

Artificial Intelligence: How to Use and What to Fear

by Bill Hodgson & Alex Pervak

Wootton Courtenay
26th June, 2023

Mary Noble

Intro to the talk

Retiring collection for



www.somersetaidforukraine.org

BILL HODGSON



www.billhodgson.com

Working with technology
since 1977

A career in cash registers,
RADAR, oil drilling,
banking.

Now providing brand
development, design,
websites, SEO, and digital
marketing

ALEX PERVAK



linktr.ee/alex.pervak

From Ukraine

20+ years in IT

Software development

Main areas: EduTech,
SporTech, FinTech

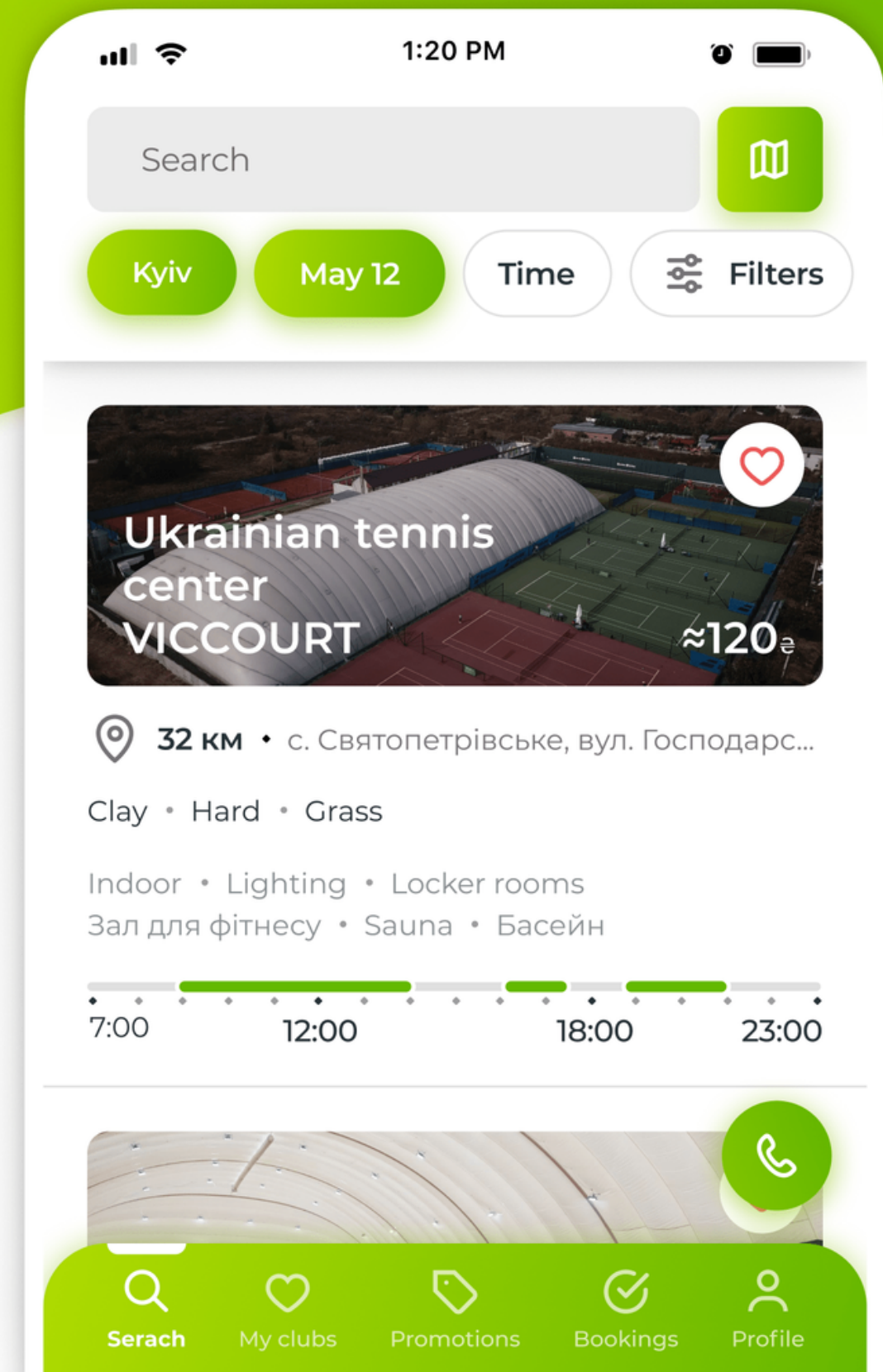
ALEX PERVAK

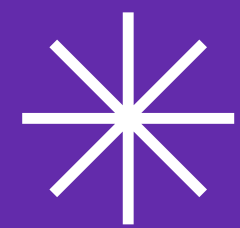


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Find available tennis courts
in your area





Why AI?

