

Generative AI and the Creation of Large Language Models



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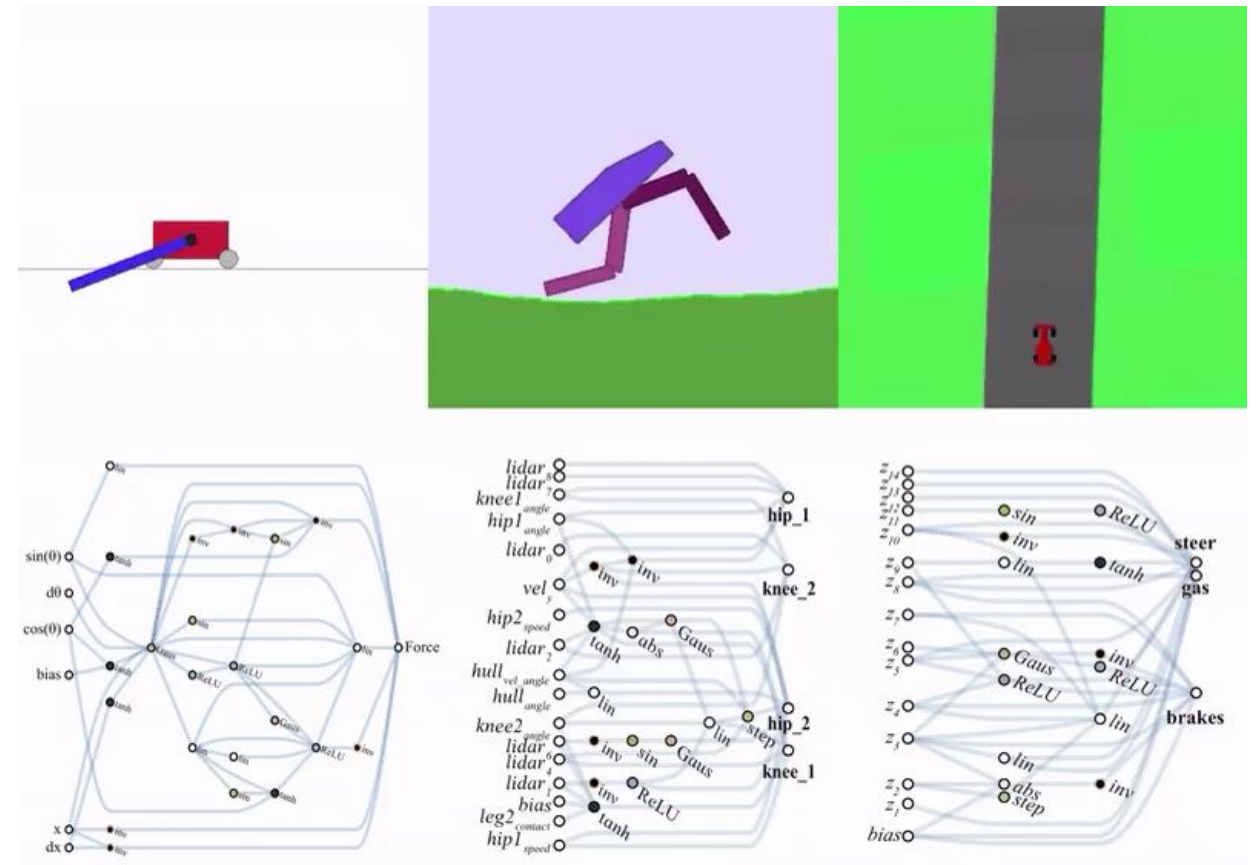
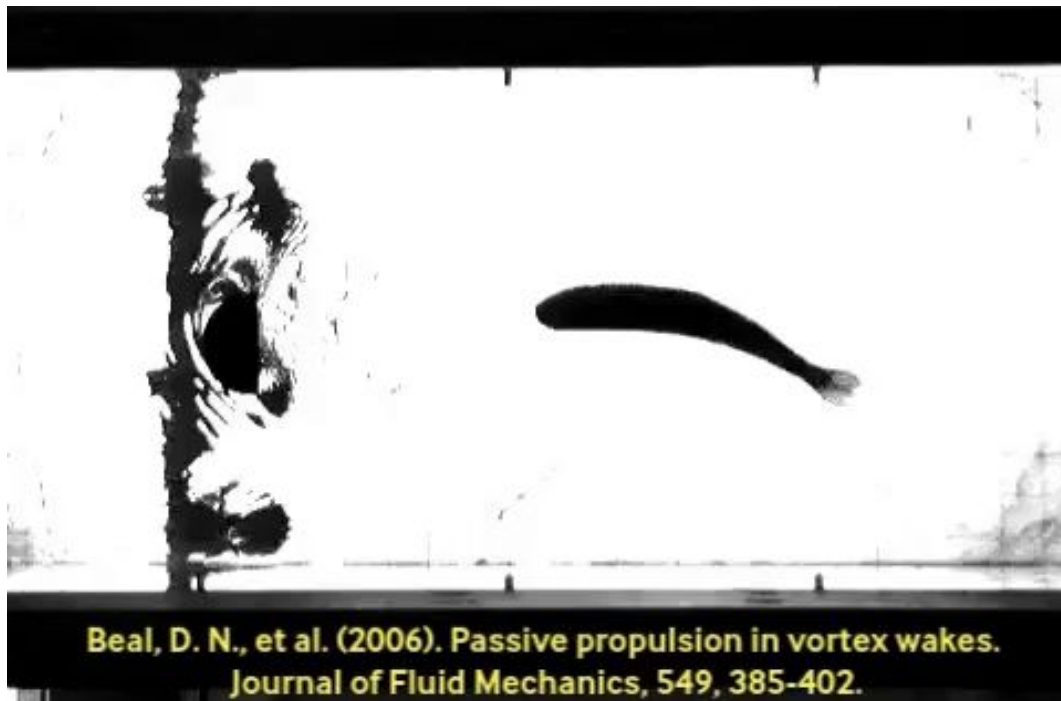
“Against bigger the better. Delivering powerful AI models at a fraction of the usual cost”



