IA, AI and AGI:
Intelligent machines and the next 10 years

techvshuman.com

gerd.cloud

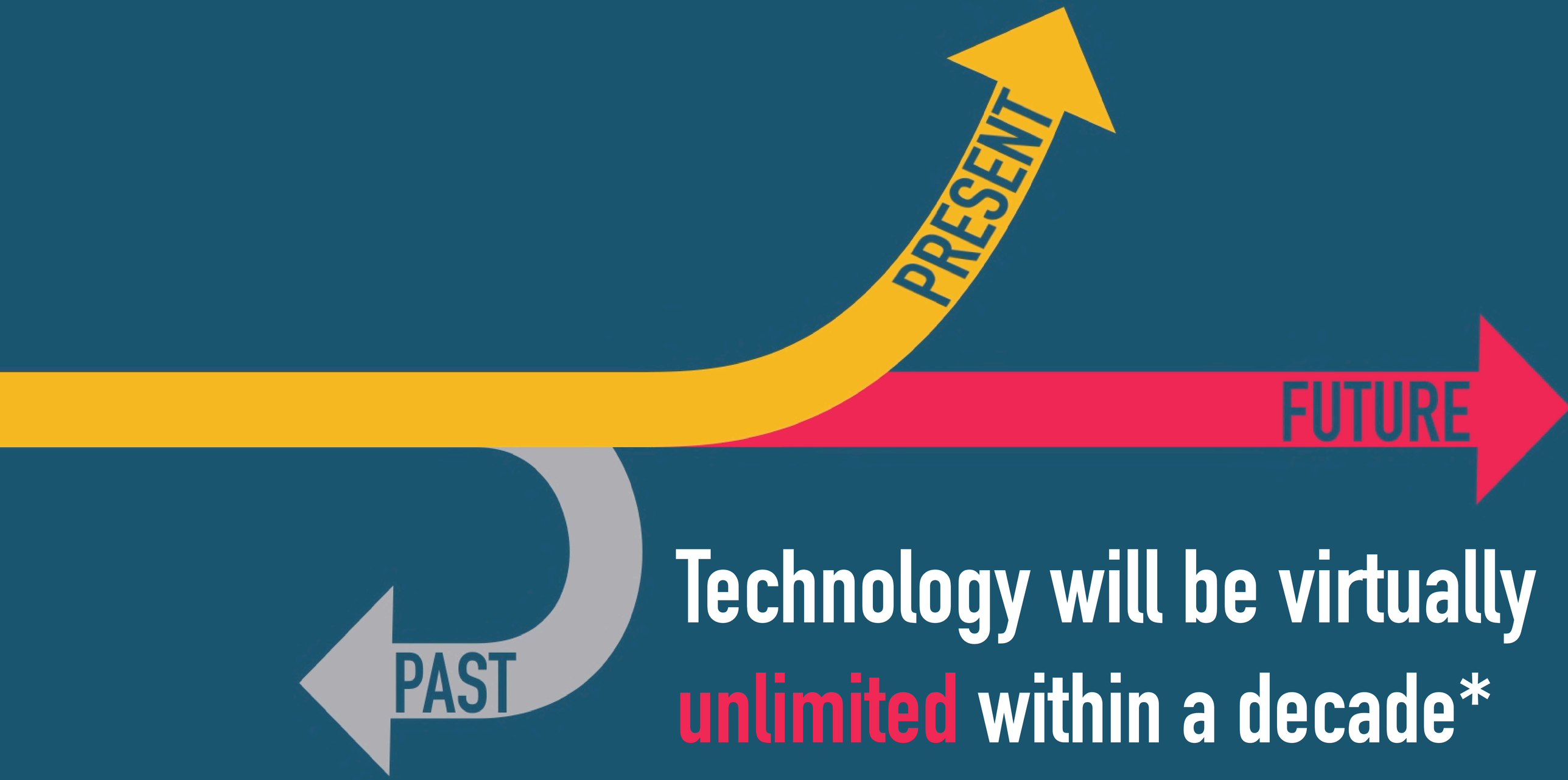
gerdtube.com

@gleonhard

futuristgerd.com

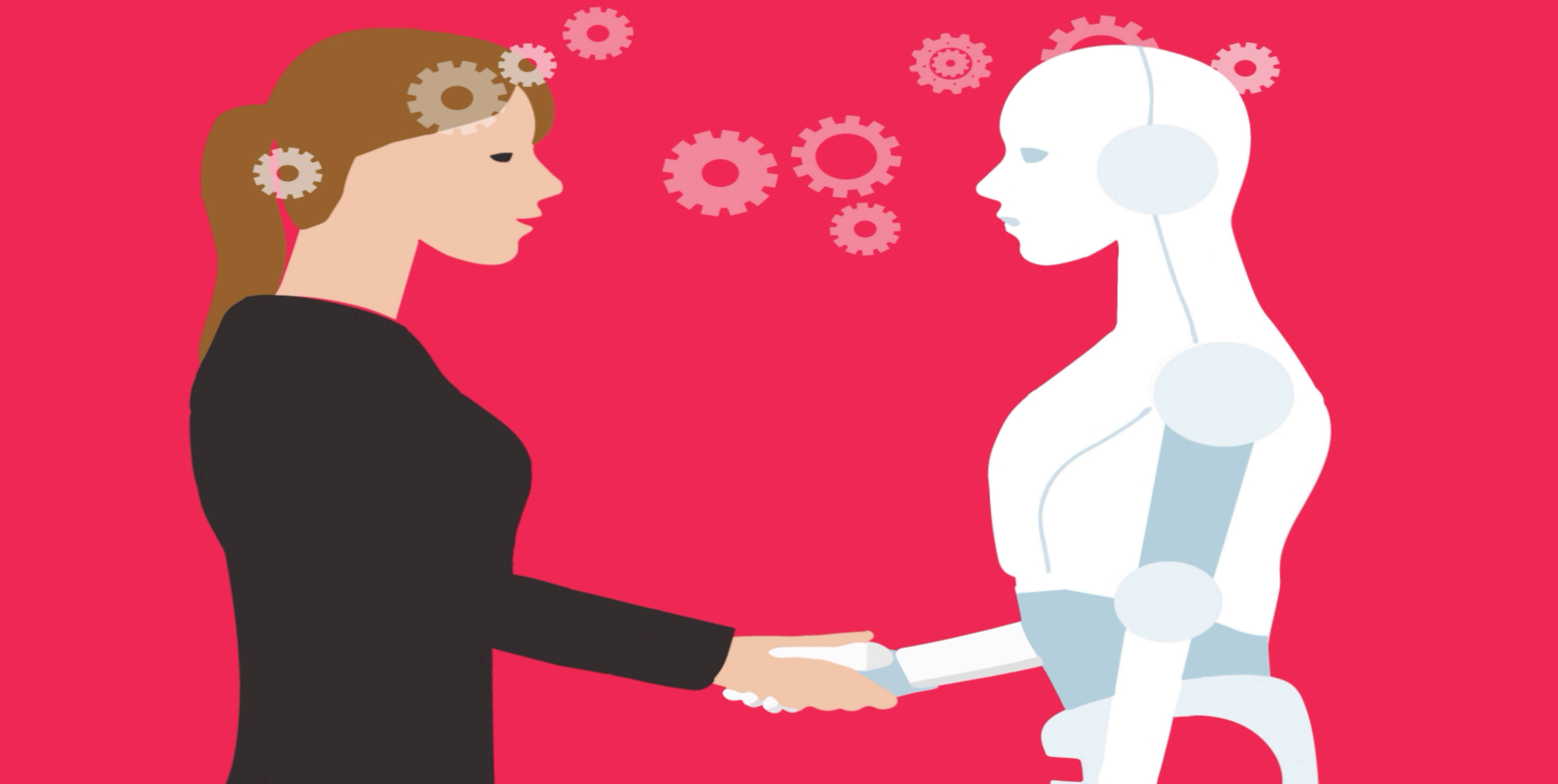
Our world will change more in the next 20 years than in the previous 300 years

The future is no longer an extension of the present!



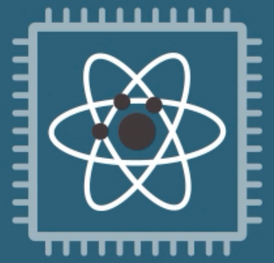
Technology will be virtually unlimited within a decade*

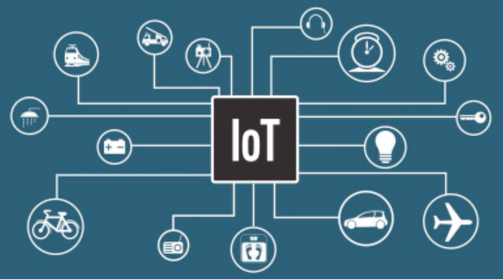
The rise of smart software and networked, 'intelligent' machines represents a tidal shift in our society



It could be heaven or it could be hell...
H

Exponential Change

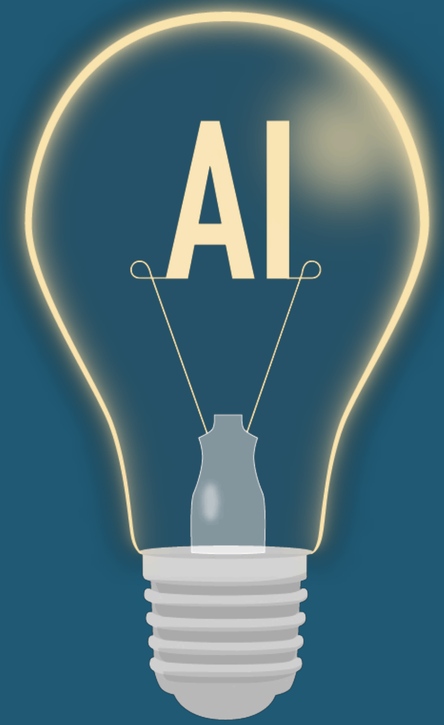


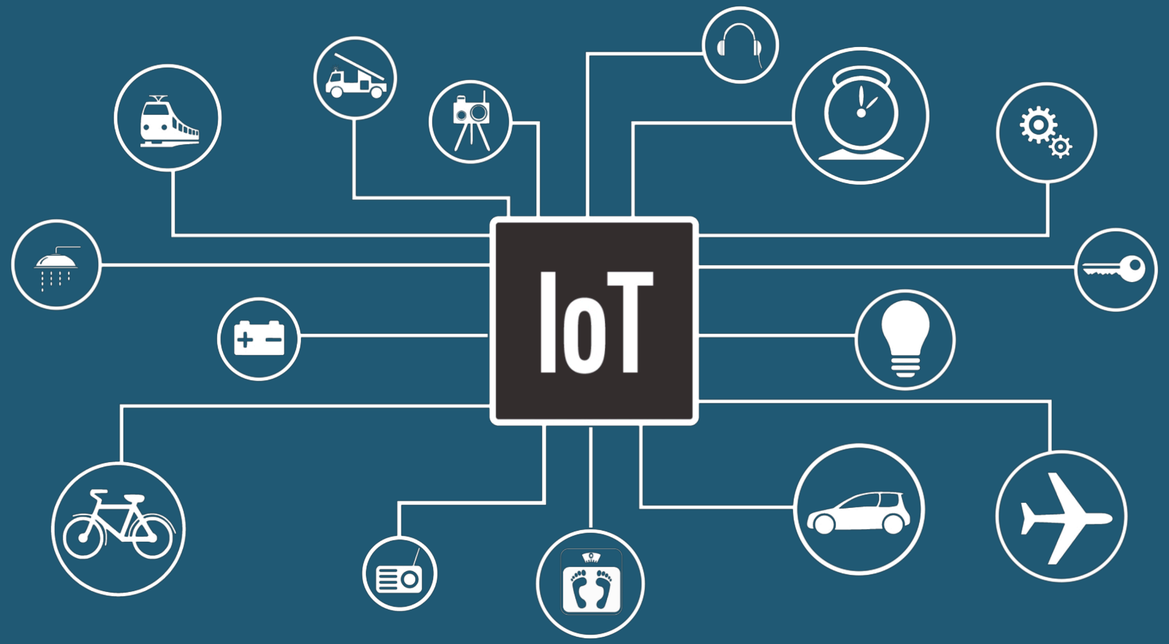


DATA every-where/thing
CLOUD everything
SMART everything
CONNECTED everything
COMPUTE anything
MAKE anything
TRANSACT anything
SEE everything

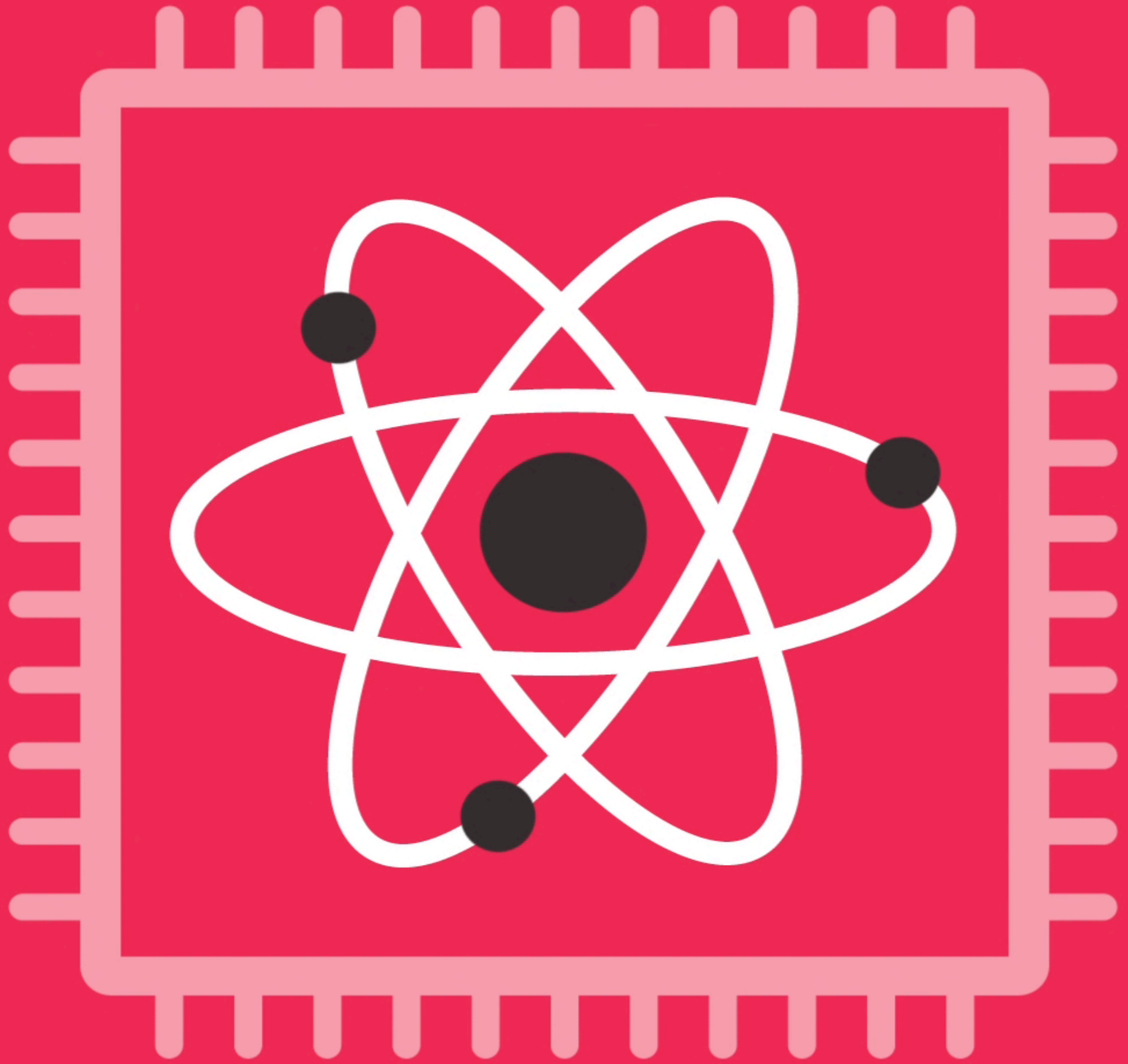
1 2 4 8 16 32 64 128

Data is the new Oil. AI is the new electricity. The IoT is the new nervous system.