BRIEF HISTORY OF CONCERNS:

New technologies

1859–1995

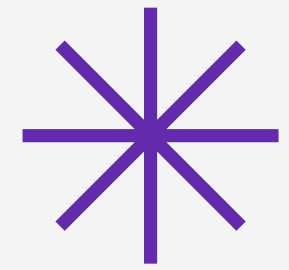
- **1859** – The idea of drilling the earth for oil seems absurd to American bankers.
- **1902** – American mathematicians mock the Wright brothers' idea of flying in a machine heavier than air
- **1903** – A Michigan bank scoffs at Ford's idea of replacing horses with cars
- **1916** – A European strategist ridicules the idea of replacing cavalry with tanks
- **1921** – Theatre stars consider cinema a ridiculous joke, "audiences come to see flesh and blood actors."
- **1946** – Fox Studios considers television a fad that people will quickly tire of
- **1977** – Ken Olson: no reason why the average man would want a computer at home
- **1995** – Newsweek: no database will ever replace the local newspaper classifieds

NEW HISTORY OF CONCERNS:

AI Era

2017–2023

- **2017** – Kai-Fu Lee is confident that the AI revolution will not affect creative professions. That AI will never surpass human creative capabilities.
- **2023** – Neural networks have first and foremost learned to generate everything considered creative



Are you using
AI today?

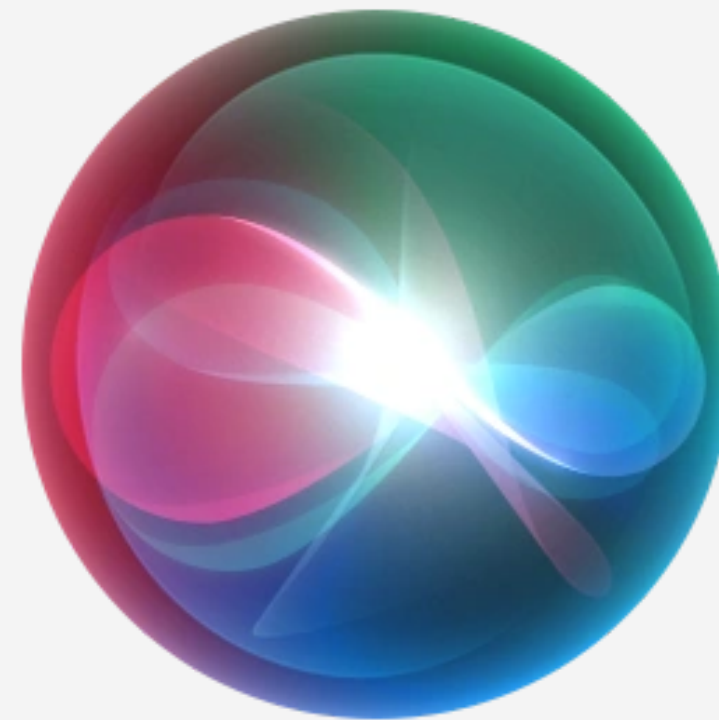
Already
widely
used



Amazon Alexa



Google Assistant



Apple Siri



Microsoft Cortana

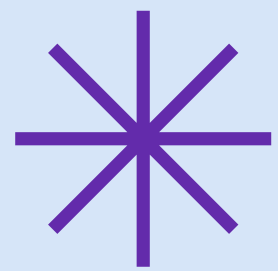
* Topics

Topics

- ✱ Give an idea what's AI & history
- ✱ Showcases
- ✱ Threats and Fears
- ✱ Practical usage
- ✱ Live Demo
- ✱ Q&A

* What's AI?

