

# Artificial Intelligence

## What's really going on?

**Simon Greenman**

**Berlin**

**11<sup>th</sup> October 2021**

**Sinda**

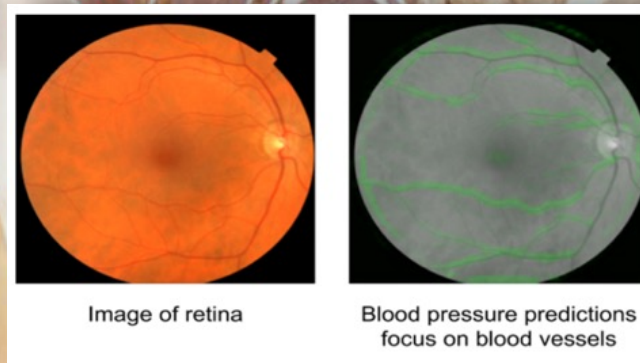
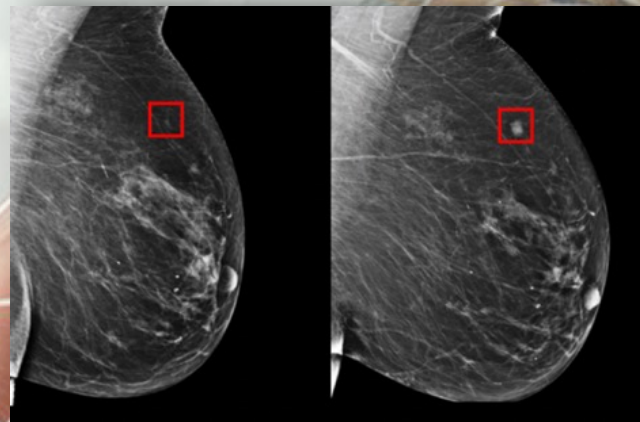


# AI is a GPT that will be woven into the fabric of society with the potential to transform lives, companies, and government

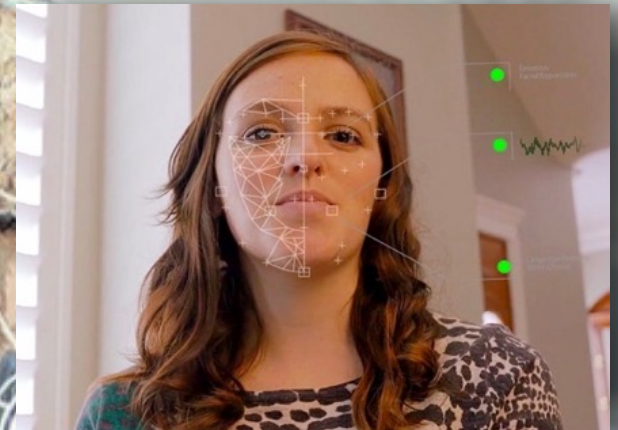
Improving crop yields in India with predictive plant disease diagnosis



Predicting occurrences of diseases earlier and more accurately



Improving corporate performance – CV screening & supply chain forecasting



# The total global uplift on GDP as a result of AI could be over \$10 trillion by 2030 per PWC

## North America

\$3.7 Trillion  
15% of GDP

## North Europe

\$1.8 Trillion  
10% of GDP

## China

\$7.0 Trillion  
26% of GDP



# And it has been particularly good for observation to help enforce public health care policies

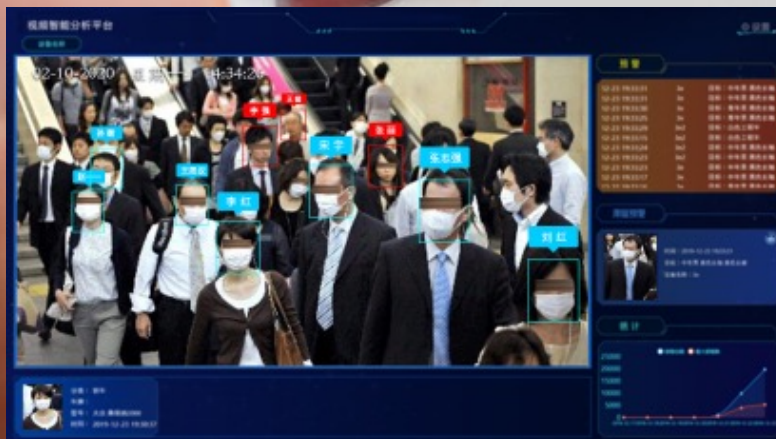
Thermal screening in stations and airports



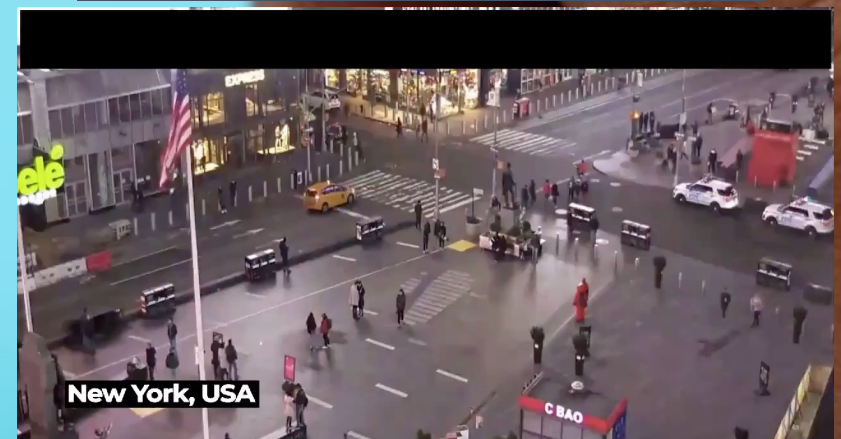
Thermal cameras used on on drones to identify fevers and crowds



