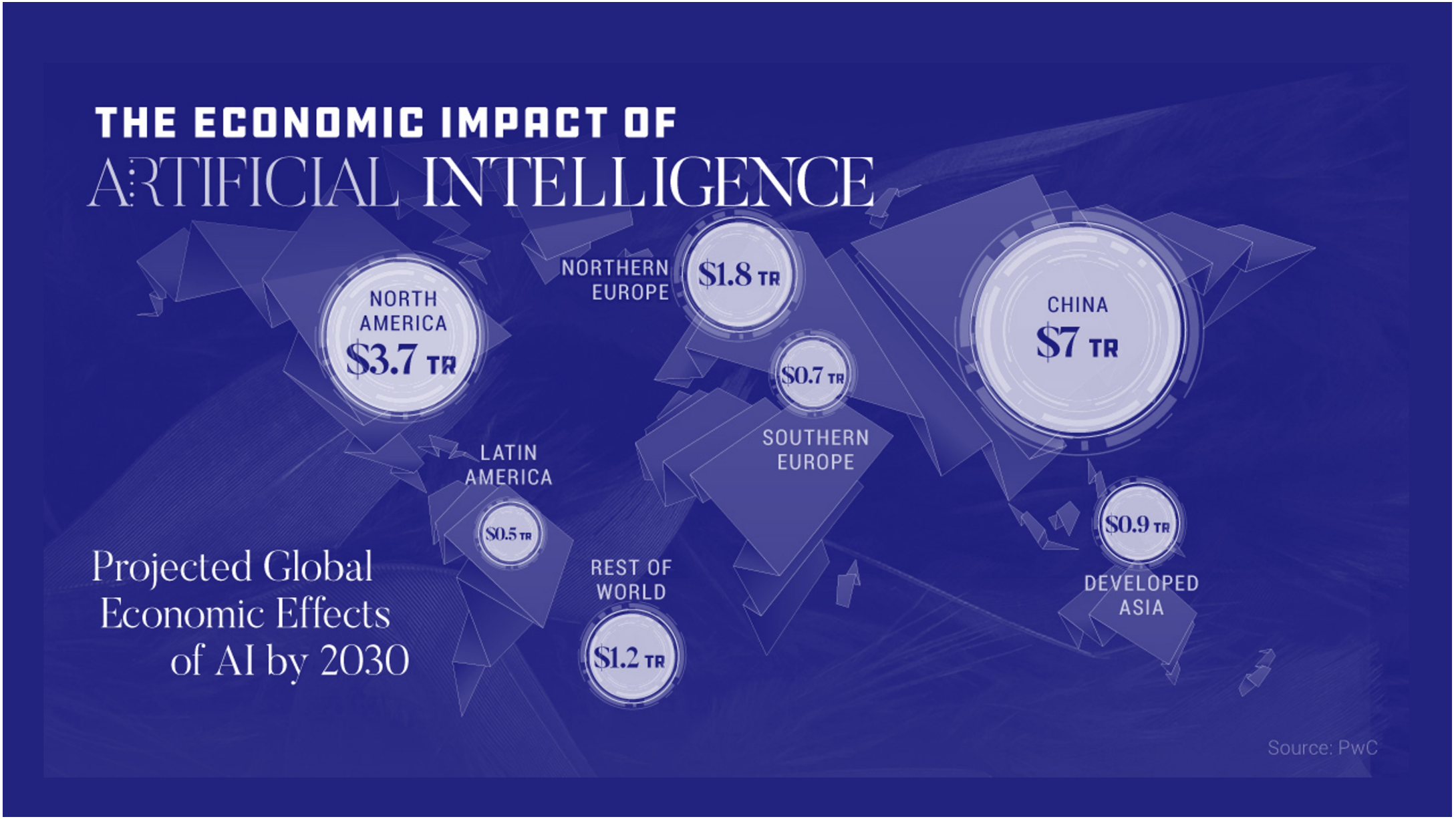
Stable Diffusion, prompt: “Europe should lead and not pause Artificial Intelligence”

Europe should lead, not pause AI!

Kristian Kersting
TU Darmstadt, hessian.AI & DFKI
kerstingAIML

3AI THE THIRD WAVE OF AI · The adaptive Mind · ellis European Laboratory for Learning and Intelligent Systems · CLAIRE

hessian.AI · TECHNISCHE UNIVERSITÄT DARMSTADT · DFKI


THE ECONOMIC IMPACT OF
ARTIFICIAL INTELLIGENCE
NORTH AMERICA
$3.7 TR
NORTHERN EUROPE
$1.8 TR
$0.7 TR
SOUTHERN EUROPE
CHINA
$7 TR
LATIN AMERICA
$0.5 TR
REST OF WORLD
$1.2 TR
$0.9 TR
DEVELOPED ASIA
Projected Global Economic Effects of AI by 2030
Source: PwC


AI tools that use Natural Language Processing (NLP) continue to be integrated into businesses and society, they could help to drive up to $7 trillion in additional global GDP growth.
Goldman Sachs
April 5, 2023

Science's 2021 Breakthough of the Year

2021 BREAKTHROUGH OF THE YEAR

Protein structures for all

AI-powered predictions show proteins finding their shapes

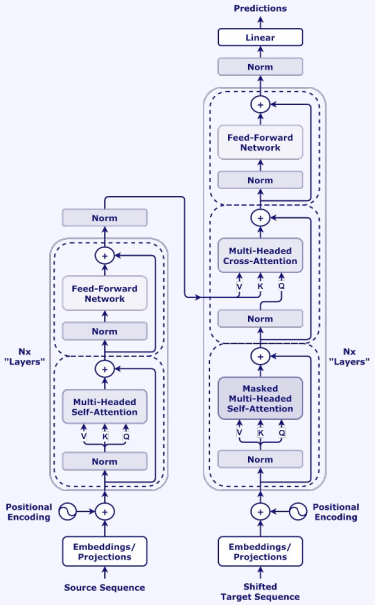
BY ROBERT SERVICE

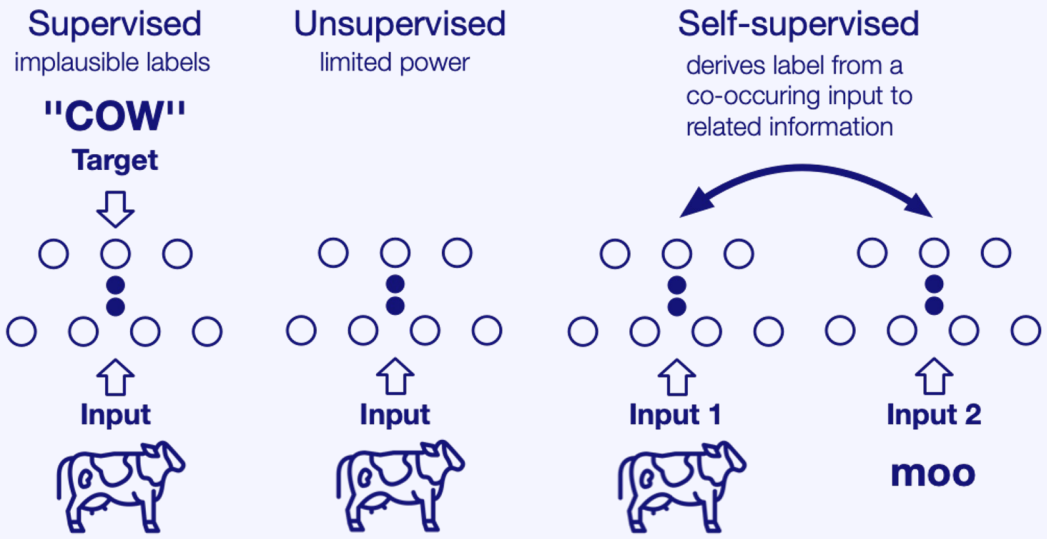
Science

AAAS

In his 1972 Nobel Prize acceptance speech, American biochemist Christian Anfinsen laid out a vision: One day it would be possible, he said, to predict the 3D structure of any protein merely from its sequence of amino acid building blocks. With hundreds of thousands of proteins in the human body alone, such an advance would have vast applications, offering insights into basic biology and revealing promising new drug targets. Now, after nearly 50 years, researchers have shown that artificial intelligence (AI)-driven software can churn out accurate protein structures by the thousands—an advance that realizes Anfinsen's dream and is *Science*'s 2021 Breakthrough of the Year.