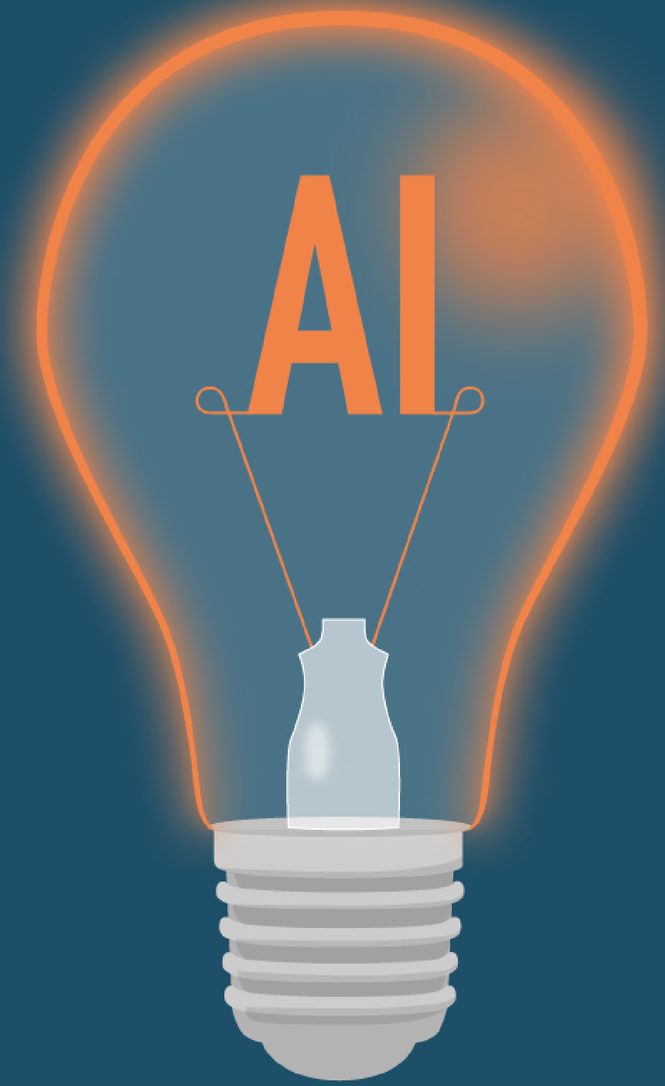
Quantum computing will be the super-charger for AI and IoT (ETA: 3–5 years)



Defining AI

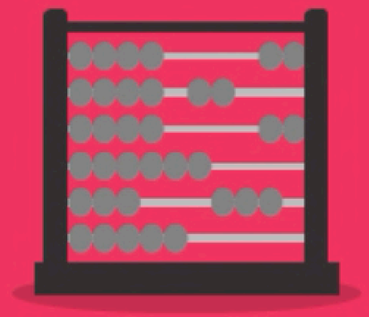
"AI is the science and engineering of making intelligent machines" (John McCarthy)

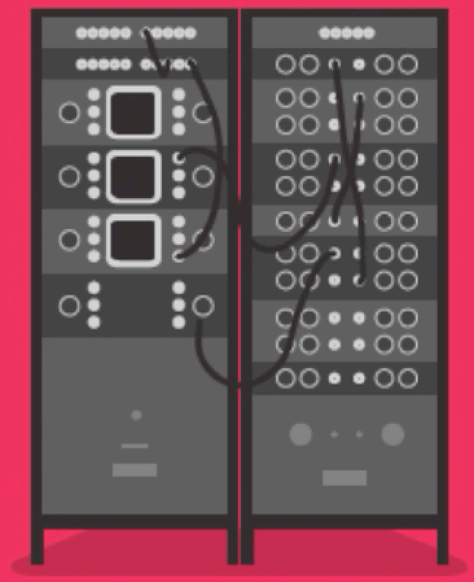
AI is not 'a technology'



AI: Computer systems that turn information and data into KNOWLEDGE

(Demis Hassabis, CEO, DeepMind)





Tabulating Systems Era

1900

Programmable Systems Era

1950

Cognitive Systems Era

2020

AI: Computer systems that turn information and data into KNOWLEDGE

(Demis Hassabis, CEO, DeepMind)

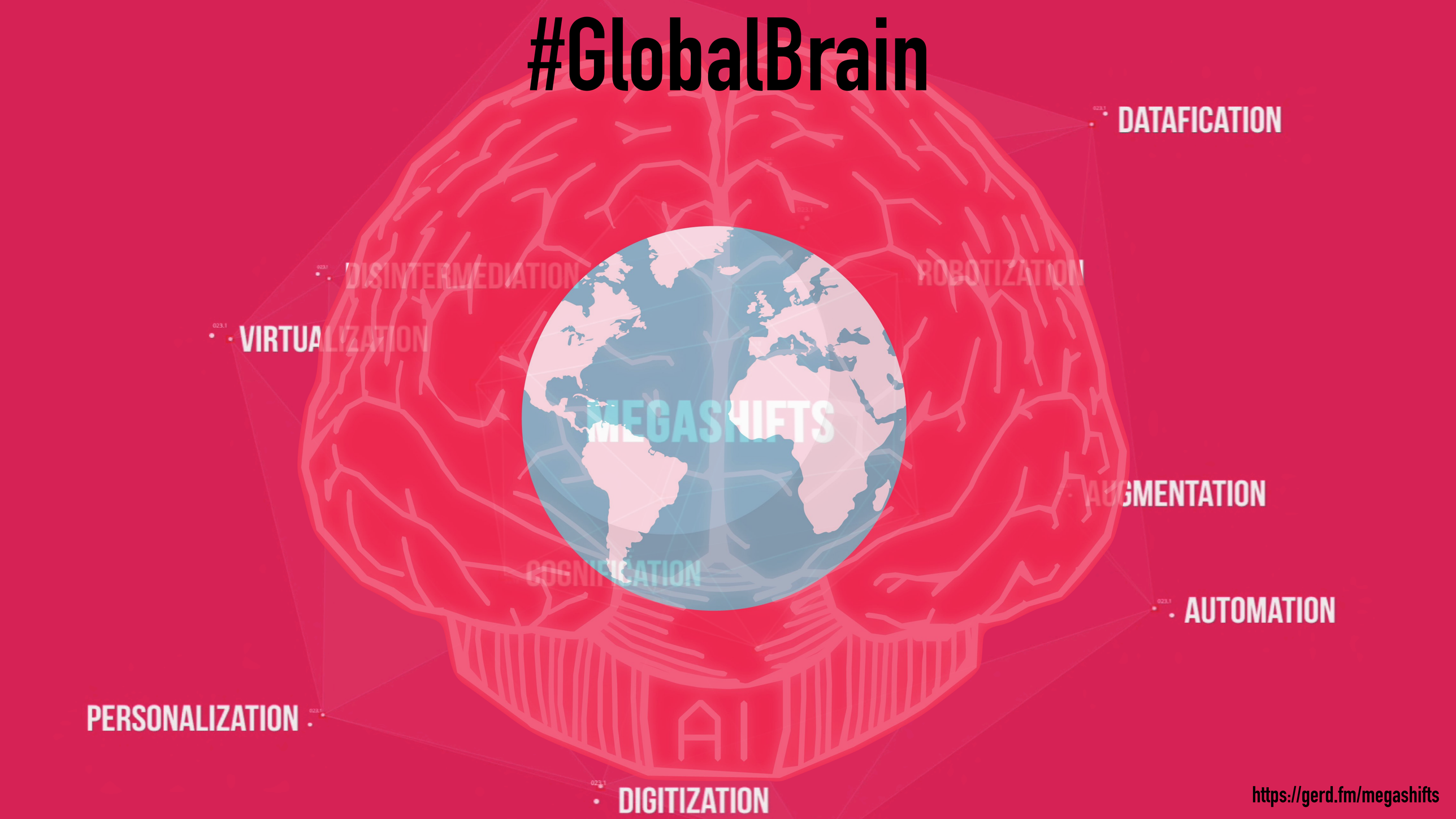
Impact of the automation of knowledge work