Nature inspired intelligence



“Intelligence” is not just inside the weights of a large neural network.

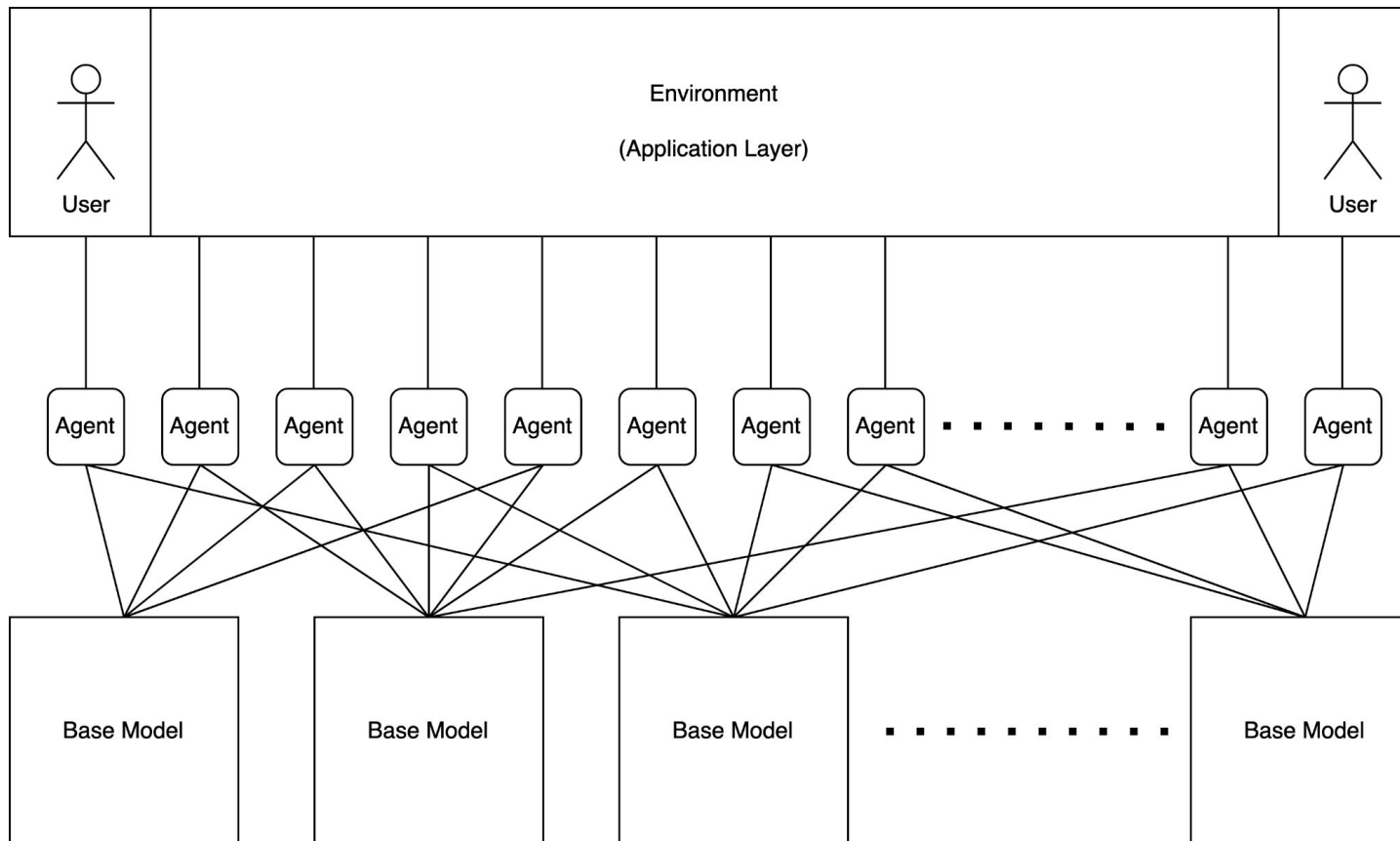


Adam Gaier and **David Ha**, Weight Agnostic Neural Networks. NeurIPS 2019 (Spotlight)

Agent



We see the need to develop much more efficient base models as well as evolving artificial agents that use them.