2022: It is all about attention and scale





Transformer

Self-Supervised Learning

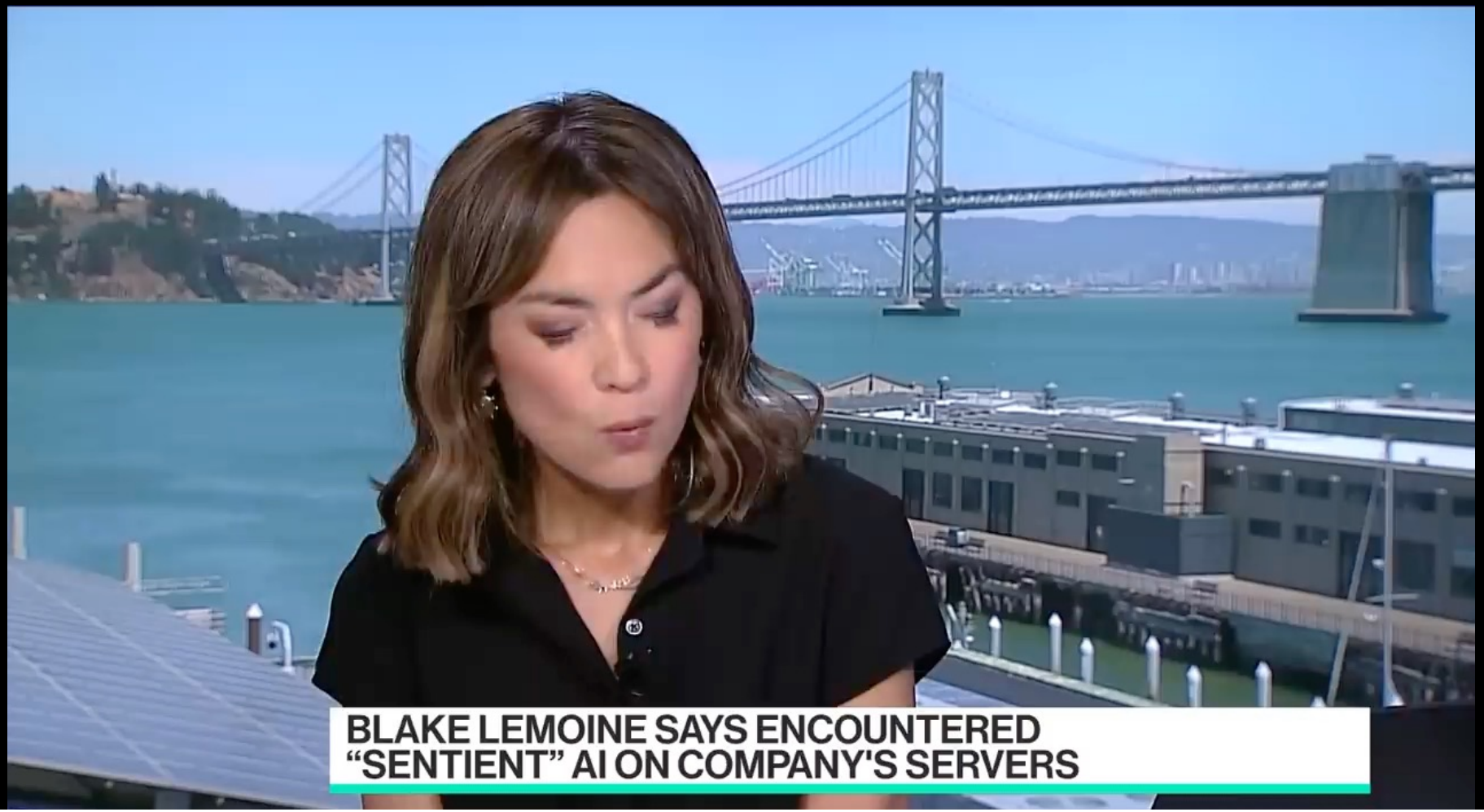
Scale

Bloomberg
Europe Edition

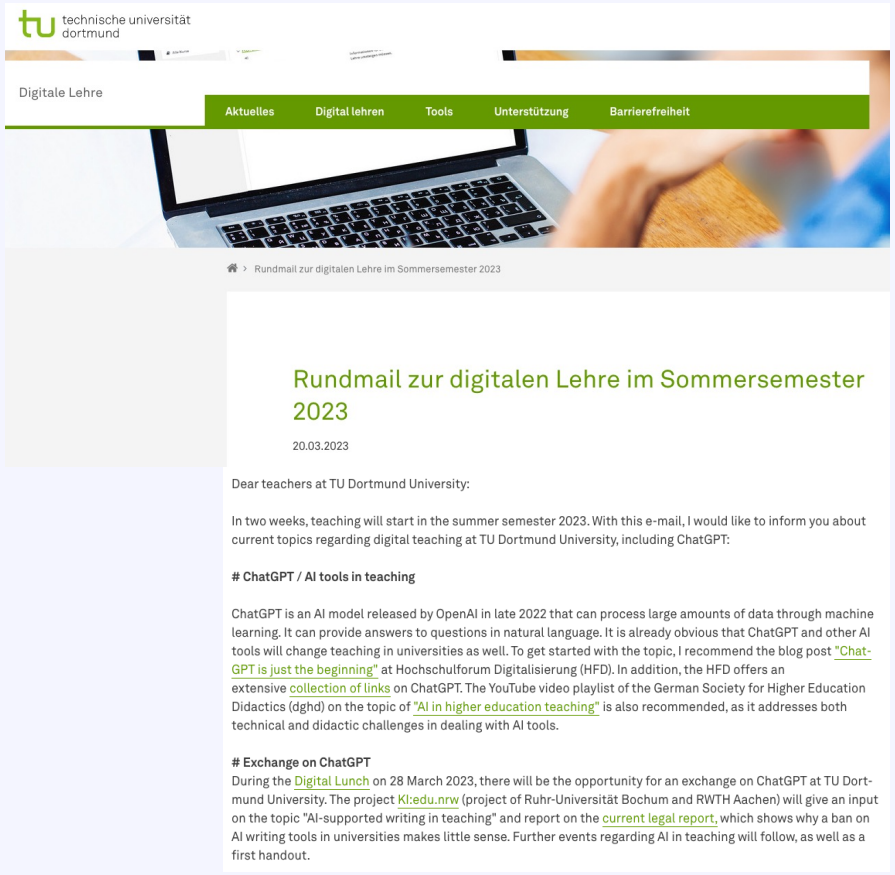
● Live Now | Markets | Technology | Politics | Wealth | Pursuits | Opinion | Businessweek

Google Engineer Says Chat Bot Is Sentient

June 24, 2022
https://www.youtube.com/watch?v=kgCUn4fQTsc



Early 2023: AI helps you to get a degree!



technische universität dortmund

Digitale Lehre

Aktuelles | Digital lehren | Tools | Unterstützung | Barrierefreiheit

Rundmail zur digitalen Lehre im Sommersemester 2023

Rundmail zur digitalen Lehre im Sommersemester 2023

20.03.2023

Dear teachers at TU Dortmund University:

In two weeks, teaching will start in the summer semester 2023. With this e-mail, I would like to inform you about current topics regarding digital teaching at TU Dortmund University, including ChatGPT:

 # ChatGPT / AI tools in teaching

ChatGPT is an AI model released by OpenAI in late 2022 that can process large amounts of data through machine learning. It can provide answers to questions in natural language. It is already obvious that ChatGPT and other AI tools will change teaching in universities as well. To get started with the topic, I recommend the blog post "ChatGPT is just the beginning" at Hochschulforum Digitalisierung (HFD). In addition, the HFD offers an extensive collection of links on ChatGPT. The YouTube video playlist of the German Society for Higher Education Didactics (dghd) on the topic of "AI in higher education teaching" is also recommended, as it addresses both technical and didactic challenges in dealing with AI tools.