$6.7 trillion by 2025

Cognitive Systems Era

2020

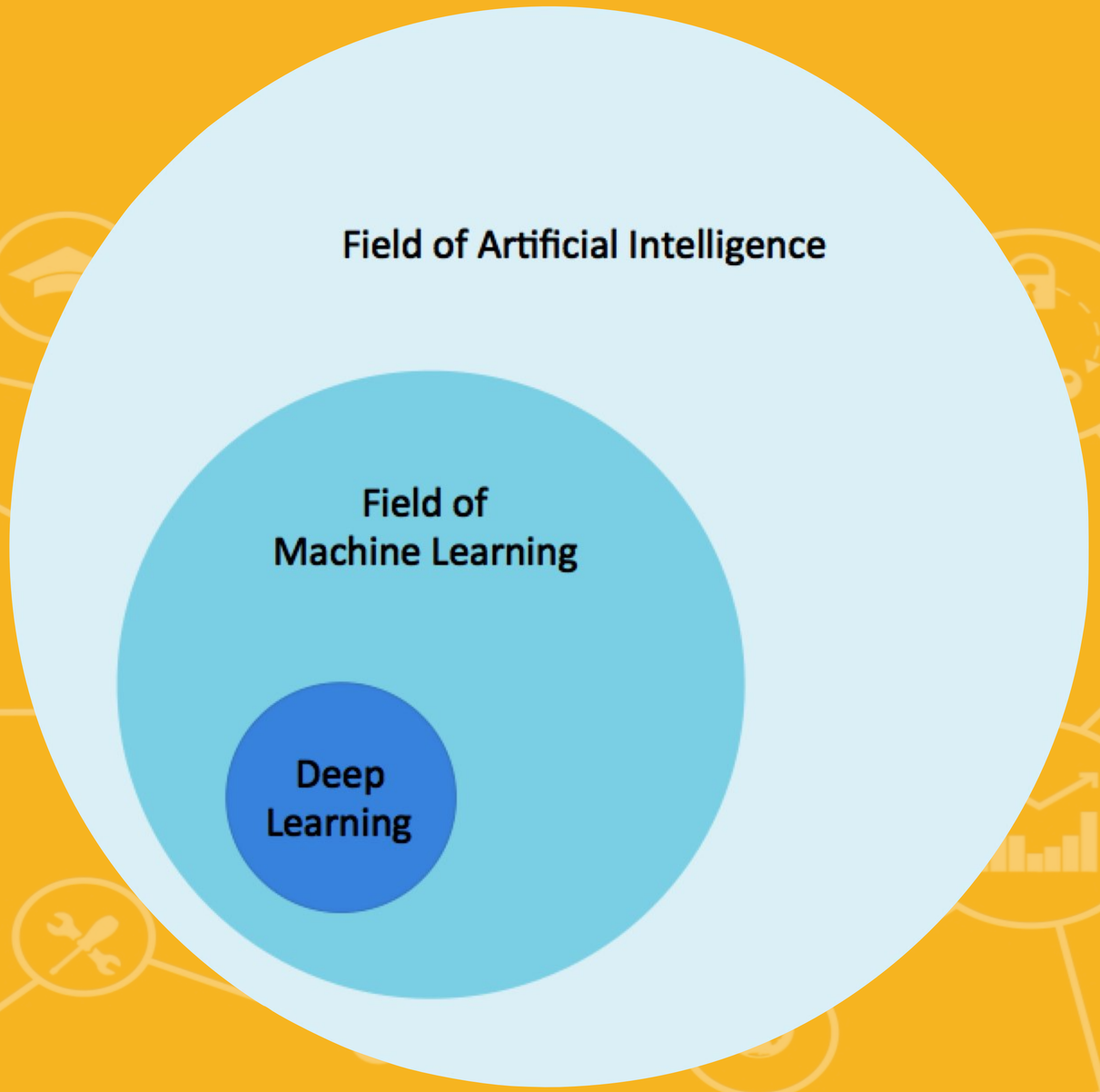
#GlobalBrain

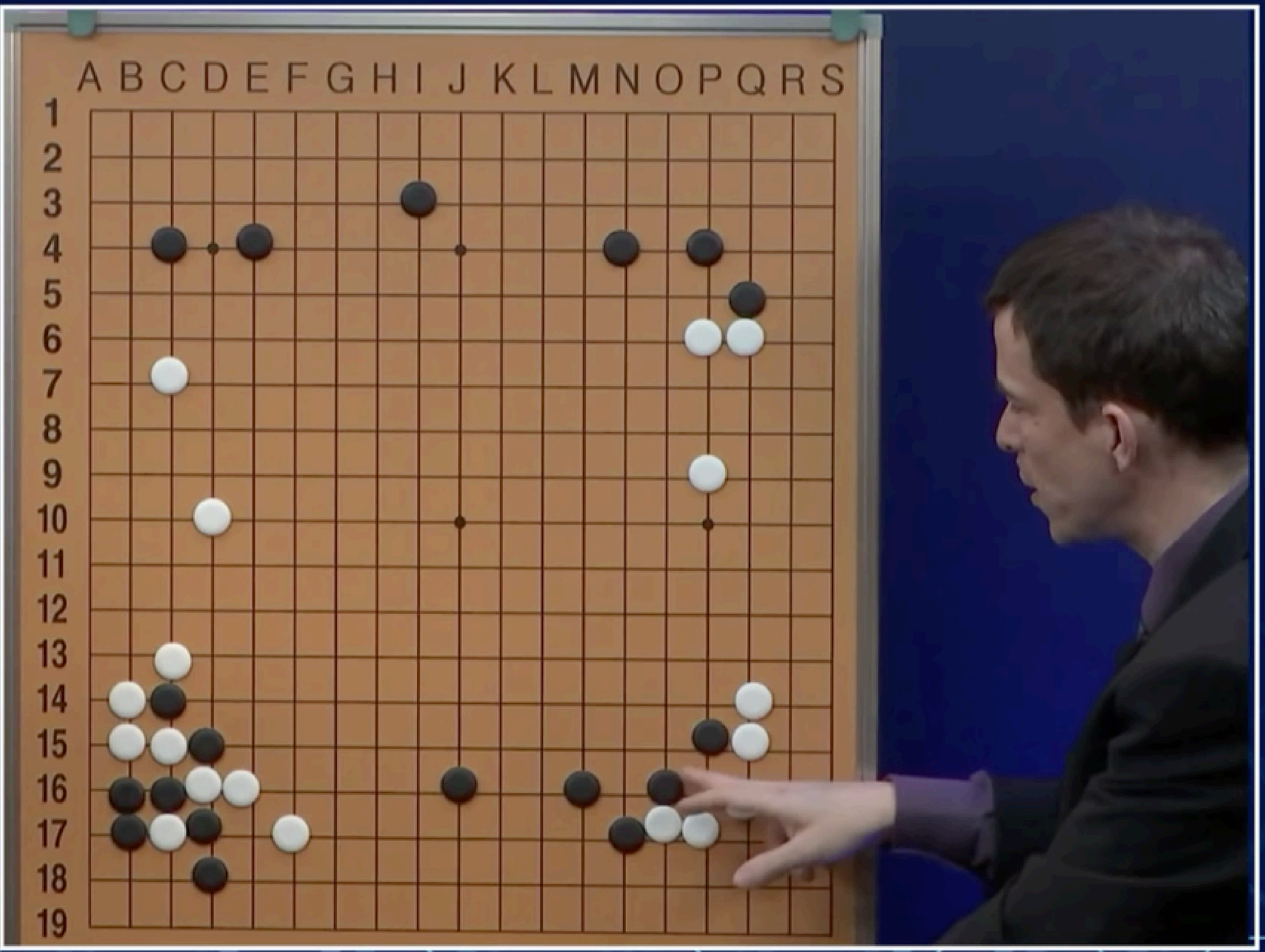


https://gerd.fm/megashifts

“Machine learning is the science of giving computers the ability to learn and find insights without explicitly programming the machines on what to do”

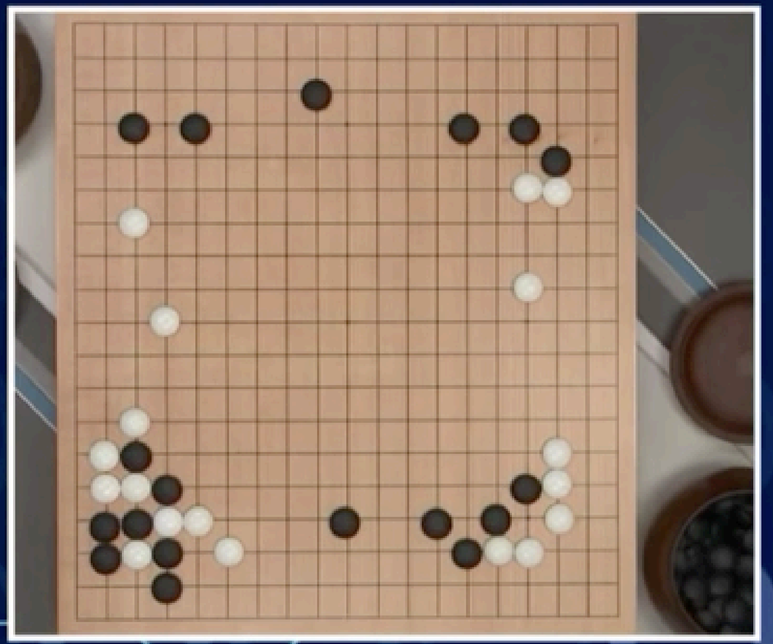
“Deep learning applications recognize patterns, optimize for outcome and make a decision. Most deep learning models are based on the concept of neural networks” (Kai-Fu Lee)





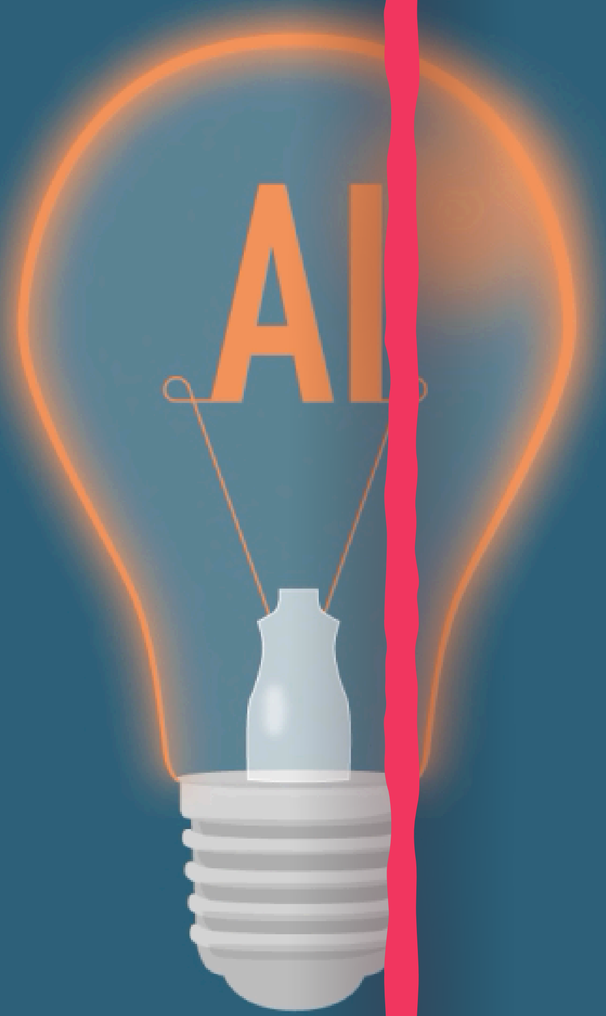
LEE SEDOL
01:34:58

ALPHAGO
01:38:49



Landscape of Human Competence (Moravec, Tegmark)

Gerd



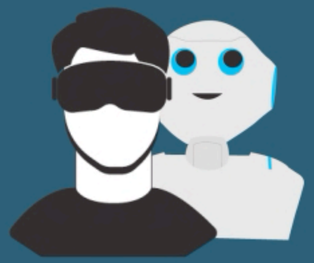
95% of today's applications

Existential threat?

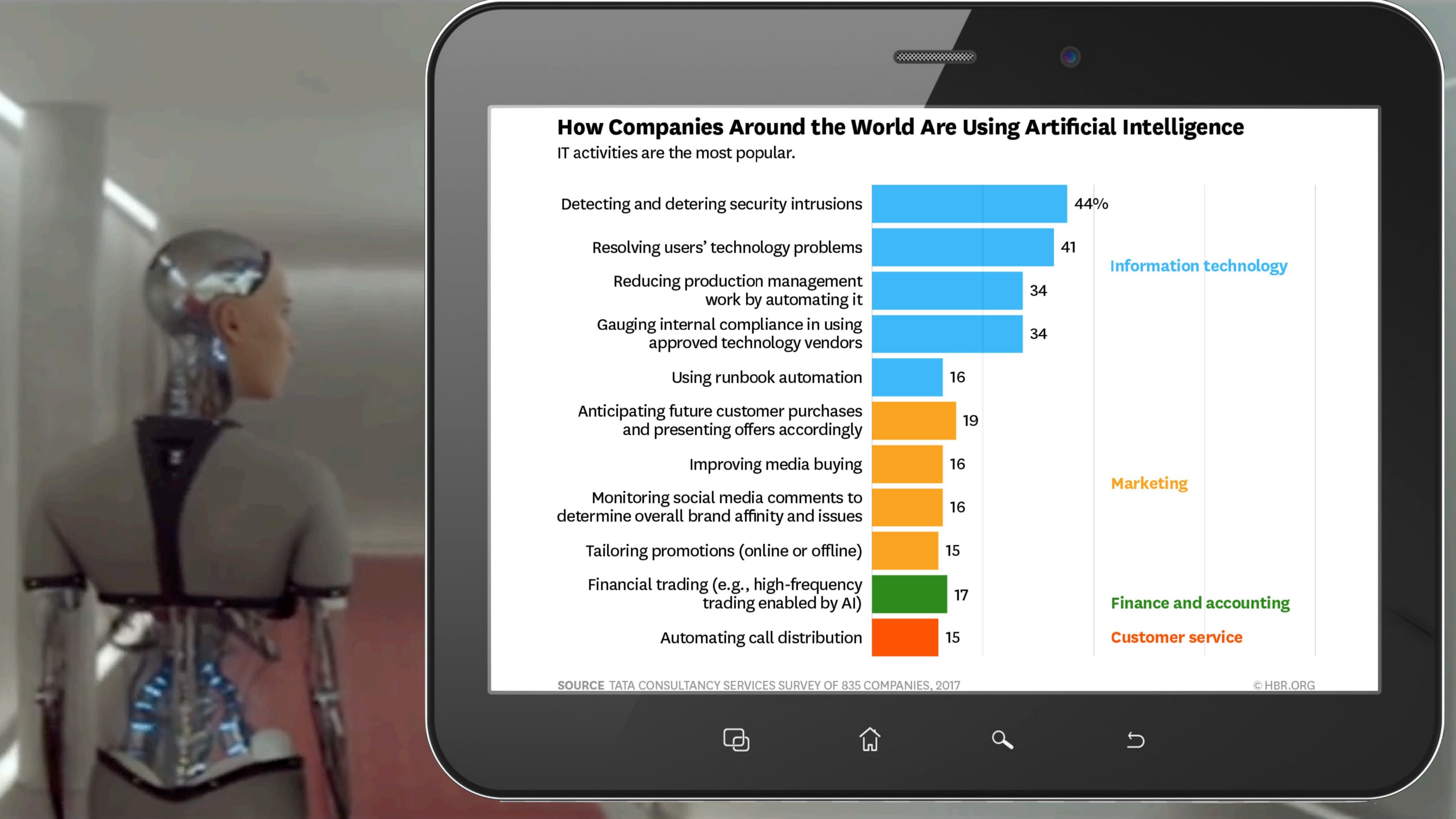
ASSISTED INTELLIGENCE

AUTOMATION

AUGMENTED INTELLIGENCE



AUTONOMOUS INTELLIGENCE


How Companies Around the World Are Using Artificial Intelligence
IT activities are the most popular.
Detecting and detering security intrusions
44%
Resolving users' technology problems
41
Reducing production management work by automating it
34
Gauging internal compliance in using approved technology vendors
34
Using runbook automation
16
Anticipating future customer purchases and presenting offers accordingly
19
Improving media buying
16
Monitoring social media comments to determine overall brand affinity and issues
16
Tailoring promotions (online or offline)
15
Financial trading (e.g., high-frequency trading enabled by AI)
17
Automating call distribution
15
Information technology
Marketing
Finance and accounting
Customer service
SOURCE TATA CONSULTANCY SERVICES SURVEY OF 835 COMPANIES, 2017
© HBR.ORG

Salit Kulla

11:29 AM

to me

Hey, Wynton Marsalis is playing this weekend. Do you have a preference between Saturday and Sunday?

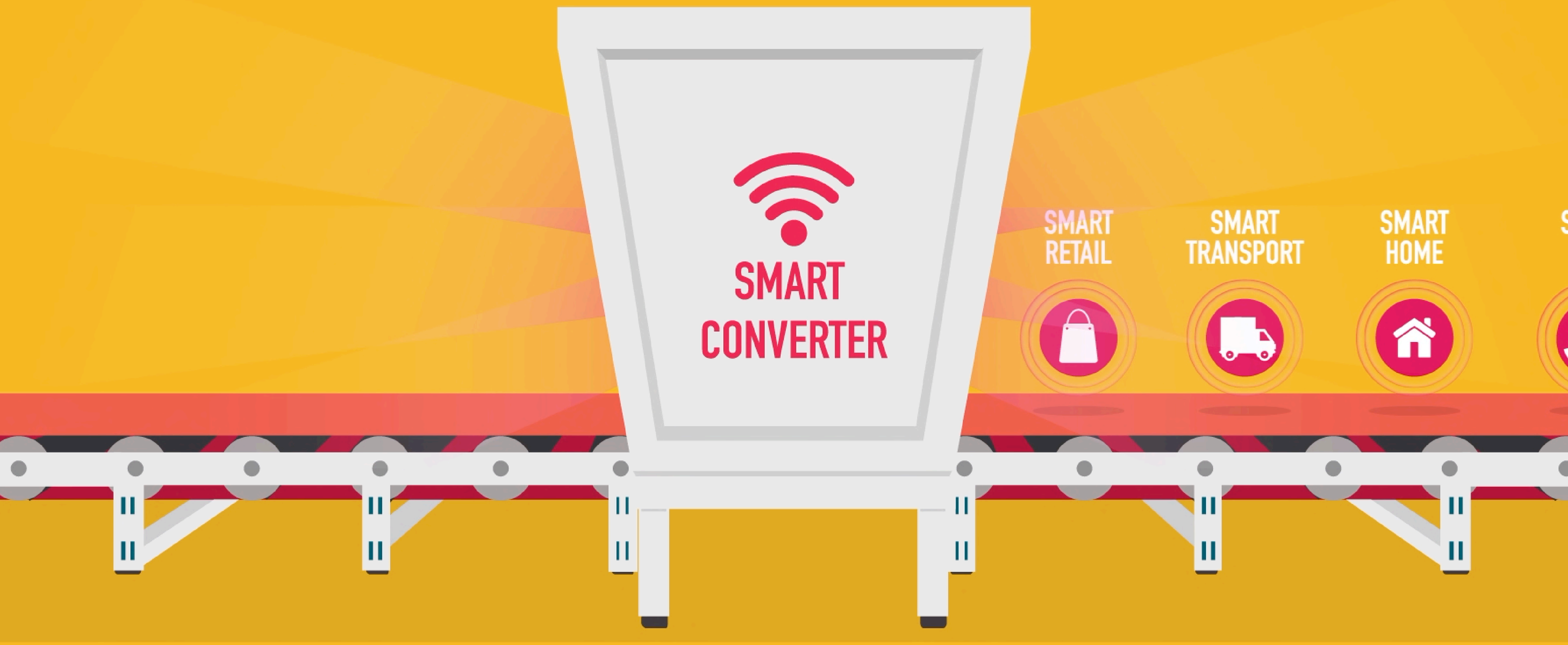
-S

I'm down for either.

