

AI & THE **FUTURE** OF WORK

WORK & LIFE IN THE AGE OF ROBOTS

[HTTPS://TOBIASMASTRGRAVE.FILES.WORDPRESS.COM/2013/11/DYSTOPIA.JPG](https://tobiasmastrgrave.files.wordpress.com/2013/11/dystopia.jpg)

VOLKER HIRSCH
 **@VHIRSCH**

TED^x **MANCHESTER**
19 FEB 2017

A portrait of Sir Francis Bacon, a man with a dark beard and mustache, wearing a black cap and a white ruffled collar. The background is a dark, textured red. The text "KNOWLEDGE IS POWER" is overlaid in the top right corner in a bold, white, sans-serif font.

**KNOWLEDGE
IS POWER**

SIR FRANCIS BACON, 1561-1626

The background image is a high-angle, wide shot of the Orlando B. Longway Reading Room in the Library of Congress. The room is a grand, multi-story space with classical architecture. It features tall, fluted columns, multiple levels of arched windows, and a balcony with statues. The lower level is filled with rows of long wooden study tables and chairs, where several people are seated. Bookshelves are visible in the background and on the upper levels. The lighting is warm and focused on the study area.

EXABYTE

10¹⁸



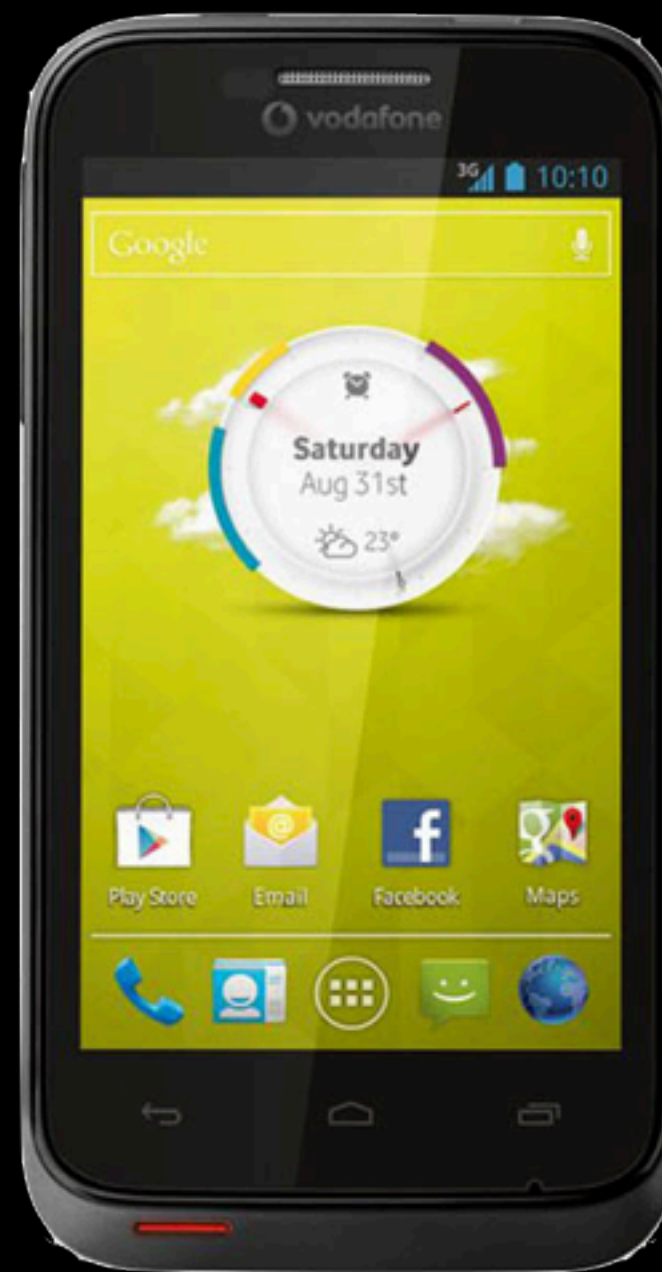
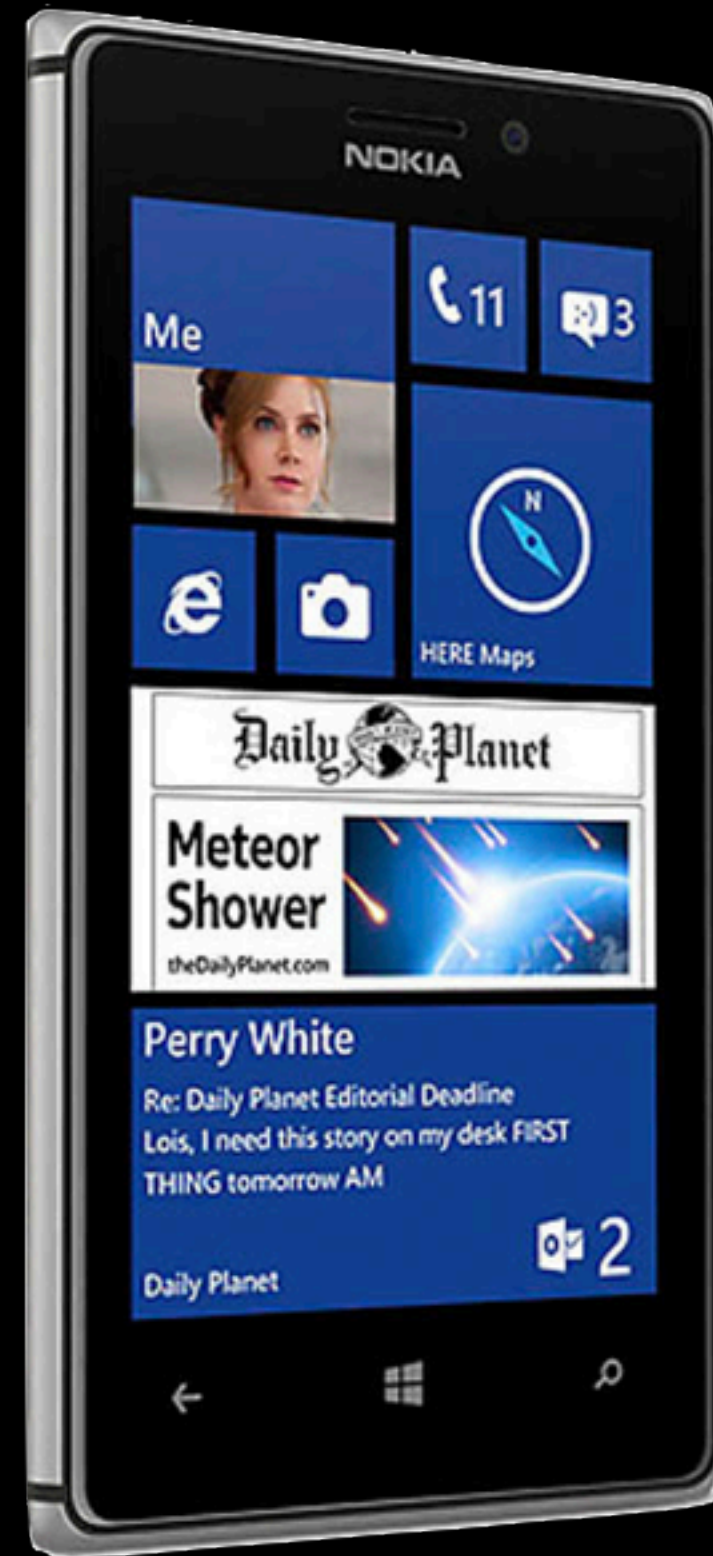
ALL TEXT CONTENT
X 100,000 =
1 EXABYTE