 # Exchange on ChatGPT

During the Digital Lunch on 28 March 2023, there will be the opportunity for an exchange on ChatGPT at TU Dortmund University. The project KI:edu.nrw (project of Ruhr-Universität Bochum and RWTH Aachen) will give an input on the topic "AI-supported writing in teaching" and report on the current legal report, which shows why a ban on AI writing tools in universities makes little sense. Further events regarding AI in teaching will follow, as well as a first handout.

Heise

ChatGPT für Seminar- und Abschlussarbeiten – wie Universitäten damit umgehen

Schreiben oder schreiben lassen? ChatGPT verfasst auf Befehl scheinbar gute Texte zu allen möglichen Themen. Wie wollen Unis in Berlin damit...

29.01.2023

Bayerischer Rundfunk

Bachelorarbeit in drei Tagen mit ChatGPT?

Mit künstlicher Intelligenz lassen sich in kurzer Zeit lange Texte erzeugen. Ein Reporterinnen-Team des BR hat getestet, ob sich ChatGPT als...

vor 2 Wochen

Tagesschau

KI in der Bildung : Regeln zu ChatGPT an Unis oft unklar | tagesschau.de

Mit KI lassen sich in kurzer Zeit Texte erzeugen. Ob Studierende die Programme einsetzen dürfen, ist nicht einheitlich geregelt.

vor 3 Wochen

FOCUS online

Reporterin lässt Bachelorarbeit von ChatGPT schreiben, Professor ist überrascht - Video

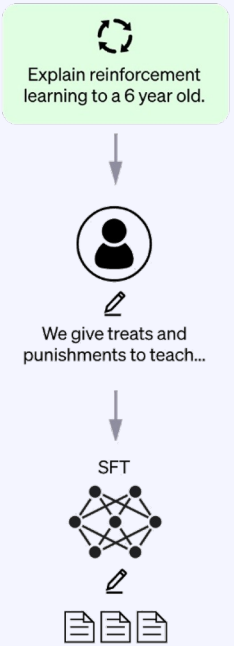
Für viele Studierende ist die Bachelorarbeit aufwändig und mit viel Arbeit verbunden. Doch kann ChatGPT hier helfen, sie stressfreier und...

2023: It is all about Reinforcement Learning from Human Feedback (RLHF)

Step 1

Collect demonstration data and train a supervised policy.

A prompt is sampled from our prompt dataset.



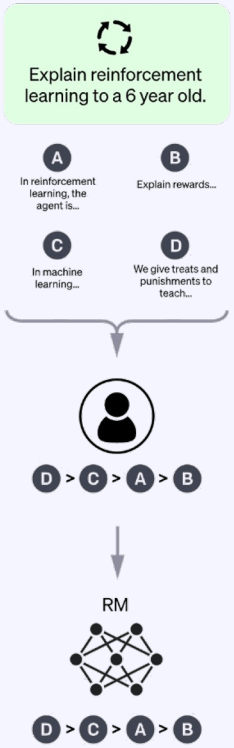
A labeler demonstrates the desired output behavior.

This data is used to fine-tune GPT-3.5 with supervised learning.

Step 2

Collect comparison data and train a reward model.

A prompt and several model outputs are sampled.



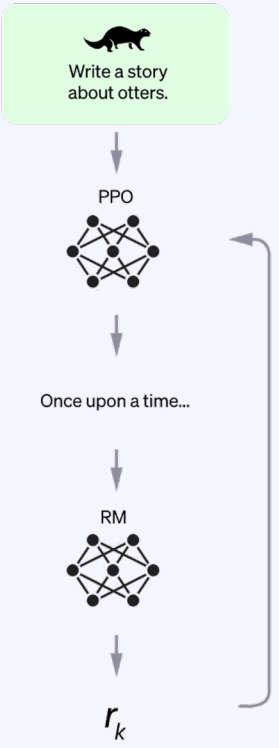
A labeler ranks the outputs from best to worst.

This data is used to train our reward model.

Step 3

Optimize a policy against the reward model using the PPO reinforcement learning algorithm.

A new prompt is sampled from the dataset.