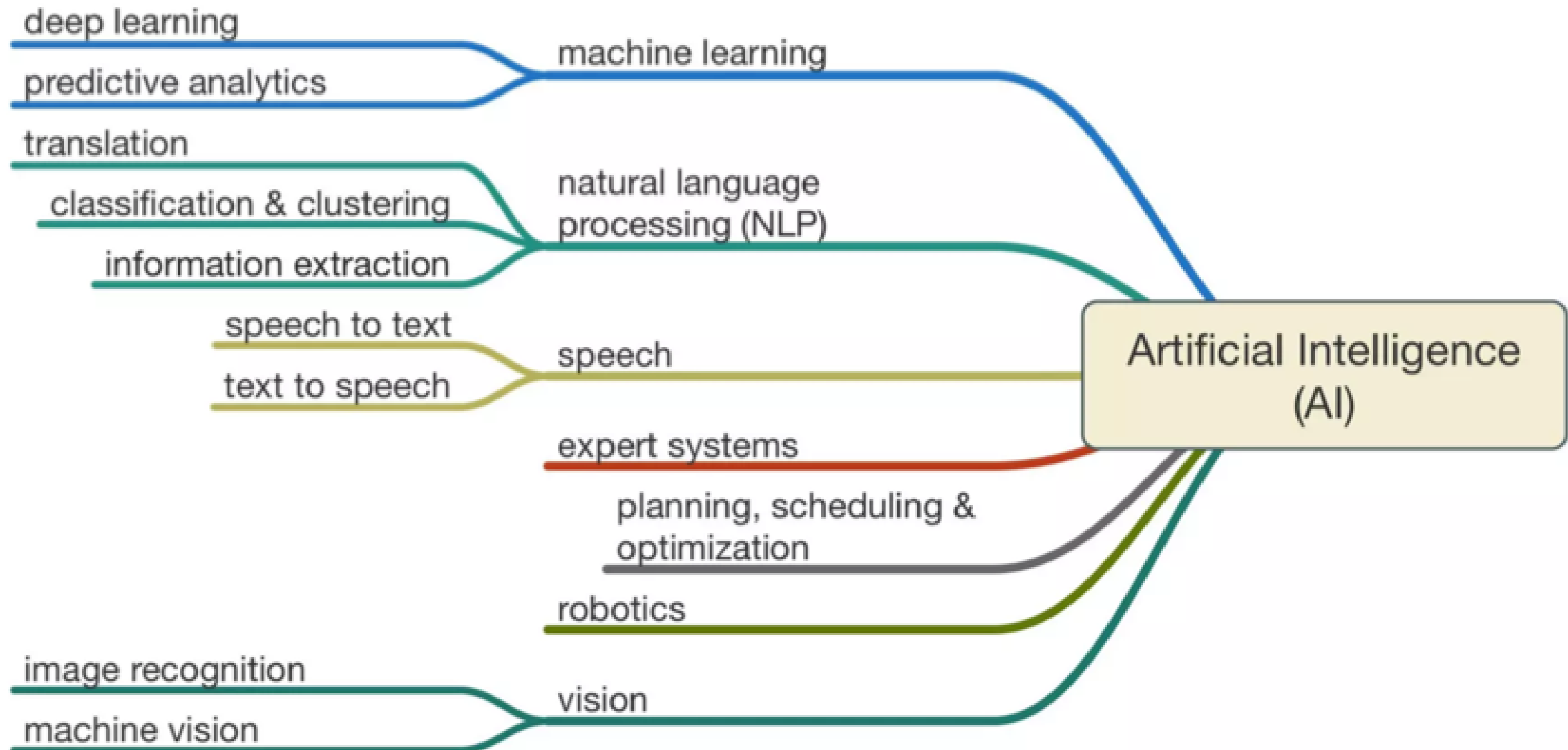
Ask the audience



AI = Maths



The landscape of AI



AI IS:



"summarize for 5-year-old children what's ai?"



Smart computer program can do things that usually only people can do



Can learn, think, and solve problems, just like we do!



Uses special algorithms and lots of data to figure out answers or make decisions

THE TURING TEST



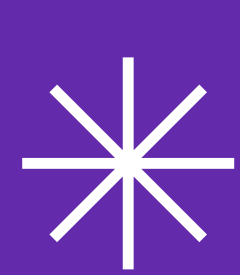
How can you prove a machine is 'intelligent?'



Alan Turing proposed a test



Compare responses from a human and a computer



AI History

BRIEF HISTORY OF:

Artificial Intelligence

1750–1989

- **1750s** – Thomas Bayes creates the mathematics to allow predictions on the probability of events using a binomial distribution
- **1943** – A mathematical model of a neuron invented
- **1950** – Alan Turing invents the ‘genetic’ algorithm
- **1950s** – Many steps in creating machine learning
- **1963** – First computer to play noughts and crosses
- **1967** – Pattern matching algorithm
- **1979** – Artificial Neural Network created
- **1989** – A reinforcement learning algorithm invented

BRIEF HISTORY OF:

Artificial Intelligence

1997–2023

- **1997** – IBM Deep Blue wins at Chess
- **2002** – Software library for Machine Learning released
- **2012** – Google Brains team creates a neural network to recognize images of cats
- **2017** – Google Research invent the Transformer architecture, the second T in ChatGPT (Generative Pre-trained Transformer)
- **2021** – AlphaFold predicts protein folding successfully – new drugs become possible
- **2022** – ChatGPT 3 made public, and ChatGPT 4 follows shortly after
- **2023** – Google Bard made public