FACEBOOK CONNECTIONS

INTERNET TRAFFIC 2016: 1,100 EXABYTES

KNOWLEDGE IN YOUR POCKET



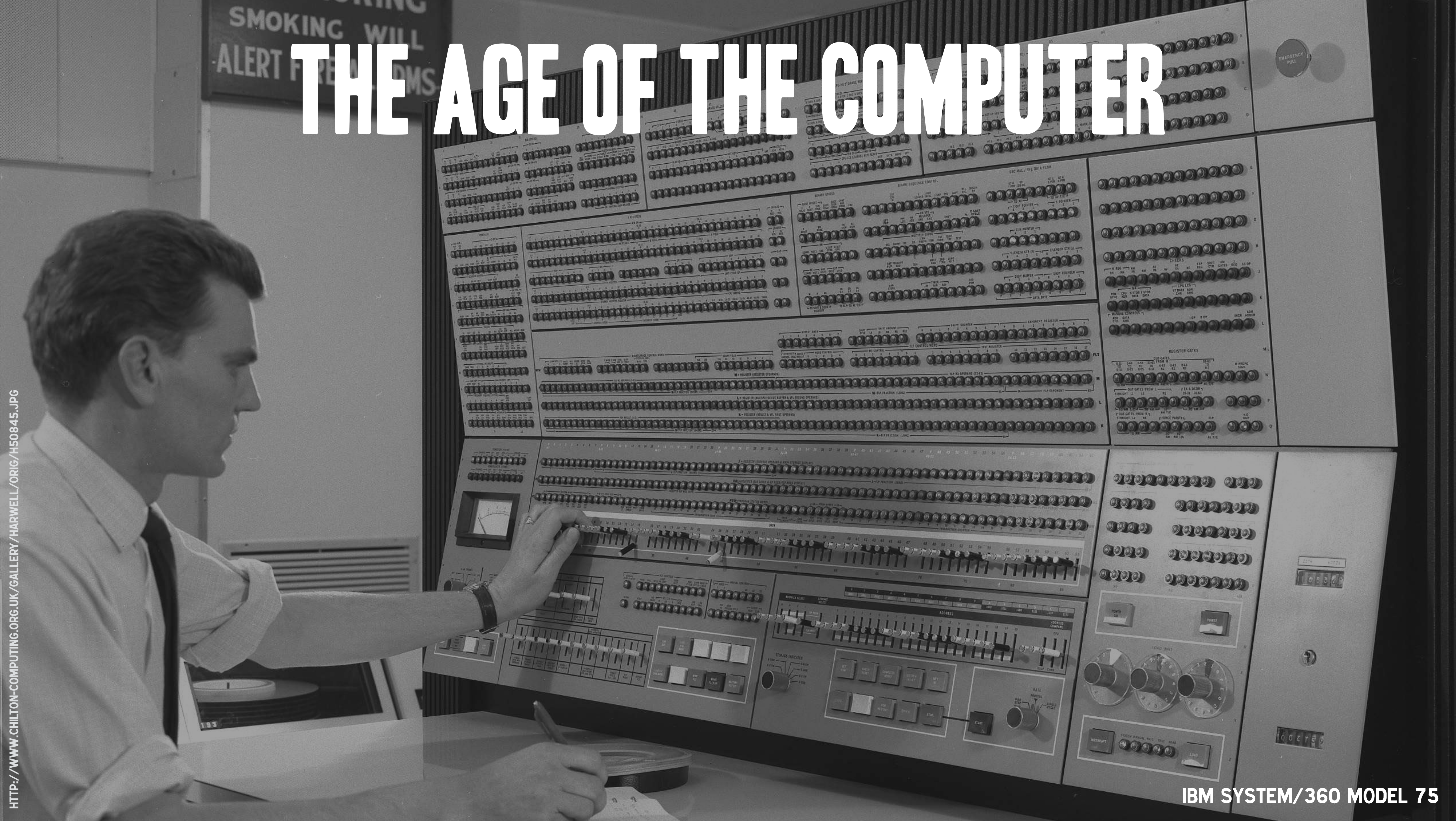
A portrait of Sir Francis Bacon, an English philosopher, statesman, and writer. He is depicted from the chest up, wearing a black cap and a white ruffled collar. The background is a deep red. The text "IS KNOWLEDGE STILL POWER?" is overlaid in the top right corner, with "STILL" in green and the rest in white.

IS KNOWLEDGE **STILL** POWER?

SIR FRANCIS BACON, 1561-1626

THE AGE OF THE COMPUTER

[HTTP://WWW.CHILTON-COMPUTING.ORG.UK/GALLERY/HARWELL/ORIG/H50845.JPG](http://www.chilton-computing.org.uk/gallery/harwell/orig/H50845.JPG)