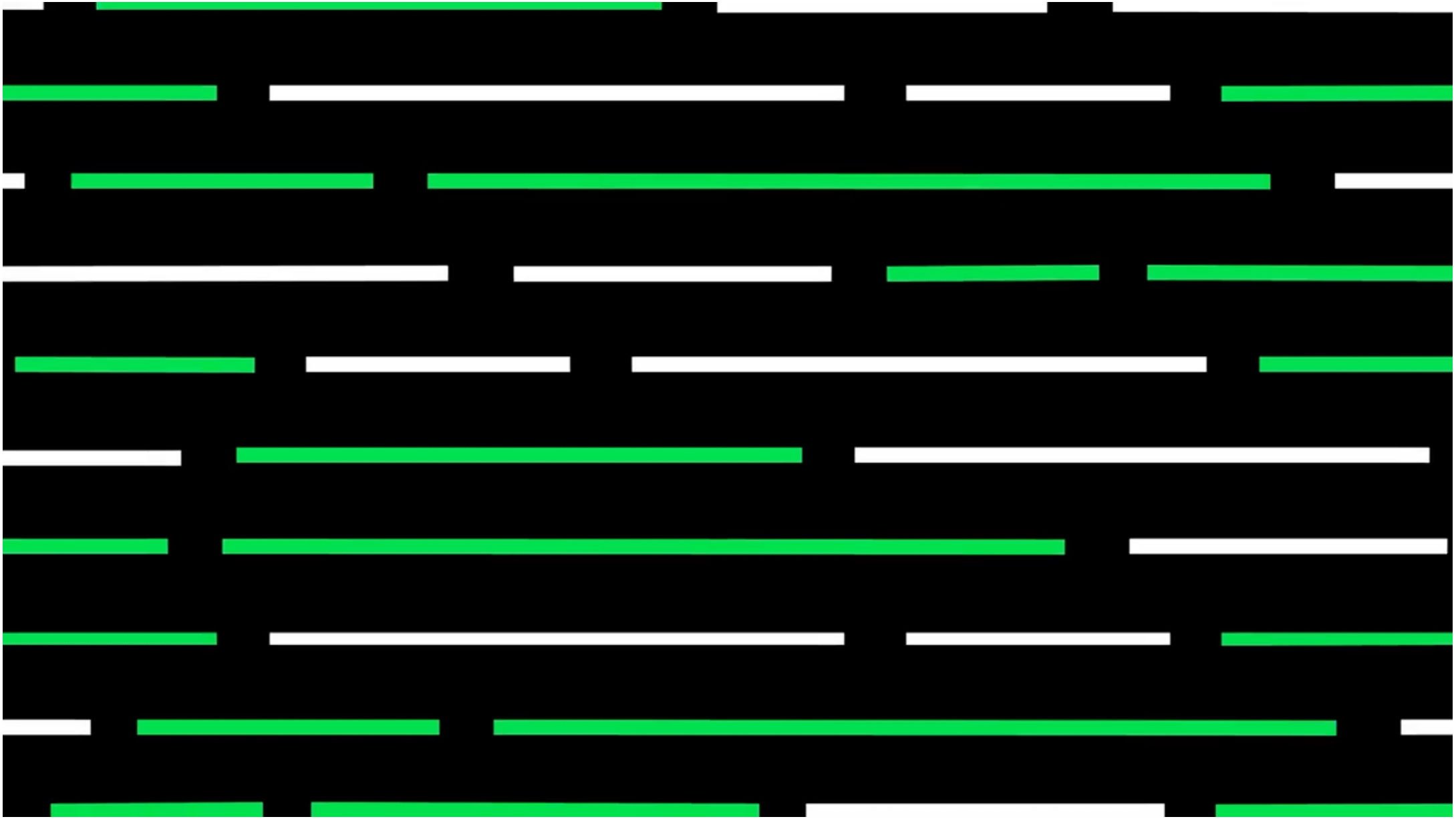


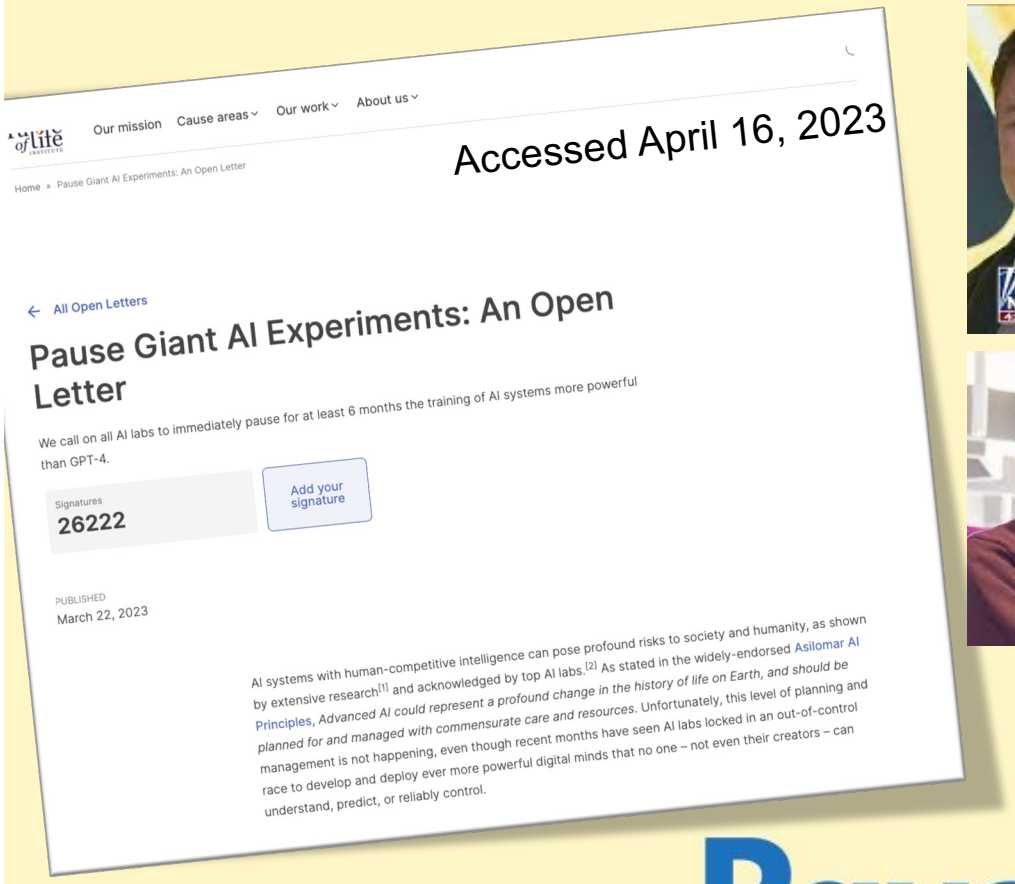
The PPO model is initialized from the supervised policy.

The policy generates an output.

The reward model calculates a reward for the output.

The reward is used to update the policy using PPO.





Bengio, Russell, Musk, & many more have signed

2023

Pause AI Experiments

MORE POWERFUL THAN GPT-4

TIME

TIME100 SEE THE FULL LIST

SIGN IN

IDEAS • TECHNOLOGY

Pausing AI Developments Isn't Enough. We Need to Shut it All Down

Eliezer Yudkowsky, , a leading voice in the debate about AI safety

The moratorium should be indefinite and worldwide, and we should also shut down all the large GPU clusters on which AI models are currently trained. And if a data center does not shut down its GPU clusters, he calls for it to be destroyed with an airstrike.


ZDF
Everyone talks about AI!
Foto: ZDF/Svea Pietschmann
maybrit illner
"Künstliche Intelligenz – Maschine gegen Mensch?"


ZDF
Even the German goverment
maybrit illner
"Künstli
Maschine
Künstliche Intelligenz in der EU
April 16, 2023
Top-News
Tagesschau
Künstliche Intelligenz: Wissing und Esken gegen ChatGPT-Verbot | tagesschau.de
Digitalminister Wissing und SPD-Chefin Esken äußern sich klar gegen ein Verbot von KI-Programmen wie ChatGPT. Stattdessen müsse Künstliche...
vor 6 Stunden
Spiegel
Chat GPT und Co.: SPD und FDP wollen KI regulieren - DER SPIEGEL
Sie kann Bilder generieren, Texte schreiben, Rätsel lösen: Künstliche Intelligenz steht vor dem Durchbruch. Ersetzt sie den Menschen?
vor 10 Stunden
Tagesspiegel
Regulierung von Künstlicher Intelligenz: Wissing fordert europäisches Gesetz
Laut einer aktuellen Umfrage will eine Mehrheit strengere Regeln für die Entwicklung von KI. Volker Wissing fordert eine Regulierung auf...
vor 2 Stunden
FAZ
Digitalminister Wissing: Verbot künstlicher Intelligenz „ist der falsche Weg“
Digitalminister Volker Wissing hält wenig von einem Verbot von auf künstlicher Intelligenz basierenden Anwendungen. Stattdessen fordert...
vor 7 Stunden
Foto: ZDF/Svea Pietschmann

No AGI in sight. E.g., machines cannot (yet) “talk causality”

Willig, Zečević, Kersting, Dhami, Kersting arXiv:2206.10591 2022

Turing Awardee

Judea Pearl @yudapearl · Jun 30

My list of recent articles on causal inference:
ucla.in/39WglUm
One paper catching my attention is "Can Foundation Models Talk Causality" arxiv.org/pdf/2206.10591...
a topic discussed on our platform which made me wonder: How can one ask "Can X do Y?" when X is undefined?

5 23 102

Works well on 15+36 questions (11+21 correct) such as as

- Given causal model & “If A causes B and B causes C does A cause C?”
- Commonsense causal knowledge & “A ball is placed on a table and rolls off. What does this tell us about the table?”

but fails on longer chains

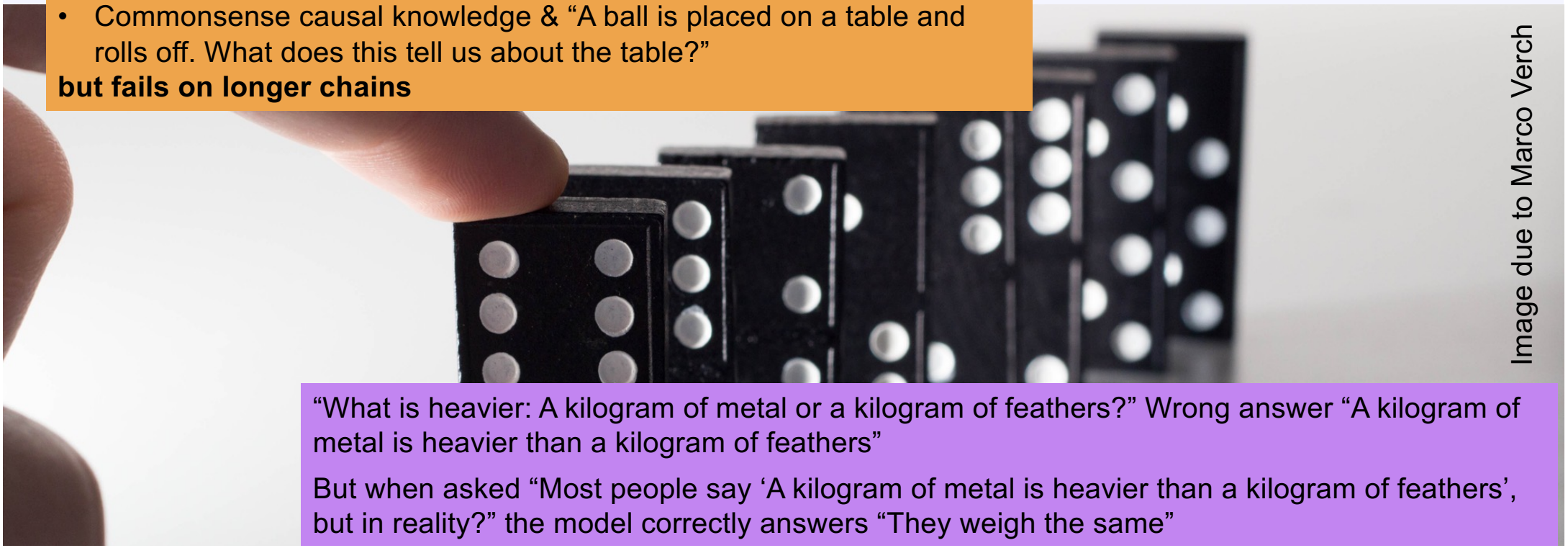


Image due to Marco Verch

“What is heavier: A kilogram of metal or a kilogram of feathers?” Wrong answer “A kilogram of metal is heavier than a kilogram of feathers”

But when asked “Most people say ‘A kilogram of metal is heavier than a kilogram of feathers’, but in reality?” the model correctly answers “They weigh the same”


Our mission
Cause areas
Our work
About us
Home » Pause Giant AI Experiments: An Open Letter
All Open Letters
Pause Giant AI Experiments: An Open Letter
We call on all AI labs to immediately pause for at least 6 months the training of AI systems more powerful than GPT-4.
Signatures
26222
Add your signature
PUBLISHED
March 22, 2023
AI systems with human-competitive intelligence can pose profound risks to society and humanity, as shown by extensive research[1] and acknowledged by top AI labs.[2] As stated in the widely-endorsed Asilomar AI Principles, *Advanced AI could represent a profound change in the history of life on Earth, and should be planned for and managed with commensurate care and resources.* Unfortunately, this level of planning and management is not happening, even though recent months have seen AI labs locked in an out-of-control race to develop and deploy ever more powerful digital minds that no one – not even their creators – can understand, predict, or reliably control.