Let's do Saturday.

I'm fine with whatever.

The low-hanging fruit: smart everything, everywhere, anytime (IA)



Real or not?

The vast promises of AI: understanding, imagination, intuition and wisdom required!

Technology

Meet the Robot Who Knows How to Trade Bonds Better Than You Do

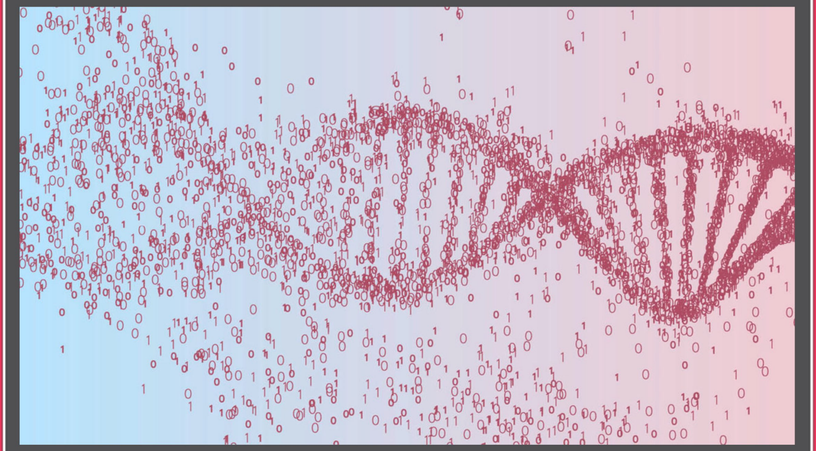
By Katie Linsell
November 12, 2018, 6:00 AM GMT+1

Artificial Intelligence Will Enable 38% Profit Gains By 2035

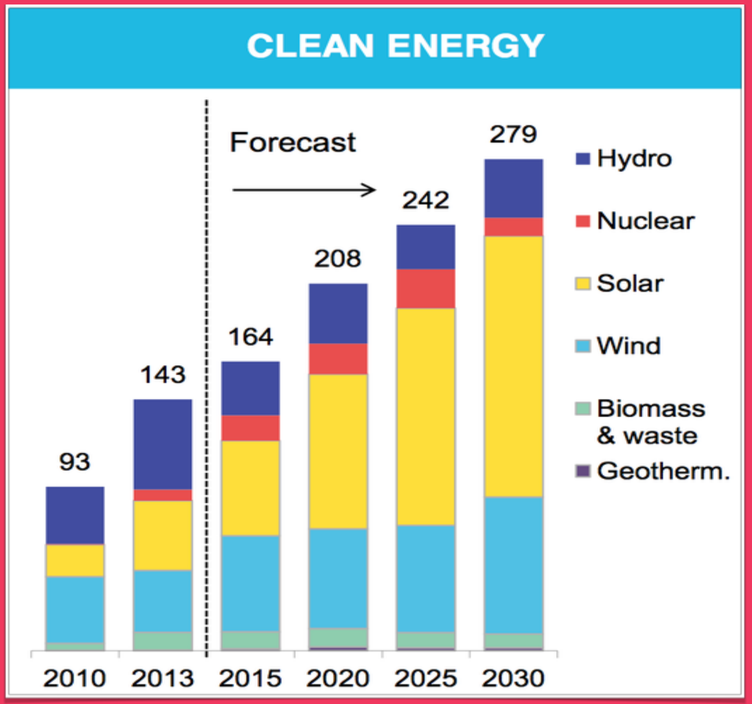
Louis Columbus

Genome sequencing can provide the key to cancer prevention

October 25, 2018

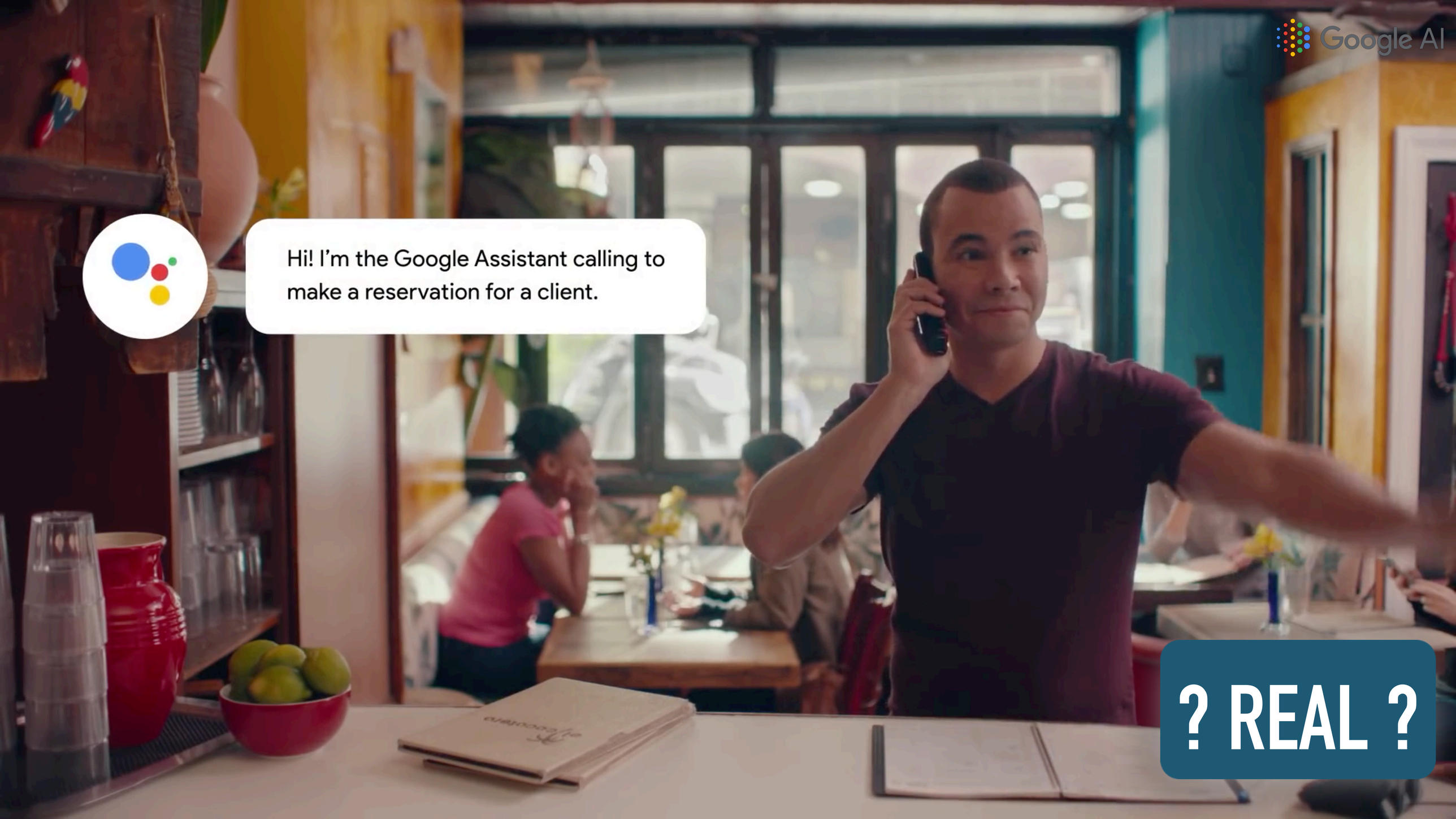


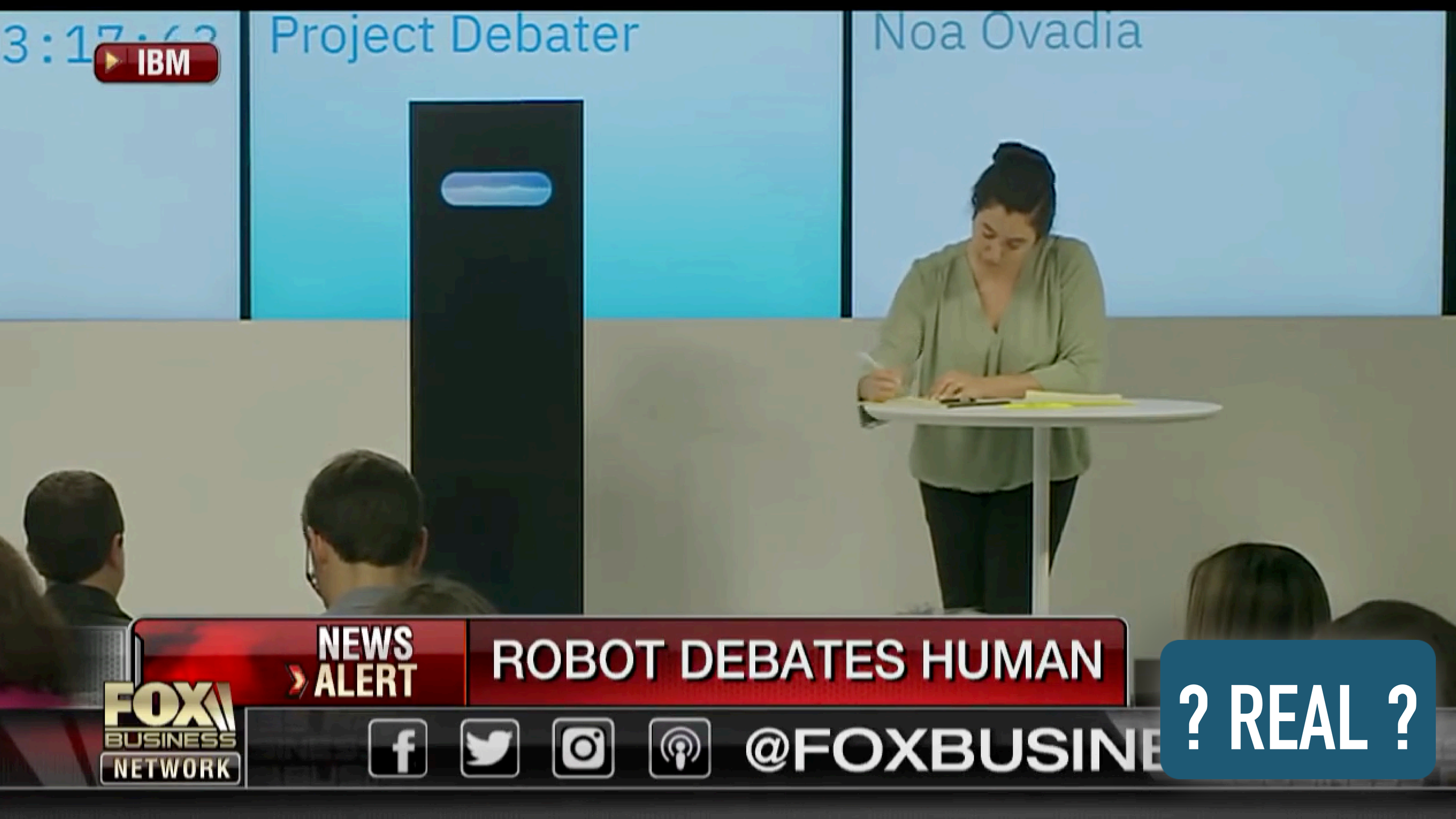
A genome is the body's instruction manual. It's made of DNA and there is a copy in almost every cell.



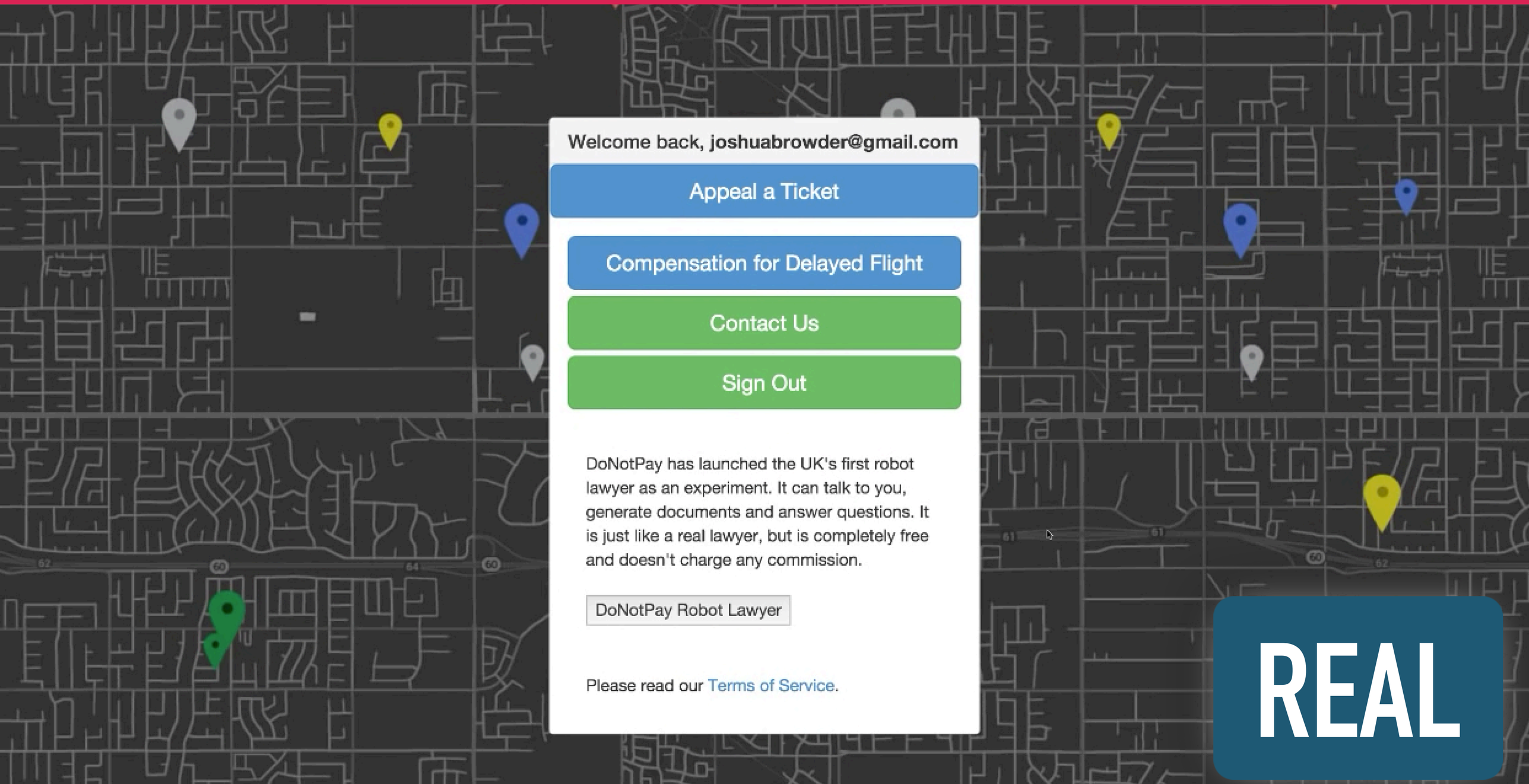
AI is the new UI (user interface)