Agenda for today



1. History of AI: 3 Stages



2. Recent trends: 3 Tensions



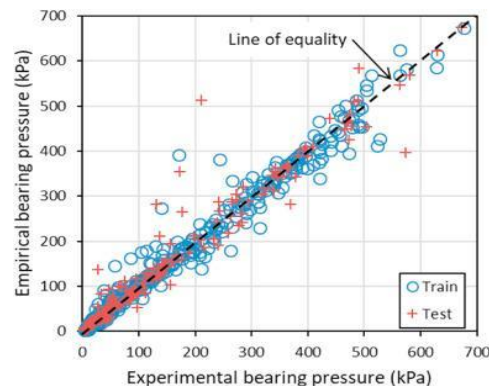
3. What's next?: 3 Lessons

1. History of AI

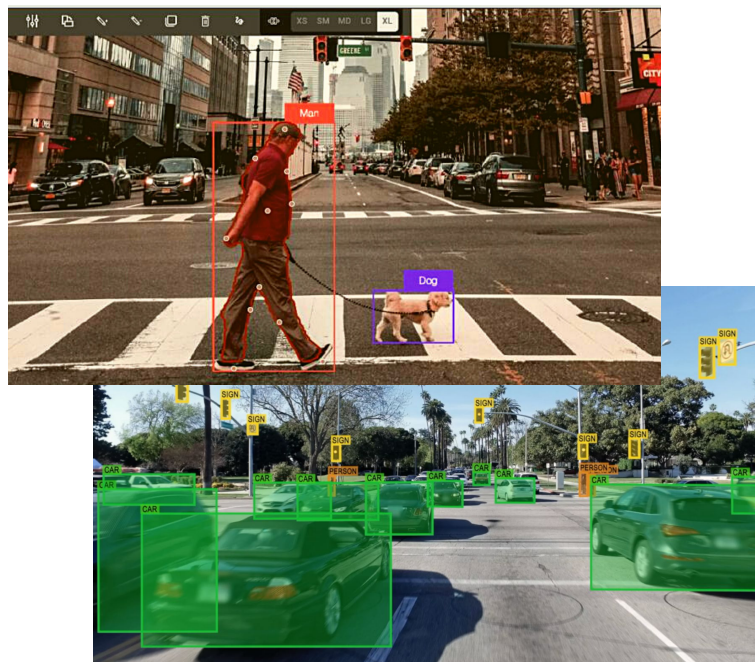
Three Stages of AI Innovation



Prediction



Recognition



Generation



How can I help you today?