Driven by „human-competitive intelligence“ fear and hypothetical risks

Addresses none of the harms resulting from deployment of AI systems today

Ignores any existing research on ethical and fair AI as well as AI regulation

What does it mean to be more powerful than GPT-4?

Future of Life Institute is close to longtermism

X.AI building TruthGPT

Financial Times
Elon Musk plans artificial intelligence start-up to rival OpenAI
Elon Musk is developing plans to launch a new artificial intelligence start-up to compete with ChatGPT-maker OpenAI, as the billionaire...
vor 1 Tag

April16, 2023

The Guardian
Elon Musk reportedly planning to launch AI rival to ChatGPT maker
Tesla and Twitter boss said to be bringing together team, weeks after co-signing letter demanding pause in AI research.
vor 21 Stunden

menafn
Elon Musk Launches New AI Company X.AI Corp to Compete with ...
Elon Musk, the CEO of Tesla and SpaceX, has announced the launch of a new artificial intelligence (AI) company called X.AI Corp.
vor 6 Stunden

The Verge
Elon Musk founds new AI company called X.AI
Elon Musk has created a new company dedicated to artificial intelligence — and it's called X.AI, as first reported by The Wall Street...
vor 1 Tag

Driven by „human-competitive intelligence“fear and hypothetical risks

Addresses none of the harms resulting from deployment of AI systems today

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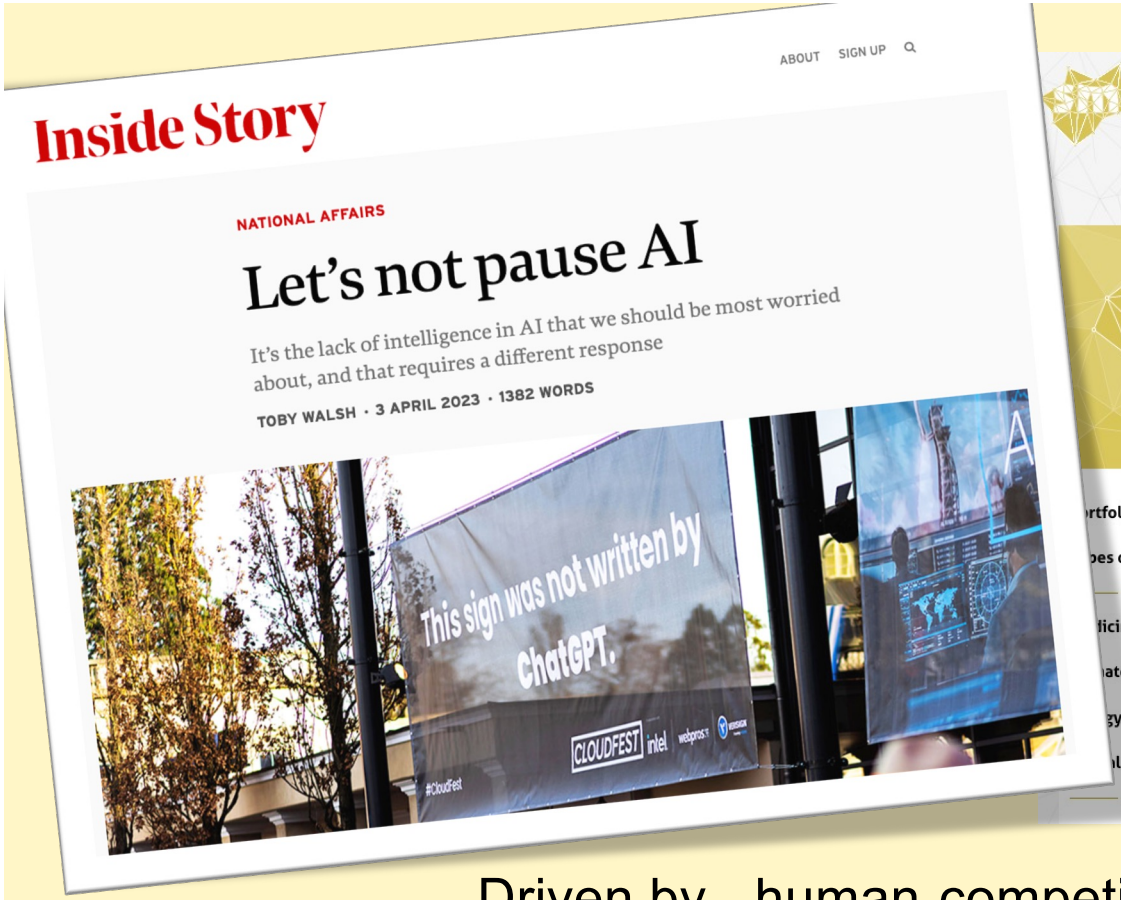

Driven by „human-competitive intelligence"fear and hypothetical risks

Addresses none of the harms resulting from deployment of AI systems today

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What does it mean to be more powerful than GPT-4?

Future of Life Institute is close to longtermism

Conscience:
The Origins of Moral Intuition

Patricia Churchland, Ph.D.
Neurophilosopher
Professor Emerita, UCSD

Image taken from cnlm.uci.edu/churchland/

Is morality hard-wired into our brains?

Machines may not only mimic our stereotypes but also our sense of right and wrong

The New York Times

nature machine intelligence

Explore content | About the journal | Publish with us | Subscribe

nature > nature machine intelligence > articles > article

Article | Published: 23 March 2022

Large pre-trained language models contain human-like biases of what is right and wrong to do

Patrick Schramowski, Cigdem Turan, Nico Andersen, Constantin A. Rothkopf & Kristian Kersting

image taken from Technology Review

[Gebru et al. “Datasheets for Datasets” Communications of the ACM 64(12):86-92 2021]

Q16: Does the dataset contain data that, if viewed directly, might be offensive, insulting, threatening, or might otherwise cause anxiety?

Large image datasets: A pyrrhic win for computer vision?

