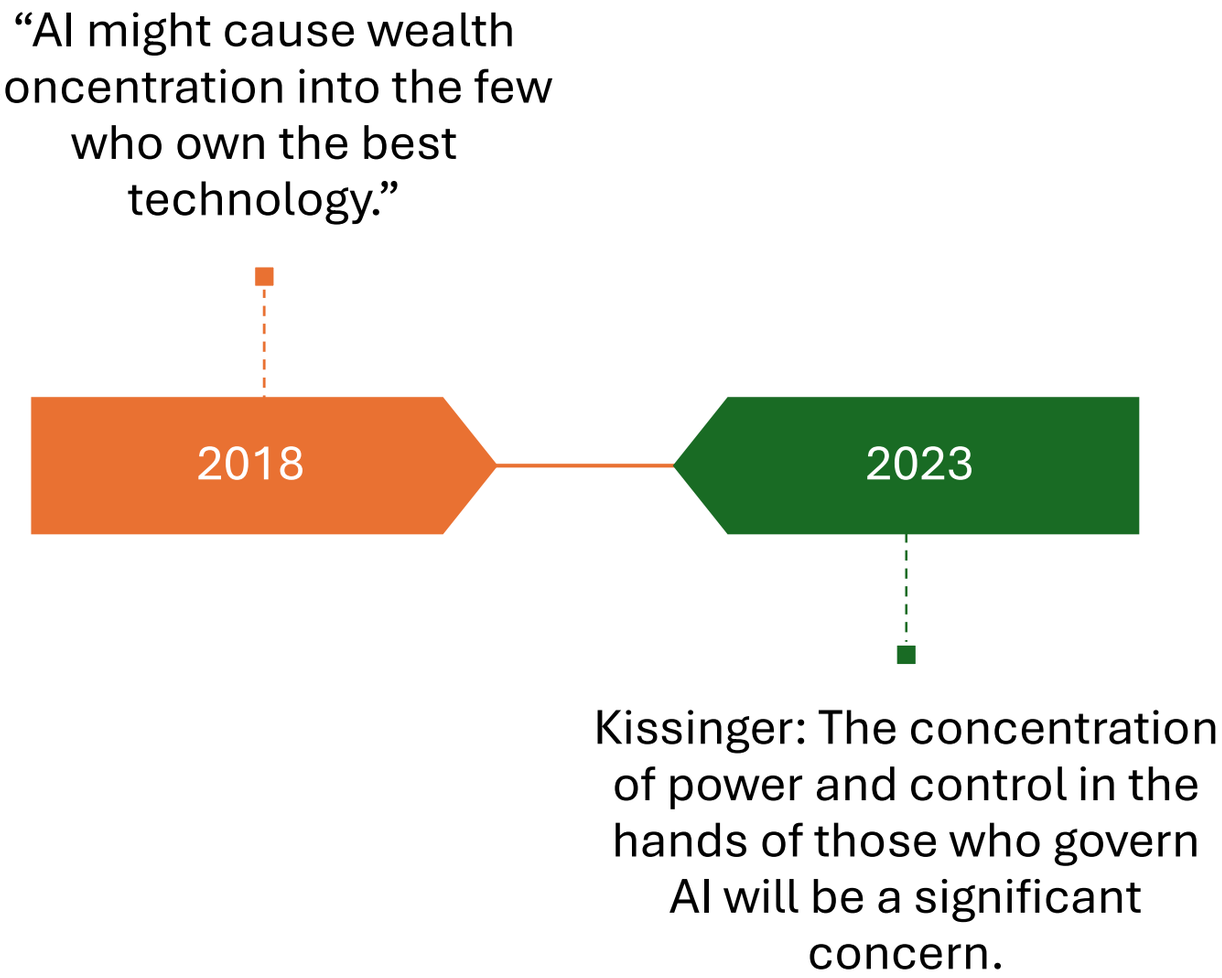
Russia-Ukraine War

Shifting in world's power: BRICS

Generative - Agentic AI, 2021-2025

- **Tipping point: ChatGPT 12/2022.**

Reality: Concentration of power



Sometimes, it needs to be a bit ambitious and romantic

AIMS

The transformational power of AI places Vietnam at the crossroad of extreme opportunities and challenges.

The aim of this plan is to place Vietnam in the world map of AI in 3 years, and as a major AI power in 10 years. In short, we aim to achieve "AI made in Vietnam" as a brand of quality.

This strategy is only for the next 10 years because the future and impact of AI are inherently unpredictable by then. In the long-run, AI will learn to evolve, either by itself or with human assistance.

