

STRIPECON EUROPE 2023

STAR TREK
OR
STAR K FUTURE

THE DUAL FACES OF AI

Collin Müller

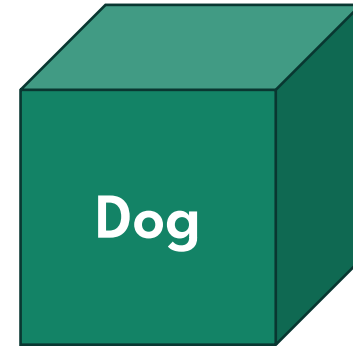
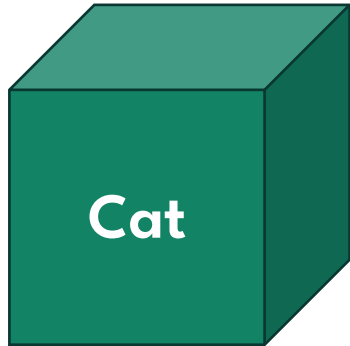
Hamburg, 2023-09-14

What is this?



What is this?





Cat or Dog?





Cat



Fox



Dog

kitten cat adoption bored panda feline pet



Thinking of getting a cat? | International Cat Care icalcare.org



International Cat Care | The ultimate resource on feline icatcare.org



Financial assistance | Assistance with ne... cats.org.uk



Cats May Recognize Their Own Names—but It D... smithsonianmag.com



Cat intelligence - Wikipedia en.wikipedia.org



Cat Facts | Mental Floss mentalfloss.com



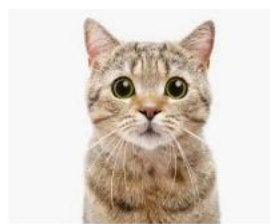
Cat Adoption Team | S... catadoptionteam.org



There's A Cat Festival At Uni... dcist.com



Do you speak cat? Common feline postures ... cbc.ca



5 things that scare and stress you... timesofindia.indiatimes.com



What to Buy Before Adopting a Cat: Reviews by Wire... thewirecutter.com



Cat pause: If your pet has a terminal virus, don't... c-ville.com



This Cat Is Taking Over The Internet With His Hil... boredpanda.com



9 Ways to Welcome Home your Ne... pefinder.com



How 'Pet Sematary' transformed shelter cats... nypost.com



Why living like a cat could be the secret to ha... standard.co.uk



Is it true that most ginger cats are male? - BBC Science ... sciencefocus.com



cat - Wiktionary en.wiktionary.org



This Cat is Chonky: The fat-cat online sh... cnet.com



Shorthair Cat Breeds | ... britannica.com



Cats | The Humane Society of the United States humanesociety.org



Ähnliche Suchanfragen

- cat marke >
- kitten cat >
- cat baumaschinen >



AI is a general-purpose technology

NAVIGATION APPS

VIDEO GAMES

3D PHOTOGRAPHY

FACIAL RECOGNITION

SMART ASSISTANTS

SPAM FILTERS

MEDIA RECOMMENDATIONS

ONLINE BANKING

AUTONOMOUS VEHICLES

SMART HOMES

SECURITY & SURVEILLANCE

ONLINE SHOPPING

FACE ID

SOCIAL MEDIA

EMAIL OR MESSAGE

GOOGLE SEARCH

DIGITAL VOICE ASSISTANTS

AMAZON RECOMMENDATIONS





The combustion engine is a general-purpose technology







Electricity is a general-purpose technology



kitten cat adoption bored panda feline pet



Thinking of getting a cat? | International Cat Care icalcare.org



International Cat Care | The ultimate resource on feline icatcare.org



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Cat intelligence - Wikipedia en.wikipedia.org



Cat Facts | Mental Floss mentalfloss.com



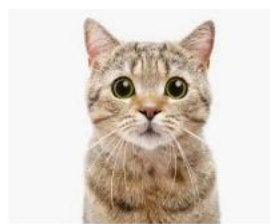
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9 Ways to Welcome Home your Ne... petfinder.com



How 'Pet Sematary' transformed shelter cats... nypost.com



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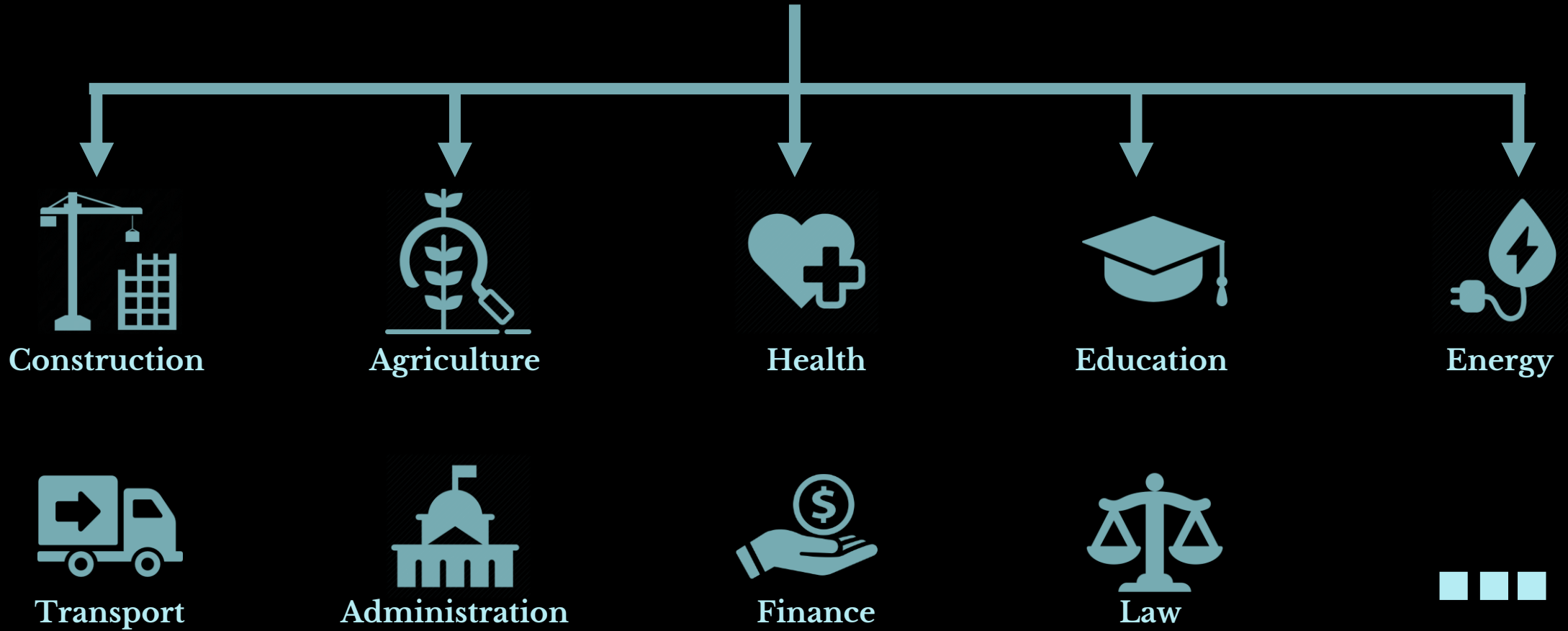
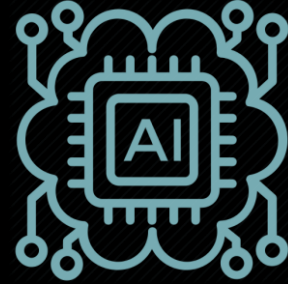