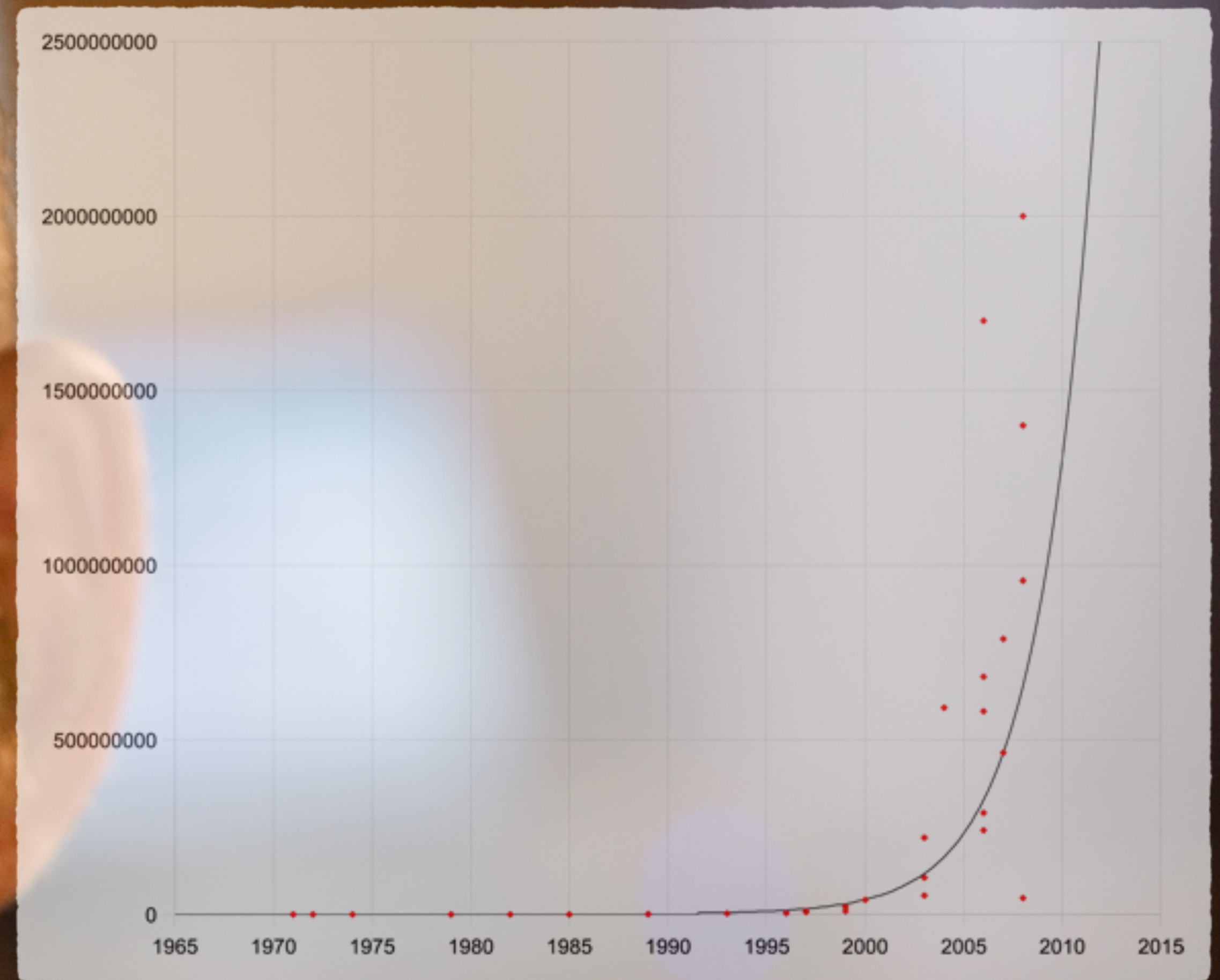
IBM SYSTEM/360 MODEL 75

A photograph of the moon's surface with an astronaut, an American flag, and lunar equipment.

IBM SYSTEM/360 MODEL 75
PROGRAMME SIZE: 6MB

(10% OF CANDY CRUSH SAGA)

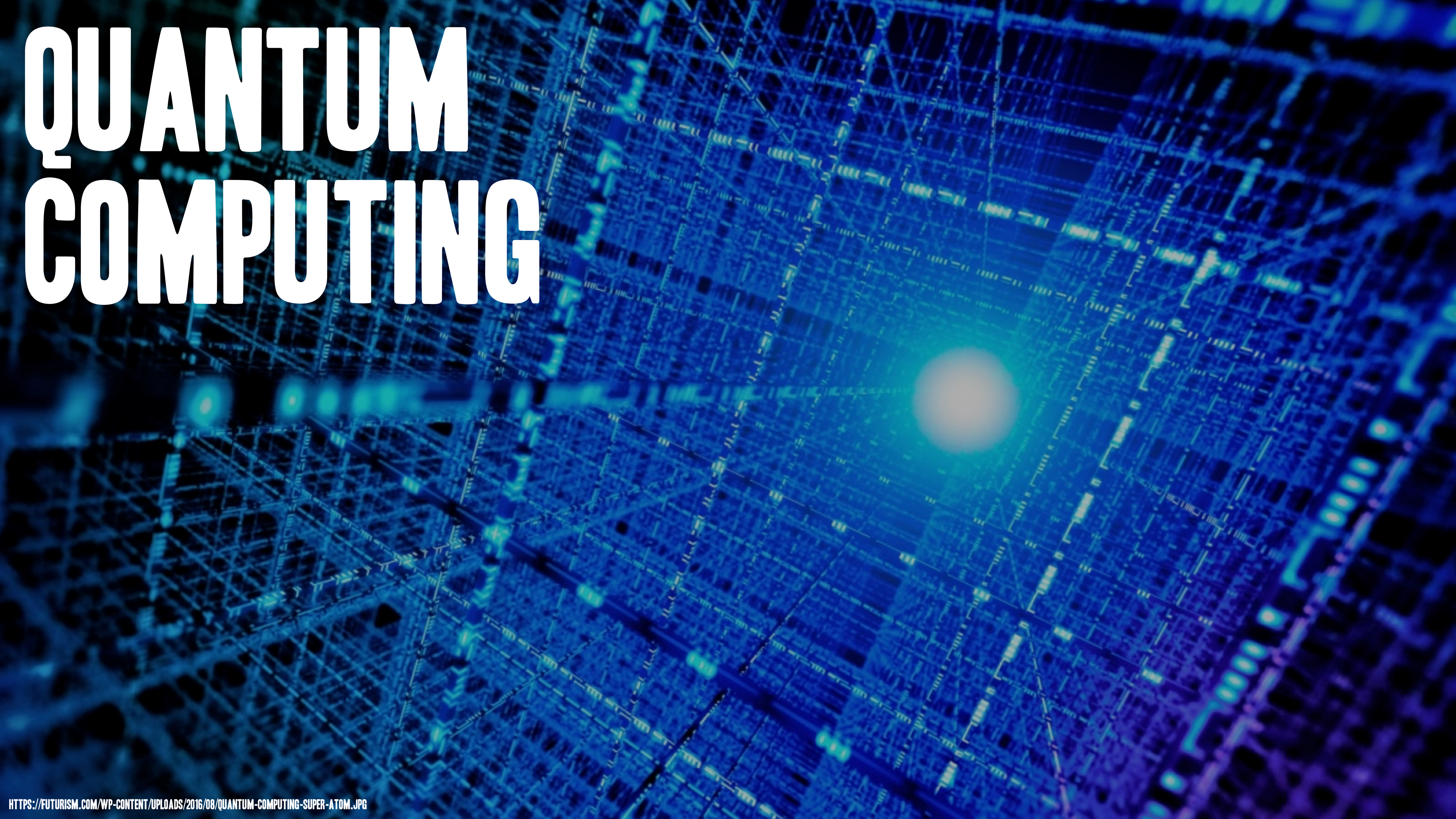
NEIL ARMSTRONG ON THE MOON, 20 JULY 1969. IMAGE: NASA



**MOORE'S 'LAW'
(IT'S DYING...)**

GORDON MOORE

QUANTUM COMPUTING



QUANTUM COMPUTING

“Today’s conventional computing technology is compared to reading every book in a library, one by one. **Quantum computing technology is compared to reading every book in a library, all at once.”**

DR CHRIS BALLANCE, RESEARCH FELLOW, MAGDALEN COLLEGE, UNIVERSITY OF OXFORD

ARTIFICIAL INTELLIGENCE

The background is a complex digital composition. It features a central vertical axis from which numerous thin, glowing lines radiate outwards, creating a sense of depth and perspective. These lines are primarily blue and purple, with some yellow highlights. In the foreground, there are horizontal bands of a grid-like pattern, composed of small, glowing squares in shades of blue, purple, and yellow. The overall effect is one of high-tech, futuristic digital space.

