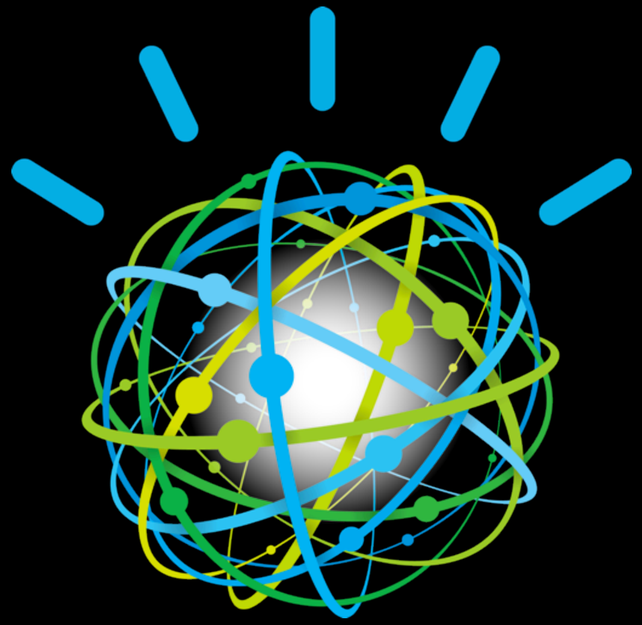
Leveraging Data, Machine Learning and AI in your Product and Business