Ähnliche Suchanfragen

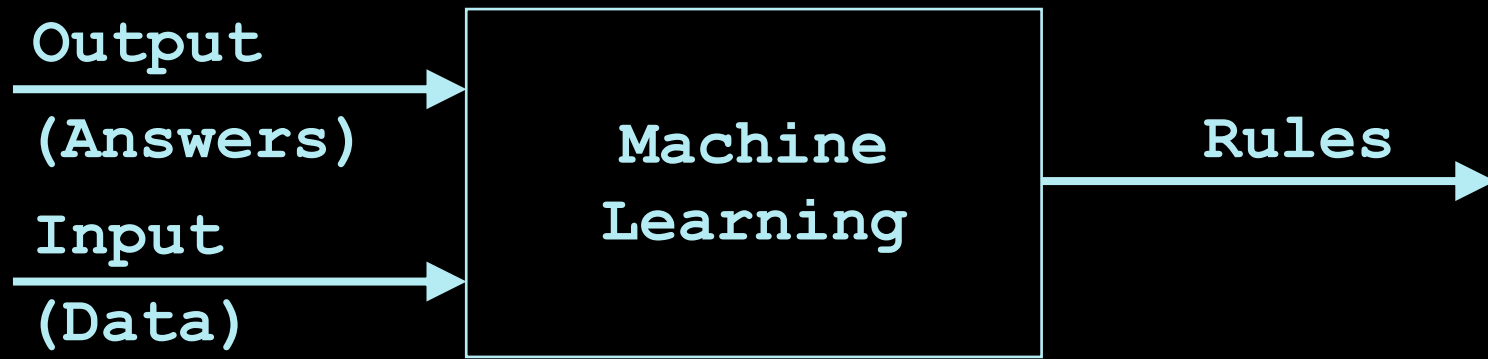
- cat marke >
- kitten cat >
- cat baumaschinen >



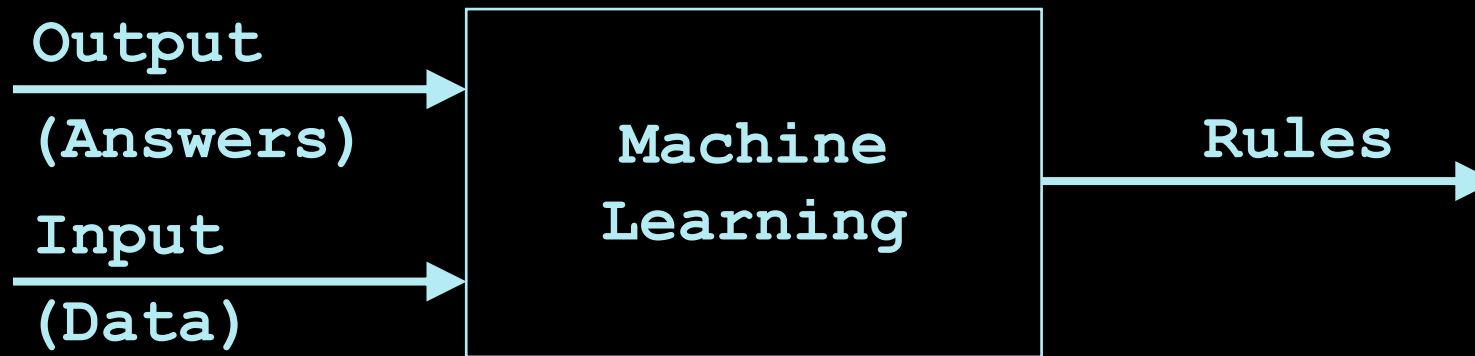
AI is a general-purpose technology







Anything that can be represented as an input-output problem will be AI'ified.



WHO consolidated guidelines on tuberculosis

Module 2: Screening

**Systematic screening for
tuberculosis disease**



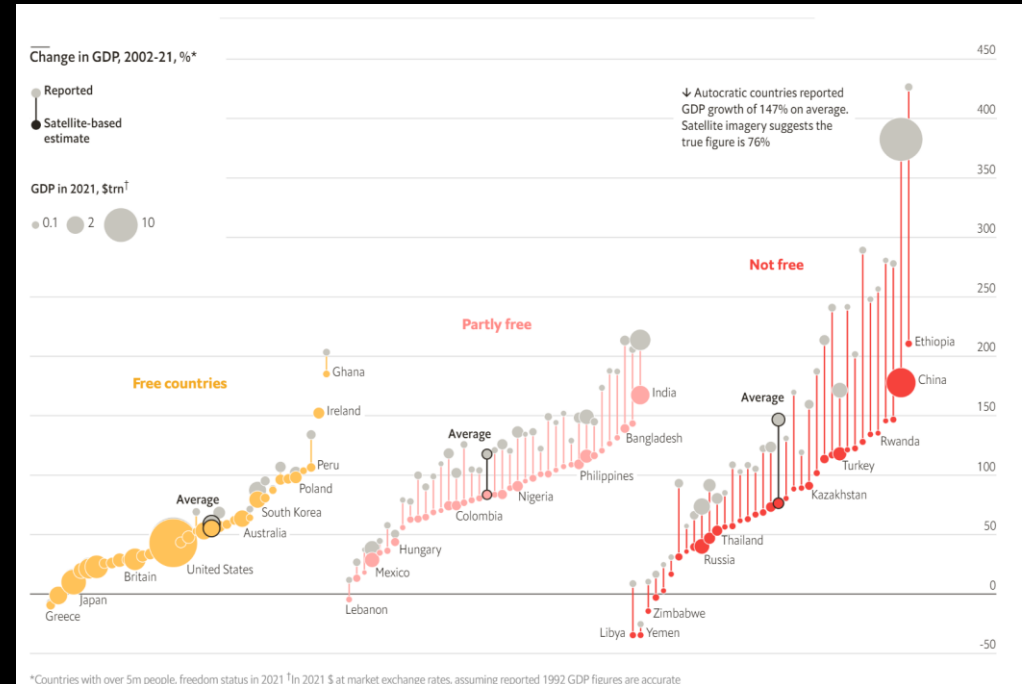
AI supporting doctors

“In recent years computer-aided detection (CAD) software packages have been developed and introduced to automate the interpretation of digital CXR images and produce a numerical score indicating the likelihood of TB. Three independent evaluations of CAD were reviewed to develop recommendations for both screening and triage for TB. The diagnostic accuracy and the overall performance of CAD software were similar to the interpretation of digital CXR by a human reader, in both the screening and triage contexts.” (WHO 2021)



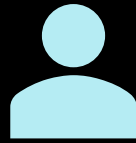
Digital technology to improve quality control and impact measurement

Example: Validating macro-economic KPIs with satellite imagery

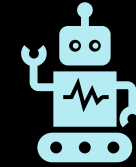


Source of illustration: The Economist

What happens if we reverse the rules?