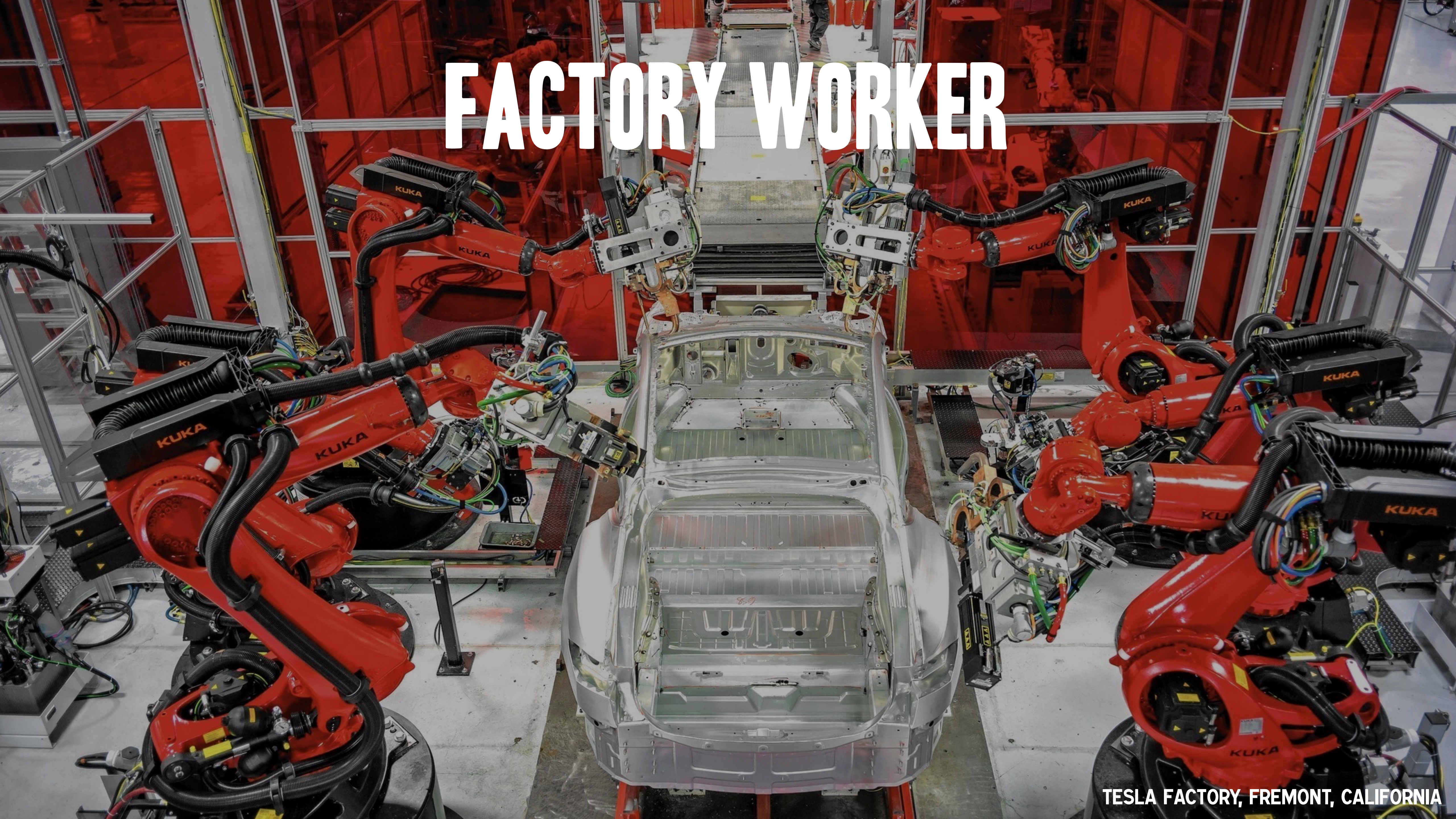


ARTIFICIAL INTELLIGENCE MACHINE LEARNING



**THE MACHINES
ARE COMING**

FACTORY WORKER



TESLA FACTORY, FREMONT, CALIFORNIA



[Lifestyle](#) › [Tech](#) › [News](#)

Apple supplier Foxconn replaces 60,000 workers with robots at China factory

Employee numbers at the Foxconn factory in Kunshan were slashed from 110,000 to 50,000

[Doug Bolton](#) | [@DougieBolton](#) | Wednesday 25 May 2016 |  1 comment





\$5/day > technology

[Lifestyle](#) > [Tech](#) > [News](#)

Apple supplier Foxconn replaces 60,000 workers with robots at China factory

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[Doug Bolton](#) | [@DougieBolton](#) | Wednesday 25 May 2016 |  1 comment

WAREHOUSE LOGISTICS



AMAZON AUTOMATED WAREHOUSE

SHIPPING LOGISTICS



KALMAR AUTOMATED VEHICLES, PORT OF LOS ANGELES, CALIFORNIA

POLICEMAN

Cheetah Robot runs 28.3 mph; a bit faster than Usain Bolt



Boston Dynamics

 **Subscribe** 376,741

9,821,055 views

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 16,229  1,889

BOSTON DYNAMICS WILDCAT

SECURITY GUARD

JUL 5, 2016 @ 03:55 PM 1,468 VIEWS

Knightscope Security Robots Spotted On Uber Parking Lot And Mall Patrol



Curtis Silver, CONTRIBUTOR

Applying the dark arts of satire, cynicism & humor to consumer tech. [FULL BIO](#) ✓

Opinions expressed by Forbes Contributors are their own.

Forbes

KNIGHTSCOPE K5

SNIPER



GENERAL ATOMICS, MQ-9 REAPER

BUILDER

Watch Robot Builder Construct House In Two Days

It is smart enough to leave spaces in the brickwork for wiring and plumbing, and can even cut and shape bricks to size.

sky **NEWS**

10:22, UK,
Friday 29 July 2016

PIZZA DELIVERY GUY



Flirtey Launches World's First Pizza-By-Drone Commercial Trials,
Delivers Domino's Pizza to Customer Homes

NEWS RELEASE BY

[Flirtey →](#)