Write a text message

asking a friend to be my plus-one at a wedding

Write a text

inviting my neighbors to a barbecue

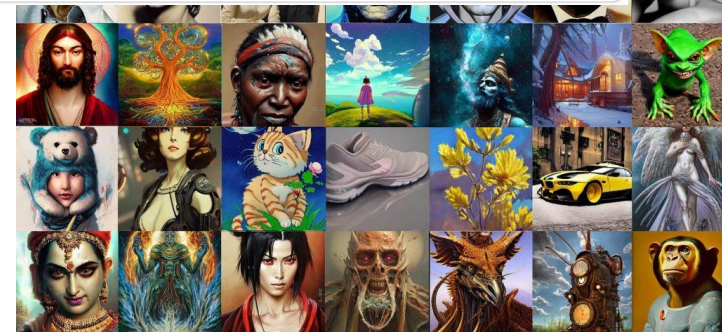
Compare design principles

for mobile apps and desktop software

Plan a trip

to experience Seoul like a local

Message ChatGPT...

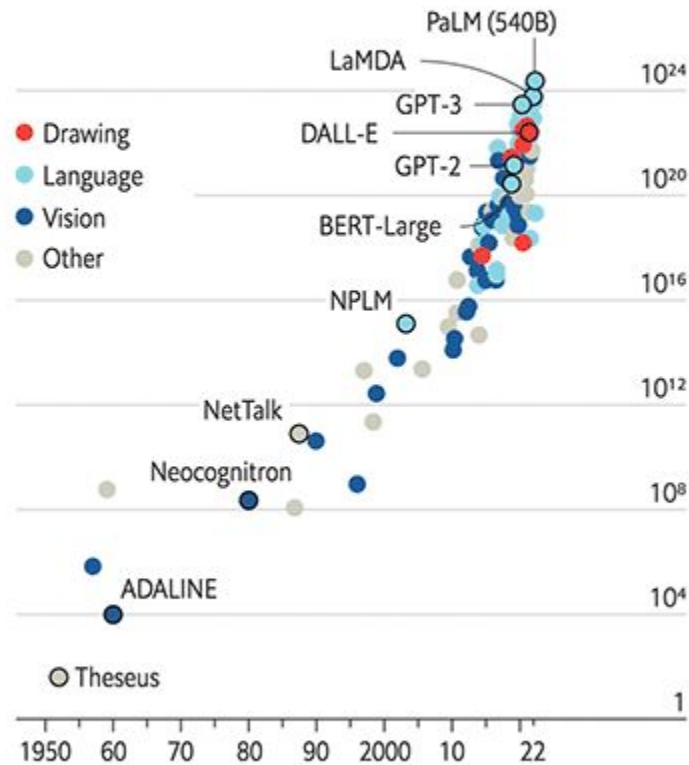


Race of AI development



The blessings of scale

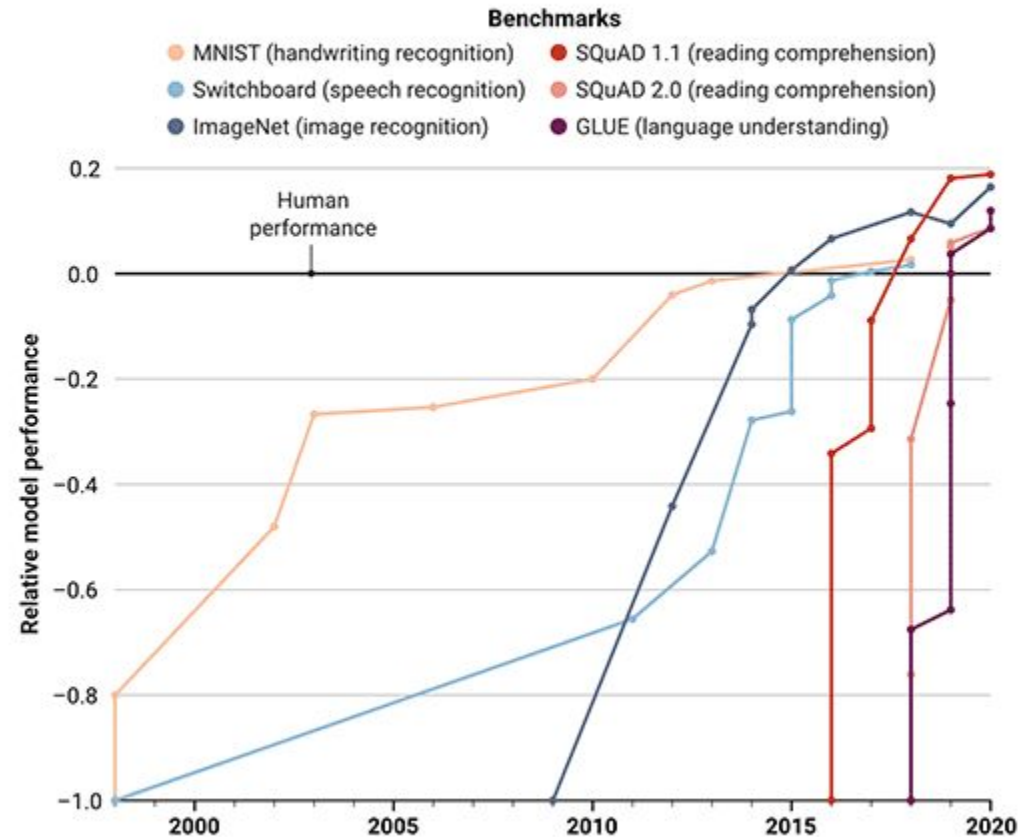
AI training runs, estimated computing resources used
Floating-point operations, selected systems, by type, log scale