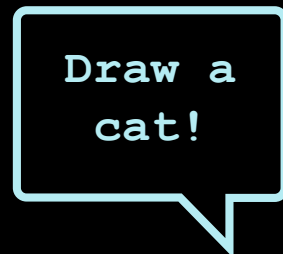
User



Computer



Rules



Rules



Randomly generated cats (2019)



Randomly generated cats (2023)



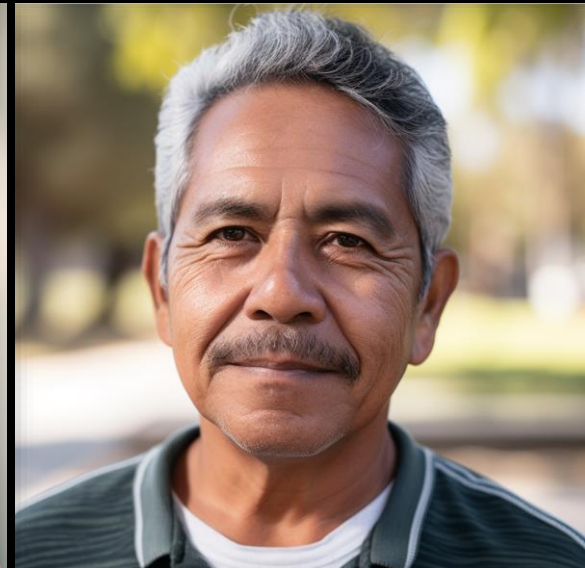
“An old and rusted Tesla in the desert”



**Salmon
swimming in
water.**



Randomly generated people (2023)



The audience
at the
Stripecon
Europe
conference.







Large Language Models (LLMs)



Language models

Trained to predict the next word in a sentence.

	dog	5%
	house	0%
The cat is chasing the ...	squirrel	20%
	mouse	70%
	boy	5%



Andrej Karpathy ✓

@karpathy

The hottest new programming language is English

9:14 PM · Jan 24, 2023 · **2.1M** Views

2,236 Retweets

315 Quote Tweets

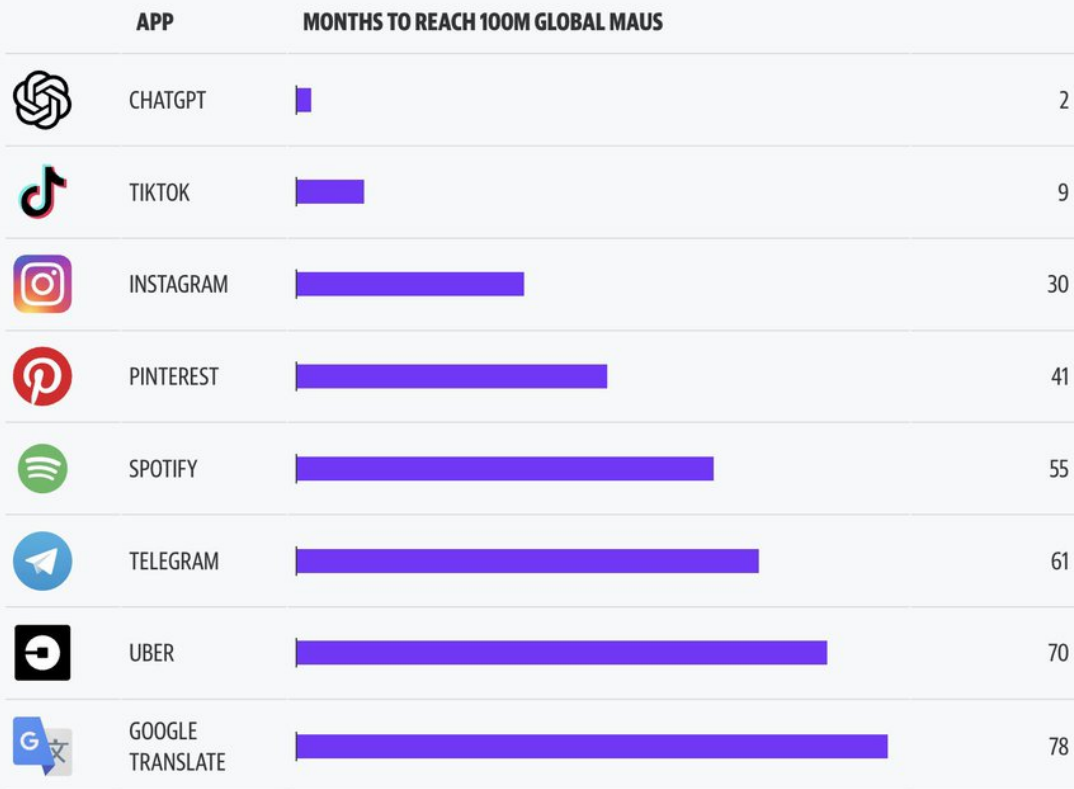
18.7K Likes

GPT-4 passes basically every exam

Simulated exams	GPT-4 estimated percentile	GPT-4 (no vision) estimated percentile	GPT-3.5 estimated percentile
Uniform Bar Exam (MBE+MEE+MPT) ¹	298 / 400 ~90th	298 / 400 ~90th	213 / 400 ~10th
LSAT	163 ~88th	161 ~83rd	149 ~40th
SAT Evidence-Based Reading & Writing	710 / 800 ~93rd	710 / 800 ~93rd	670 / 800 ~87th
SAT Math	700 / 800 ~89th	690 / 800 ~89th	590 / 800 ~70th
Graduate Record Examination (GRE) Quantitative	163 / 170 ~80th	157 / 170 ~62nd	147 / 170 ~25th
Graduate Record Examination (GRE) Verbal	169 / 170 ~99th	165 / 170 ~96th	154 / 170 ~63rd
Graduate Record Examination (GRE) Writing	4 / 6 ~54th	4 / 6 ~54th	4 / 6 ~54th
USABO Semifinal Exam 2020	87 / 150 99th - 100th	87 / 150 99th - 100th	43 / 150 31st - 33rd
USNCO Local Section Exam 2022	36 / 60	38 / 60	24 / 60
Medical Knowledge Self- Assessment Program	75 %	75 %	53 %
Codeforces Rating	392 below 5th	392 below 5th	260 below 5th
AP Art History	5 86th - 100th	5 86th - 100th	5 86th - 100th
AP Biology	5 85th - 100th	5 85th - 100th	4 62nd - 85th
AP Calculus BC	4 43rd - 59th	4 43rd - 59th	1 0th - 7th
AP Chemistry	4 71st - 88th	4 71st - 88th	2 22nd - 46th
AP English Language and Composition	2 14th - 44th	2 14th - 44th	2 14th - 44th
AP English Literature and Composition	2 8th - 22nd	2 8th - 22nd	2 8th - 22nd
AP Environmental Science	5 91st - 100th	5 91st - 100th	5 91st - 100th

HOW LONG IT TOOK TOP APPS TO HIT 100M MONTHLY USERS

ChatGPT is estimated to have hit 100M users in January, 2 months after it's launch.
Here's how long it took other top apps to reach that:



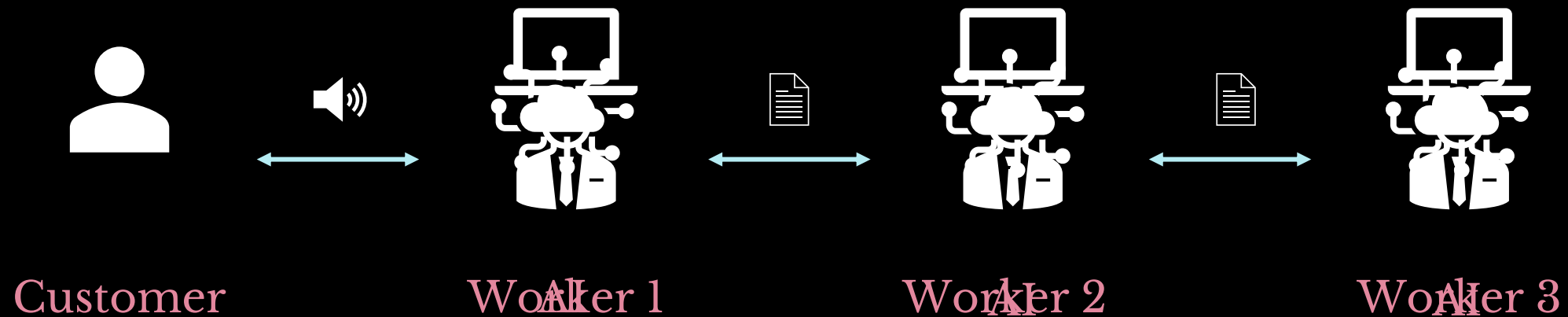
SOURCE: UBS

yahoo!
finance

Why is ChatGPT catching on so quickly?