FRT to detect those wearing masks & enforce quarantines



Enforcing social distancing





**A German retailer  
is using artificial  
intelligence developed  
at CERN to manage  
its stock**



# Go East! Meituan - the rise of the \$200B local transactional Super-App. “The Amazon of on-demand services”

- Over 200 local on-demand services incl. restaurants, food delivery, movie tickets, ride hailing, bike sharing...
- And lower frequency services such as, haircuts, doctors, dentists, marriages...
- \$17B in revenue in 2020
- 7.7M merchants in network
- 628M paying users

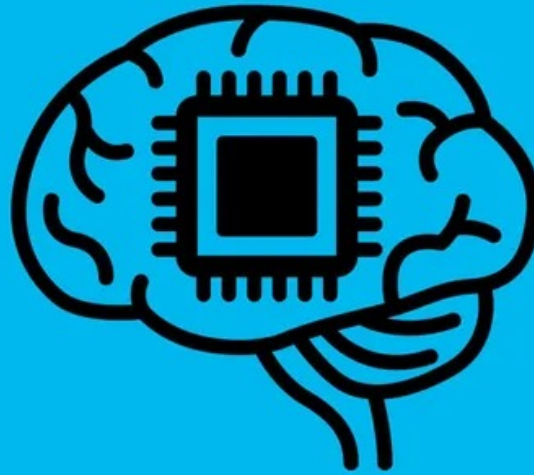


<https://www.chinainternetwatch.com/31107/meituan-quarterly/>

<https://medium.com/syncedreview/meituan-drives-instant-food-delivery-with-ai-super-brain-be77074792fd>



# Forty percent of 'AI startups' in Europe don't actually use AI, claims report





**The AI narrative is  
often one of fear**

**Why do we not trust  
AI?**





WILL A ROBOT STEAL YOUR JOB?

# KILLER COMPUTERS

*Bill Gates warns 'dangerous AI' poses a threat 'like nuclear weapons'*

**AI WARNING:**  
Robots will destroy a HUGE number of jobs, claims expert

AI could be used to **TAKE OVER** the **WORLD** through 'evil' fake news and hijacking cars

<https://phvs.org/news/2019-10-headlines-dont-robots-threaten-jobs.html>



Overcoming Racial Bias In AI Systems And Startlingly Even In AI Self-Driving Cars

Racial bias in a medical algorithm favors white patients over sicker black patients

## AI expert calls for end to UK use of 'racially biased' algorithms

AI Bias Could Put Women's Lives At Risk - A Challenge For Regulators

**Gender bias in AI: building fairer algorithms**

**Bias in AI: A problem recognized but still unresolved**

Amazon, Apple, Google, IBM, and Microsoft worse at transcribing black people's voices than white people's with AI voice recognition, study finds

**Millions of black people affected by racial bias in health-care algorithms**

Study reveals rampant racism in decision-making software used by US hospitals – and highlights ways to correct it.

**When It Comes to Gorillas, Google Photos Remains Blind**

Google promised a fix after its photo-categorization software labeled black people as gorillas in 2015. More than two years later, it hasn't found one.

Google 'fixed' its racist algorithm by removing gorillas from its image-labeling tech

*The Week in Tech: Algorithmic Bias Is Bad. Uncovering It Is Good.*

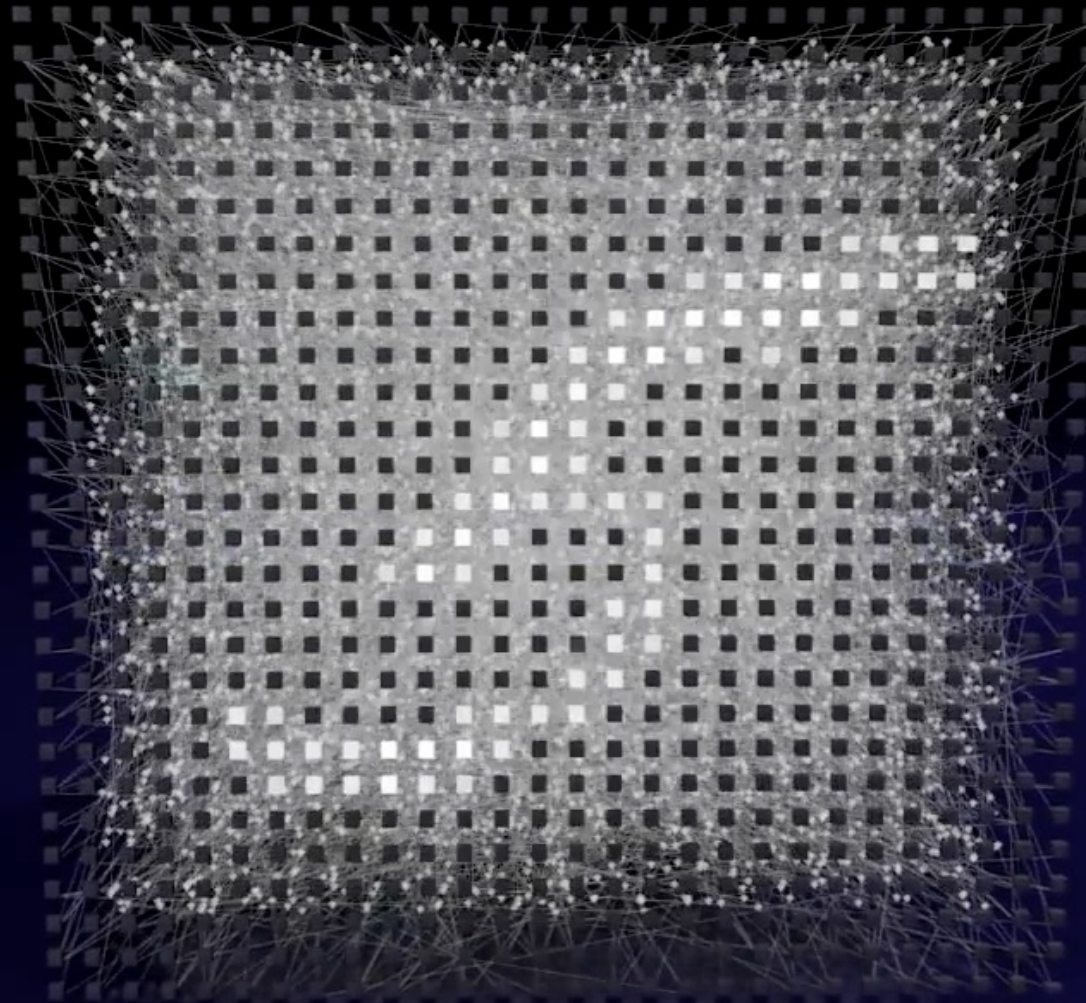
Artificial Intelligence has a gender bias problem – just ask Siri