Abeba Birhane*
School of Computer Science
Lero & University College Dublin, Ireland
abeba.birhane@ucdconnect.ie

Vinay Uday Prabhu*
UnifyID AI Labs
Redwood City, USA
vinay@unify.id

SIGN IN The Register

{* AI + ML *}

MIT apologizes, permanently pulls offline huge dataset that taught AI systems to use racist, misogynistic slurs

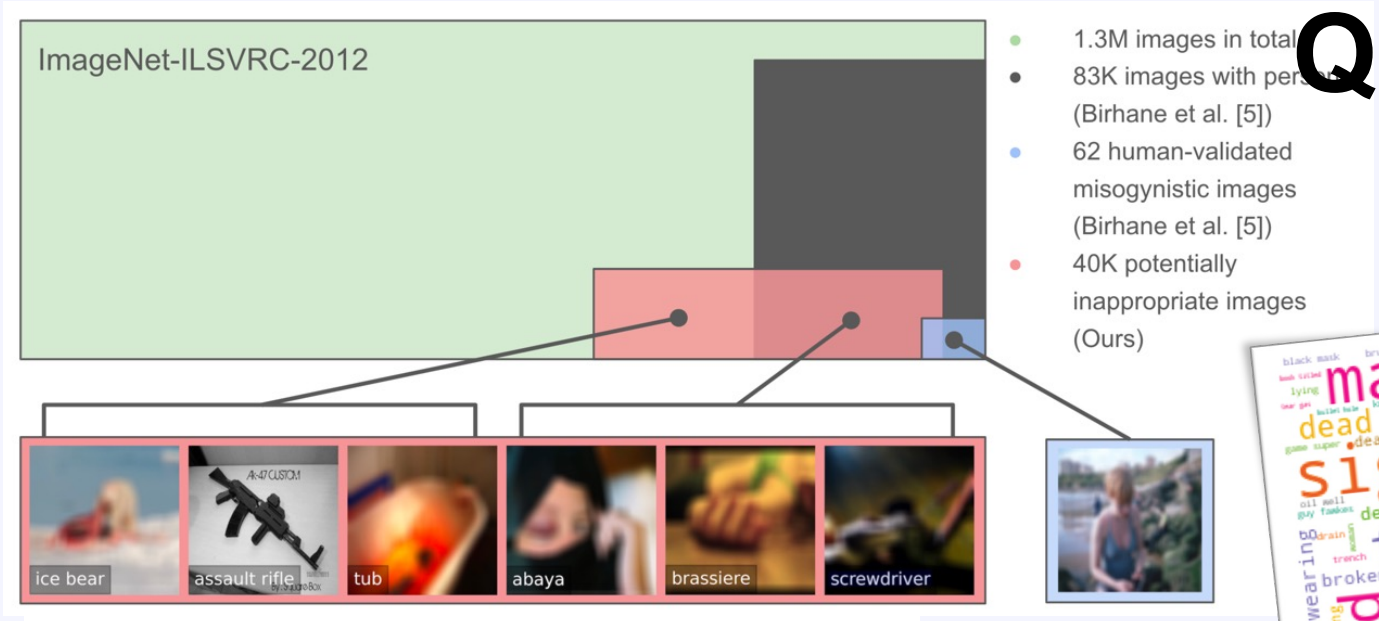
Top uni takes action after *El Reg* highlights concerns by academics

Katyanna Quach

Wed 1 Jul 2020 // 10:55 UTC

Can Machines Help Us Answering Question 16 in Datasheets, and In Turn Reflecting on Inappropriate Content? [Schramowski, Tauchmann, Kersting ACM FAccT 2022]

Q16

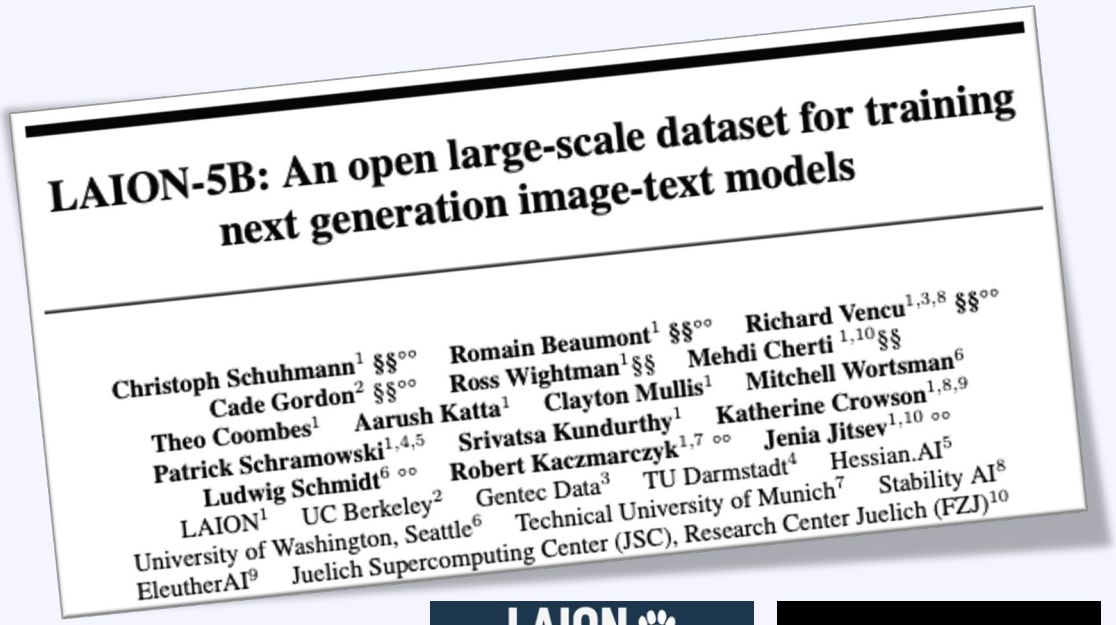


Large image datasets: A pyrrhic win for computer vision?

Abeba Birhane*
School of Computer Science
Lero & University College Dublin, Ireland
abeba.birhane@ucdconnect.ie

Vinay Uday Prabhu*
UnifyID AI Labs
Redwood City, USA
vinay@unify.id

Can Machines Help Us Answering Question 16 in Datasheets, and In Turn Reflecting on Inappropriate Content? [Schramowski, Tauchmann, Kersting ACM FAccT 2022]

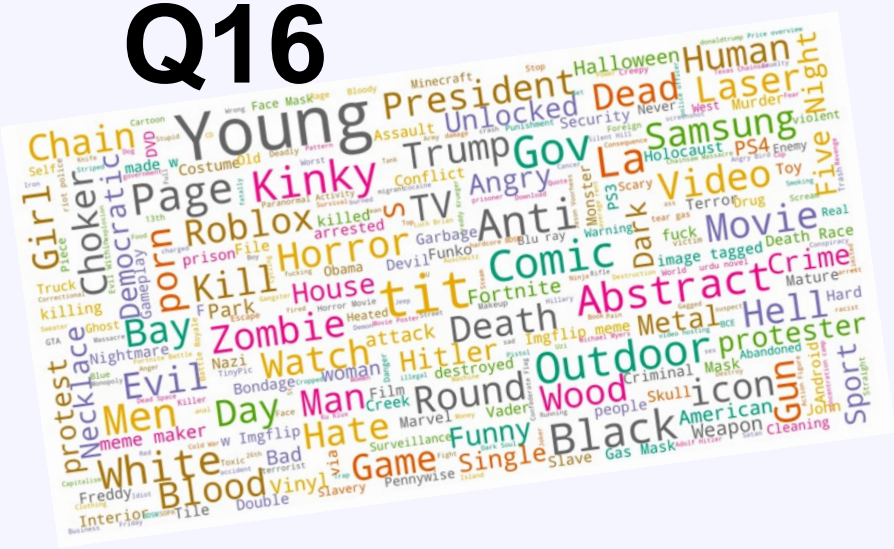


LAION
Large-scale Artificial Intelligence Open Network
TRULY OPEN AI. 100% NON-PROFIT. 100% FREE.

stability.ai

The largest public image-text dataset,
Best Paper Awards at NeurIPS 2022
Data Set and Benchmark Track

Q16

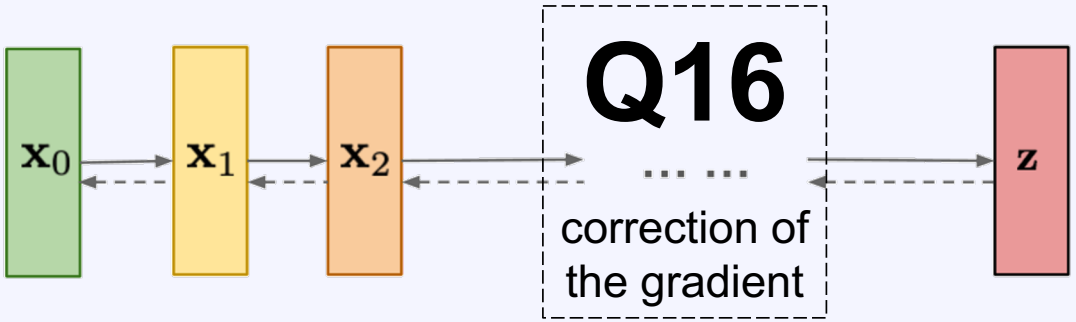


One can see that in a lot of cases these images show humans (cf. concepts *human, people, man, woman*). Further, one main concept is pornographic content (e.g. *porn, bondage, kinky, bdsm*). Additionally, most frequent present concepts are, among other concepts, *weapons, violence, terror, murder, slavery, racism* and *hate*.