Nov 15, 2016, 20:39 ET

PR Newswire
a CISION company

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FLIRTEY DRONE

PIZZA DELIVERY GUY

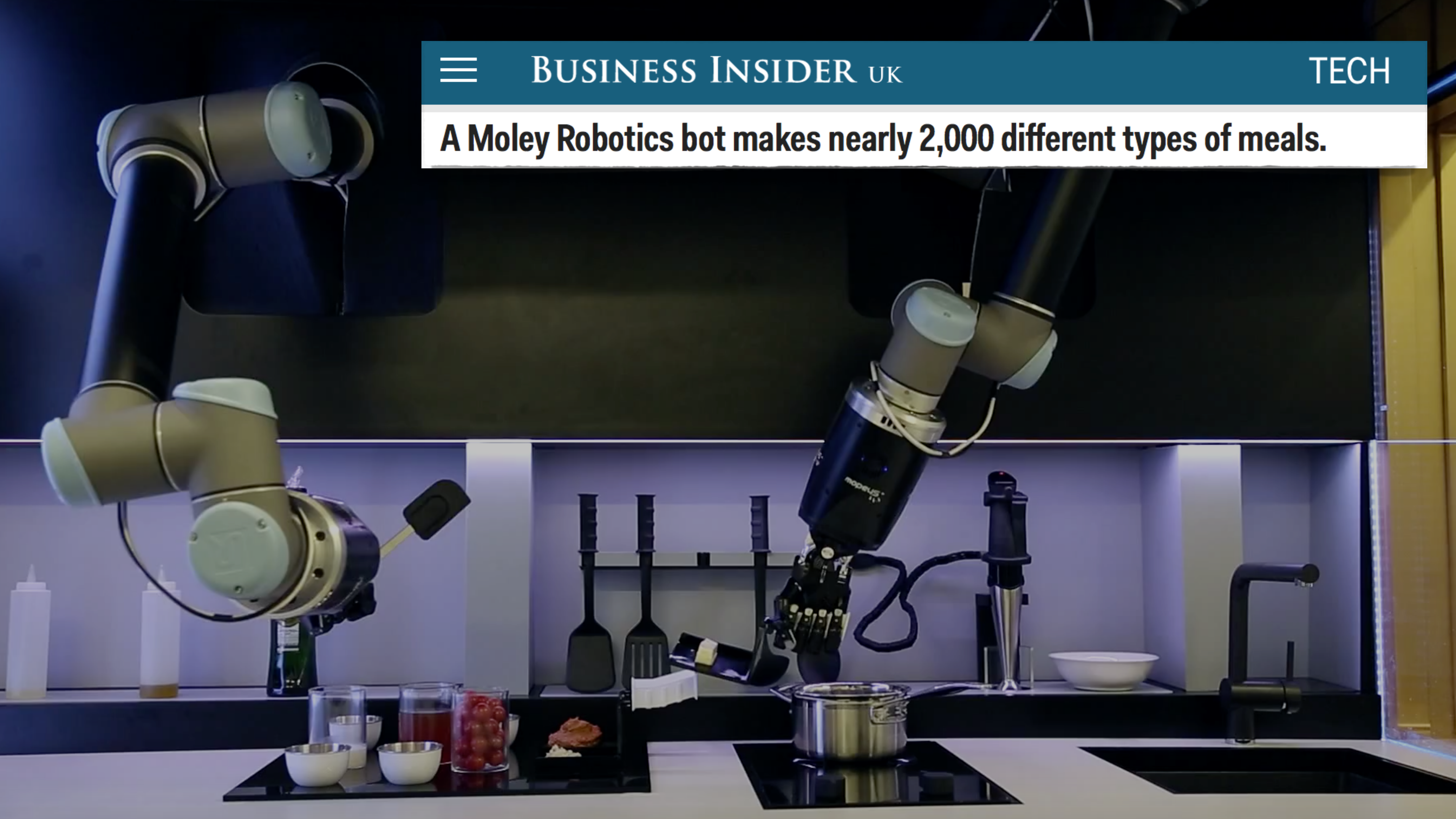
iOS Apps Postmates and DoorDash Testing Automated Delivery Via Self-Driving Robots

Wednesday January 18, 2017 12:27 AM PST by [Mitchel Broussard](#)

STARSHIP TECHNOLOGIES ROBOT



A Moley Robotics bot makes nearly 2,000 different types of meals.



DRIVER

Automotive

Uber

self-driving cars

autonomous vehicles

Uber starts self-driving car pickups in Pittsburgh

Posted 13 hours ago by [Signe Brewster \(@signe\)](#)



TC TechCrunch

LONG-HAUL TRUCKING

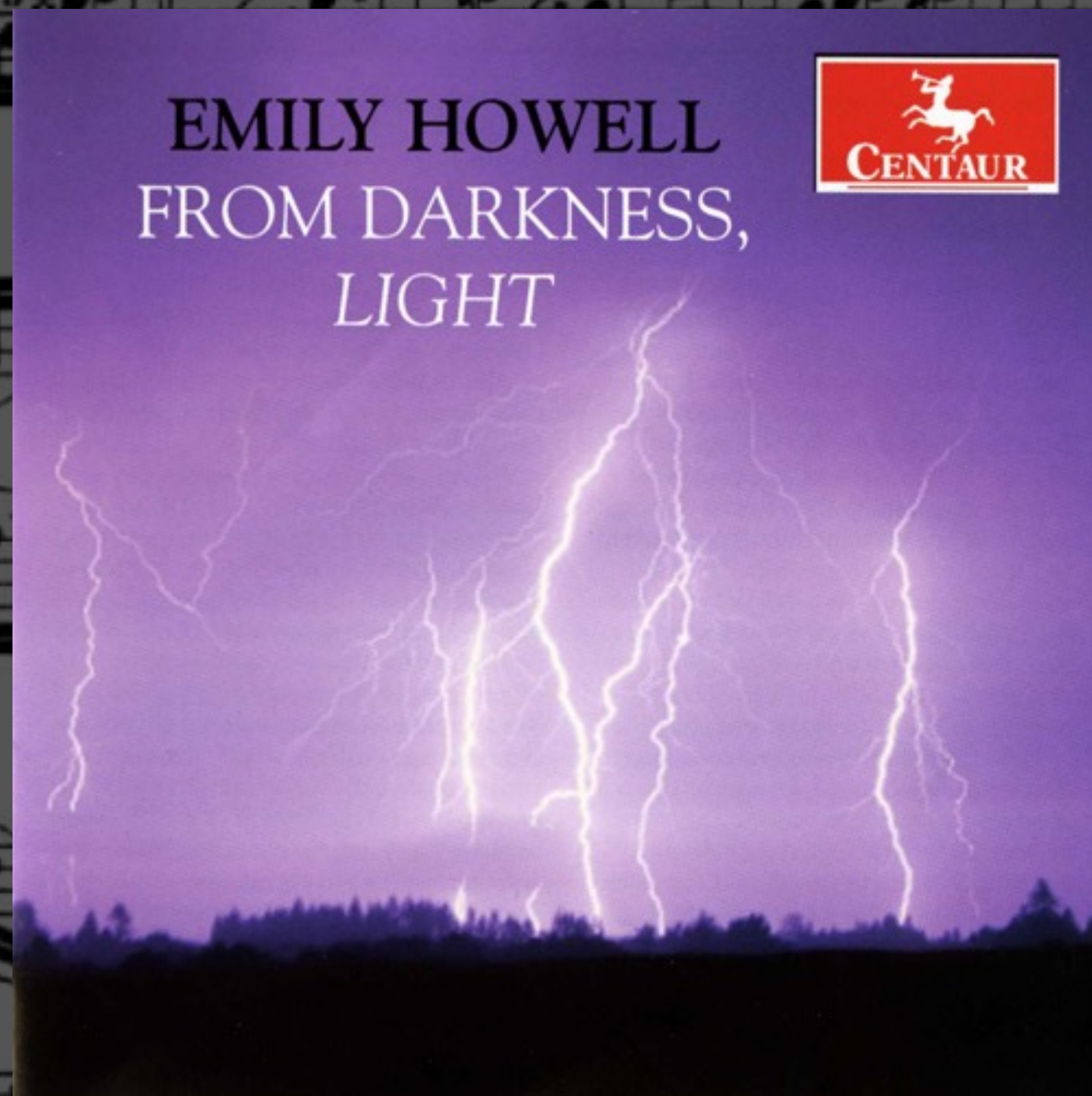


ALEX DAVIES TRANSPORTATION 05.05.15 7:41 PM

**THE WORLD'S FIRST SELF-
DRIVING SEMI-TRUCK HITS THE
ROAD**

WIRED

MUSICIAN



ALSO ON



A woman with blonde hair in a ponytail, wearing a white button-down shirt, is shown from the chest up. She is holding four different objects: a laptop in her top right hand, a large black calculator in her top left hand, a smartphone in her bottom left hand, and a black rotary telephone handset in her bottom right hand. She is looking towards the camera with a slight smile.