**The Best Algorithms Struggle to Recognize Black Faces Equally**

US government tests find even top-performing facial recognition systems misidentify blacks at rates five to 10 times higher than they do whites.



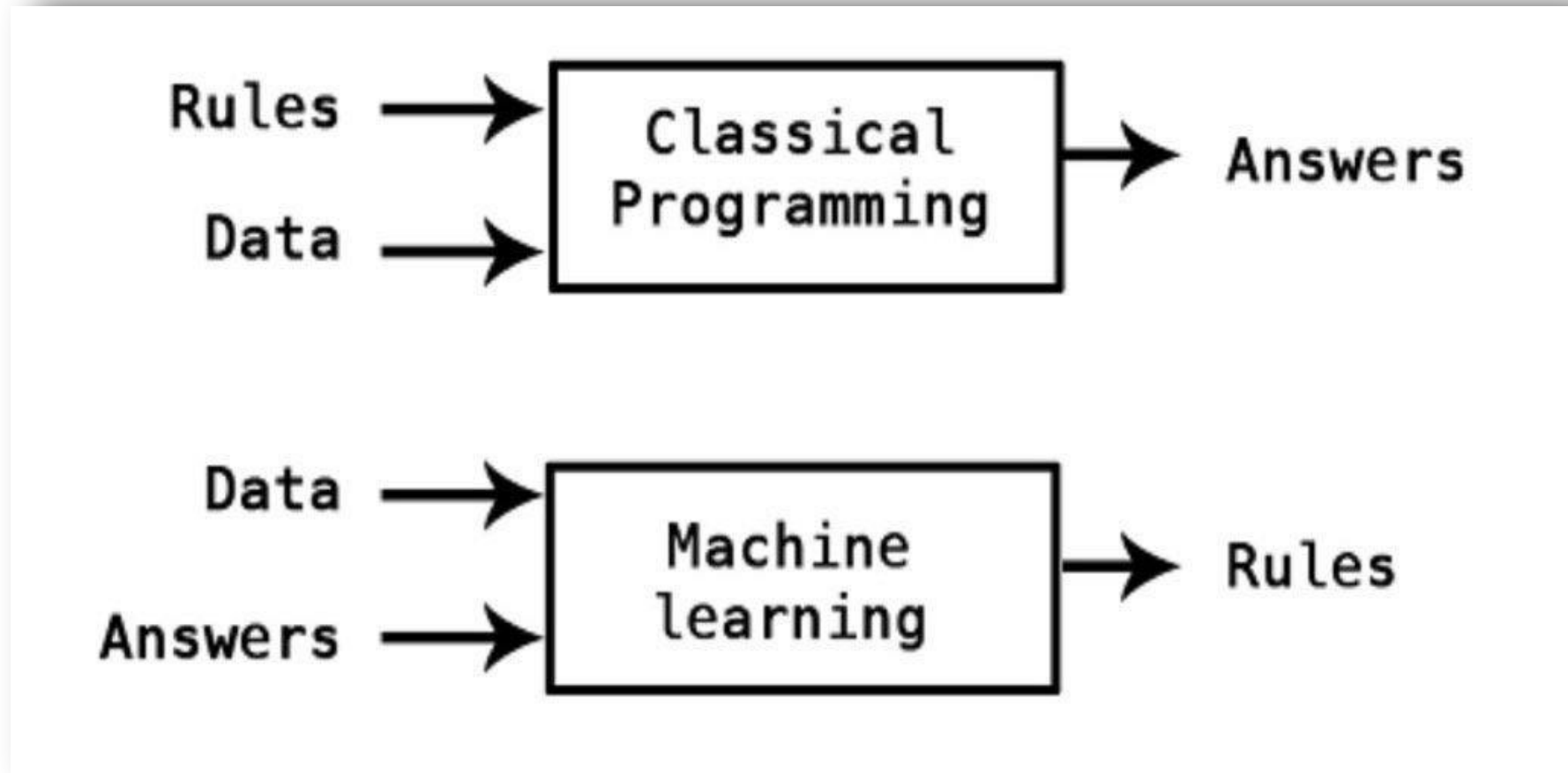
So what is AI / ML? Machine learning today is massive pattern recognition using deep neural network models to make predictions



[www.cybercontrols.org](http://www.cybercontrols.org)