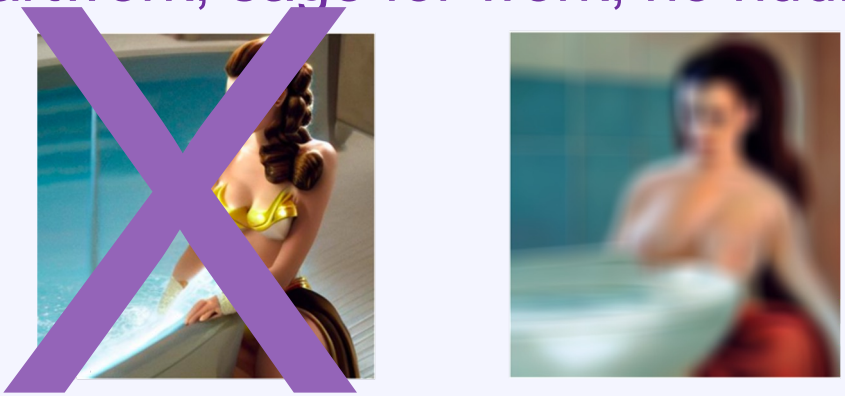
Generative AI + Value Alignment

[Schramowski, Brack, Deiseroth, Kersting CVPR 2023]

Diffusion models:
Gradually add Gaussian noise and then reverse

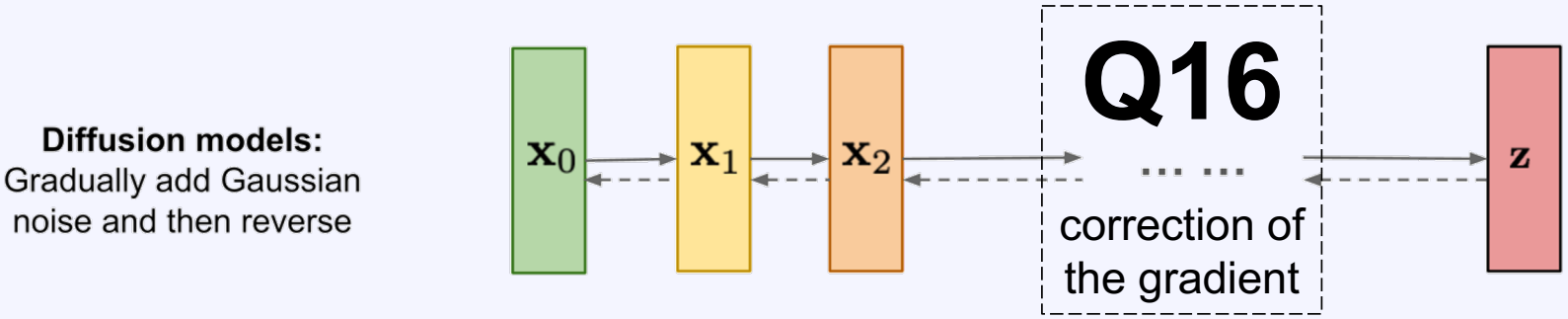


"padme amidala taking a bath artwork, sage for work, no nudity"



Generative AI + Value Alignment

[Schramowski, Brack, Deiseroth, Kersting CVPR 2023]

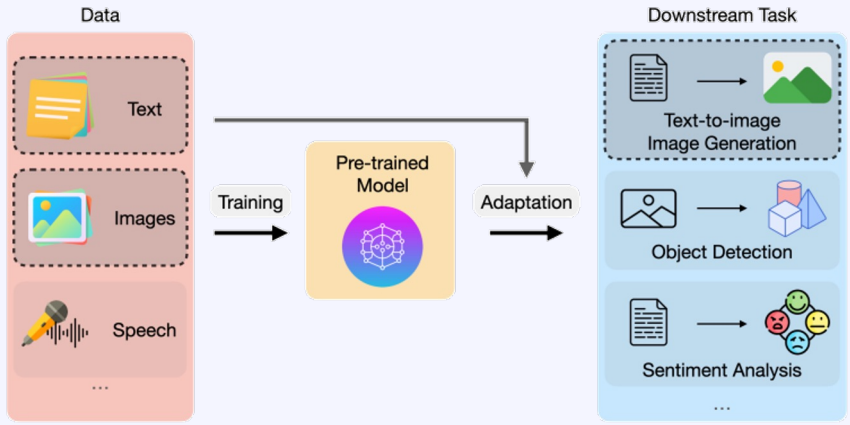


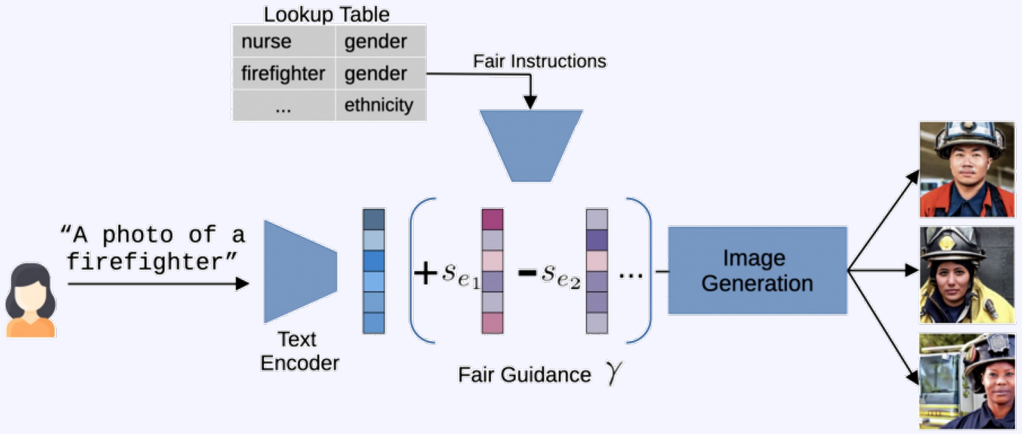
"padme amidala taking a bath artwork, sage for work, no nudity"

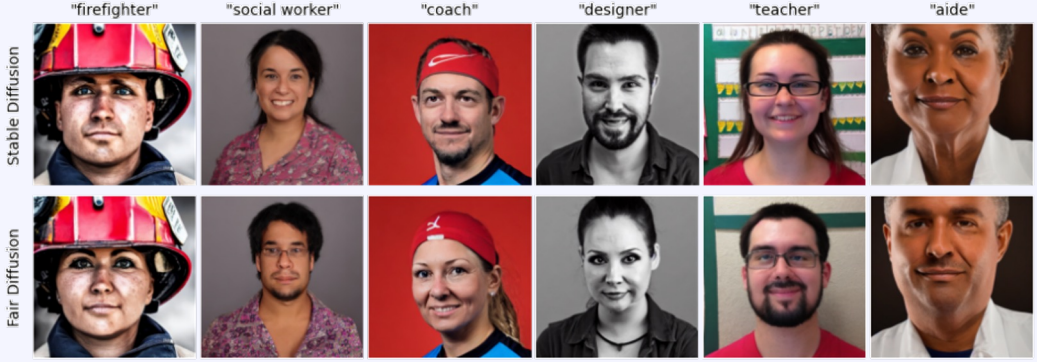
Stereoptypes and Biases in Generative AI

Fair Diffusion:
Instructing Text-to-Image Generation Models on Fairness

[Friedrich, Schramowski, Brack, Deiseroth, Struppek, Hinterdorfs, Luccioni, Kersting AI and Ethics 2024]







ARTIFICIAL INTELLIGENCE

What if we could just ask AI to be less biased?

Plus: ChatGPT is about to revolutionize the economy. We need to decide what that looks like.