WaveNet: A Generative Model for Raw Audio

Aaron van den Oord, Sander Dieleman, Heiga Zen, Karen Simonyan, Oriol Vinyals, Alex Graves, Nal Kalchbrenner, Andrew Senior, Koray Kavukcuoglu

(Submitted on 12 Sep 2016 (v1), last revised 19 Sep 2016 (this version, v2))

This paper introduces WaveNet, a deep neural network for generating raw audio waveforms. The model is fully probabilistic and autoregressive, with the predictive distribution for each audio sample conditioned on all previous ones; nonetheless we show that it can be efficiently trained on data with tens of thousands of samples per second of audio. When applied to text-to-speech, it yields state-of-the-art performance, with human listeners rating it as significantly more natural sounding than the best parametric and concatenative systems for both English and Mandarin. A single WaveNet can capture the characteristics of many different speakers with equal fidelity, and can switch between them by conditioning on the speaker identity. When trained to model music, we find that it generates novel and often highly realistic musical fragments. We also show that it can be employed as a discriminative model, returning promising results for phoneme recognition.

Subjects: **Sound (cs.SD)**; Learning (cs.LG)

Cite as: **arXiv:1609.03499 [cs.SD]**
(or **arXiv:1609.03499v2 [cs.SD]** for this version)

AMAZON ECHO: YOUR BUTLER

IS JEFF BEZOS A NICE GUY?

IS ARSENAL WINNING THE LEAGUE?

SHOULD I WATCH LA-LA LAND?

PLAY MY FAVOURITE MILES TUNE

ORDER AN UBER TO LEAVE IN HALF AN HOUR

GET ME A MARGHARITA FROM DOMINO'S

WHAT'S THE WEATHER ON MONDAY IN HULL?

SET A REMINDER IN 90 MINUTES...





Robots That Teach Each Other

What if robots could figure out more things on their own and share that knowledge among themselves?

Availability: 3-5 years

by Amanda Schaffer

MIT
Technology
Review

RIP. IT WAS GOOD WHILE IT LASTED....

Clifford Chance strikes deal with artificial intelligence provider Kira

Robot Intelligence

AI Lawyer “Ross” Has Been Hired By Its First Official Law Firm

cosmin4000/

IN BRIEF

Ross, the world's first artificially intelligent attorney, has its first official law firm. Baker & Hostetler announced that they will be employing Ross for its bankruptcy practice, currently comprised of almost 50 lawyers.

SHARE



WRITTEN BY

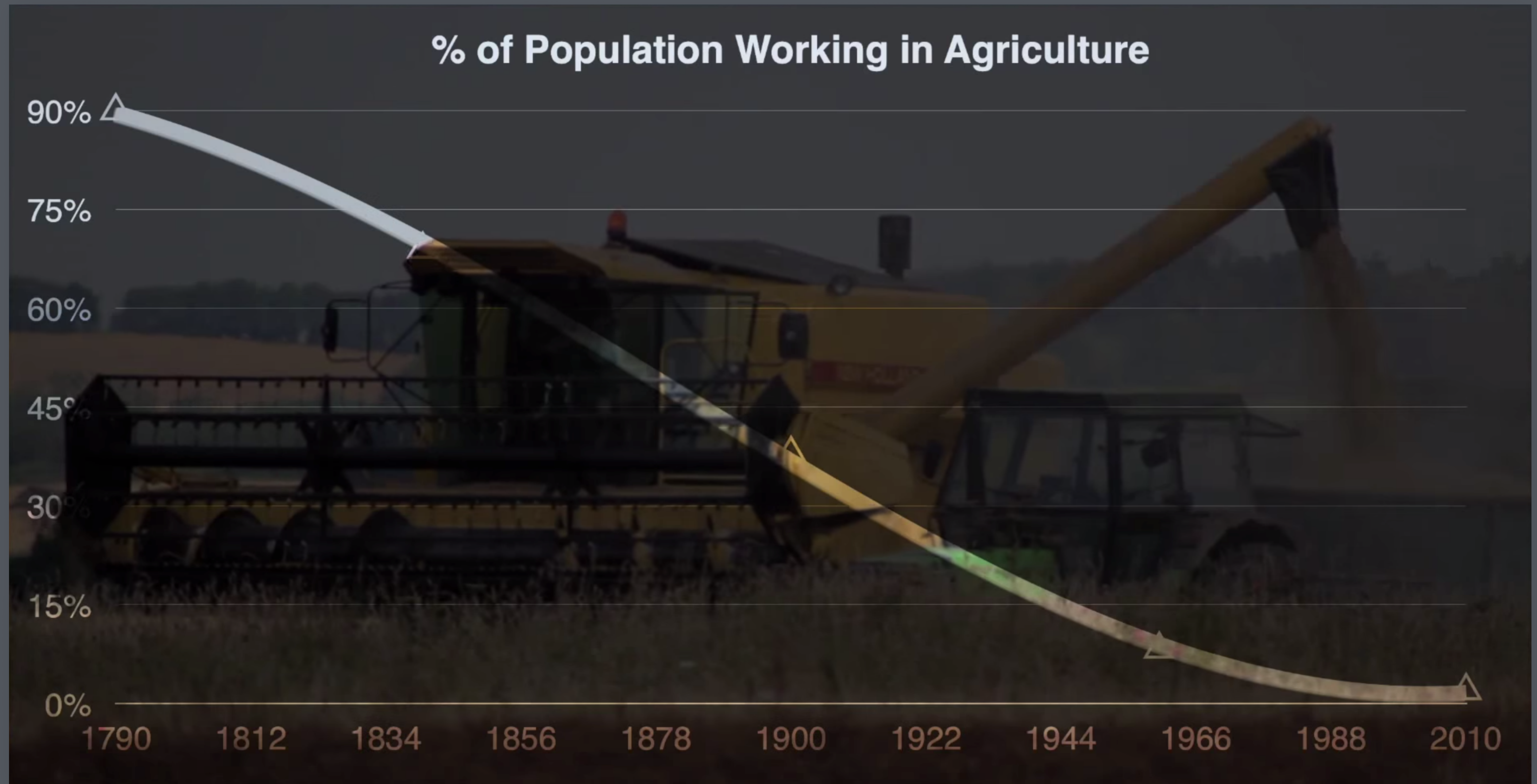
Cecille De Jesus

May 11, 2016

The deal means CC's lawyers will be able to use the AI software for tasks such as document review in M&A due diligence.

The firm said it has already used AI technology in several other applications but declined to provide details.

AUTOMATION **WILL TAKE** THE JOBS IT **CAN TAKE**



IT'S NOT IMMIGRANTS, IT'S AUTOMATION!



PELLENC OPTIMUM

FleetMon.prototype.updateVesselFeature_ = function(feature, vessel) {

MASSIVE IMPACT ON THE WORKPLACE & EMPLOYMENT

Dead End Jobs
Below the API

Above
the API
Jobs

Task APIs

Automation

Below
the API
Jobs

Below
the API
Robots

2005

2020?

NEW JOBS FOR YOU:

MEMORY AUGMENTATION THERAPIST

PLANT EDUCATOR

NANO-WEAPON SPECIALIST

DIFFRACTIVE OPTICS MODELER

NEW JOBS FOR YOU:

MEMORY AUGMENTATION THERAPIST

PLANT EDUCATOR

NANO-WEAPON SPECIALIST

DIFFRACTIVE OPTICS MODELER



1 Principal Optical Engineer - Diffractive Optics Design & Development - ALL RESUMES NEED TO BE REASSIGNED

Dania Beach, FL • Full-time

Company Description

Magic Leap is an eclectic group of visionaries, rocket scientists, wizards, and gurus from the fields of film, robotics, visualization, software, computing, and user experience. We are growing quickly, and this is the time to get on board and play a role in shaping the way people will be interacting with the world tomorrow.