REAL

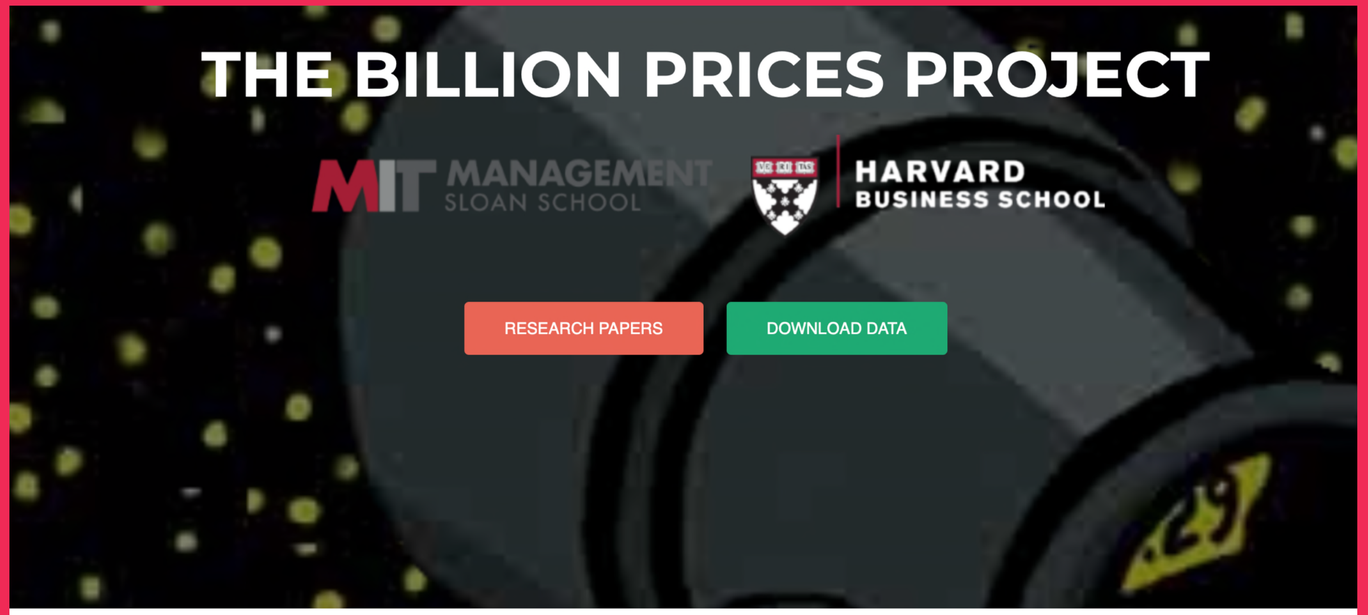

Google AI
Hi! I'm the Google Assistant calling to make a reservation for a client.
? REAL ?


IBM
Project Debater
Noa Ovadia
NEWS ALERT
ROBOT DEBATES HUMAN
FOX BUSINESS NETWORK
@FOXBUSINE
? REAL ?

Datafication + Cognification + Automation of government services: donotpay example



Ad-hoc, real-time assessment of economic trends and indicators



INITIATIVES AND RELATED PROJECTS

Some practical applications of our research

INFLACION VERDADERA ARGENTINA

A daily inflation index for Argentina.

INFLACION VERDADERA VENEZUELA

Our latest project using mobile phones

ONLINE-OFFLINE COMPARISONS

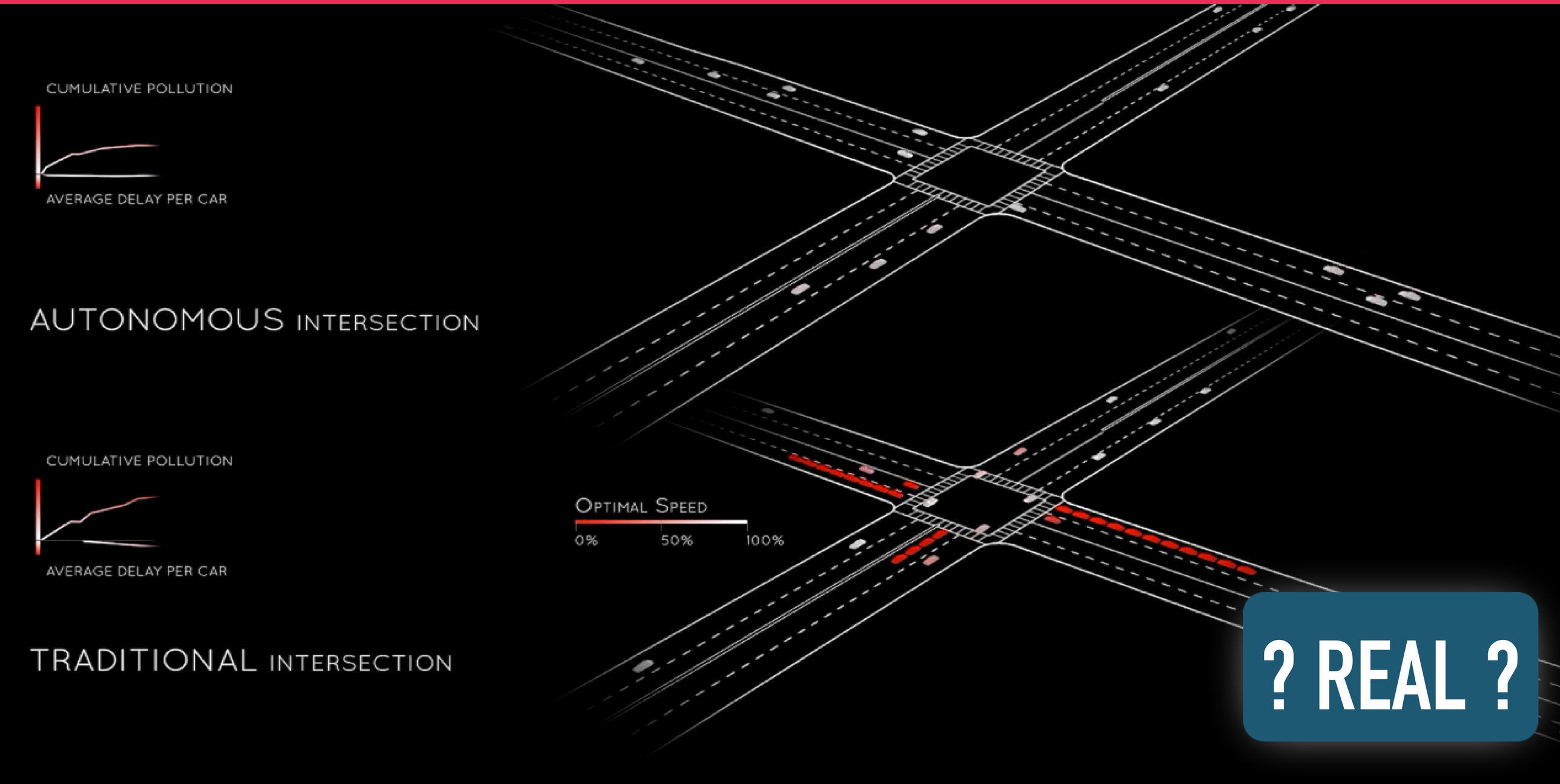
An attempt to validate online data and

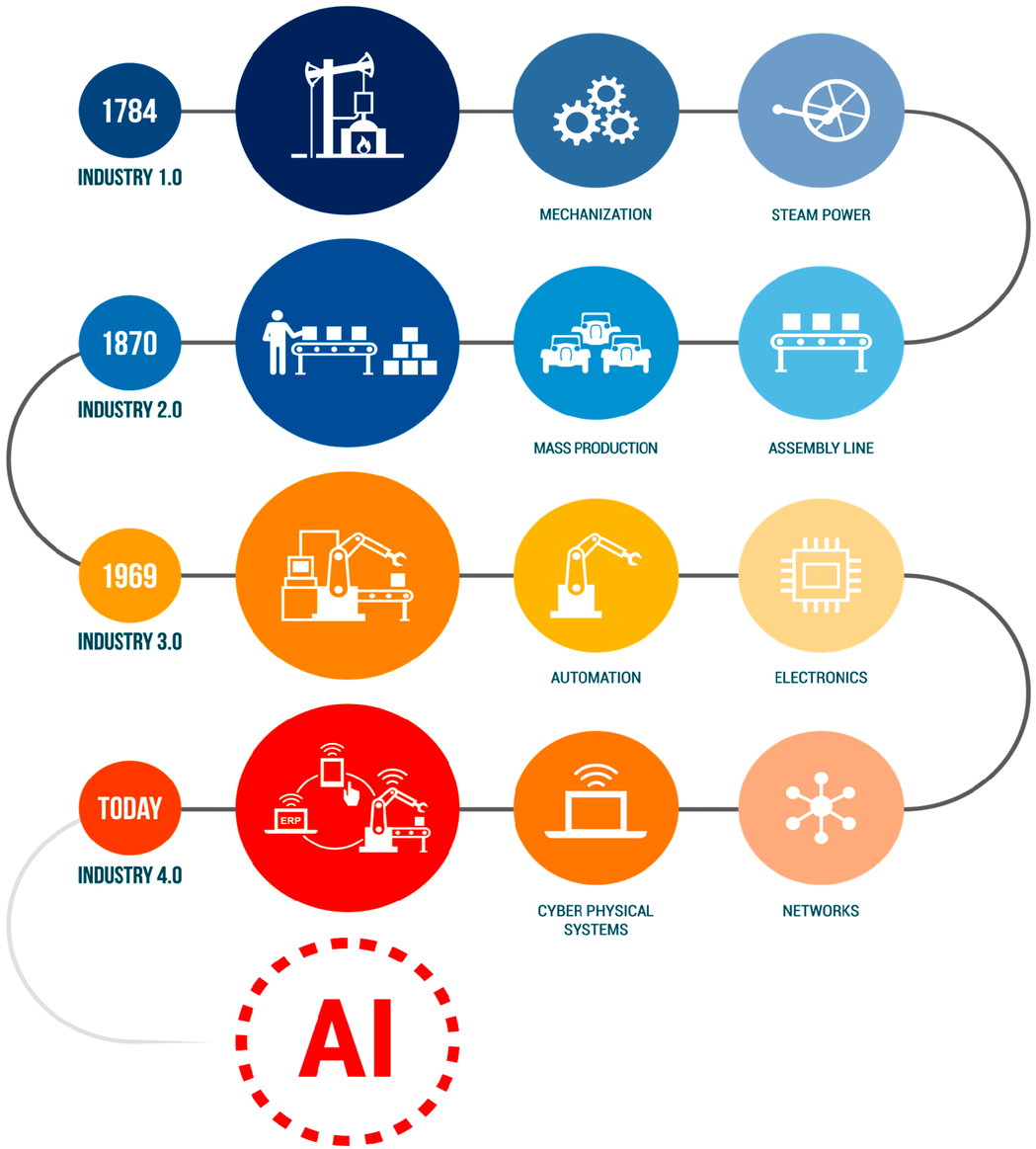
PRICESTATS DAILY INFLATION AND PPP STATISTICS

PriceStats is the company that collects

REAL

The end of traffic jams and congestion: complete automation and autonomy





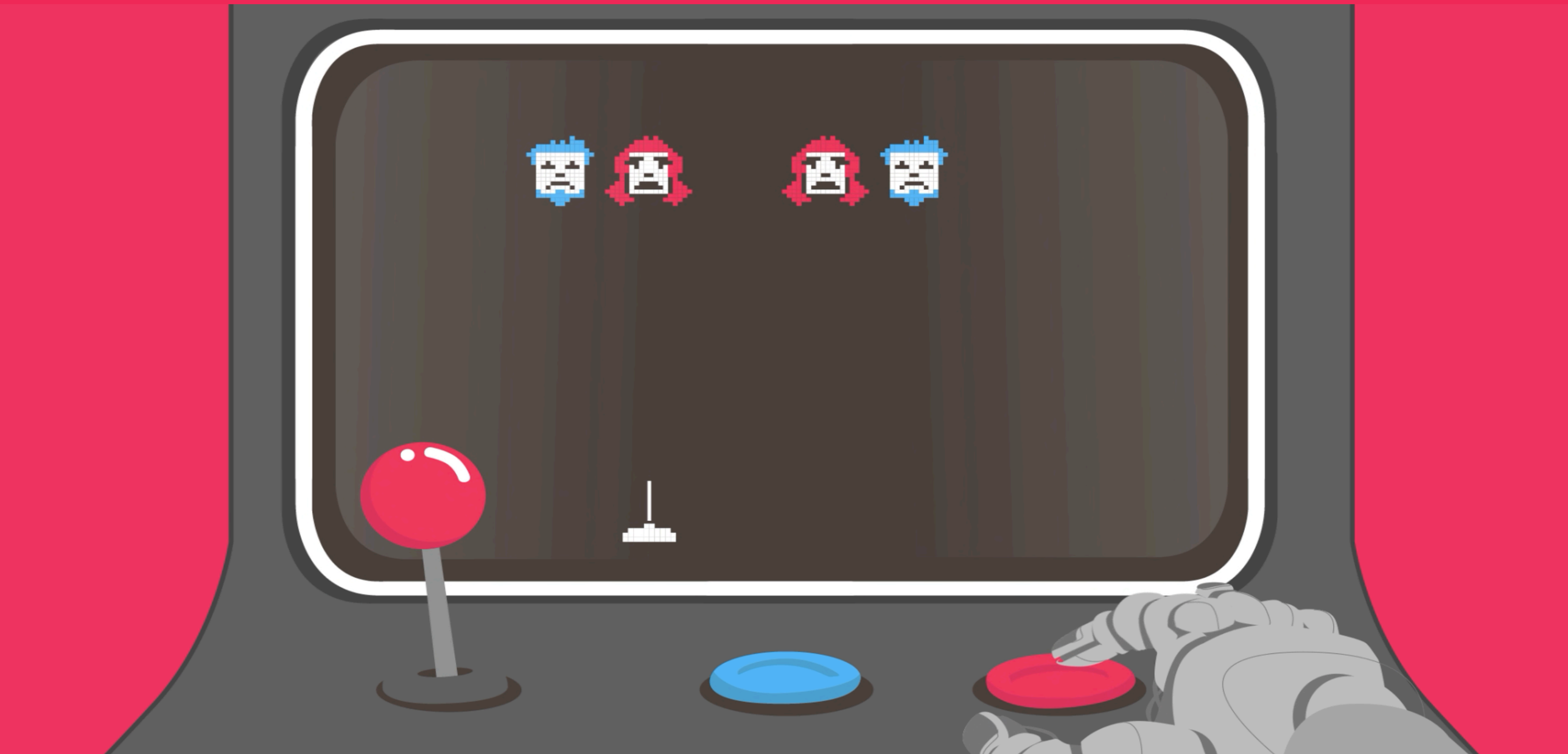
AT THE CUSP OF THE 5TH INDUSTRIAL REVOLUTION

Recent rapid adoption and application of artificial intelligence algorithms — triggered by access to big data and better hardware-processing capabilities — are changing the face of blue and white collar jobs.