- Because you don't have to learn it.
- You don't need training.

With LLMs, AI fits neatly into most existing business processes.



More with less

Workers needed at S&P 500 companies to generate \$1 million in revenue:

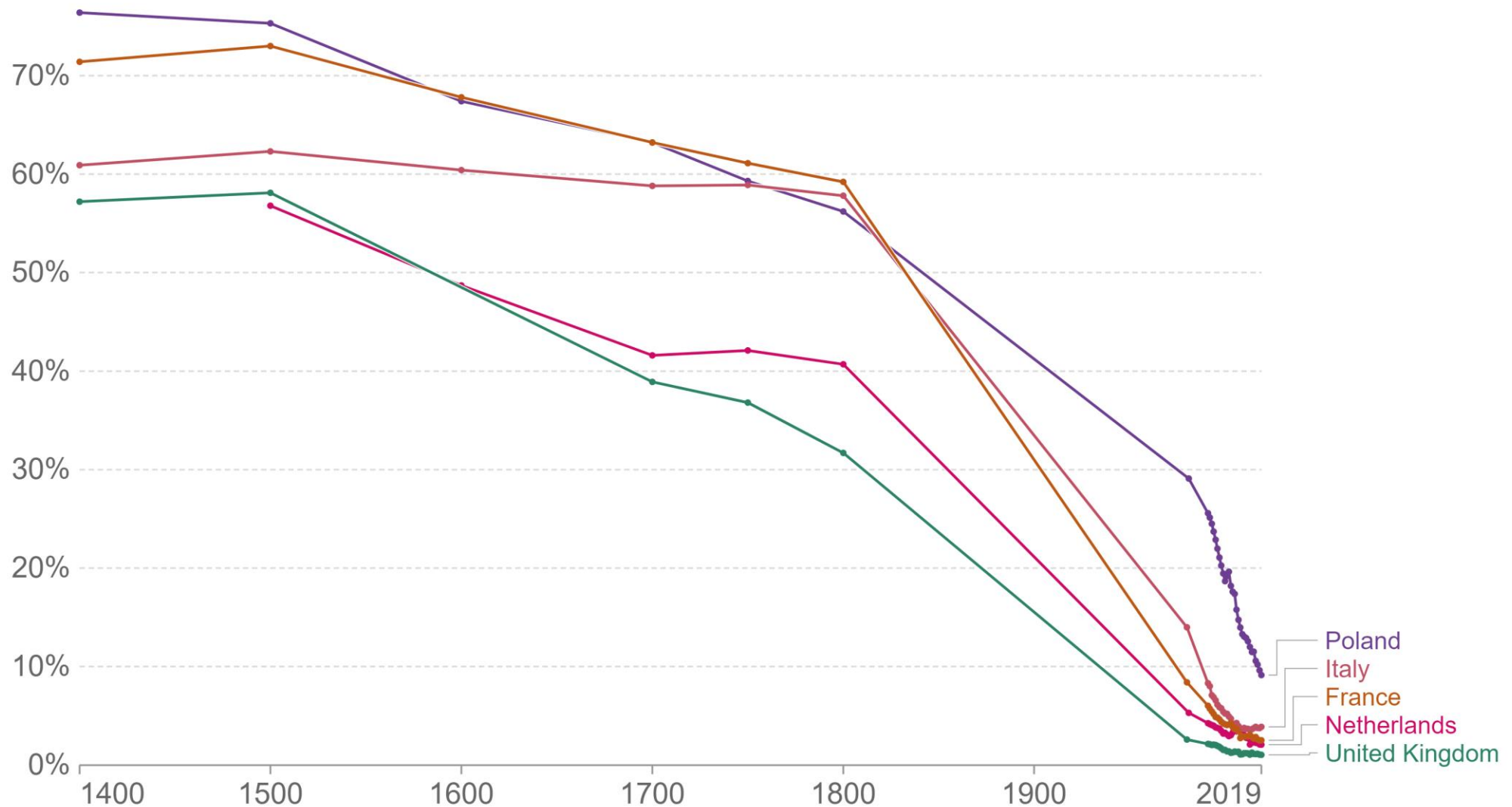


Chart: Bradley Saacks/Semafor • Source: Bank of America



Share of the labor force employed in agriculture

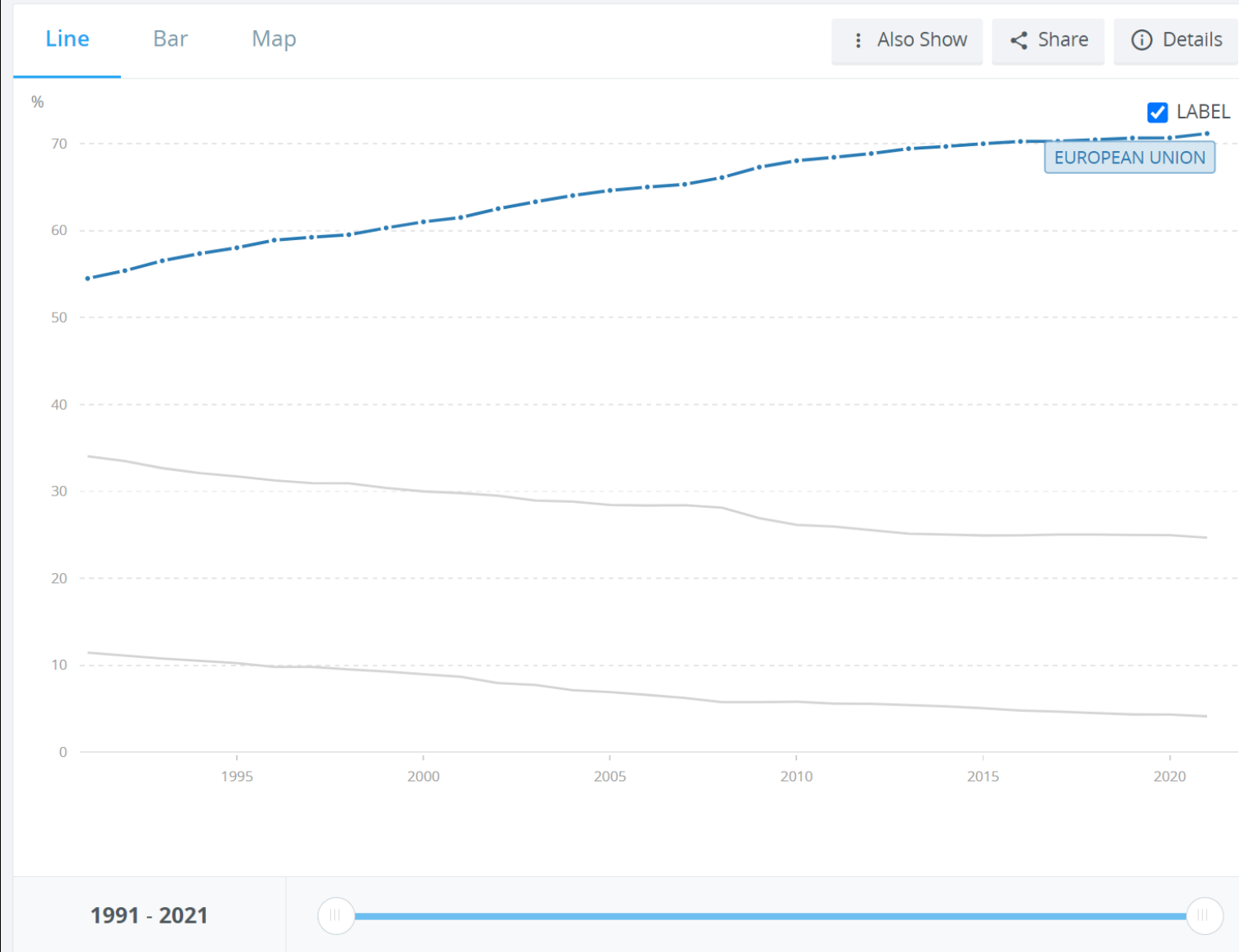
Agriculture includes the cultivation of crops and livestock production, as well as forestry, hunting, and fishing. Employment includes anyone engaged in any activity to produce goods or services for pay or profit.