Job Description

The Senior Diffractive Optics Designer/Modeler to work within an optical engineering and rapid prototyping team to provide diffractive optics models and designs for digital and analog DOE prototyping and fabrication. This individual will provide on-demand, iterative support for in-house and external component prototyping efforts, and will work with other technicians and engineers to integrate relevant theory, compile requirements, coordinate design reviews, transfer data to manufacturing, and validate results by specifying testing parameters and methodologies as required.

The Senior Diffractive Optics Designer/Modeler will have significant experience in relevant diffractive optics design and modeling software and simulation tools, and will have the ability to modify and create new tools and models relevant to the requirements established by the team. This individual will collaborate with other designers, engineers and technicians producing optical components. The candidate should have significant experience with the responsibilities of the position, be able to work meticulously, independently and be prompt and responsive in delivery of high quality work.

Responsibilities

- Identify and assist in procuring necessary design, modeling and simulation

THIS WAS
2015...



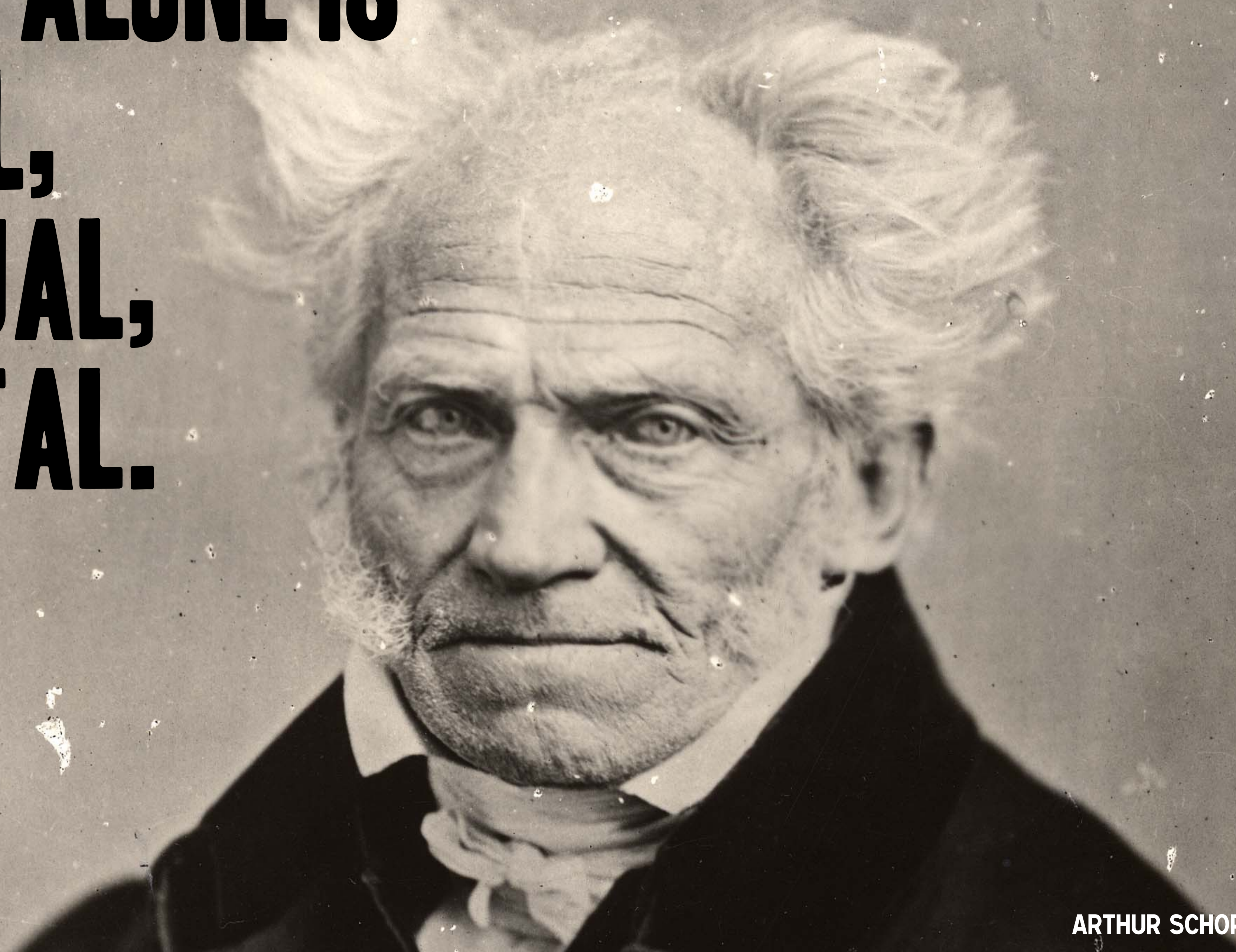
KURZWEIL TL;DR

KURZWEIL TL;DR

FASTER COMPUTING > FASTER INNOVATION
> FASTER SOLUTIONS TO HARD PROBLEMS >
ALL DISEASES, HUNGER, ENERGY, ETC SOLVED
> IMMORTALITY > BODIES BECOME
OBSOLETE, PEOPLE WILL ONLY BE MINDS >
ONE INTERCONNECTED MIND ACROSS MANKIND

CHANGE

CHANGE ALONE IS
**ETERNAL,
PERPETUAL,
IMMORTAL.**



ARTHUR SCHOPENHAUER, 1788-1860



“What if we don’t change at all ...
and something magical just happens?”


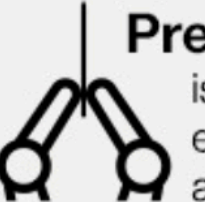




WHERE DO WE GO FROM HERE?