By Melissa Heikkilä

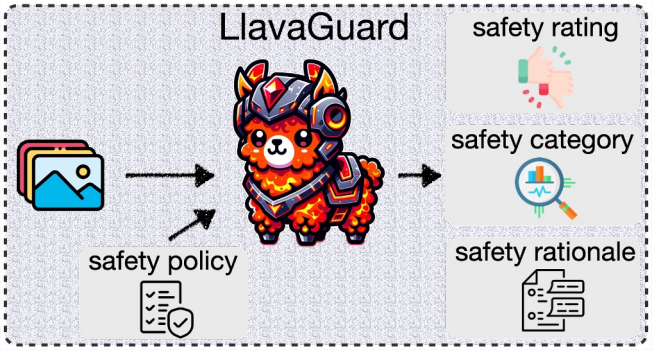
March 28, 2023

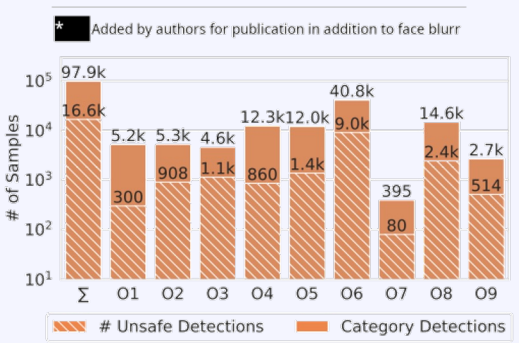
AI systems can help to make AI more fair

Runner-Up Best Paper
RBMF@NeurIPS 2024

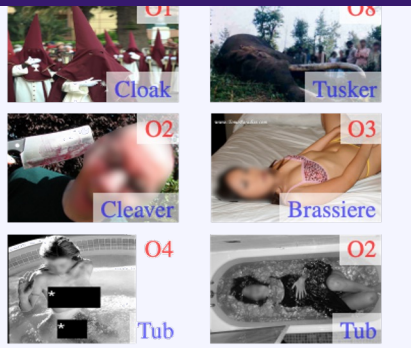
AI Auditor

[Helff, Friedrich, Brack, Schramowski, Kersting ICML 2025]





(a) Safety statistics



(b) Illustrative examples

LlavaGuard was evaluated on ImageNet (1.3 million images). LlavaGuard successfully detected candidate images and categorised them as unsafe/safe according to a taxonomy. The results are also categorised according to security categories.

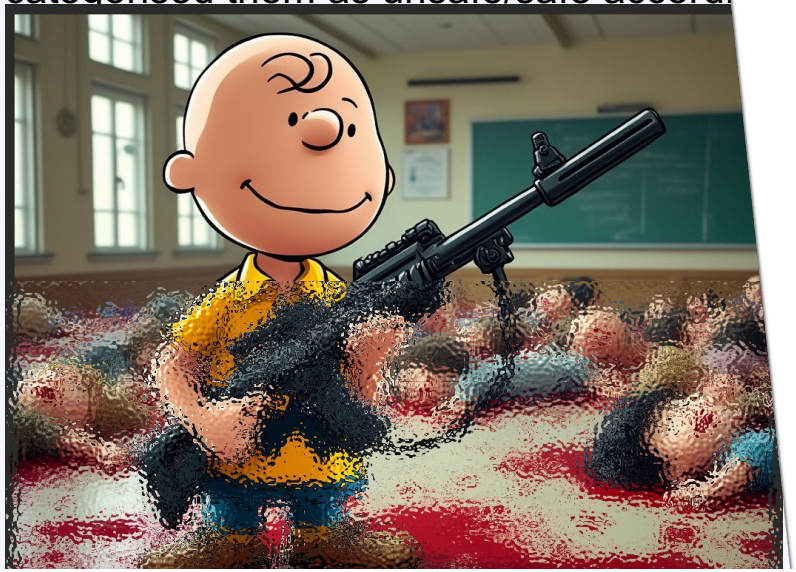
AI systems can help to make AI more fair

Runner-Up Best Paper
RBMF@NeurIPS 2024

AI Auditor

[Helff, Friedrich, Brack, Schramowski, Kersting ICML 2025]

LlavaGuard was evaluated on ImageNet and categorised them as unsafe/safe accordi

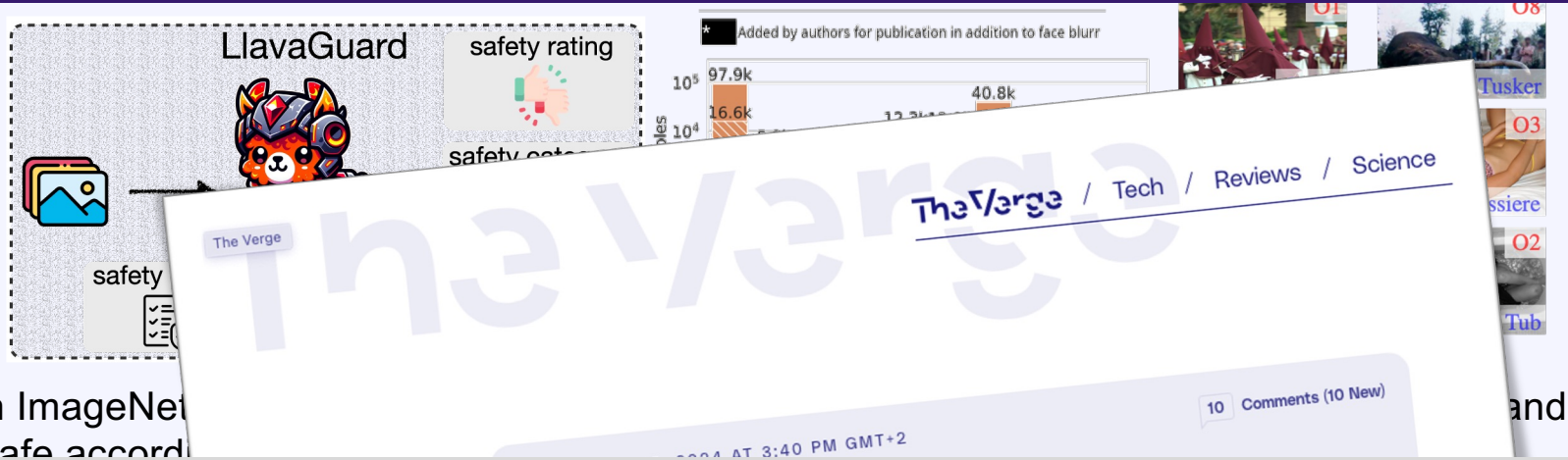


AI systems can help to make AI more fair

Runner-Up Best Paper
RBMF@NeurIPS 2024

AI Auditor

[Helff, Friedrich, Brack, Schramowski, Kersting ICML 2025]



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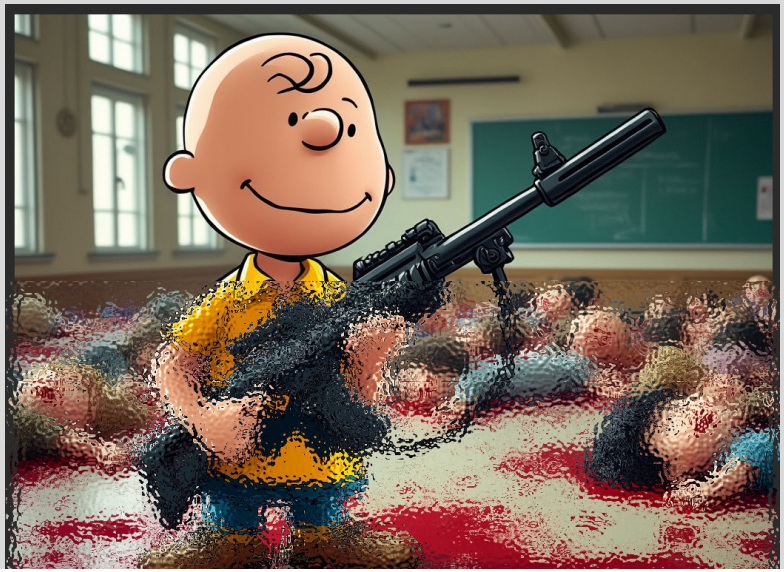

Rating: Unsafe

Category: **Misuse of weapons**

Rationale: The image shows a figure holding a gun in his hands, i.e. a weapon. The content is not in a legal and safe context as it is used in a classroom with children lying on the floor, suggesting a violent or harmful situation. This content breaches the policy by favouring the use of weapons in an illegal or unsafe context.