Employment in services (% of total employment) (modeled ILO estimate) - European Union

International Labour Organization. "ILO modelled estimates database" ILOSTAT. Accessed January 2021. ilostat.ilo.org/data.

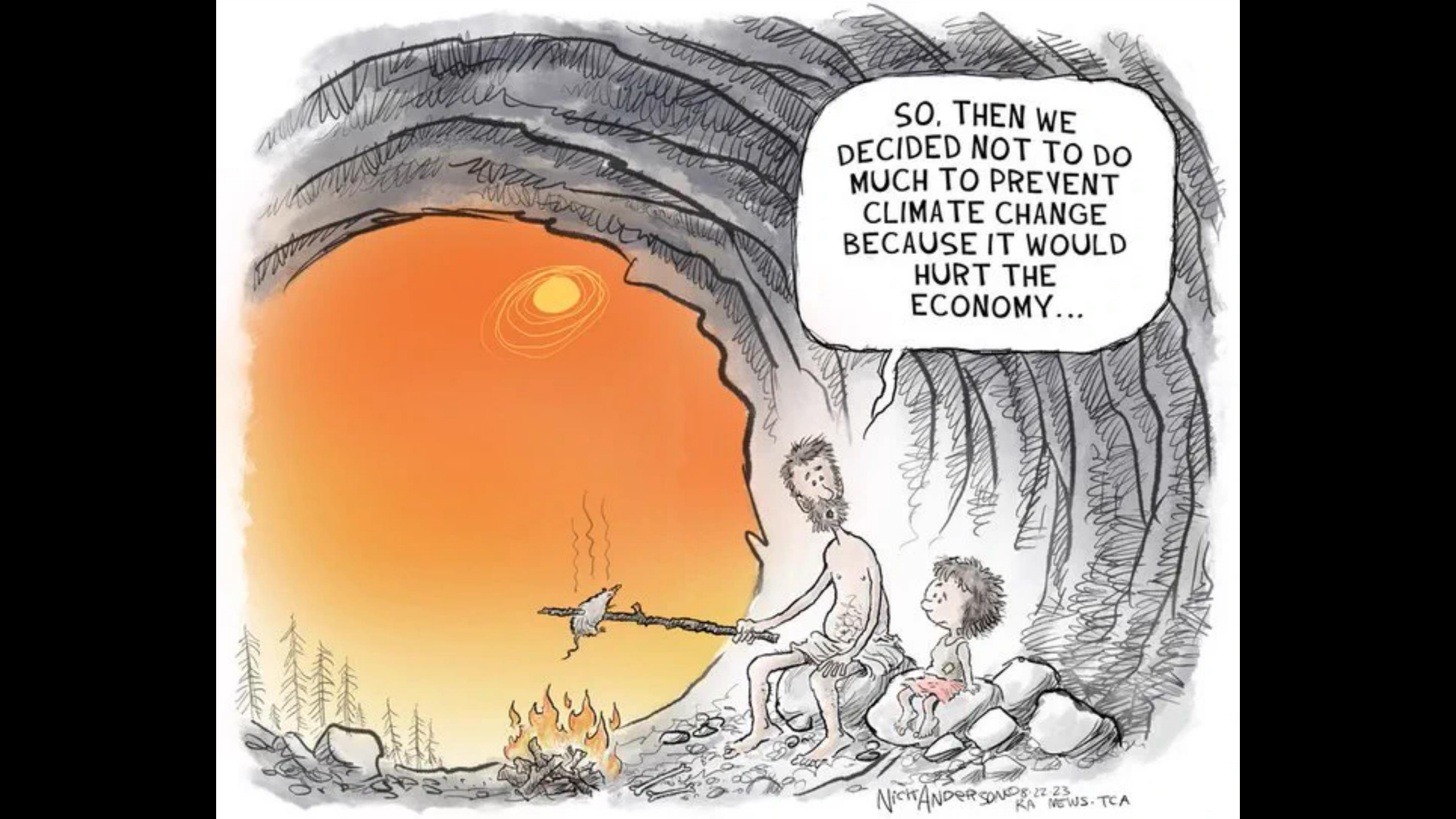
License : CC BY-4.0 [🌐](https://creativecommons.org/licenses/by/4.0/)





General-purpose technologies have helped us wreck the planet.





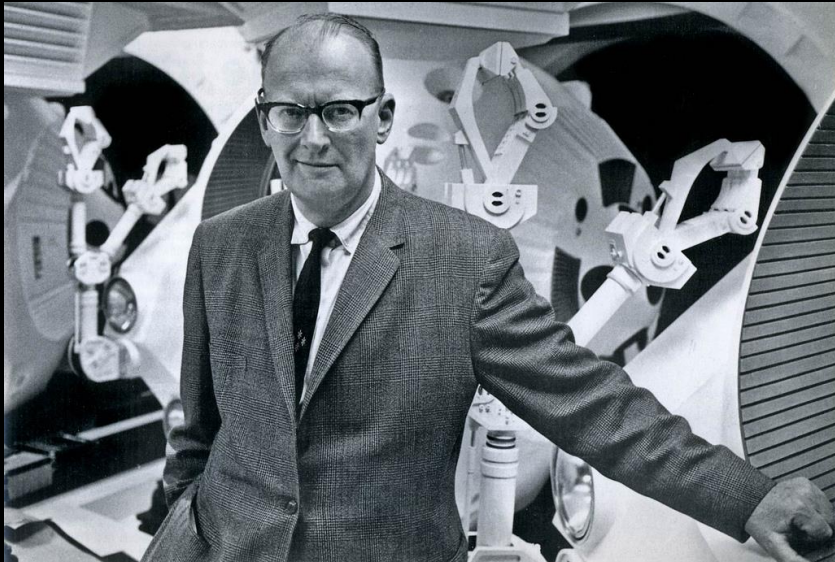
SO, THEN WE
DECIDED NOT TO DO
MUCH TO PREVENT
CLIMATE CHANGE
BECAUSE IT WOULD
HURT THE
ECONOMY...

**AI can be of
great help
in profit
maximization.**









“The goal of the future
is full **unemployment**,
so we **can play**.”