REAL

Generally intelligent machines: Don't mistake a clear view for a short distance!

(Paul Saffo)

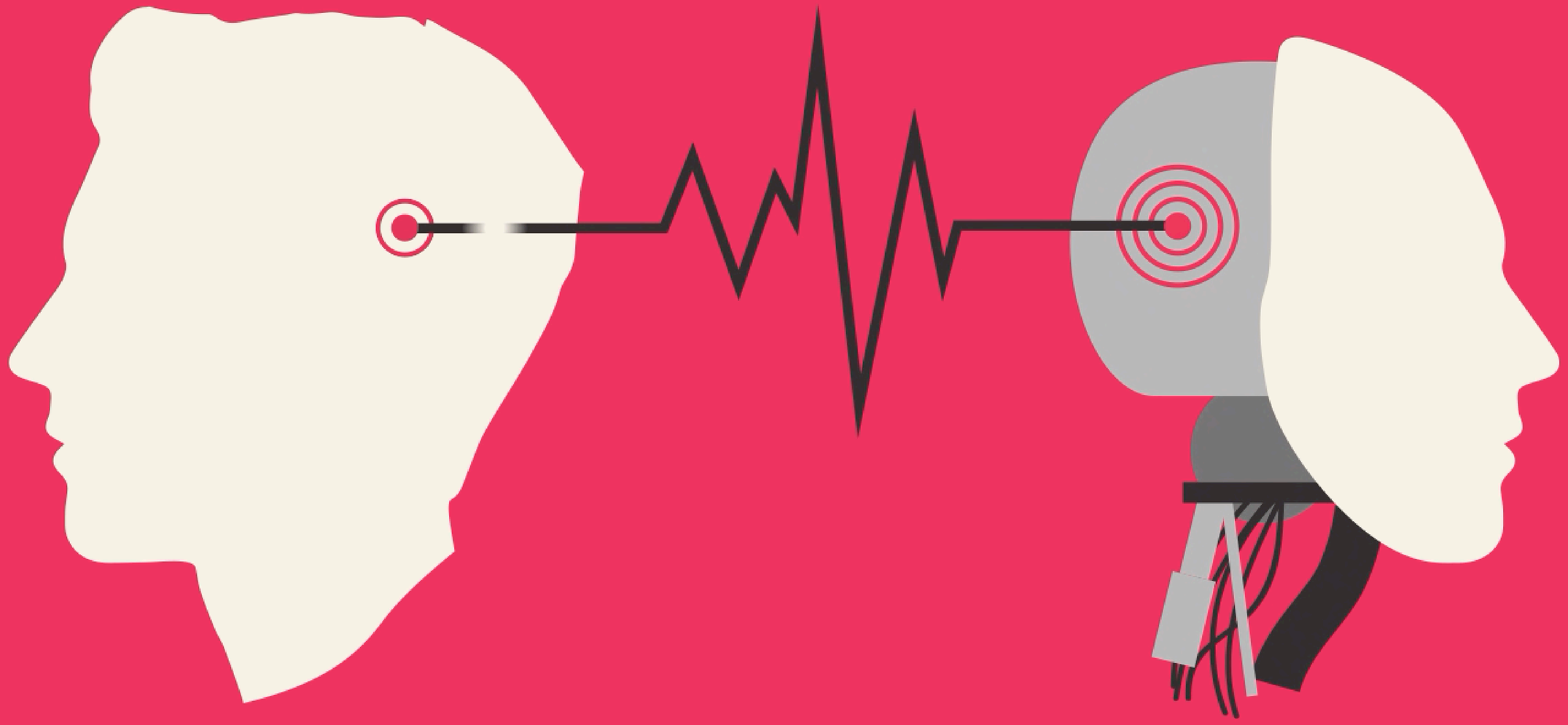


Poll #1

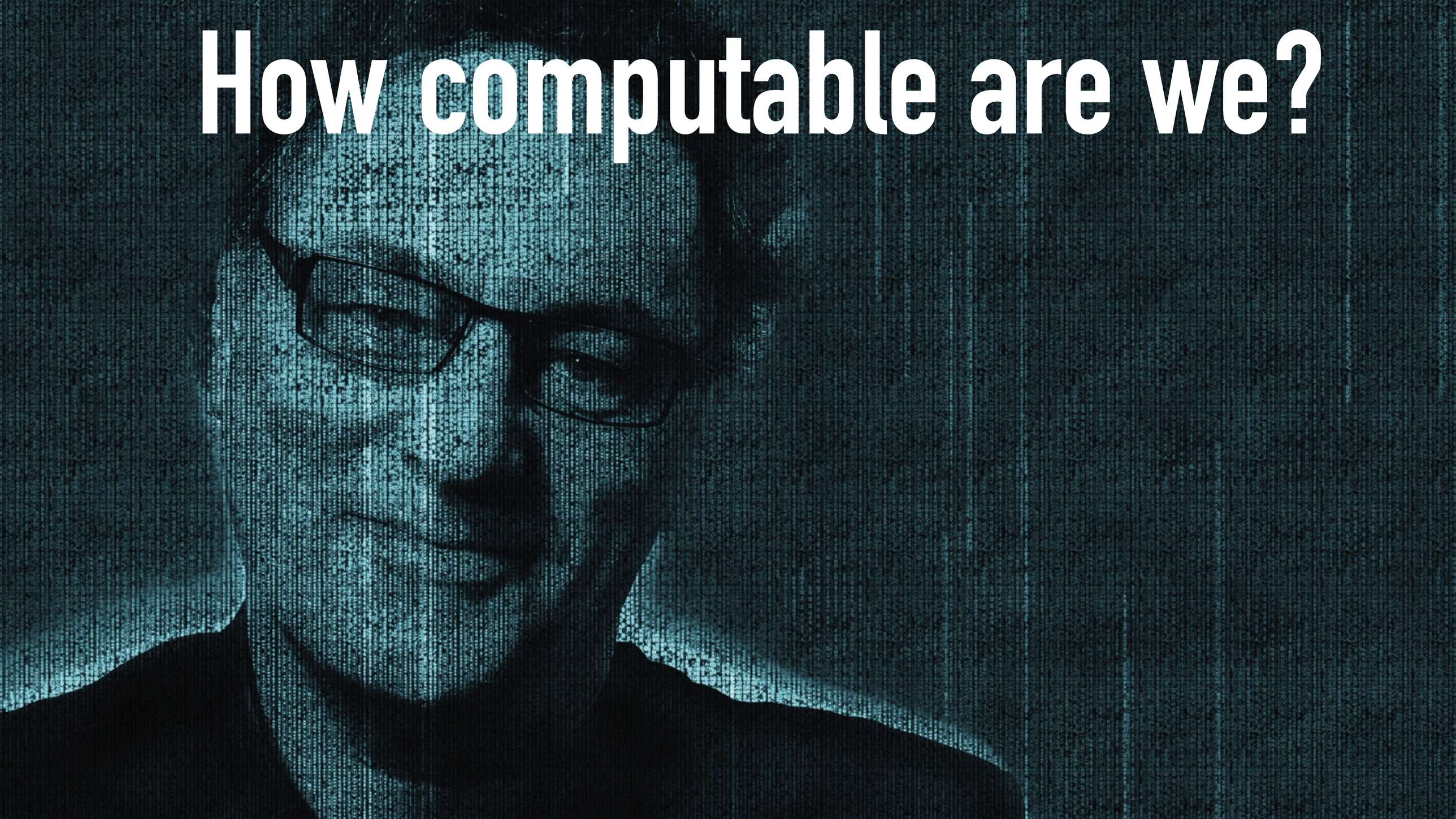
Do you believe that AI could become an existential threat?

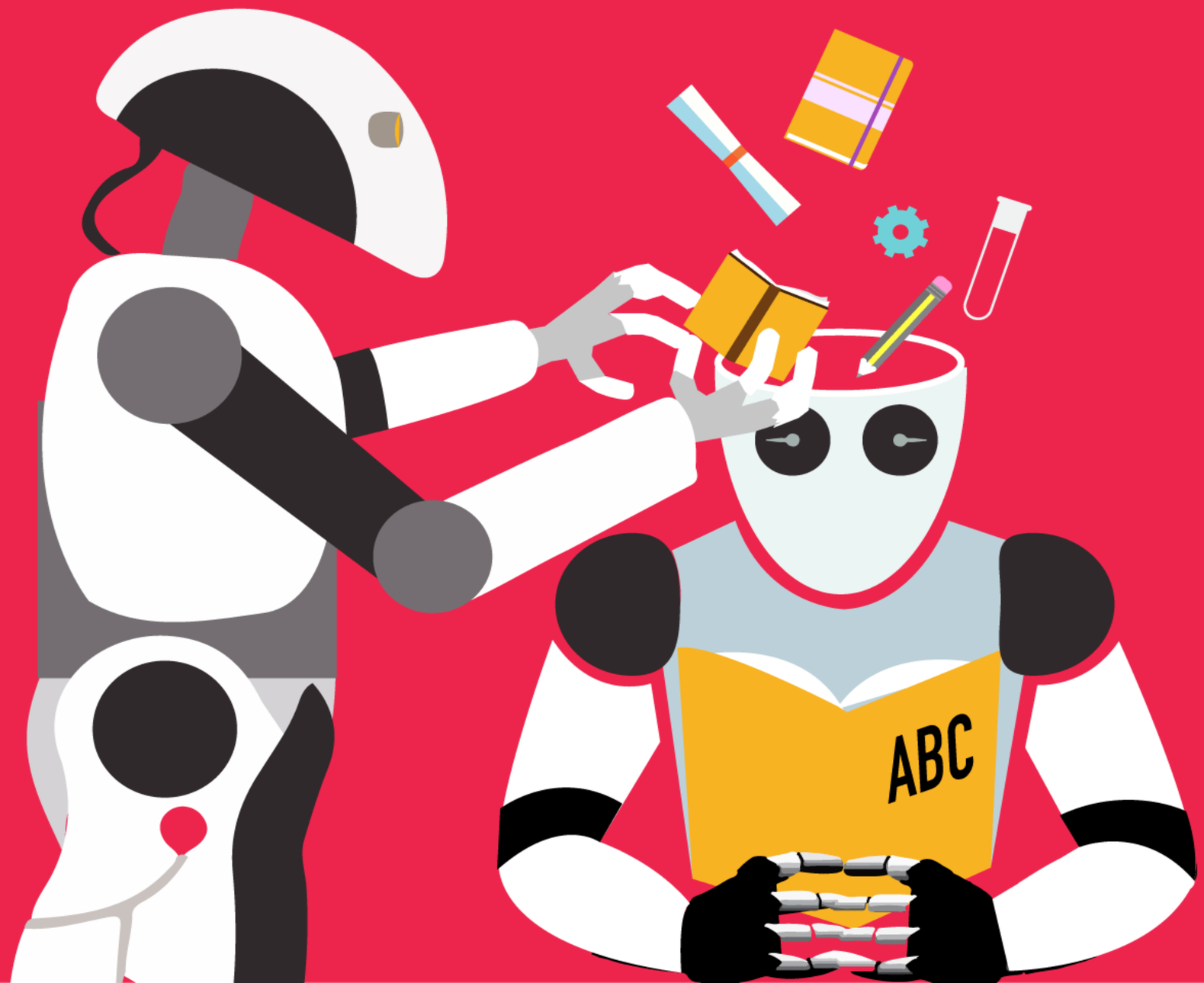
Humans and Machines

Humanity Technology



How computable are we?