# AI and Machine Learning creates its own “software rules” by learning (massive) statistical patterns in data

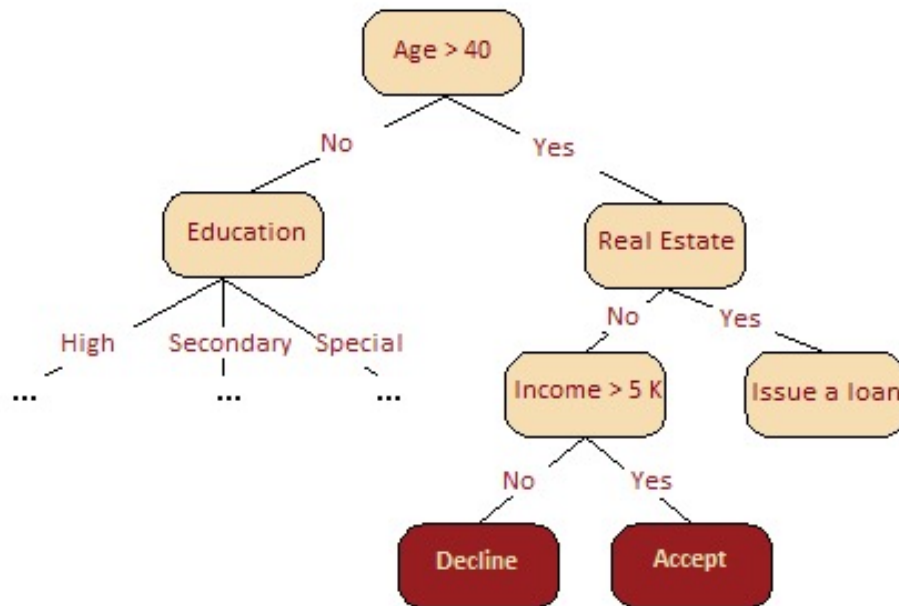
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# And we do not necessarily understand the “rules” it creates as it is viewed as a “black box”

Inferable models, such as decision trees, provide non-technical explanations (e.g. a loan decision)

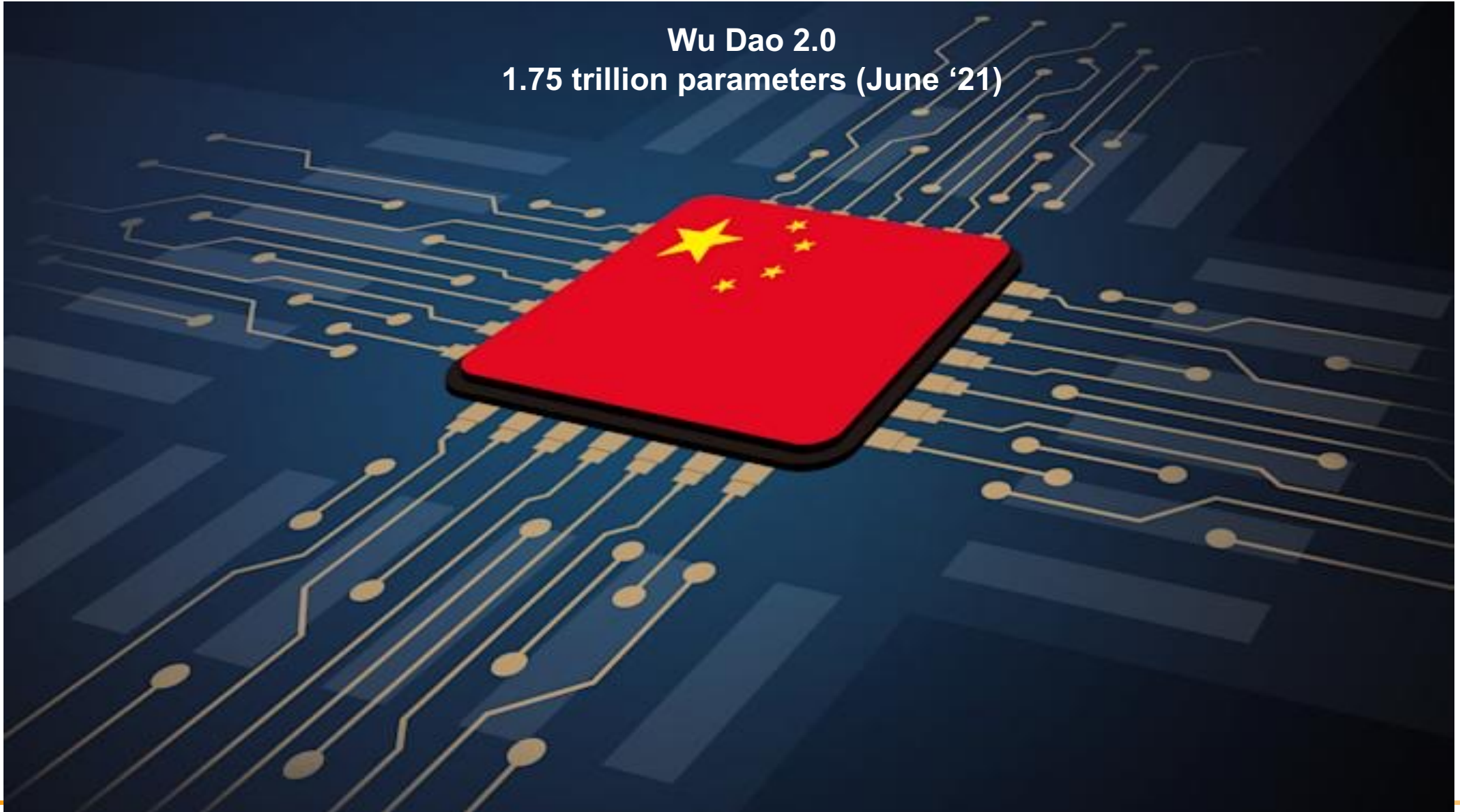


Deep neural networks are often described as black boxes and it is harder to understand their decision making