Rich Edwards

@RichEdwards

Why Care/Listen to Me



MINDSPAN

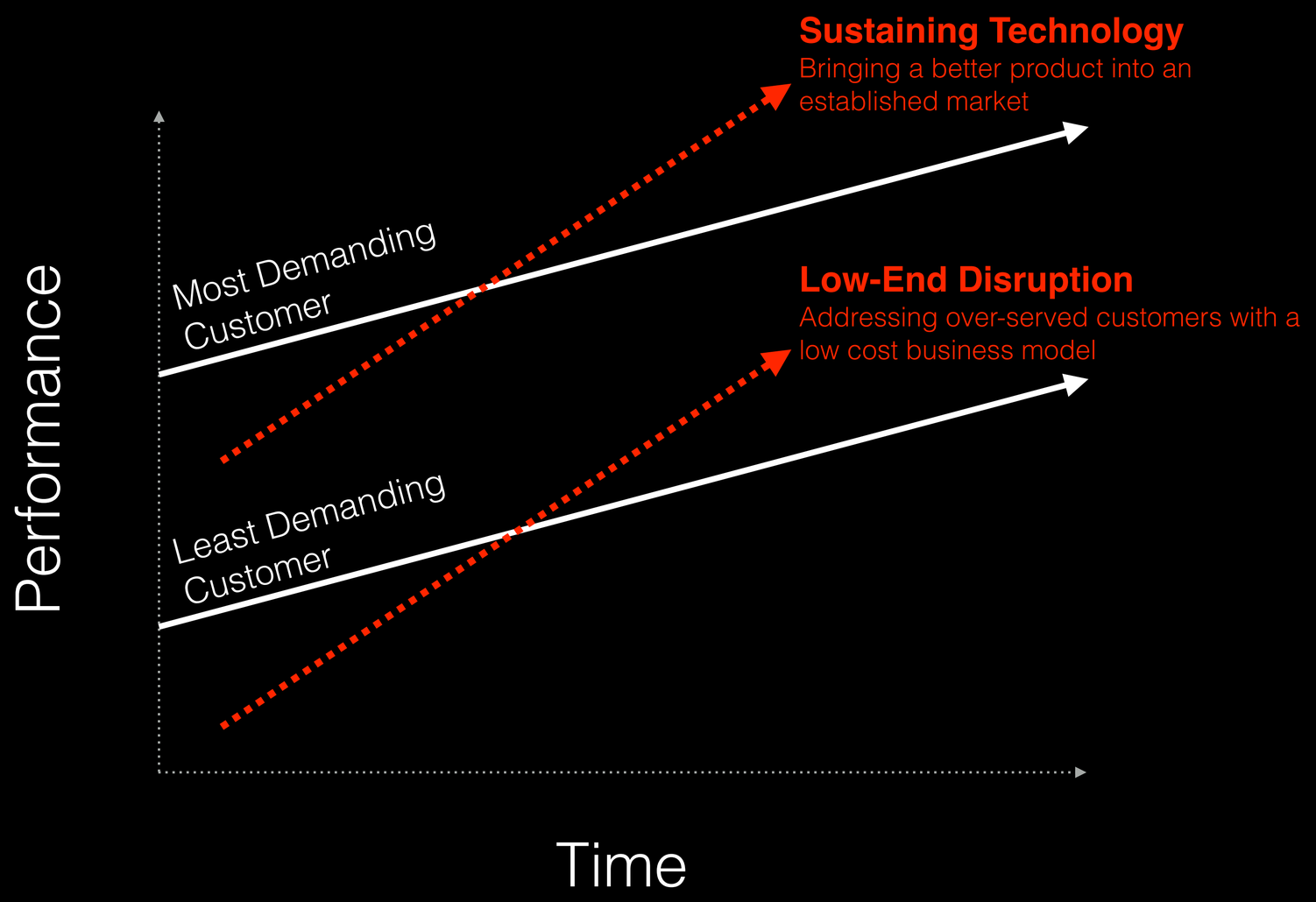
SYSTEMS

Data is Where it's At

- Data is valuable, if managed properly the source of competitive advantage
- Barriers to entry ML/AI technology/ methods are lower than ever