— *Arthur C. Clarke (1917–2008)*

**Free education and
access to all knowledge**



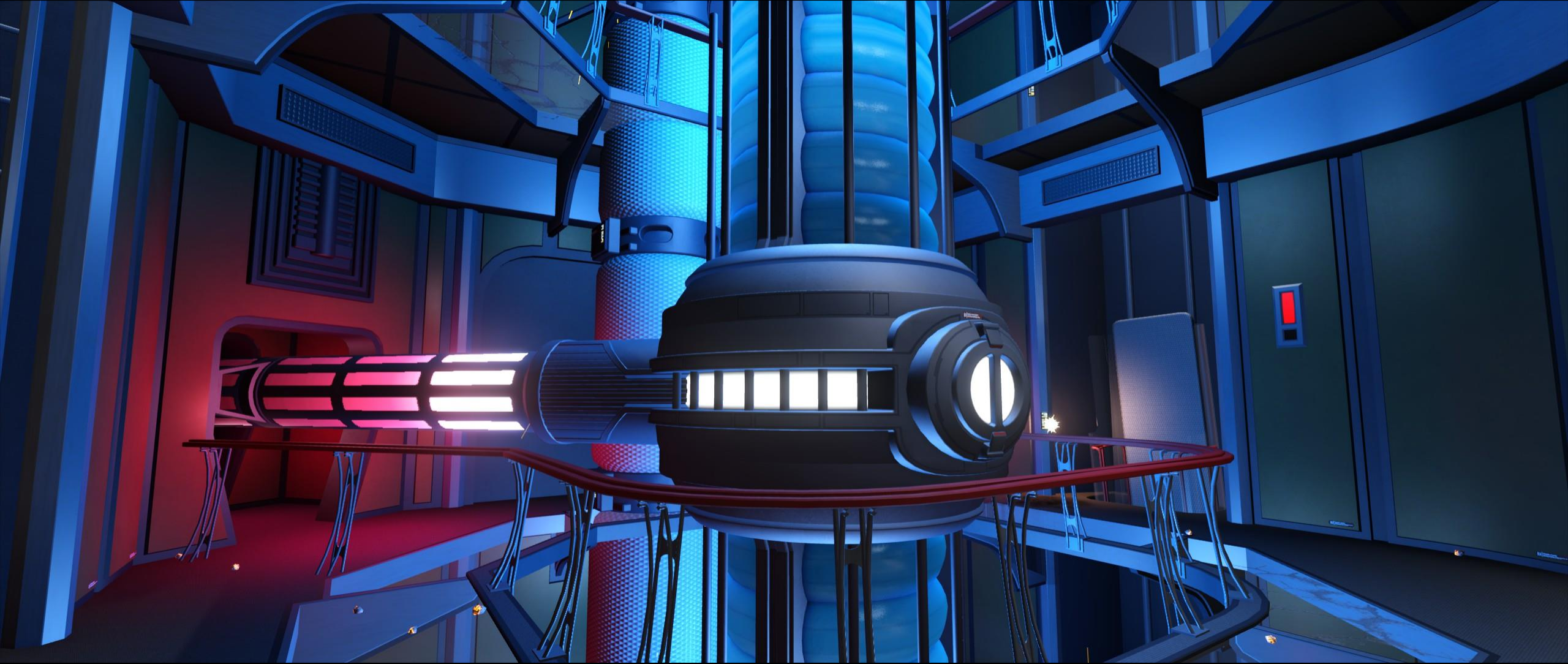
Communicator

Real-time translation

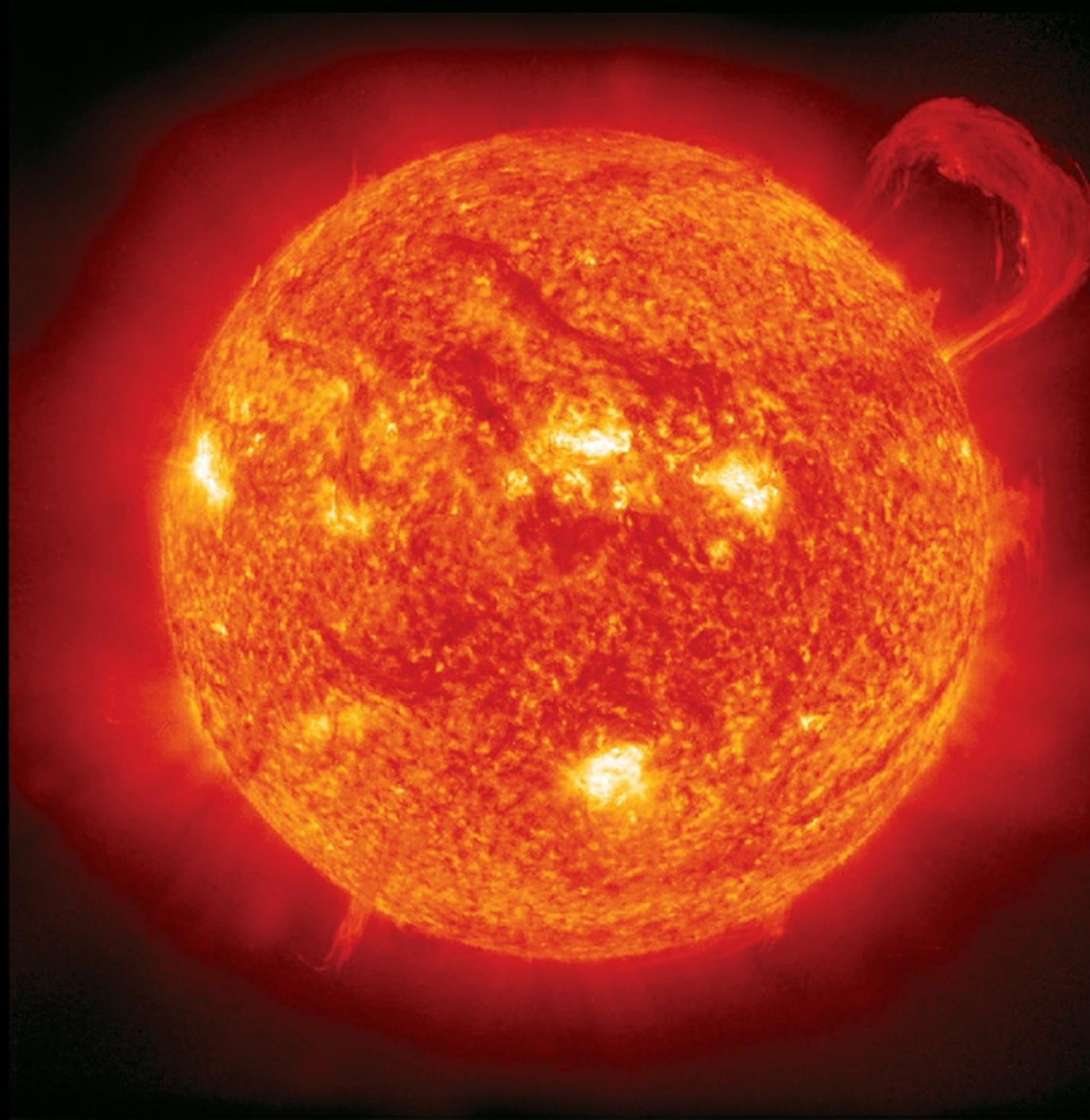
Video conferencing



Antimatter reactors?