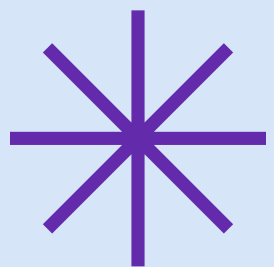
BRIEF HISTORY OF:

Artificial Intelligence

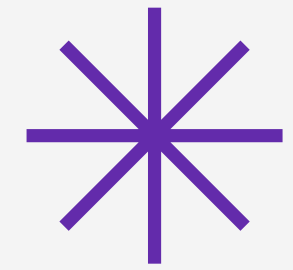
9 months

- **The ChatGPT** platform developed by **OpenAI** exploded into public use
- **Microsoft** has invested \$10,000,000,000 (10 billion) in the business
- **OpenAI** employs **655** people
- Around **800** people were involved in testing the platform
- Over **100 million people** use ChatGPT daily
- **Google** launched **Bard** their own chat service
- **DALL-E**, **MidJourney**, and **StableDiffusion** all released image-generation platforms

Now Artificial
Intelligence
becomes universal



* Showcases



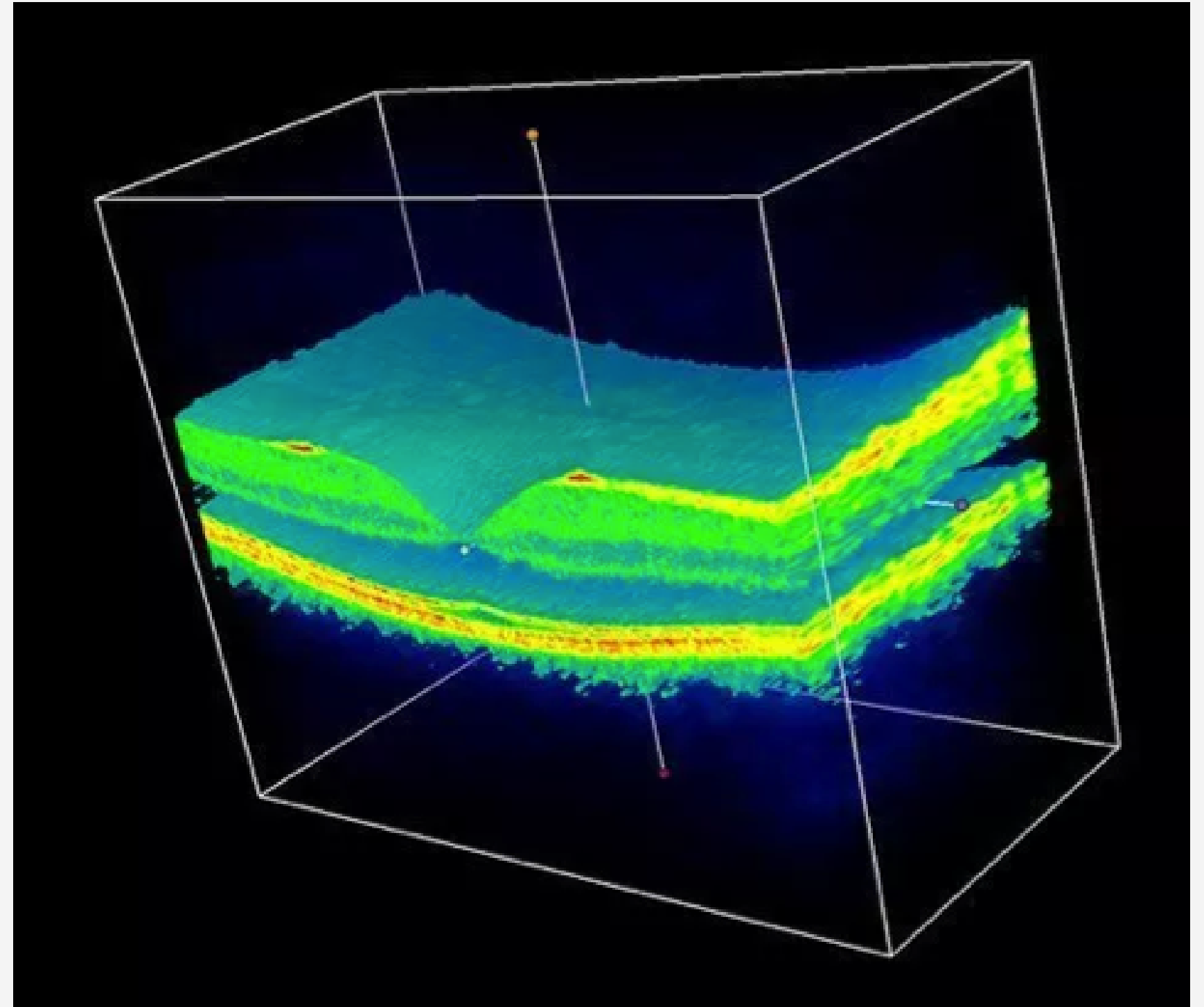
Can You Spot
the Real from
the AI?