Data and Information

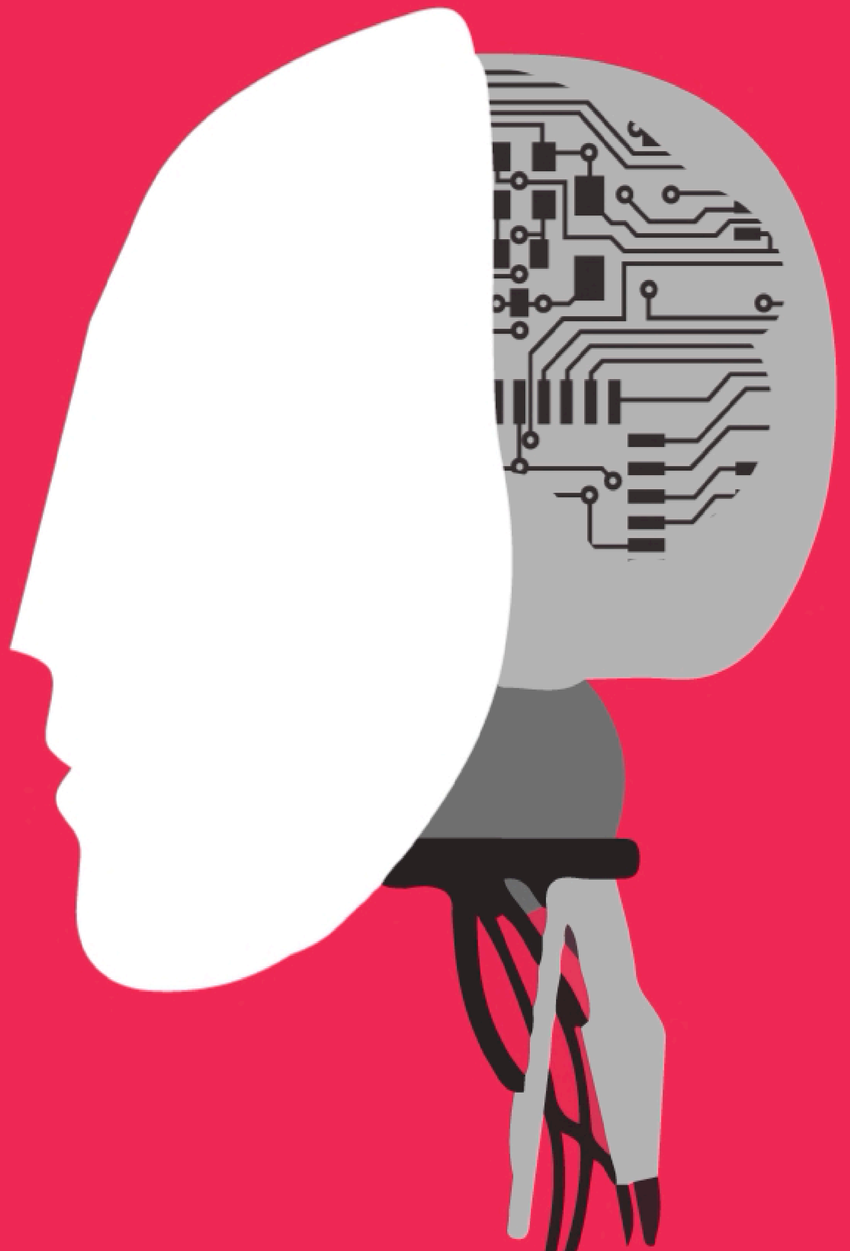
is not Knowledge*

is not Understanding

is not Wisdom

is not Purpose

Social
Intellectual
Kinaesthetic
Emotional



Commerce is driven by data, but MEANING is created by humans!

Algorithms

"When it comes to really important decisions data trumps intuition every time"

Androrithms

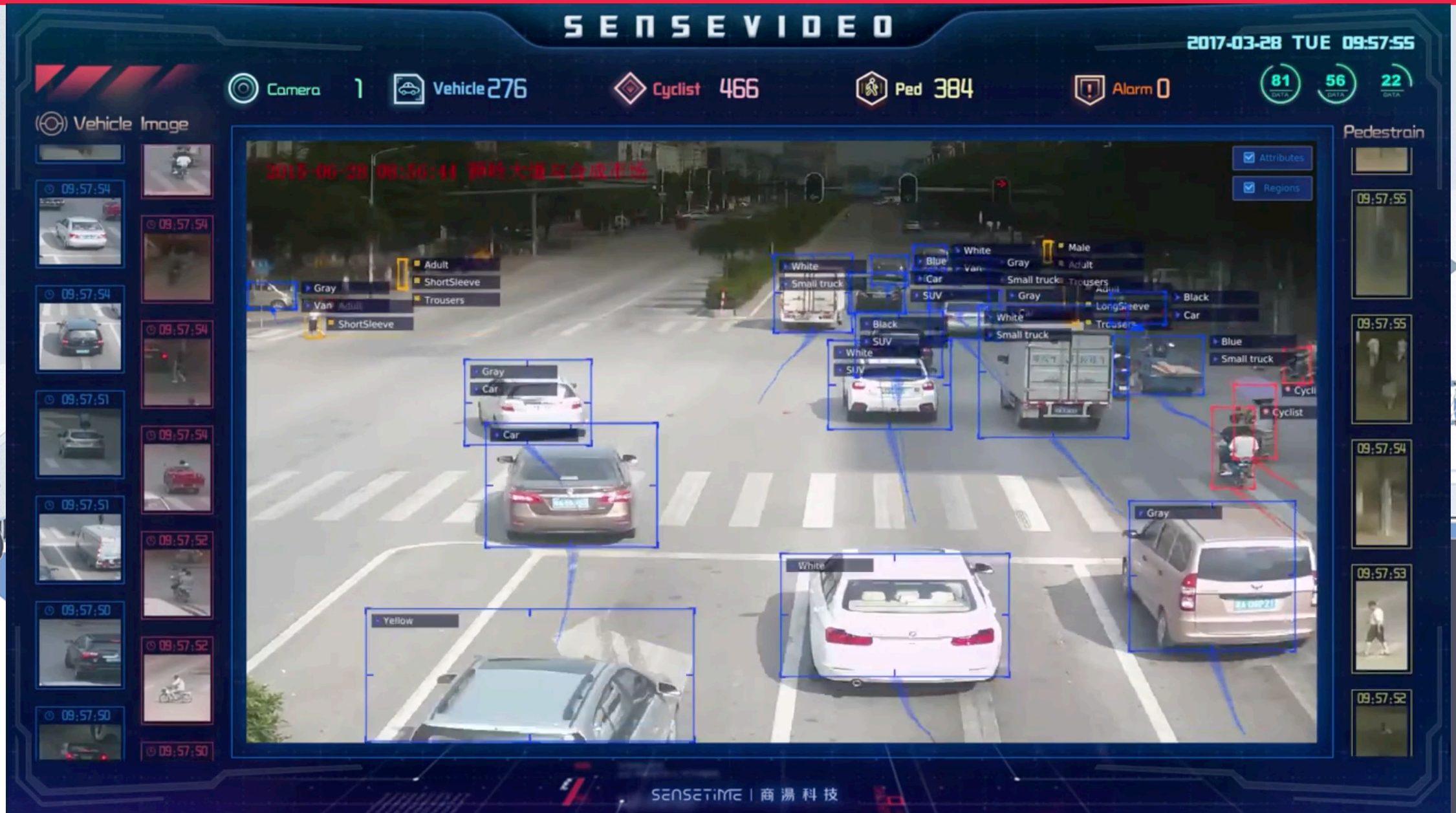
"All of my best decisions in business and life have been made with heart, intuition, guts... not analysis"

Digital Ethics

"Ethics is knowing the difference between what you have a right (or the power) to do and what is the right thing to do”

adapted from Potter Stewart

Technology is morally neutral – until we use it



CITIZENS WANT GOVERNMENT TO USE ARTIFICIAL INTELLIGENCE TO DELIVER NEW, IMPROVED SERVICES

50%

of citizens support the **use of AI in public service** and support rises noticeably when presented with concrete benefits

SUPPORT FOR PUBLIC SERVICE USE OF ARTIFICIAL INTELLIGENCE

Is even higher in:

73% SINGAPORE

In line with the overall response in:

54% US

52% FRANCE

Slightly lower in:

47% GERMANY

47% AUSTRALIA

46% UK

Copyright © 2018 Accenture. All rights reserved.

CITIZENS WANT GOVERNMENT TO USE ARTIFICIAL INTELLIGENCE TO DELIVER NEW, IMPROVED SERVICES

SUPPORT FOR PUBLIC SERVICE USE OF ARTIFICIAL INTELLIGENCE

Is even higher in:

73% SINGAPORE

In line with the overall response in:

54% US

Slightly lower in:

47% GERMANY

47% AUSTRALIA

46% UK

EVERYTHING EVERYWHERE EVERYONE

Copyright © 2018 Accenture. All rights reserved.

Humanity Technology: where to draw the line?

“Technology can do great things, but it does not WANT to do great things. It does not want anything.”

Tim Cook, CEO, Apple October 25 2018

Defining a sustainable balance between humans (HI) and machines (AI) will be crucial!

Why?

Who?

DIGITAL ETHICS: the difference between doing whatever technological progress will allow us to do, and putting human happiness and societal flourishing first at all times

As everything moves into the cloud and governments will use AI everywhere, the more TRUST becomes essential

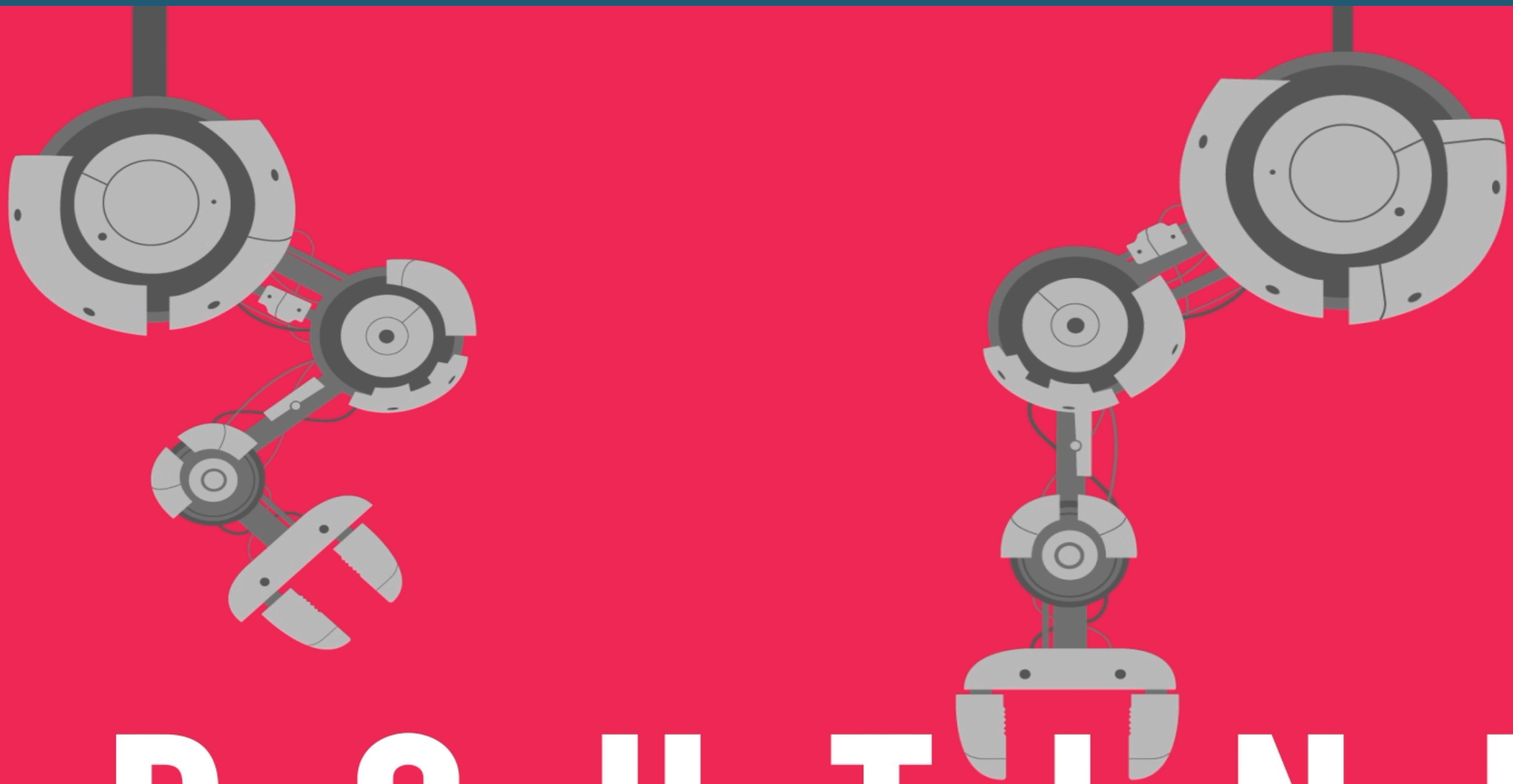
DIGITAL ETHICS COUNCIL

Poll #2

How do you think AI could be kept ethical and beneficial for everyone ?

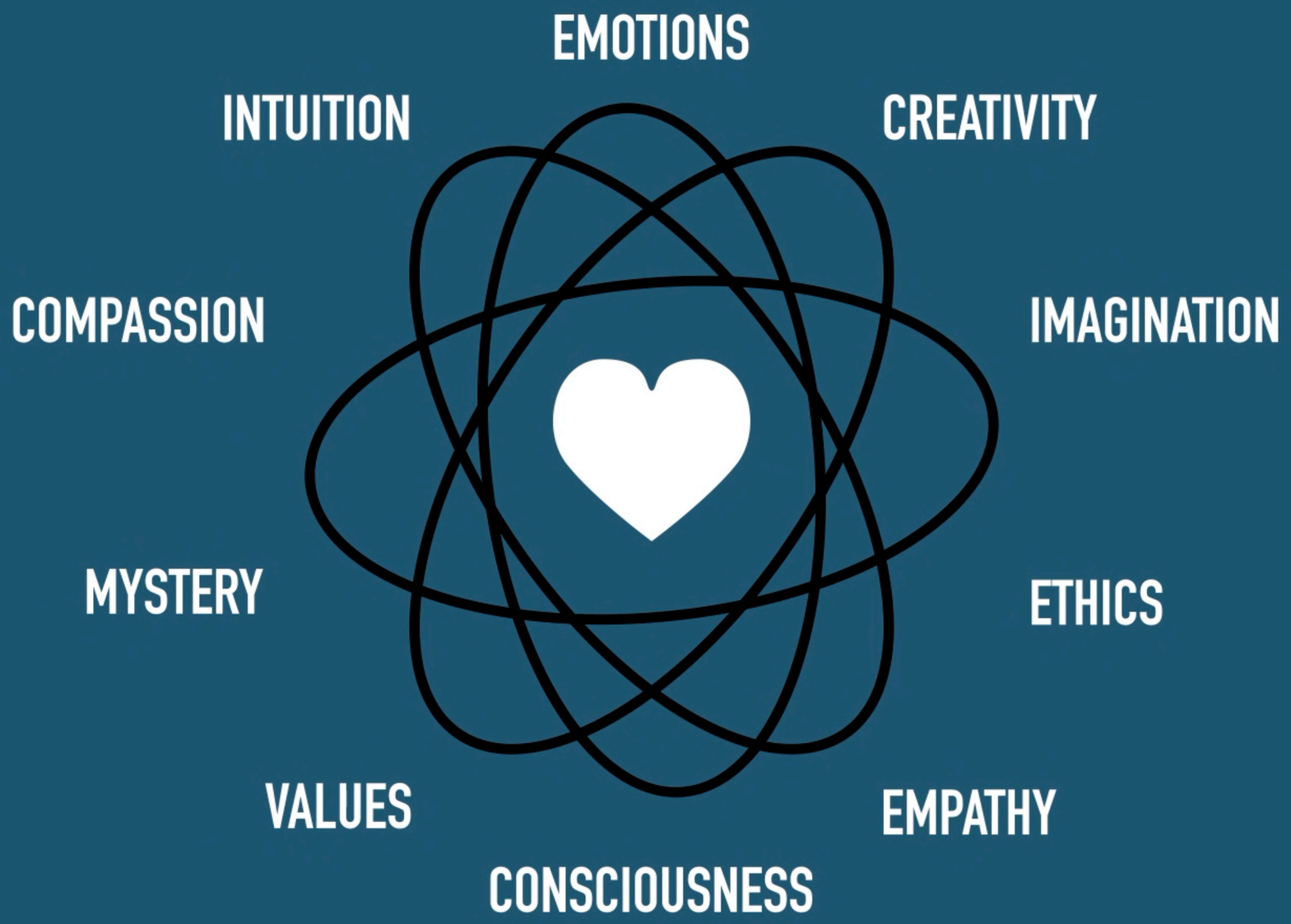
AI and the future of work, jobs, education