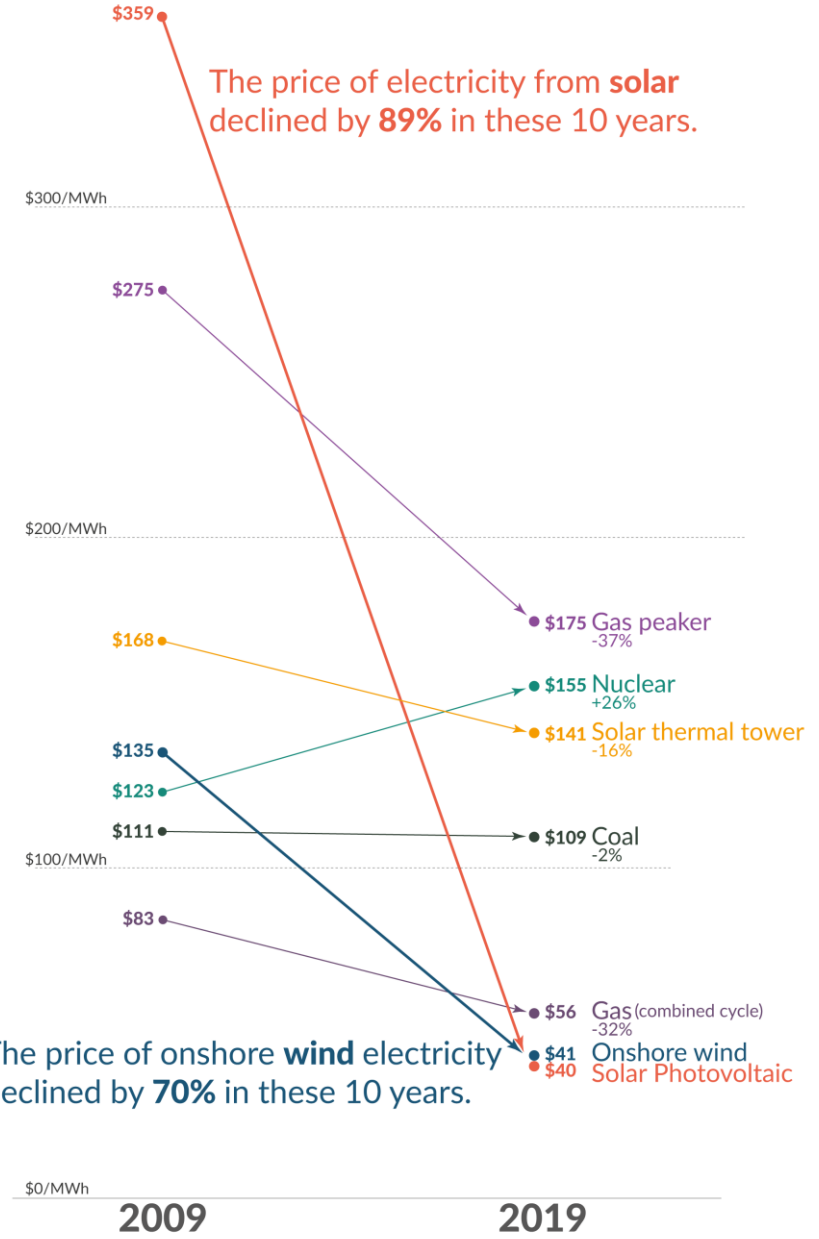
Fusion power!



Fusion power

The price of electricity from new power plants

Electricity prices are expressed in 'levelized costs of energy' (LCOE). LCOE captures the cost of building the power plant itself as well as the ongoing costs for fuel and operating the power plant over its lifetime.



The price of electricity from **solar** declined by **89%** in these 10 years.

The price of onshore **wind** electricity declined by **70%** in these 10 years.

Fusion power



Hannah Ritchie
@_HannahRitchie



Time taken to add 1GW of solar PV globally ☀️

2000: more than a year

2010/11: two weeks

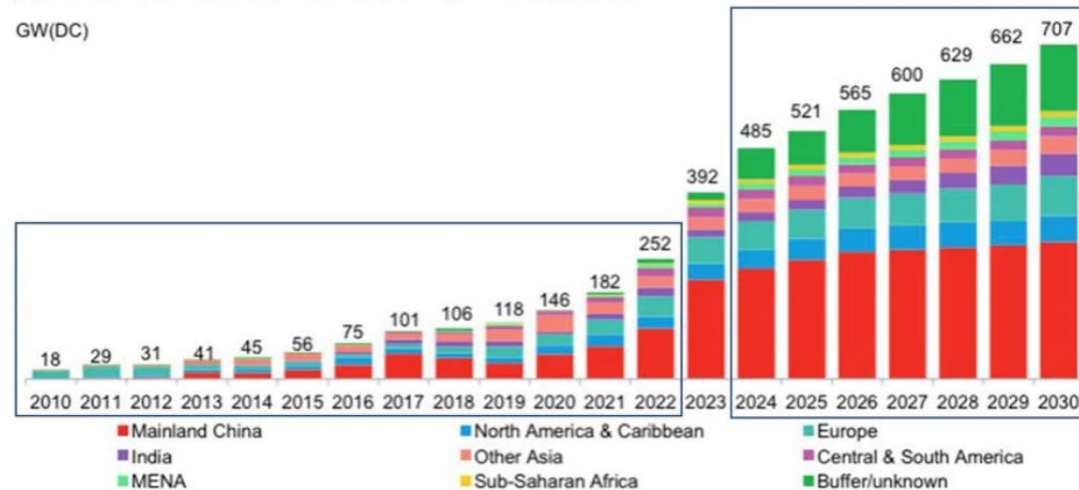
2015: one week

Now: less than a day

[Post übersetzen](#)

Figure 2: Historical and mid-scenario forecast for global PV installation

GW(DC)



Source: BloombergNEF. Note: MENA is Middle East and North Africa. Details in BNEF's Capacity tool ([web](#) | [terminal](#)).

11:00 vorm. · 29. Aug. 2023 · 350.589 Mal angezeigt

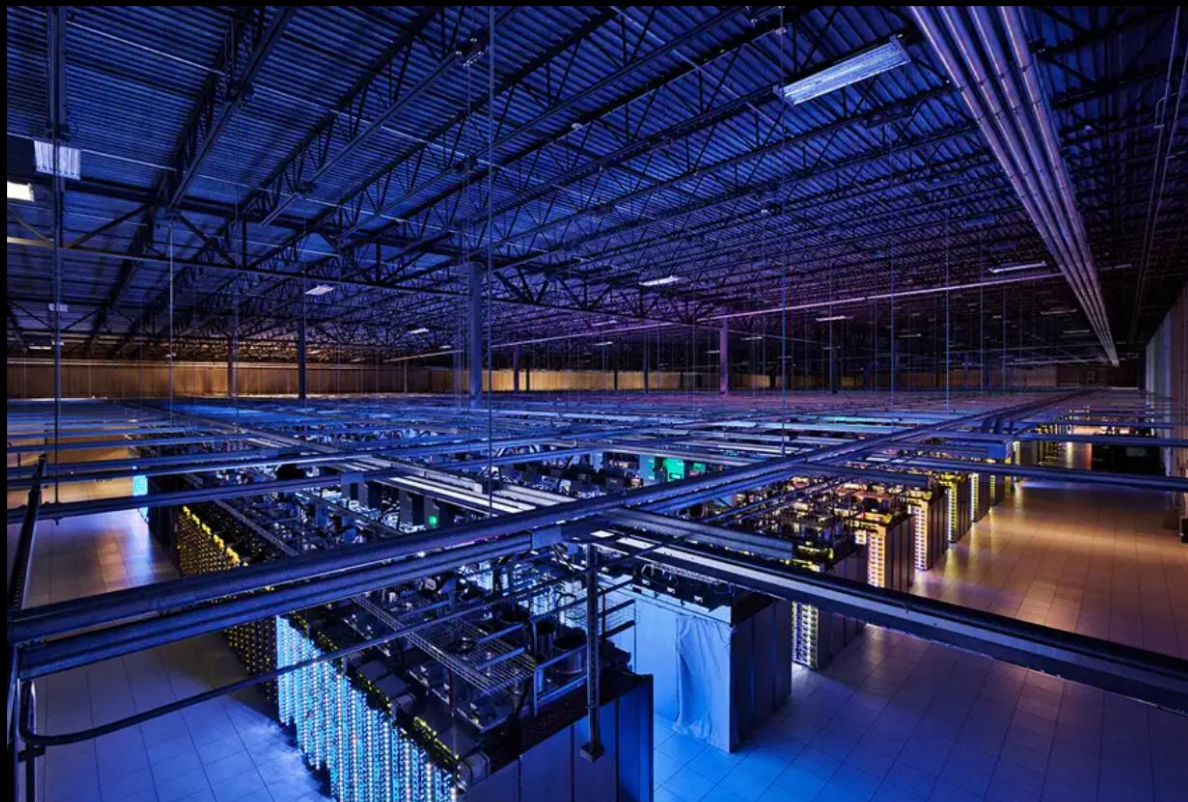
643 Reposts 67 Zitate 2.430 „Gefällt mir“-Angaben 105 Lesezeichen