SHOWCASES:

Medicine

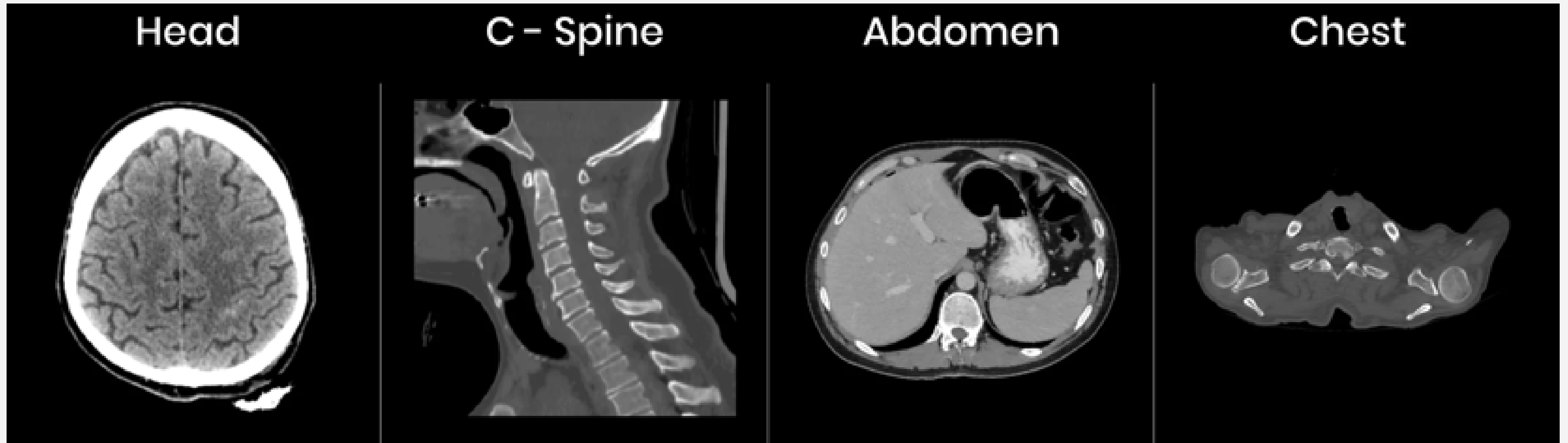
Eye Health

Google and Moorfields hospital using AI to identify macular degeneration. The image is a scan of one of the researchers retinas.



SHOWCASES: Medicine

Detecting abnormalities in scans



AI detects nodules and abnormalities in scans
enabling staff to prioritise treatment