# How do you understand a 175 billion parameter deep neural network model? OpenAI's GPT-3 terrified us in 2020 as it wrote “intelligently”

Wu Dao 2.0  
1.75 trillion parameters (June '21)





## And machine learning is brittle, lacking human common sense

It recognises statistical patterns, not higher order concepts and lacks common sense

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School Bus

100%



Garbage  
Truck

99%



Punch Bag

100%



Snow Plough

92%

And when it fails it goes viral on social media

我们 WEVIDEO

微博  
@紧急呼叫

12月25日 福州中防万宝城商场  
导购机器人跌落扶梯 撞翻乘客



# Gender classification systems are often “biased” as they are not trained on representative sample datasets of gender & ethnicity

**Gender was misidentified  
in up to 1% of lighter-  
skinned males**



**Gender was misidentified  
in up to 7% of lighter-  
skinned females**



**Gender was misidentified  
in 35% of darker skinned  
females**



<https://news.sky.com/story/top-civil-servant-at-department-for-education-to-leave-after-a-levels-chaos-12057141>

Government leaders  
politicising algorithms  
doesn't help to engender  
public trust in AI!

**sky news**

Boris Johnson blames 'mutant algorithm' for A-level results fiasco, then sacks education chief

The prime minister is accused of "shamelessly trying to avoid taking responsibility" for the exams debacle.





**Is our AI  
technology  
human centric?**



A young man with dark hair is looking down at a smartphone he is holding. The scene is dimly lit with a strong red light source from the right, casting a glow on his face and shirt. Overlaid on the image are semi-transparent social media-style elements. On the left, there's a post with three photos of young women and the caption 'I love these two!'. On the right, there's a vertical post with a photo of a woman and the caption 'I can't wait for this weekend!'.

# THE TECHNOLOGY THAT CONNECTS US ALSO CONTROLS US

**/the  
social  
dilemma\_**

**| NETFLIX**

[thesocialdilemma.com](https://thesocialdilemma.com)



Do we understand the (unintended) consequences of our algorithms? “Constructed” realities





# How do we ensure trust in AI and its data?

COMPLIANCE



REGULATIONS



STANDARDS





# There are 200+ “Ethical AI” frameworks from the likes of the Singapore government, OECD, and IEEE



- 1) **Explainable** and transparent decision making
- 2) **Inclusive**, diverse and **fair**  
(avoid or don't reinforce bias)
- 3) Be built and tested for **safety**
- 4) Be **socially** beneficial
- 5) **Respect** human rights and the law
- 6) People are **accountable**

# AI regulation is already here under GDPR: explainability and transparency is key

## Articles 13, 14, 15 and 22 under GDPR state:

Fully automated decisions with legal effect or similarly significant effect need to be explainable

*and*

data subjects have the right to human-made decisions

Project explain

Explaining  
decisions  
made with AI

ico.  
Information Commissioner's Office

The  
Alan Turing  
Institute



# Healthily and Best Practice AI published world's first AI Explainability Statement reviewed by a regulator - ICO (Sep 2021)

## Have you met Dr You?

**“** *The ICO has welcomed the Healthily publication of its Explainability Statement as an example of how organisations can practically apply the guidance on Explaining Decisions Made With AI”.*



# The risk is now real: recent court cases and regulatory fines relate to lack of algorithmic transparency

Drivers vs **Uber**  **OLA**

**App Drivers & Couriers Union challenged Uber and Ola Cabs in the Amsterdam Court:**

- Seeking transparency of algorithmic decision-making.
- Drivers had been accused of fraud and had contracts terminated, based on an algorithmic decision ('**robo-firing**').

**In March 2021 the Court ordered:**

- *"Ola must provide [the drivers] with information that makes the choices made, data used and assumptions on the basis of which the automated decision is taken **transparent** and verifiable.*
- *Ola must communicate the main assessment criteria and their role in the automated decision to [the drivers], so that they can understand the criteria on the basis of which the decisions were taken and they are able to check the correctness and lawfulness of the data processing"*

Delivery riders  **Glovo** 

**In August 2021 the Italian data protection regulator (the 'Garante') Deliveroo **€2.5m****

- GDPR violations in respect of its failure to provide transparency as to its algorithmic management system.

**In July 2021 the Garante also fined the operator of an online food delivery platform, Foodinho, (owned by Glovo) **€2.6m****

- GDPR violations relation to its use of discriminatory algorithms for managing its delivery riders and failure to provide **transparency**.