2.1 Creating a wealth of 50% GDP with 100K top AI engineers

AI are 100-1000X technologies. If Vietnamese AI engineers are as effective as Google's[7], each person can create approximately a $1.25M USD a year. With 100K top quality engineers we can make $125B USD a year, roughly 50% of VN GDP in 2017. This [illegible] but it paints the picture of how the economy will [illegible]

2.2 Vietnam as a producer for AI-enabled techs for the developing world

AI capability will be the norm in all industries that require automation and decision-[illegible] the current global effort in democratizing AI. This gives Vietnam an [illegible] window (2-3 years) to be a producer of AI-enabled techs. The [illegible] be AI superpower) and India (aimed to be AI garage

2.3 Vietnam as a major player in the global value chain

The AI ecosystem consists of: (A) Centralized AI platforms + prediction as a service (PaaS); (B) Distributed AI at the edge for devices and sensors; (C) Consulting services to transform businesses with AI tech; (D) AI-centric products that can be easily customized; (E) AI-first

- Push full digitalization
- Train 100K local AI talents
- Push digital economy
- Push prediction economy
- Build national core AI programs
- Create three clusters of AI innovation: Hanoi, Da Nang & HCMC (AI hubs)

Table 2: Actionable items in 2019-2029.

- Build computational infrastructure
- Build national AI products program
- Bring US-based startups home (e.g. GotIt!)
- Attracting big players to create R&D labs in VN
- Attracting 1K international talents
- Training 10K local talents
- Develop curriculum for AI in school
- Create incentives to promote local "AI champions"
- Create three large AI Institutes in the three AI hubs (Hanoi, Da Nang, HCMC)

Talent investment

- AI engineering requires new, rare talent.
  - How many of current Vietnamese IT engineers will be AI engineers?
  - Look for global recruitment and work from distance? Like those in China, India, Singapore, even the US?
- What is average revenue generated by an AI engineer per year? (Hint: Google engineer created ~ $1.2M/year).
- Do we expect the products/services to be offered globally?
- What salary will you be willing to pay? (Hint: It can be as high as $60K/year in VN, $300K/year in the US).

AI foundations (Appendix A.2)	**AI products (Appendix A.3)**
• Cognitive architectures • Computer vision and robotics • Natural language processing (NLP), especially to remove language barriers • Accessing and reasoning with world knowledge • AI for the edge – AI on mobile and low-powered sensors	• AI for public service • AI for defense and law-enforcement • AI for health • AI for education • AI for agriculture • AI for tourism • AI for transportation

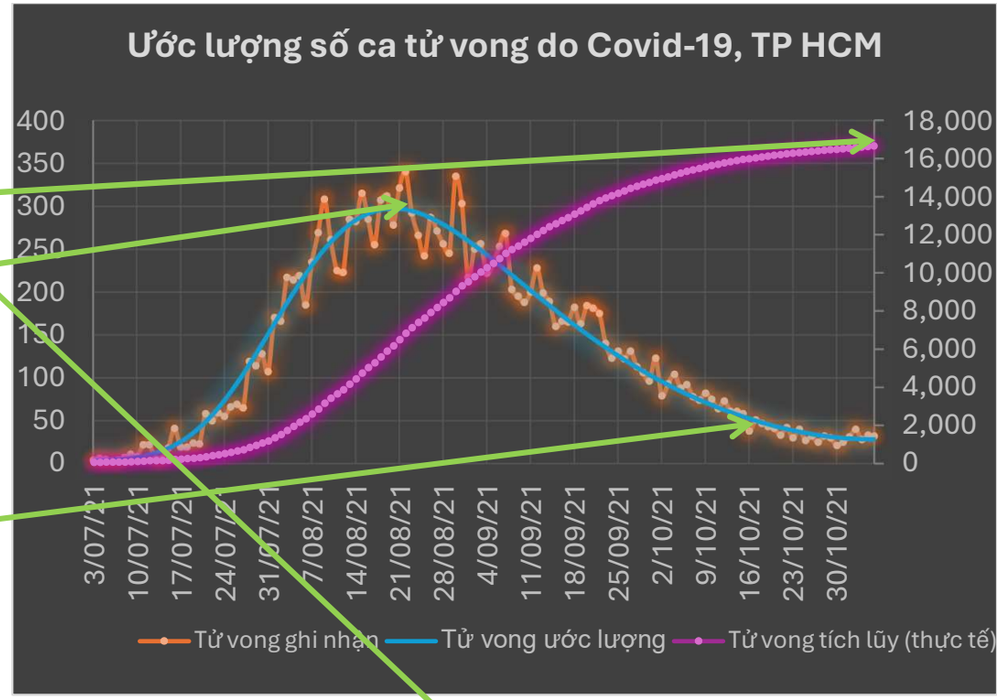
AI for Covid-19 forecast, 2021, HCM City