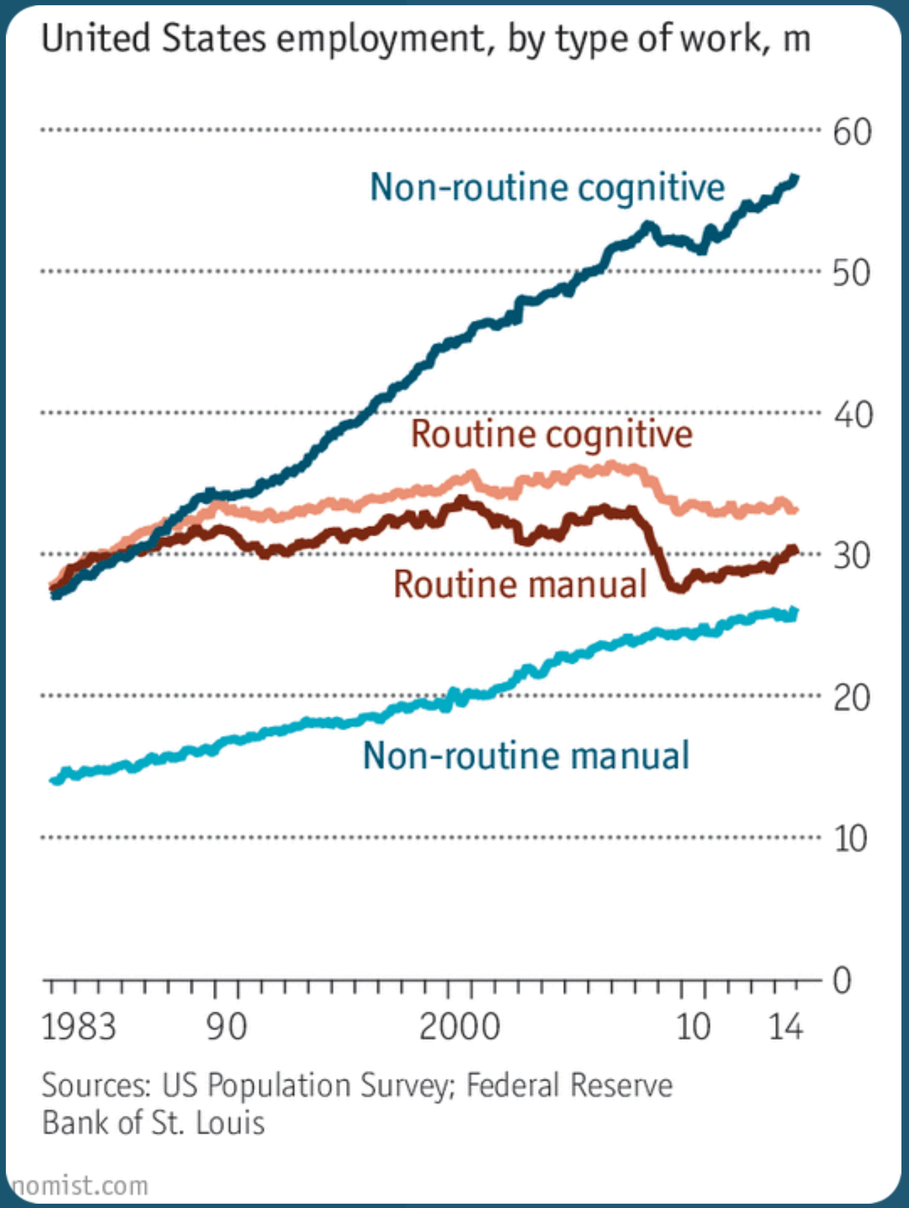
Anything that can be digitized or automated, will be: the end of routine is near!



ROUTINE

But anything that cannot be digitized or automated will become much more valuable!





The future of human work: upskilling, reskilling, life-long learning...

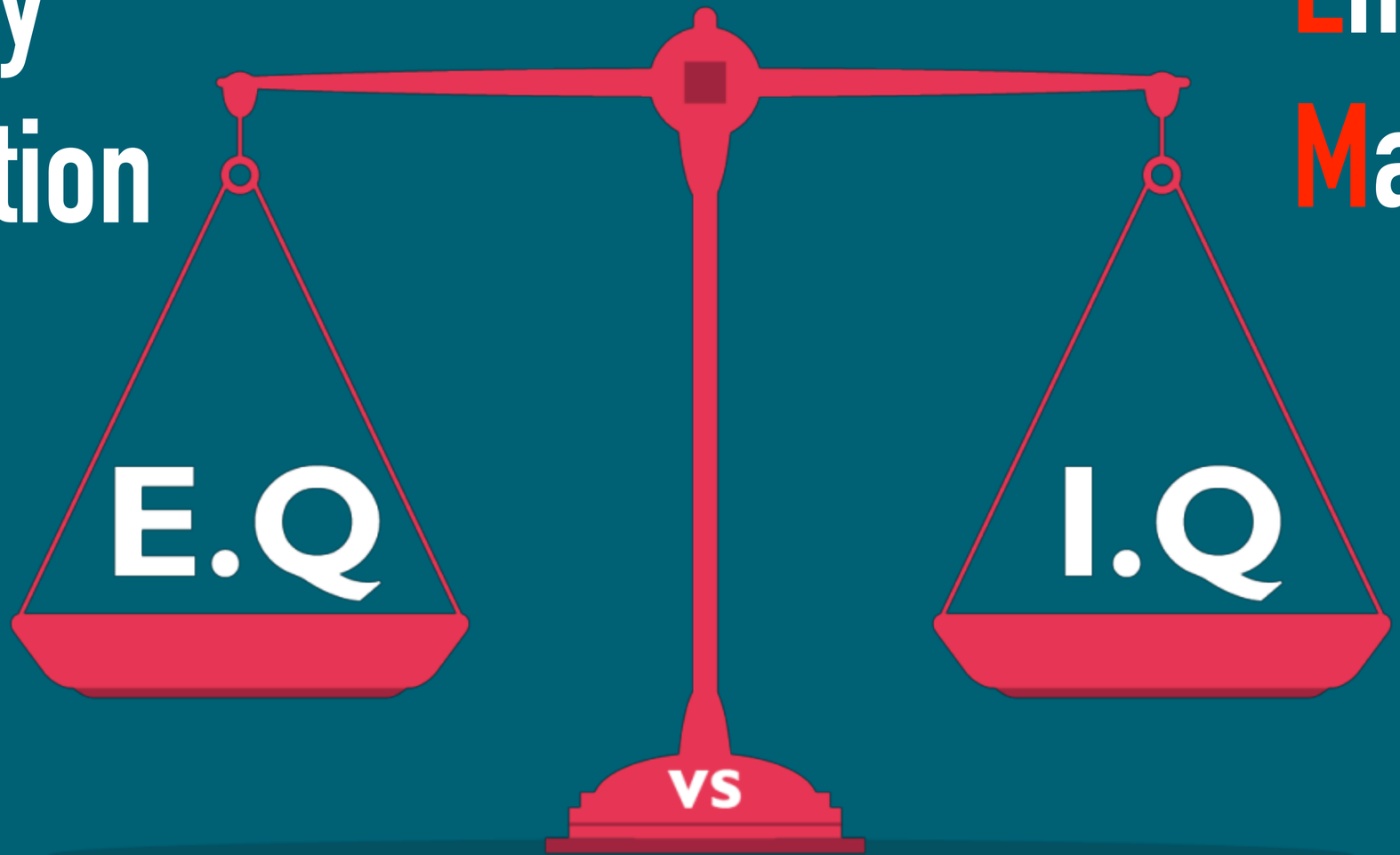
WORLD ECONOMIC FORUM

2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgement and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

Humanity
Ethics
Creativity
Imagination

Science
Technology
Engineering
Mathematics



Gerd

Conclusions and Actions

#digitalethics

The future is better than we think – if we design it wisely!

Poll #3

What is the most important benefit that AI could bring to your government and your nation in the near future?

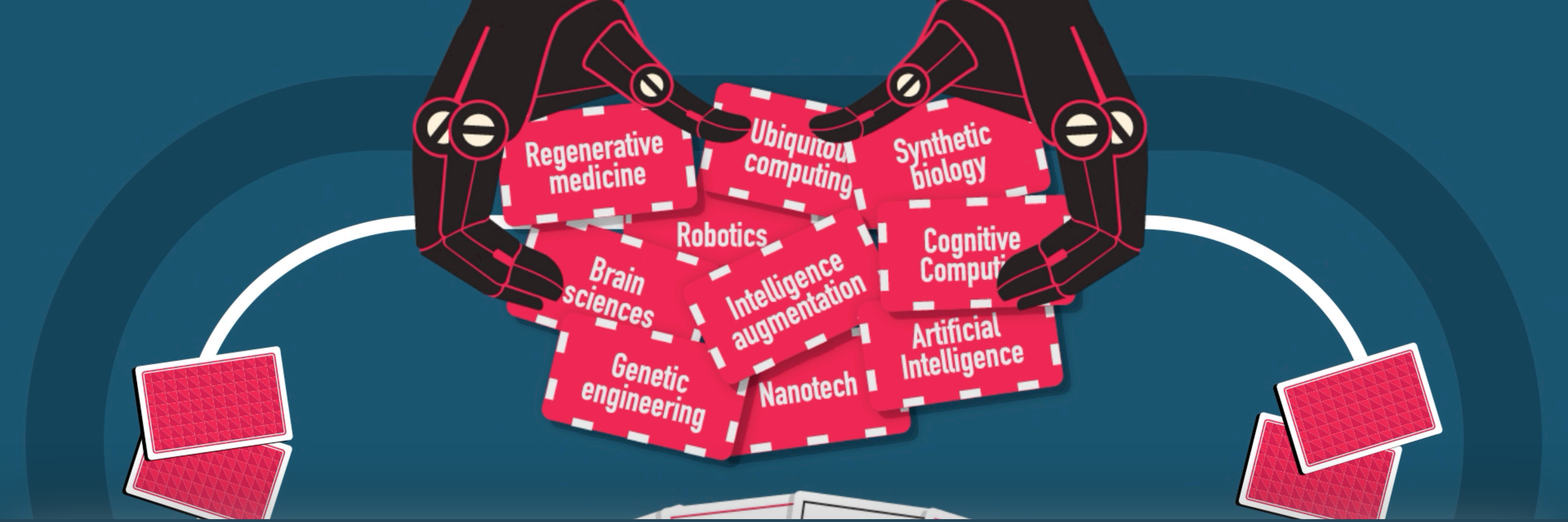
Reminder: Technology is exponential but humans are not *

Gerd

Strong leadership in digital ethics will be a key competitive advantage

AI at Google
7 principles

1. be social beneficial
2. avoid creating or reinforcing unfair bias
3. be built and tested for safety (SAFETY FIRST)
4. be accountable to people
5. incorporate privacy design principles
6. uphold high standards of scientific excellence
7. be made available for uses that accord with these principles



Invest as much time and money in HUMANITY (relationships, EQ, new skills, wisdom, foresights, thought-leadership, trust, brand and ethics) as you invest in TECHNOLOGY

The Future: awesome humans on-top of amazing technology

PURPOSE

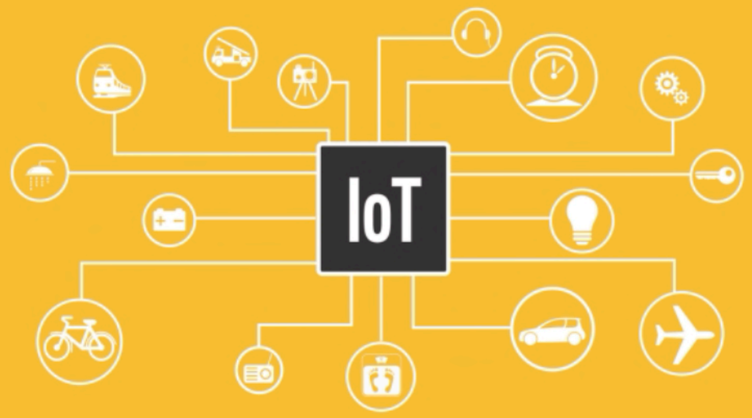
PASSION

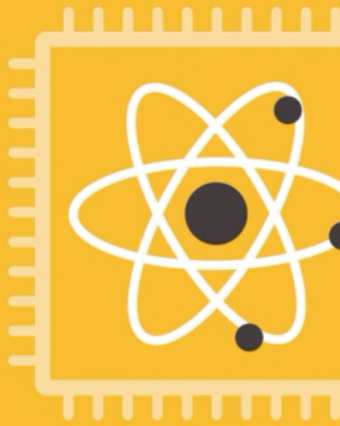
CURIOSITY

IMAGINATION

FORESIGHT

CRITICAL THINKING





Gerd Leonhard
Futurist
CEO The Futures Agency

techvshuman.com

gerd.cloud

gerdtube.com

@gleonhard

futuristgerd.com