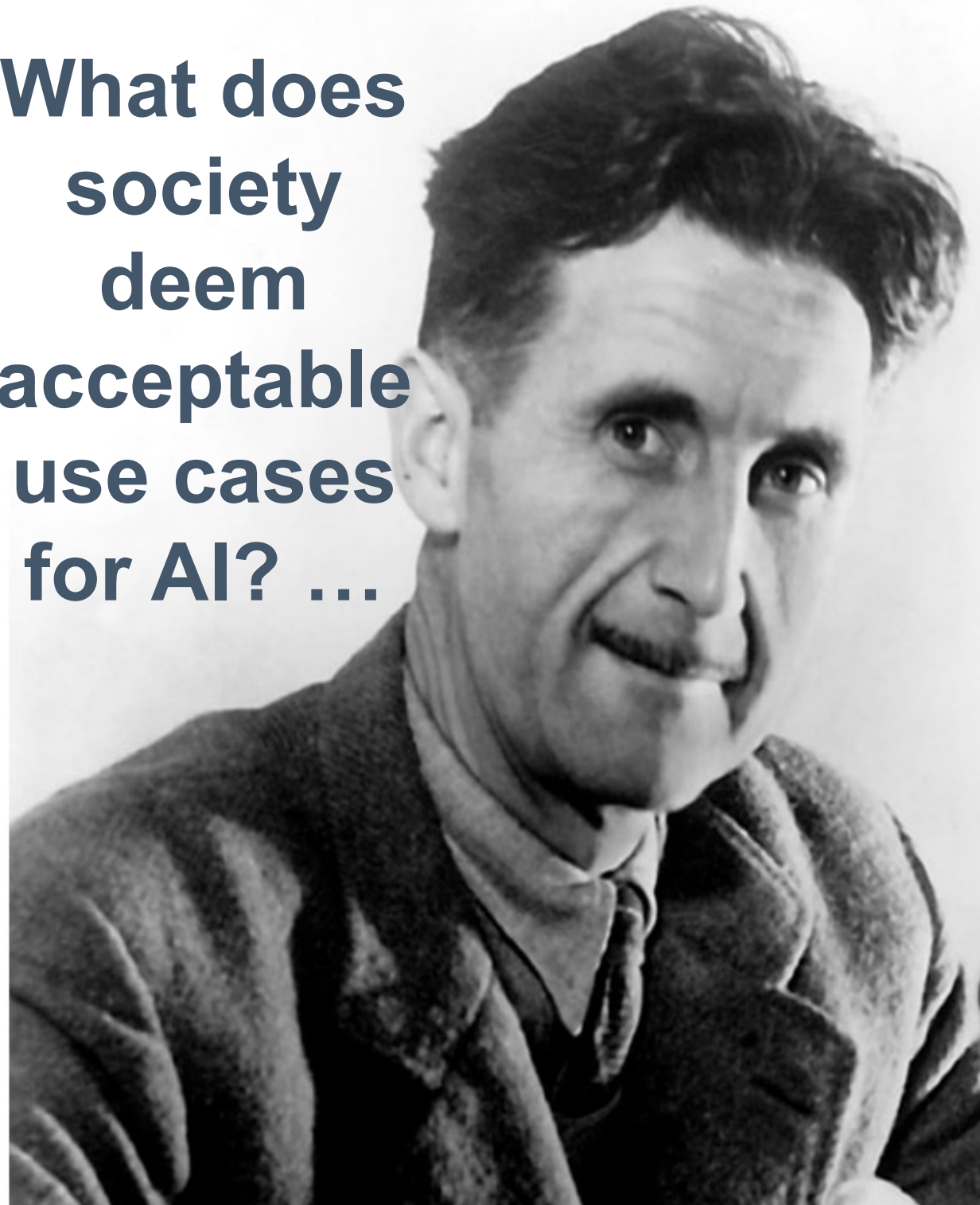


**BIG BROTHER  
IS WATCHING  
YOU**



**OBEY**

**What does  
society  
deem  
acceptable  
use cases  
for AI? ...**



# A recent report alleges many Chinese vendors offering emotion recognition and monitoring for "public security"

Alpha Hawkeye 阿尔法鹰眼	Monitors vestibular emotional reflex and conducts posture, speech, physiological, and semantic analysis. <sup>65</sup>	<ul style="list-style-type: none"> <li>• Airport, railway, and subway station early-warning threat detection</li> <li>• Customs and border patrol</li> </ul>
CM Cross 科思创动	Employs deep-learning-powered image recognition to detect blood pressure, heart rate, and other physiological data.	<ul style="list-style-type: none"> <li>• Customs and border patrol<sup>67</sup></li> <li>• Early warning</li> </ul>
EmoKit 翼开科技	EmoAsk AI Multimodal Smart Interrogation Auxiliary System detects facial expressions, body movements, vocal tone, and heart rate. <sup>68</sup> Other products detect similar data for non-interrogation.	<ul style="list-style-type: none"> <li>• Detecting and managing mental-health issues at medical institutions</li> <li>• Loan interviews at banks</li> <li>• Police-conducted interrogations<sup>69</sup></li> </ul>
Joyware 中威电子	NuraLogix's DeepAffex is an image recognition engine that identifies facial blood flow (which is used to measure emotions) and detects heart rate, breathing rate, and 'psychological pressure'. <sup>71</sup>	<ul style="list-style-type: none"> <li>• Airport and railway station surveillance</li> <li>• Nursing</li> <li>• Psychological counselling</li> </ul>
NuraLogix	Lowere also uses NuraLogix's polygraph tests. <sup>72</sup>	
Miaodong 秒懂	Relies on image recognition of vibrations and frequency of light on faces, which are used to detect facial blood flow and heart rate as a basis.	<ul style="list-style-type: none"> <li>• Police interrogation</li> </ul>
Sage Data 睿数科技	Public Safety Multimodal Emotional Interrogation System detects micro-expressions, bodily micro-expressions, and other physiological data.	<ul style="list-style-type: none"> <li>• Police and court interrogations</li> </ul>
Shenzhen Anshihua 深圳安世华	Emotion recognition product detects frequency and amplitude of light vibrations on faces and bodies.	<ul style="list-style-type: none"> <li>• Early warning<sup>76</sup></li> </ul>
Taigusys Computing 太古计算	One product is referred to as a micro-expression-recognition system for Monitoring and Analysis of Imperceptible Emotions at Interrogation Sites, while others include 'smart prison' and 'dynamic emotion recognition' solutions. Taigusys claims to use image recognition that detects light vibrations on faces and bodies, as well as parallel computing. <sup>77</sup>	<ul style="list-style-type: none"> <li>• Hospital use for detecting Alzheimer's, depression attacks<sup>78</sup></li> <li>• Police interrogation of criminals<sup>79</sup></li> <li>• Prison surveillance</li> </ul>