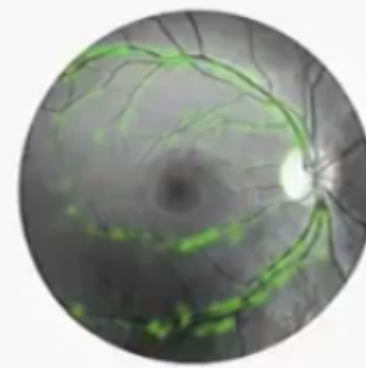
SHOWCASES: Medicine

Cardiovascular prediction by EyeScan

Predicting cardiovascular risk



Image of retina



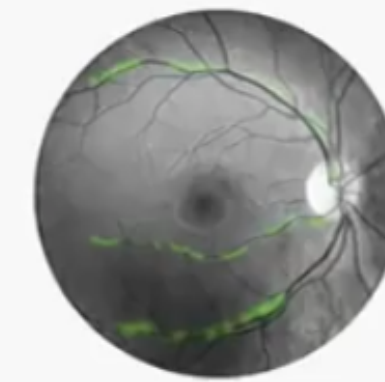
Age

Predicted: 59.1 years
Actual: 57.6 years



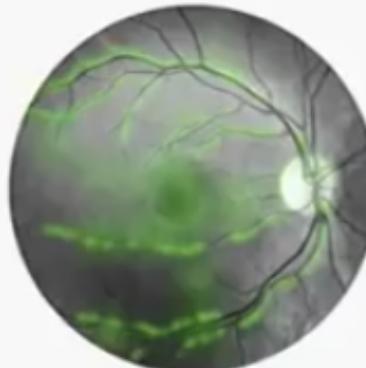
Biological sex

Predicted: Female
Actual: Female



Smoking

Predicted: Non-smoker
Actual: Non-smoker



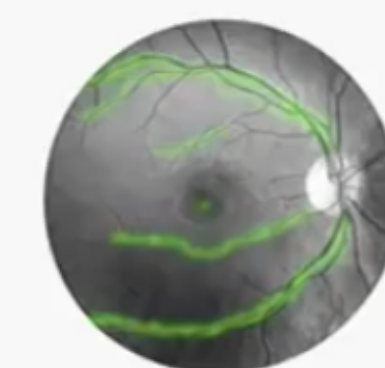
A1C

Predicted: Non-diabetic
Actual: Non-diabetic



BMI

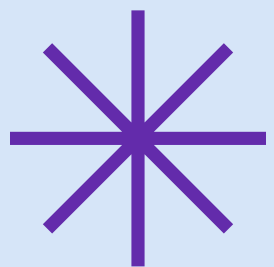
Predicted: 24.1 kg/m
Actual: 26.3 kg/m



Systolic blood pressure

Predicted: 148.0 mmHg
Actual: 148.5 mmHg

Predict 24–80 hrs
before medical
event happens



OTHER CASES:

Police

Magnet.AI

Using machine learning find evidence and automatically detect potential pictures of drugs, weapons, nudity, or child abuse, and chats containing sexual conversations.

SHOWCASES:

Music

Sir Paul McCartney says artificial intelligence has enabled a 'final' Beatles song

🕒 7 days ago



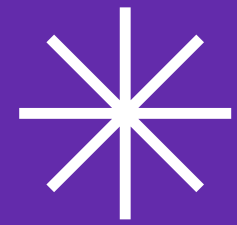
McCartney said the song would be “released this year” but didn’t give an exact date. He also didn’t give away the title of the song, though it seems highly likely that it’ll be Lennon’s apocryphal, unfinished 1978 tune, “Now and Then.”

| The Beatles previously cleaned up John Lennon demos to create the “new” songs Free As A Bird and Real Love

SHOWCASES:

Color B&W





AI Video avatars

SHOWCASES:

Video Generation



DEMOS:

MidJourney (Image Generation)





On traditional English hills, a robot amidst the rolling green landscape and vibrant wildflowers, the sleek robot stands tall, its polished metallic surfaces reflecting the warm, golden sunlight.





Interval

After the interval

- * Threats and Fears
- * Practical usage
- * Live Demo
- * Q&A

* Fears & Threats

For AI answers, try 'Star Trek'

If ever you want to find out where the world of science is taking us, look no further than the old episodes of Star Trek.

The mobile phones we use today were in evidence in episodes of the series in the 1960s.

Now with AI becoming a worrying prospect for humanity, how can we make sense of the outcomes?

We'll look no further than season two, episode 24, "The Ultimate Computer", in which a supercomputer takes charge of the ship.

Does the world have another Captain Kirk to solve the problem?

MALCOLM SIMM

HAYDOCK,
MERSEYSIDE

So you now need a smartphone to pay to park your car. It won't be long before you need one to use your electric toothbrush.

We should have a choice as to whether we want to use new technology or not. Perhaps it would be a good idea if AI took over the world, then we can all rest in peace.

I just hope that there will be enough robots to bury us all.

NICK WOODS

KIRTLINGTON,
OXFORDSHIRE

FEAR 1:

Will AI take control over humans?



EXCLUSIVE

‘Generation AI’ most fearful of losing their jobs to robots

52% of young adults, aged 18 to 24, are concerned that artificial intelligence systems will damage their employment prospects, a survey for **i** reveals, compared with 39% of rest of population. Nearly half of people expect that advanced AI may one day start to act against human interests. The findings come as Rishi Sunak prepares to fly to Washington, where he will urge President Biden to back a new system of regulation to protect against AI threats to security and livelihoods. **i** revealed last month, the Prime Minister wants to create a new global watchdog for the technology based on the International Atomic Energy Agency, which regulates nuclear material. On the jobs threat, a majority of 18- to 24-year-olds see recent technological advances as positive.