Sources: "Compute trends across three eras of machine learning", by J. Sevilla et al., arXiv, 2022; Our World in Data

Quick learners

The speed at which artificial intelligence models master benchmarks and surpass human baselines is accelerating. But they often fall short in the real world.



(GRAPHIC) K. FRANKLIN/SCIENCE; (DATA) D. KIELA ET AL., DYNABENCH: RETHINKING BENCHMARKING IN NLP, DOI:10.48550/ARXIV.2104.14337

Source: The Economist

2. Recent AI Trends: 3 Tensions



NO KILLER
APPLICATION

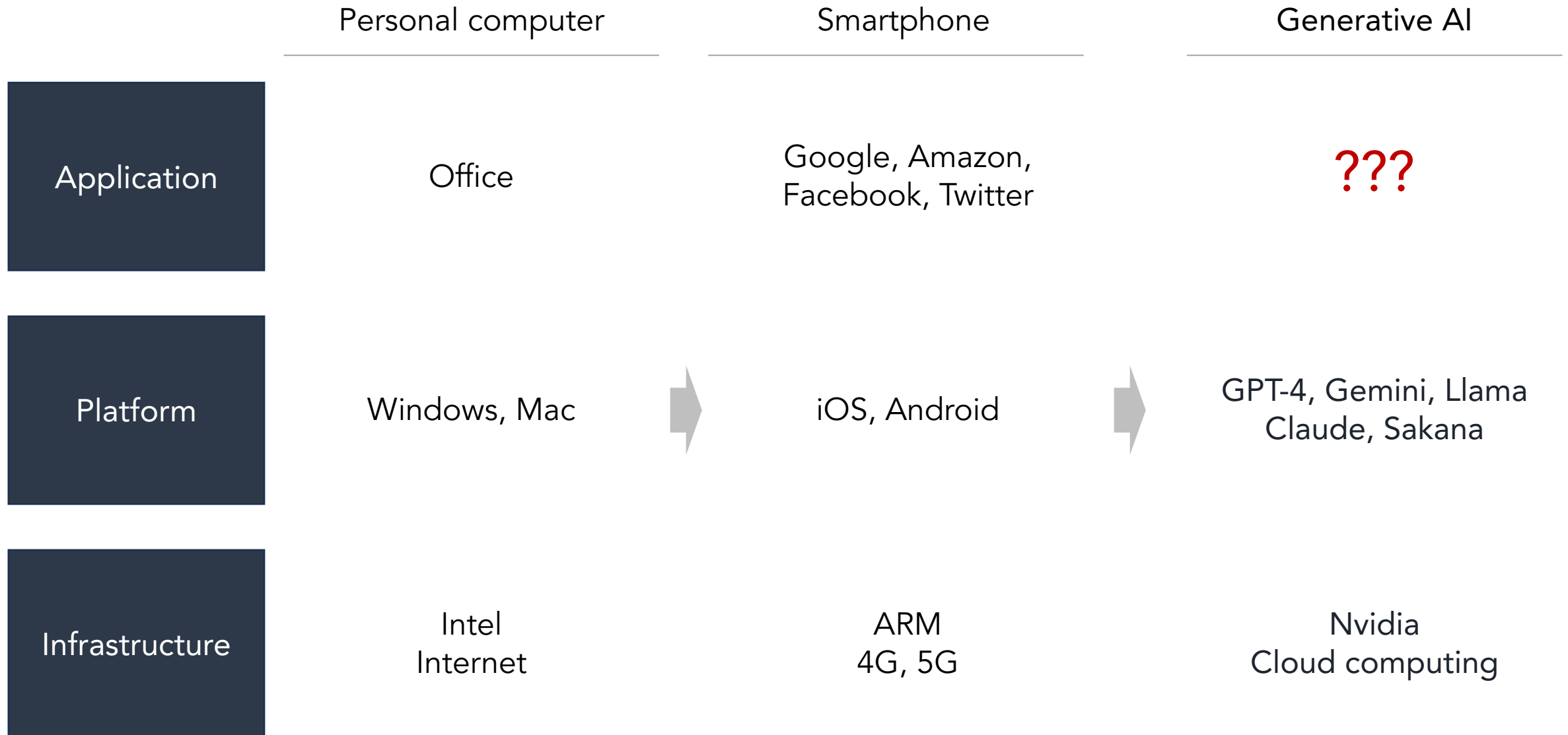


END OF "BIGGER THE
BETTER"



GEOPOLITICS OF AI
DEVELOPMENT

(1) No Killer Application



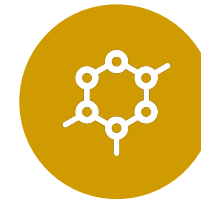
(2) End of “Bigger the Better”