**Ursula von der Leyen at Davos Agenda Jan '21 said Europe needs to “create an AI ecosystem of trust.”**

1677

***“What sets Europe apart from competitors like China is not the size of our tech sector or how attractive we are for venture capital. What sets Europe apart from competitors is the fact that our values come first. Human beings come first.”***

# On April 21<sup>st</sup> EU published Draft Regulation based perceived risk of an AI system - penalties up to €30M or 6% of annual turnover

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- **Draft Regulation:**

- Lays down requirements for certain AI systems, depending on perceived risk
  - Establishes framework for enforcement e.g. through “notified bodies” and functions at member state level
  - “Regulation” binding in its entirety and directly applicable in all EU Member States
- **12 – 24 months for draft regulation to go through detailed legislative process**
  - **And then a further 24 months to allow compliance**





# The act suggests four levels of risk: (1) unacceptable, (2) high risk, (3) limited risk or (4) minimal risk

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## 1. Unacceptable Risk

All AI systems considered a clear threat to the **safety, livelihoods and rights of people** will be banned, from social scoring by governments to real-time facial recognition

## 2. High-Risk AI Systems (HRAIS)

Products or components covered focus on people's safety, legal rights, and already EU regulated products including **Medical devices**, Facial recognition systems, assessing students, **recruitment** processes, **law enforcement**, immigration, asylum

## 3. Limited Risk

i.e. AI systems with specific transparency obligations: When using AI systems such as **chatbots**, users should be aware that they are interacting with a machine.

## 4. Minimal Risk

The proposal allows the free use of applications such as AI-enabled video games or **spam filters** which account for the majority of AI systems.