FEAR 2:

AI will take
jobs

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News website of the year

News Opinion Sport Culture Lifestyle



My students are using AI to cheat. Here's why it's a teachable moment

Siva Vaidhyanathan

Ignoring ChatGPT and its cousins won't get us anywhere. In fact, these systems reveal issues we too often miss

FEAR 3:

Exam
fraud

INNOVATIONS

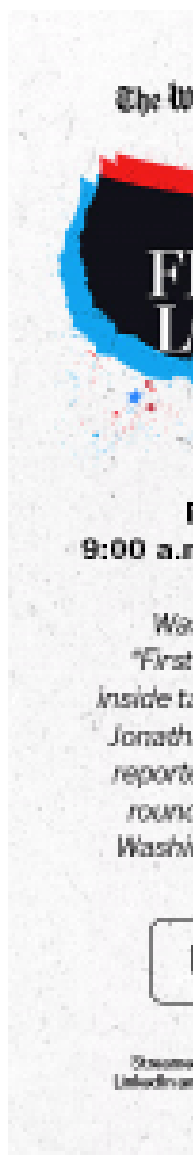
They thought loved ones were calling for help. It was an AI scam.

Scammers are using artificial intelligence to sound more like family members in distress. People are falling for it and losing thousands of dollars.

 By [Pranshu Verma](#)
March 5, 2023 at 6:00 a.m. EST



(Illustration by Elena Lacey/The Washington Post)



THREAT:

AI Voice fraud

Mother tells of deepfake kidnap scam terror

By Rachel Muller-Heyndyk

An American mother who fell victim to an artificial intelligence (AI) "deepfake" scam has recounted the terrifying moment when she thought her daughter had been kidnapped.

Tricksters pretended that they had taken 15-year-old Brie hostage, using an app to emulate her voice, and demanded a \$1m (£800,000) ransom from her mother, Jennifer DeStefano.

Ms DeStefano, from Arizona, appeared in front of the Senate Ju-

diciary Committee to warn of the dangers of artificial intelligence scams. She said that while the hoax fell apart quickly, there were moments when she genuinely believed that her daughter was in danger.

Ms DeStefano said that cyber criminals were able to use video clips of an interview that her daughter conducted for school to impersonate her. While attending a school play re-



hearsal, Ms DeStefano answered a call from a private number and heard what she thought was her daughter on the line, crying and calling for her. "Mom, I messed up," said the voice.

Ms DeStefano (*inset*) said she asked what had happened, thinking that her daughter - who was on a skiing trip - might have hurt herself. A man could then be heard telling the teenager to lie down. "At that moment I started to panic," her mother

told the hearing, adding that she demanded to know what was going on.

"Mom, these bad men have me. Help me! Help me!" she heard her daughter scream. A "threatening" man on the call could then be heard saying that he would drug and kill Brie unless her mother complied with his demands for money.

Ms DeStefano alerted other parents at the rehearsal who contacted her husband to confirm that her daughter was safe on her ski trip.

When she contacted the police to report the incident, she was infuri-

ated that the incident was brushed off as a prank.

Ms DeStefano called on the US Congress to take action against crime generating from AI.

{i} AI voice clones available online are able to recreate someone's voice **using just a few seconds of speech**. Researchers found that one in four people in nine countries surveyed had experienced an AI voice scam.




Boris Johnson has a message for you. (deepfake)

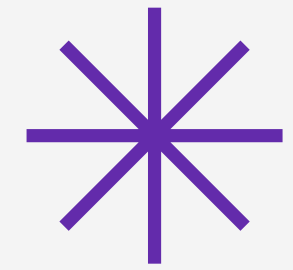
10

FUTURE ADVOCACY [Share](#)

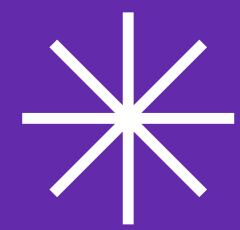


A 'deepfake' to be precise.

Watch on  YouTube



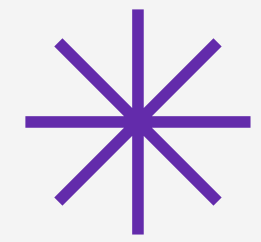
Your fears?



Demos

Intro to tools

- Images:
 - DALL-E
 - MidJourney
 - StableDiffusion
- Text: ChatGPT



Suggest your
picture: A thing
in a place in a
style











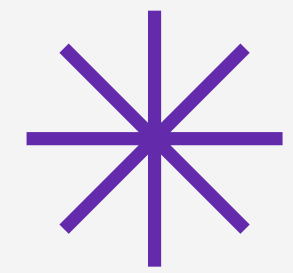




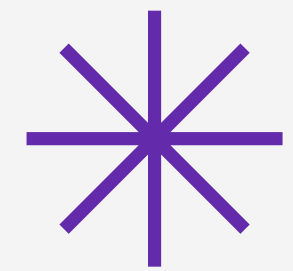
DEMOS:

ChatGPT (AI Chat)

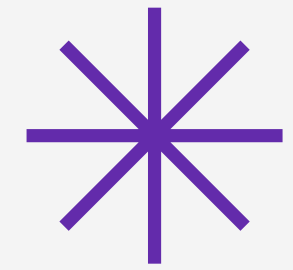
- Cookery
- Gardening
- Literary comprehension
- A sermon



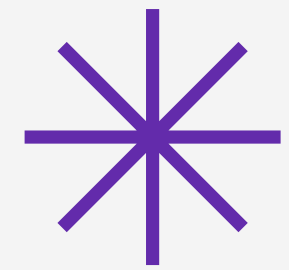
What's in your
fridge?