- Leverage your data (structured and unstructured) with ML/AI to give your self an unfair advantage (operational efficiency, speed to market, customer experience, RTM)
- "There's Always Money in the Banana Stand"

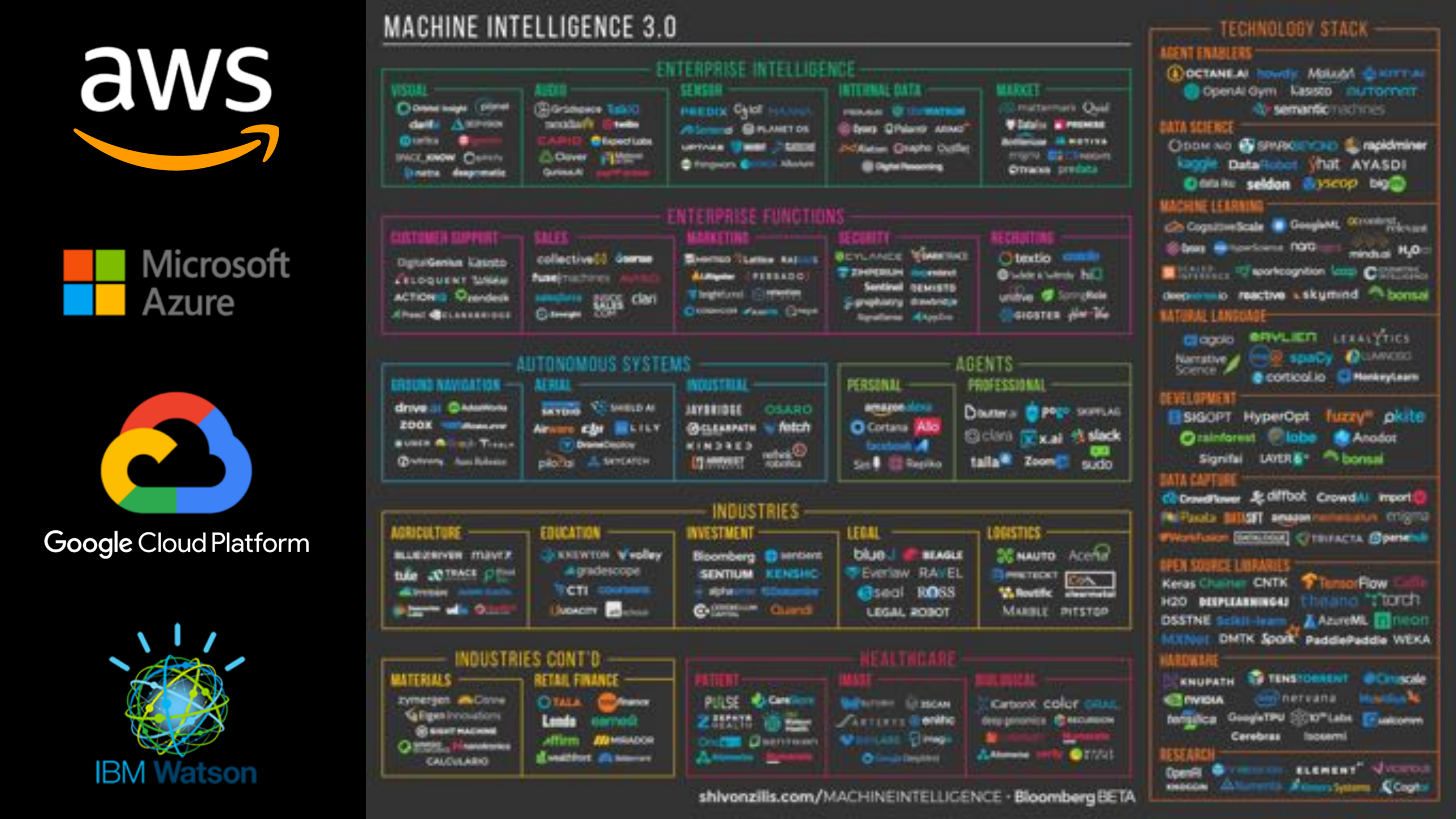
Framing Problems for Machine Intelligence