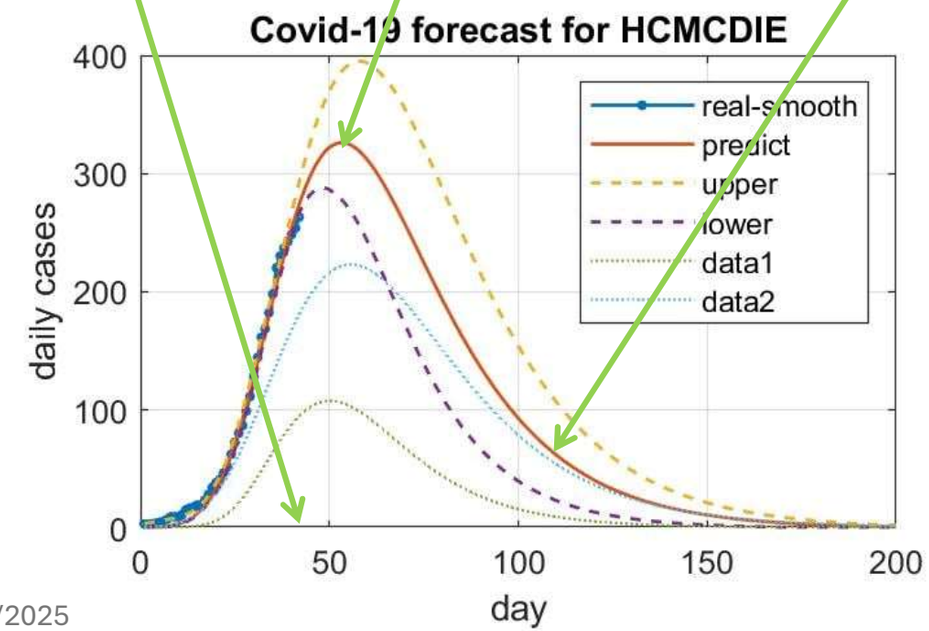
Total cases

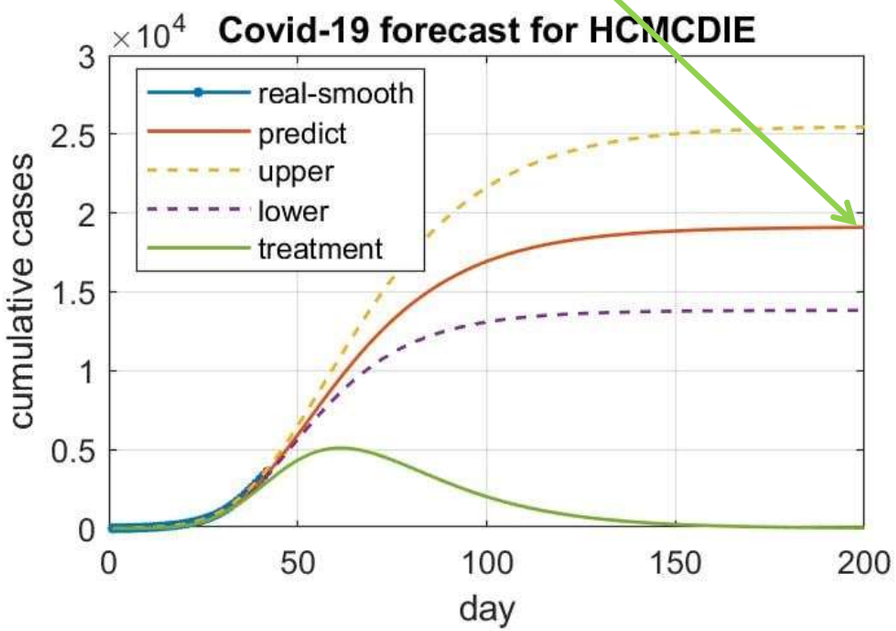
20-21/8: Peak

11/8: Predicting date

16/10







THỦ TƯỚNG CHÍNH PHỦ	CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM Độc lập - Tự do - Hạnh phúc
Số: /QĐ-TTg	*Hà Nội, ngày tháng năm 2020*

QUYẾT ĐỊNH
Về việc phê duyệt Chiến lược Trí tuệ nhân tạo Quốc gia đến năm 2030

THỦ TƯỚNG CHÍNH PHỦ

Căn cứ Luật tổ chức Chính phủ ngày 19 tháng 6 năm 2015;

Căn cứ Luật công nghệ cao ngày 13 tháng 11 năm 2008;

Xét đề nghị của Bộ trưởng Bộ Khoa học và Công nghệ,

QUYẾT ĐỊNH:

Điều 1. Phê duyệt Chiến lược Trí tuệ nhân tạo Quốc gia đến năm 2030 (sau đây viết tắt là Chiến lược) với các nội dung chủ yếu sau:

I. QUAN ĐIỂM CHỈ ĐẠO

1. Thúc đẩy và phát triển Trí tuệ nhân tạo (TTNT) trở thành một công nghệ

Current activities in VN

- Leverage AI for businesses
- Fine-tuning existing models
- Experiment with new VN-specific tasks
- Build our own LLMs/LRMs trained on Vietnamese
- Big investments (gov, NVIDIA, Google, VinGroup, FPT, Viettel, VNPT, etc.)
- The AI training industry is booming.

Photo source: Vietnam Visa Easy

Credit: AvePoint