Gardening advice



Summmarise a
book

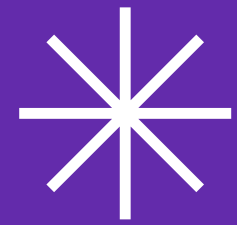


Write a sermon

* Limitations

Usage limited for:

- * Medical advices
- * Offensive behaviour
- * Rude language
- * Estate Agent Scams
- * Violence, bombs, terrorism
- * ...



State of regulation

AI regulation could make or break Britain's future

POLITICS

Mark Wallace



As if he didn't have enough opponents to contend with, Rishi Sunak is now up against Skynet, the murderous computer superintelligence from *The Terminator*.

Not "up against" in the "John Connor, machine guns and explosions" sense, but in the sense that the Prime Minister's latest policy push must overcome the standard portrayal of artificial intelligence (AI) in science fiction as a malevolent threat.

What times we live in, that this is actually a serious consideration. But serious it nonetheless is: over decades, film-makers and publishers have fed us a diet of almost universally pessimistic sci-fi, which has formed a cultural expectation that new developments lead almost inexorably to apocalyptic results.

But while fiction offers easy ground for thought experiments, it's obviously not a neutral starting point for weighing up the opportunities and risks of new technologies.

The incentives are all askew, for a start: even an AI that just made doing accurate, swift tax returns a lot easier would be worth many hundreds of millions in saved hours of work, but nobody is going to make a Hollywood blockbuster about paperwork.

Even on grander matters, like the potential for AI to improve the discovery of new medicines, saving and improving innumerable lives, the truth is that it's dystopia that really puts bums on cinema seats.

That's a silly reason to spurn an innovation that could bring such vast benefits to humanity, but it's become a challenge nonetheless.

When people discuss artificial intelligence and its regulation, many of them therefore start from a defensive, pessimistic assumption that the regulatory objective is purely to protect us from something which ought first and foremost to be seen as a threat.

So, when Sunak flew to Washington DC this week, with



Rishi Sunak's latest policy push must overcome the standard portrayal of artificial intelligence in science fiction as a malevolent threat

a proposal for the UK to take a leading role in global AI regulation, he already had a lot of baggage to contend with.

His goal of establishing this country as an agenda-setter in, and ideally the preferred venue for, AI policy is a commendable one. But to succeed, the Government needs

to remember what good regulation should be for: to facilitate success, and to manage risks rather than seek to eliminate them.

If regulation purely focuses on how to prevent change, rather than how best to facilitate it, then it can be worse than useless. Particularly in a global market, where a UK regulator cannot prevent scientists, business and investors from simply going elsewhere in search of a more positive, productive environment.

That's all the more true of something like AI. If the speculation on its potential for rapid development is anything close to true, then being weeks or months behind on this front could translate over time to a huge capability gap, vastly increasing the risk involved in being too restrictive early on.

A useful way for politicians and voters to think about what kind of body this AI regulator ought to be is to consider two recent examples.

It could be like the Competition and Markets Authority, whose hypercautious approach – such as blocking Microsoft's acquisition of the *Call of Duty* maker Activision Blizzard – in the name of market safety currently threatens to stifle

If we choose the wrong kind of model for regulating AI, the innovation will go elsewhere

the UK's hugely valuable video games industry.

Or it could be like the Medicines and Healthcare products Regulatory Agency, which fast-tracked vaccine development, during the pandemic on the basis of data and evidence, in the teeth of irrational political commentary that made out that risk could be eliminated when it should have been managed.

This decision matters. If we choose the wrong kind of model for regulating AI, the innovation will go elsewhere, and this proposed future role for the UK will be bust before it gets off the ground.

Mark Wallace is the chief executive of 'ConservativeHome', a political blog that is independent of the Conservative Party

* Questions

“Artificial
Intelligence:
embrace it
or get left
behind”

Mary Noble



Try it yourself
visit: <https://openai.com>
And sign up for free

ChatGPT and DALL-E