- Disruption vs. Innovative Improvements
- The limits of capabilities and “hammeritis”


Sustaining Technology
Bringing a better product into an established market
Low-End Disruption
Addressing over-served customers with a low cost business model
Most Demanding Customer
Least Demanding Customer
Performance
Time

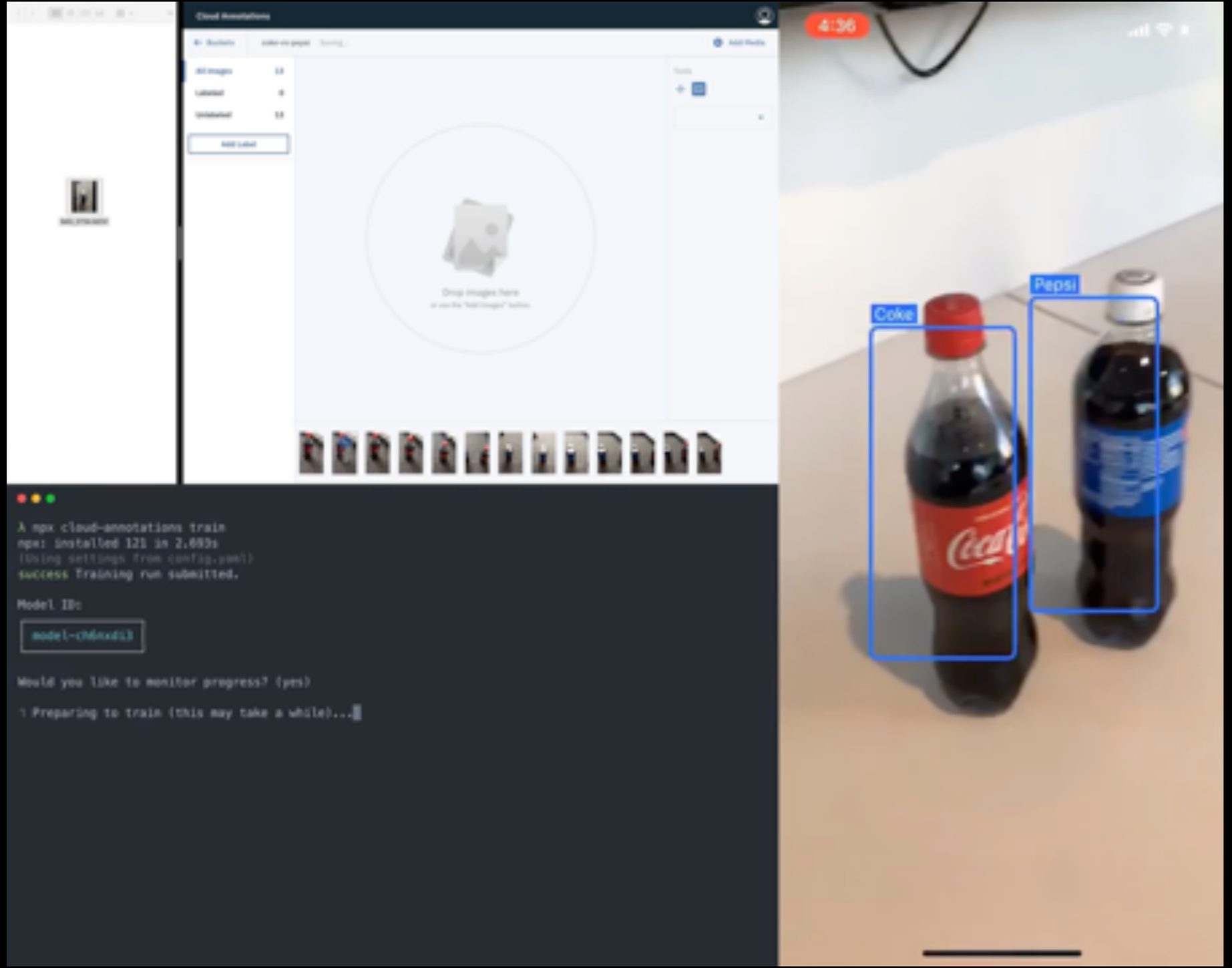
Types of ML Capabilities

- Classification/Anonomly Detection
- Regression (forecasting)
- Clustering (what are the patterns in this data)
- Recommendation (given a history of events, what might be next)
- Generation (particularly NLP)


aws
Microsoft Azure
Google Cloud Platform
IBM Watson
MACHINE INTELLIGENCE 3.0
ENTERPRISE INTELLIGENCE
VISUAL
AUDIO
SENSOR
INTERNAL DATA
MARKET
ENTERPRISE FUNCTIONS
CUSTOMER SUPPORT
SALES
MARKETING
SECURITY
RECRUITING
AUTONOMOUS SYSTEMS
GROUND NAVIGATION
AERIAL
INDUSTRIAL
AGENTS
PERSONAL
PROFESSIONAL
INDUSTRIES
AGRICULTURE
EDUCATION
INVESTMENT
LEGAL
LOGISTICS
INDUSTRIES CONT'D
MATERIALS
RETAIL FINANCE
HEALTHCARE
PATIENT
IMAGE
BIOLOGICAL
TECHNOLOGY STACK
AGENT ENABLERS
DATA SCIENCE
MACHINE LEARNING
NATURAL LANGUAGE
DEVELOPMENT
DATA CAPTURE
OPEN SOURCE LIBRARIES
HARDWARE
RESEARCH
shivonzilis.com/MACHINEINTELLIGENCE · Bloomberg BETA

Open Source


Coke


Cloud Annotations
Drop images here
$ npx cloud-annotations train
npx: installed 121 in 2.603s
Using settings from config.yaml
Success Training run submitted.
Model ID:
model-ch6nxd1j
Would you like to monitor progress? (yes)
Preparing to train (this may take a while)...
4:36
Coke
Pepsi


Promote
#IBMDroneDrop
- Coder Challenge
- use Tello Drones
- 1500 drones/5 weeks
- npm - npm
IN Watson Studio


宅急便
L,2L
B

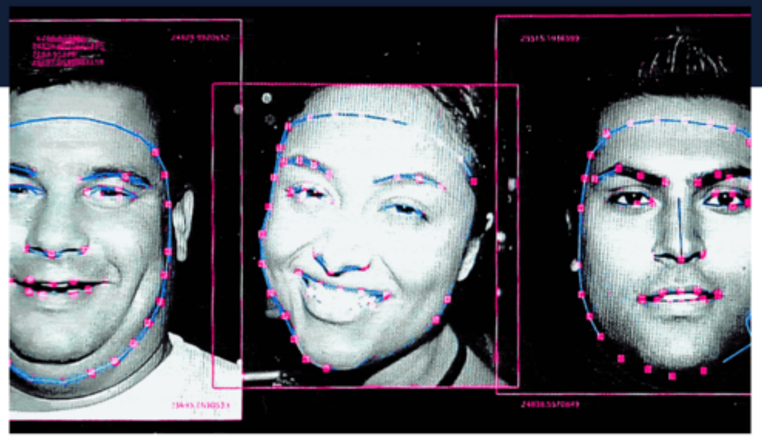

TEST SWITCH MOTION


HERE
BE
DRAGONS
HELGALA

TECH & MEDIA

Facial recognition's 'dirty little secret': Millions of online photos scraped without consent

People's faces are being used without their permission, in order to power technology that could eventually be used to surveil them, legal experts say.