1. REBUILD SOCIETY (TALK NEXT TIME)
2. TACTICAL STEPS
3. EDUCATION, ECUCATION, ECUCATION

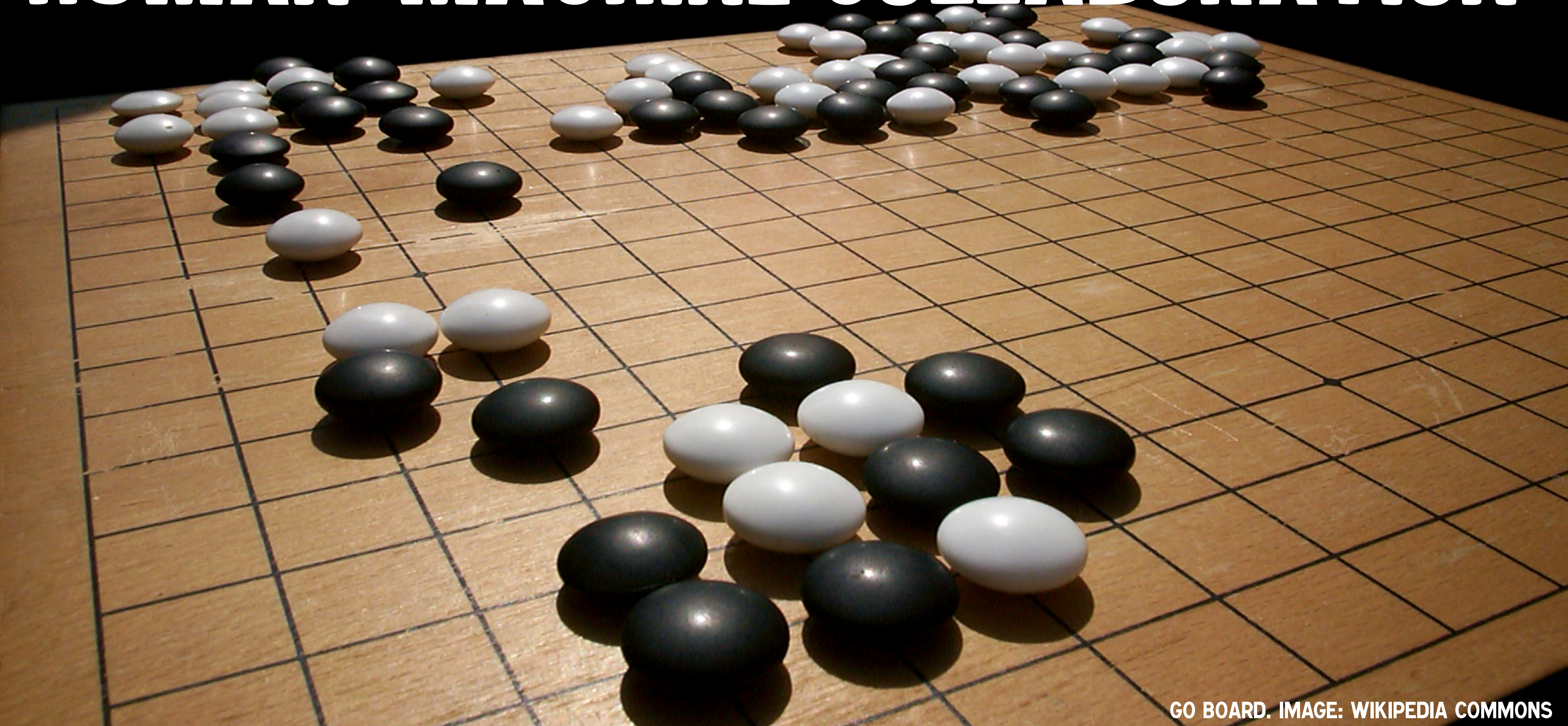
HUMAN-MACHINE COLLABORATION



(STOP GAP)

 <p>World's first truly collaborative human sized dual-arm robot</p>	 <p>Precise YuMi® is accurate enough to thread a needle</p>	 <p>Safe Integrated collision detection, soft padding and eliminated pinch points</p>
 <p>Increased speed, precision and product quality</p>	 <p>Intuitive lead-through programming requires no special training or programming skills</p>	 <p>Reduced waste and inefficiencies</p>

HUMAN-MACHINE COLLABORATION



WHAT IS SPECIFICALLY HUMAN?



MADE WITH LOVE

Valsa Hiesut
15/01/2015

Angesprochen stark im Schmelz mit Kiste neitibert zu A



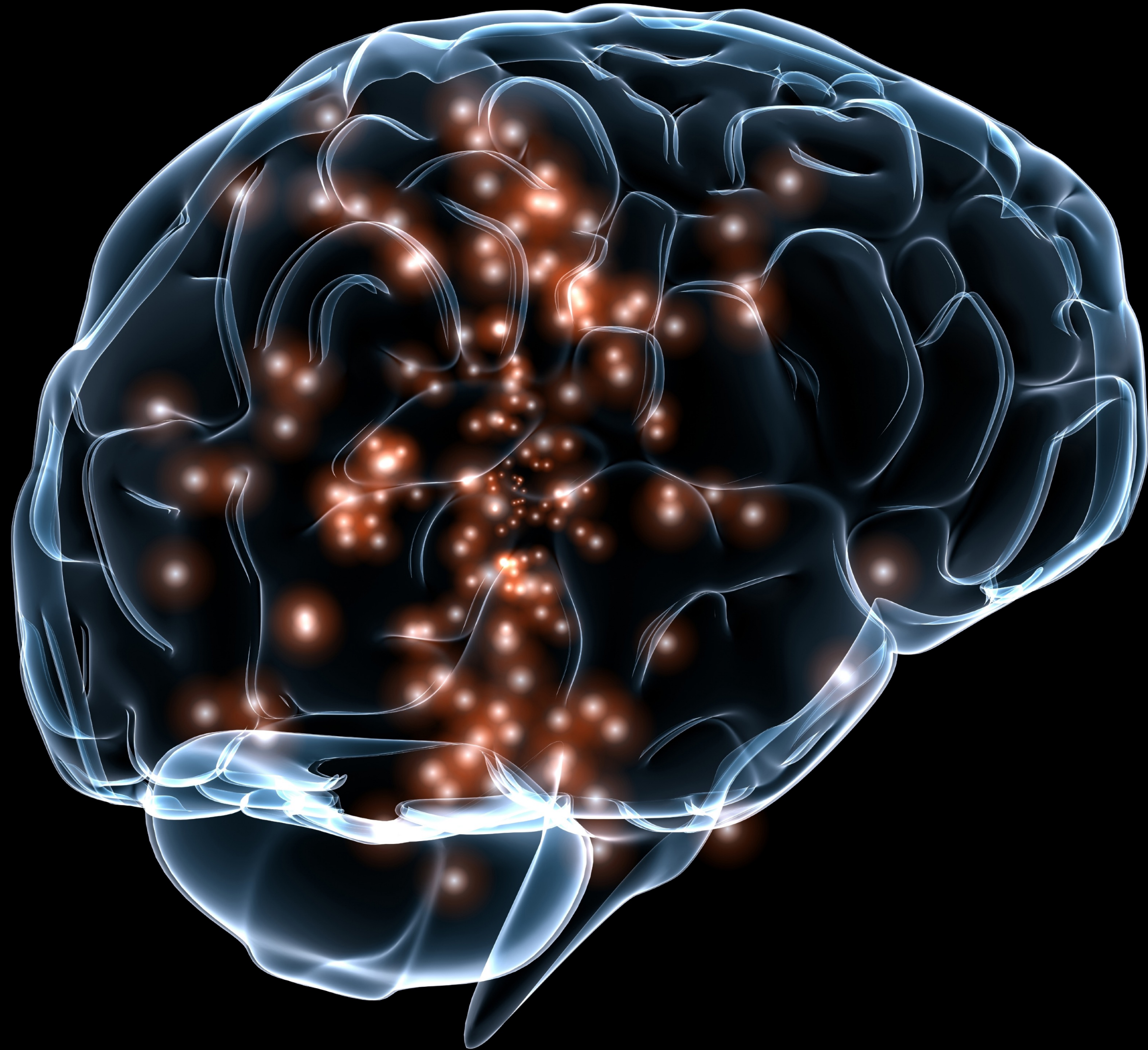
EMPATHY



CREATIVITY



CRITICAL THOUGHT





**RIDE THE TRAIN,
DON'T JUMP IN FRONT OF IT**

THANK YOU!



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ME@VHIRSCH.COM