# Substantive obligations and requirements for controllers of High-Risk AI Systems (HRAIS)

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Risk  
management  
systems

Data / data  
governance

Technical  
documentation

Record-keeping

Transparency

Human  
oversight

Accuracy,  
robustness &  
cybersecurity

Quality  
management  
system

Post-marketing  
monitoring



# You can use Responsible AI and transparency to your strategic advantage. Consider Deutsche Telekom's approach.



**So what does this all  
mean for local?**



**Close-S**



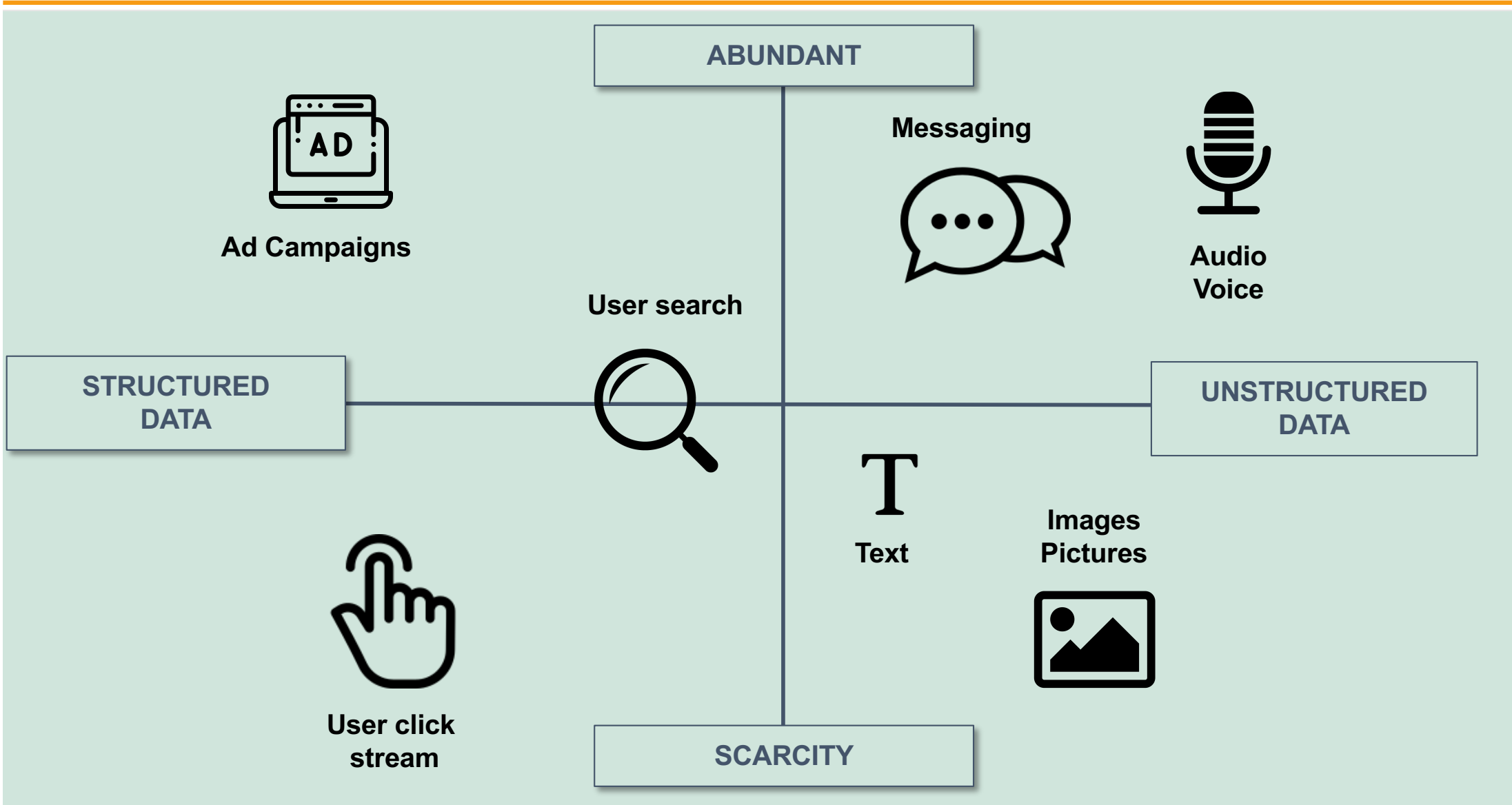


<https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data>

**The world's most valuable resource is no longer oil, but data**

**What data (distribution, branding) assets do you have?**

# What data assets do you have? The next frontier with AI is capturing the value from your unstructured data





# Five ideas for the local search industry based on your data assets

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1. **Sales calls analytics** – call mining of agent and customer service calls
2. **Conversational commerce** – moving to conversations and B2C messaging
3. **Automation and productivity improvements** –automated recruitment assessment
4. **Predictive selling and marketing** – optimizing customer acquisition, retention, and life-time value
5. **Search and personalization** - websites tailored to user, ad campaigns, etc.

# AI driven call analytics can be used to better discover agent quality, call compliance, customer needs and issues

- Imagine being able to understand what is happening in emails, slack, social media, telephone, messaging?
- Can help identify:
  - Agent quality
  - Compliance with call guidelines – think mis-selling
  - Customer sentiment and underlying issues
  - Hidden patterns of needs, issues
- But be careful with your selection of your “AI vendor”





# AI can be used to automate conversational commerce and create a strategic differentiator

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- **Consumers use messaging apps to communicate and organize their lives – 100B** messages are sent on WhatsApp, Instagram and Facebook messenger every day
- **Consumers want to extend messaging to their interaction with SMEs – 70%** of consumers use a private message channel to engage with a brand to discuss their requirements
- **Publishers are in strong position to be the conversational commerce broker and platform** between messaging platforms and SMEs
- **AI can help automate conversations to offer 24x7 engagement and better understand customer needs.**



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## Yell launches free new Messaging service in collaboration with LivePerson

Jul 01, 2020

# COMPETING IN THE AGE OF AI

Strategy and Leadership When Algorithms  
and Networks Run the World

MARCO IANSITI  
KARIM R. LAKHANI

HARVARD BUSINESS REVIEW PRESS

The hard part of AI is not  
doing AI, but putting in  
place the data, technical  
operational and people  
foundations to do AI

Then our  
imagination is the  
limit

<https://www.linkedin.com/pulse/why-competing-age-ai-iansiti-lakhani-needs-top-your-list-calvanese/>



# FINANCIAL TIMES

## US has already lost AI fight to China, says ex-Pentagon software chief

Nicolas Chaillan speaks of 'good reason to be angry' as Beijing heads for 'global dominance'

10th Oct  
2021



Nicolas Chaillan: US cyber defences in some government departments are at 'kindergarten level' © Monica King

**Katrina Manson** in Washington YESTERDAY

322

The Pentagon's first chief software officer said he resigned in protest at the



There is a leadership race for AI  
across nation states.

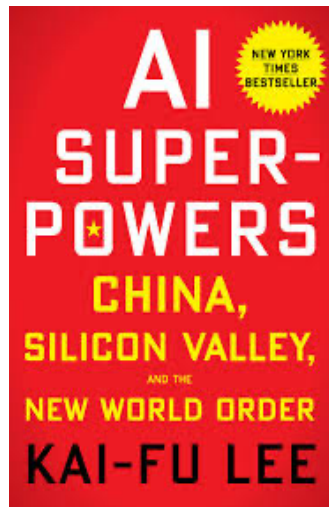
Does this impact innovation?

<https://www.gartner.com/technology/pressRoom.do?id=3872933>

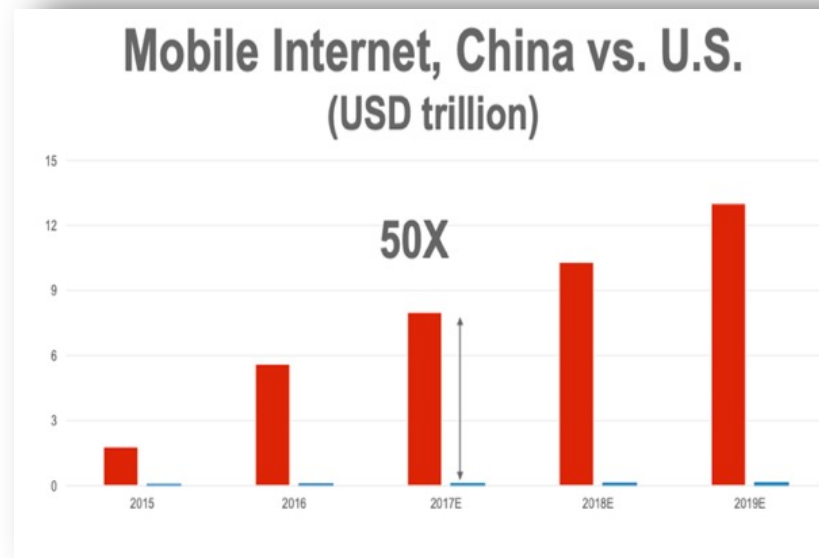


# China is an AI super-power with an ambition to be a global leader in AI by 2030

## AI Super-Powers, Dr Kai Fu-Lee



## “China is the Saudi Arabia in data”



## “I left out Europe...”

*“I left out Europe because I didn’t think there was a good chance for it to take even a so-called ‘bronze medal’ in this AI competition. European artificial intelligence is losing the race.”*

Chinese structural advantages include data privacy regulations, public - private cooperation, and scale of data, capital, talent and market demand.

# Thank you. Best Practice AI

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