Diminishing
Marginal
progress



Training Cost
& Sustainability

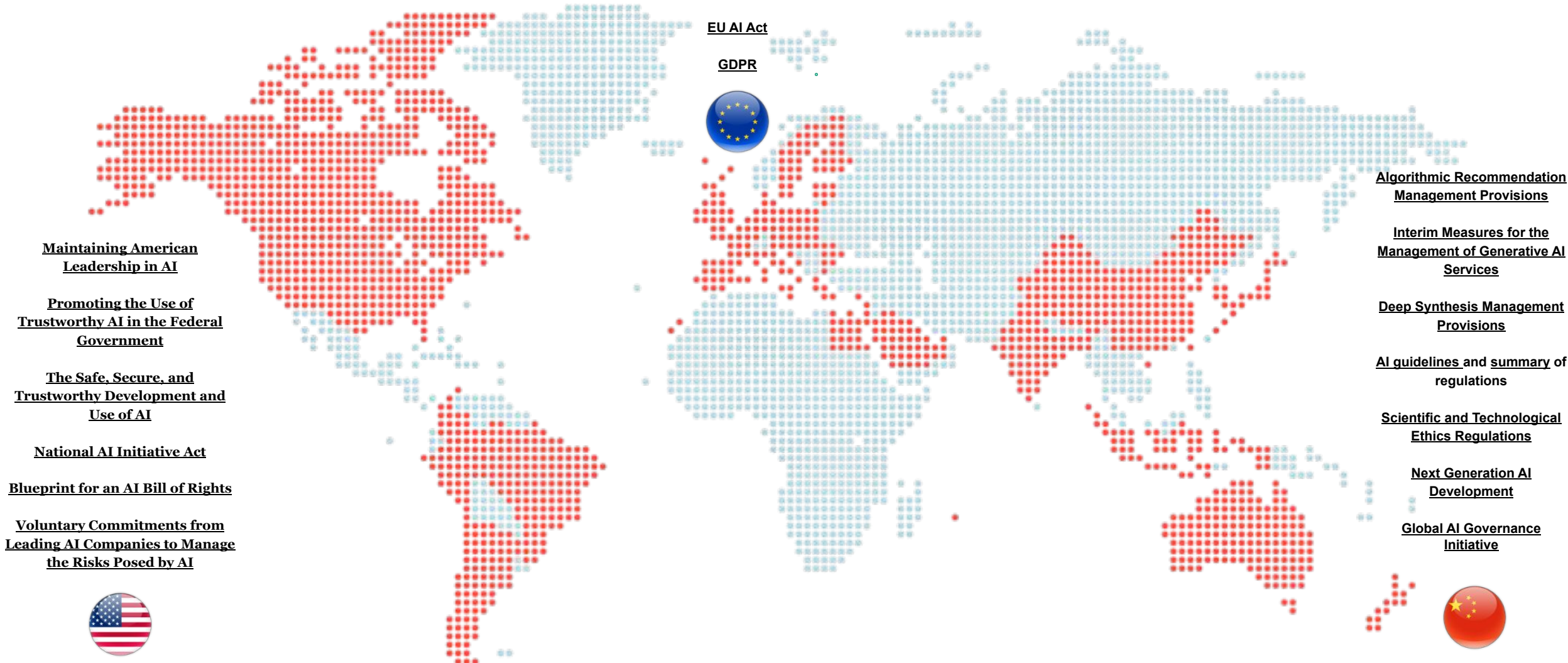


Flexibility

(3) Geopolitics of AI development



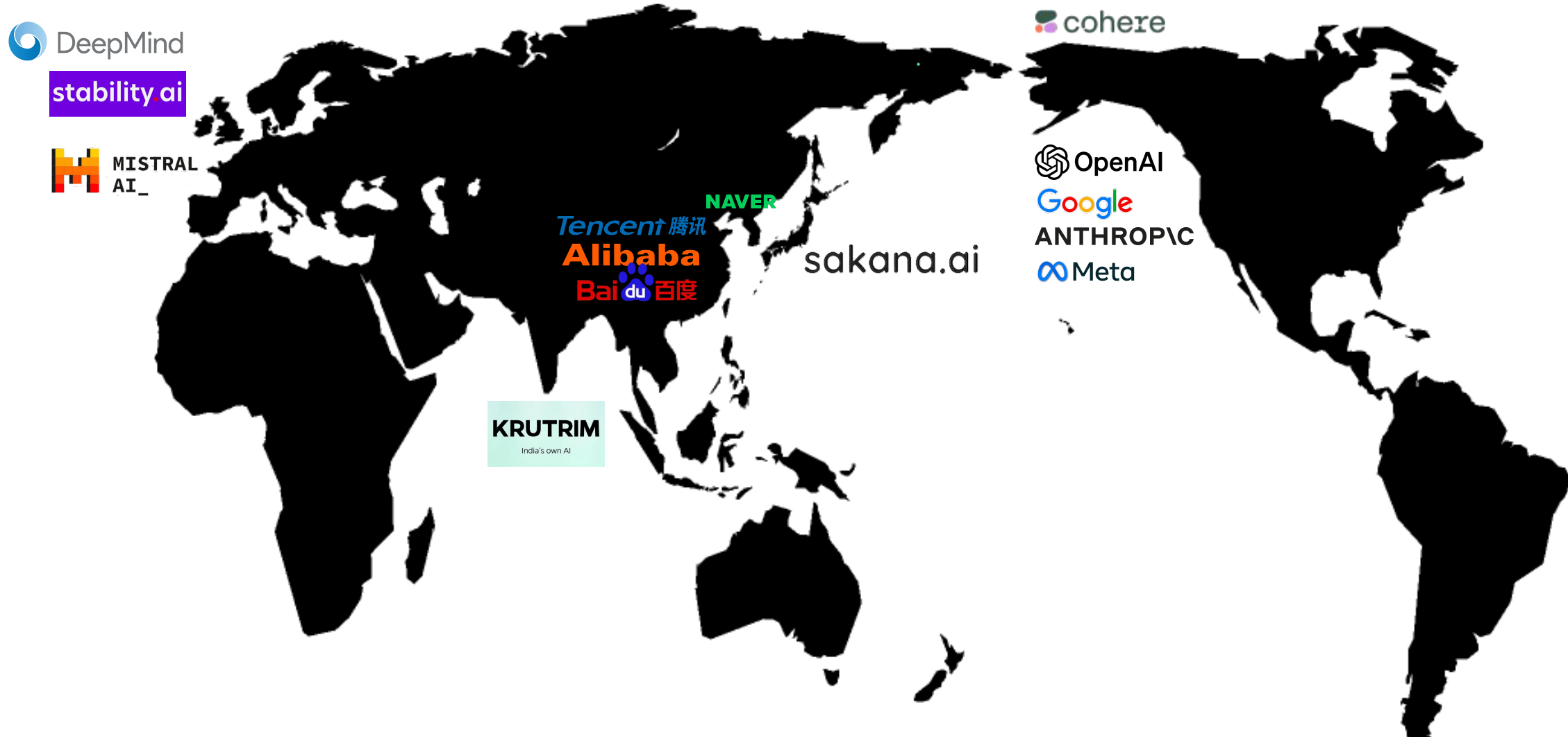
Legislations/Government Support



(3) Geopolitics of AI development



National Champions



3. What's Next?

(1) Capitalizing on National Strategic Advantages



(2) Changes in Social Contract

Harnessing innovation vs preserving state and individual security

How to unlock the value of AI for the public?



(3) The Power of Allies