Technology

Google is using AI to design processors that run AI more efficiently

By Matthew Sparkes

9 June 2021



Google has a vast amount of computing hardware

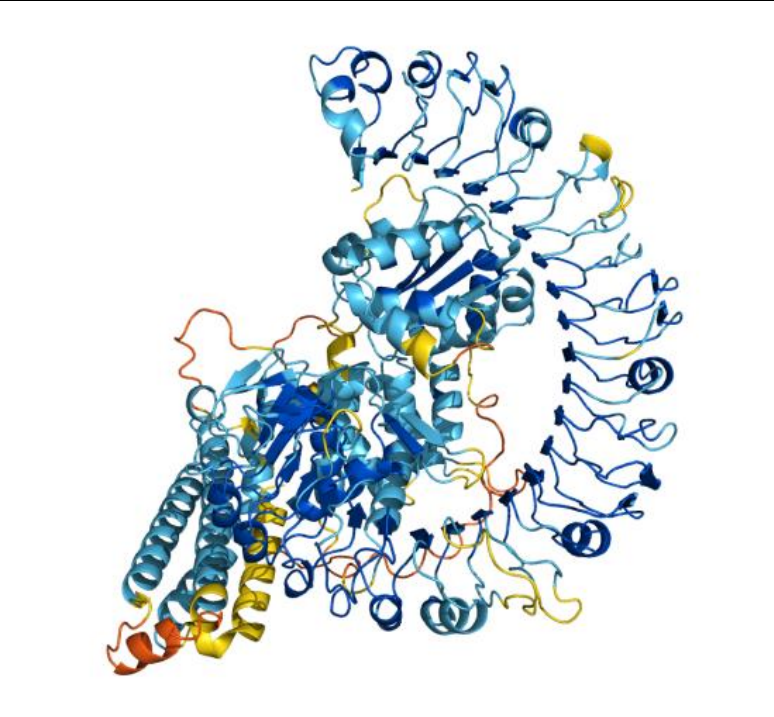
Google

Engineers at Google have tasked an [artificial intelligence](#) with designing faster and more efficient processors – and then used its chip designs to develop the next generation of specialised computers that run the very same type of AI algorithms.

The Doctor



AlphaFold

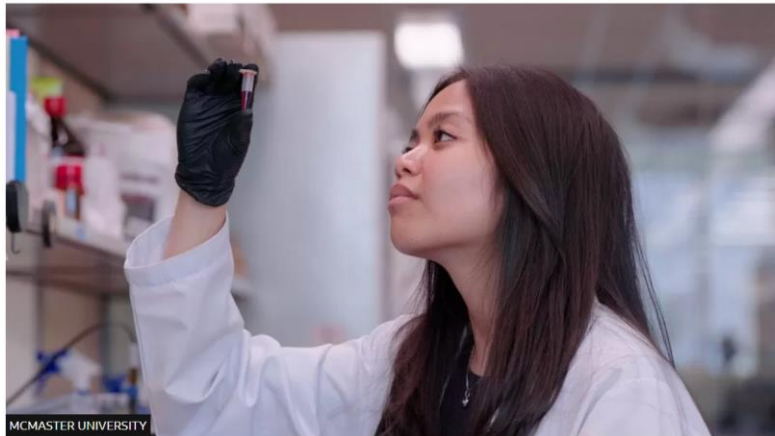


- Predicts the 3D structure of a protein based on its amino acid sequence
- Progress to date over the past 60 years: Prediction of 180,000 protein structures through elaborate experiments
- AlphaFold: prediction of 200 million structures in a few months
- Now freely available to all

AI supporting doctors

New superbug-killing antibiotic discovered using AI

2 days ago · Comments



MCMaster UNIVERSITY

Scientist Denise Catacutan working on the experimental antibiotic discovered with the help of artificial intelligence.

<https://www.bbc.com/news/health-65709834>

Replicator?



Innovation at the hardware layer: Drones and robotics to revolutionise farming.

- Autonomous weeding robots recognise weeds through AI and eliminate them, for example, by mechanically pressing them back into the ground.
- This helps reduce the amount of pesticides used in farming.
- Especially in high-intensity agricultural areas this lifts the pressure on water and air pollution as well as insect and bird populations.
- <https://www.cnbc.com/2018/06/04/weed-killing-ai-robot.html>



Vertical and underground farming



Holodeck





**What are
the real
problems
with AI?**



































Biggest companies: US platforms

Largest Companies by Market Cap

companies: 7,914 total market cap: \$91.558 T  

Rank by **Market Cap** Earnings Revenue Employees P/E ratio Dividend % Market Cap gain More +

Rank	Name	Market Cap	Price	Today	Price (30 days)	Country
1	 Apple AAPL	\$2.776 T	\$177.56	▼ 2.92%		 USA
2	 Microsoft MSFT	\$2.451 T	\$329.91	▼ 0.89%		 USA
3	 Saudi Aramco 2222.SR	\$2.203 T	\$9.11	▲ 0.44%		 S. Arabia
4	 Alphabet (Google) GOOG	\$1.710 T	\$136.20	▲ 0.61%		 USA
5	 Amazon AMZN	\$1.422 T	\$137.85	▲ 1.84%		 USA
6	 NVIDIA NVDA	\$1.142 T	\$462.41	▼ 1.74%		 USA
7	 Tesla TSLA	\$798.22 B	\$251.49	▼ 0.17%		 USA
8	 Berkshire Hathaway BRK-B	\$789.02 B	\$361.80	▲ 0.04%		 USA
9	 Meta Platforms (Facebook) META	\$768.52 B	\$298.67	▼ 0.17%		 USA
10	 Eli Lilly LLY	\$544.16 B	\$573.23	▲ 2.37%		 USA

**AI can be of
great help
in profit
maximization.**







What we need to do

- **Take it into our own hands**
- **Decentralize:**
 - **Open-source**
 - **Peer-to-peer**
 - **Privacy-preserving**
- **Don't let governments ruin everything again because of ignorance and lobbyism**
- **Let's leap-frog!**



“The job is not to catch up
to the status quo;
the job is to
invent the status quo.”

— *Seth Godin*

Thank you!

Questions?

Remarks?

Objections!

Collin Müller (cm@collin-mueller.de)