Erik Carter for NBC News / Source photography courtesy Greg Peverill-Conti

Google Street View image of a house predicts car accident risk of its resident

Kinga Kita, Łukasz Kidziński

(Submitted on 10 Apr 2019)

Road traffic injuries are a leading cause of death worldwide. Proper estimation of car accident risk is critical for appropriate allocation of resources in healthcare, insurance, civil engineering, and other industries. We show how images of houses are predictive of car accidents. We analyze 20,000 addresses of insurance company clients, collect a corresponding house image using Google Street View, and annotate house features such as age, type, and condition. We find that this information substantially improves car accident risk prediction compared to the state-of-the-art risk model of the insurance company and could be used for price discrimination. From this perspective, public availability of house images raises legal and social concerns, as they can be a proxy of ethnicity, religion and other sensitive data.

Subjects: **Applications (stat.AP)**
Cite as: arXiv:1904.05270 [stat.AP]
(or arXiv:1904.05270v1 [stat.AP] for this version)

Submission history

From: Łukasz Kidziński [view email]
[v1] Wed, 10 Apr 2019 16:16:31 UTC (689 KB)

Which authors of this paper are endorsers? | Disable MathJax (What is MathJax?)

The New York Times

One Month, 500,000 Face Scans: How China Is Using A.I. to Profile a Minority

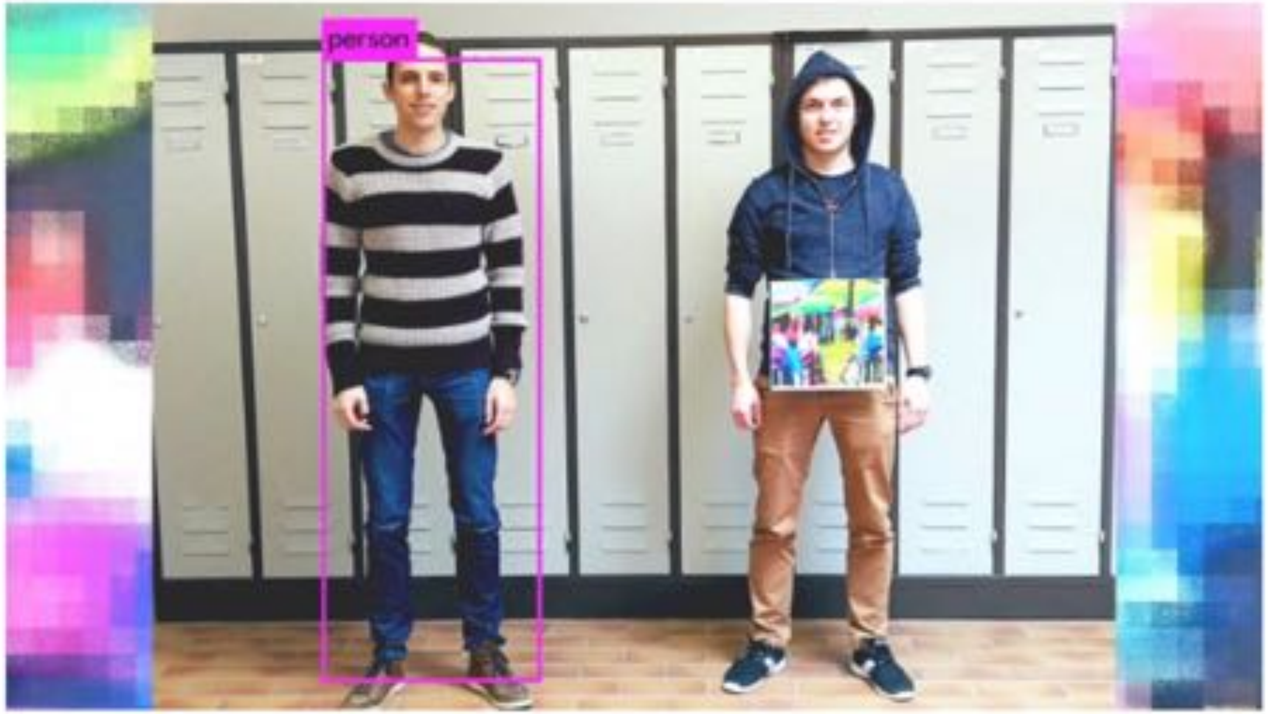
In a major ethical leap for the tech world, Chinese start-ups have built algorithms that the government uses to track members of a largely Muslim minority group.

SenseTime is among the Chinese artificial intelligence companies developing facial recognition technology.
Gilles Sabrié for The New York Times

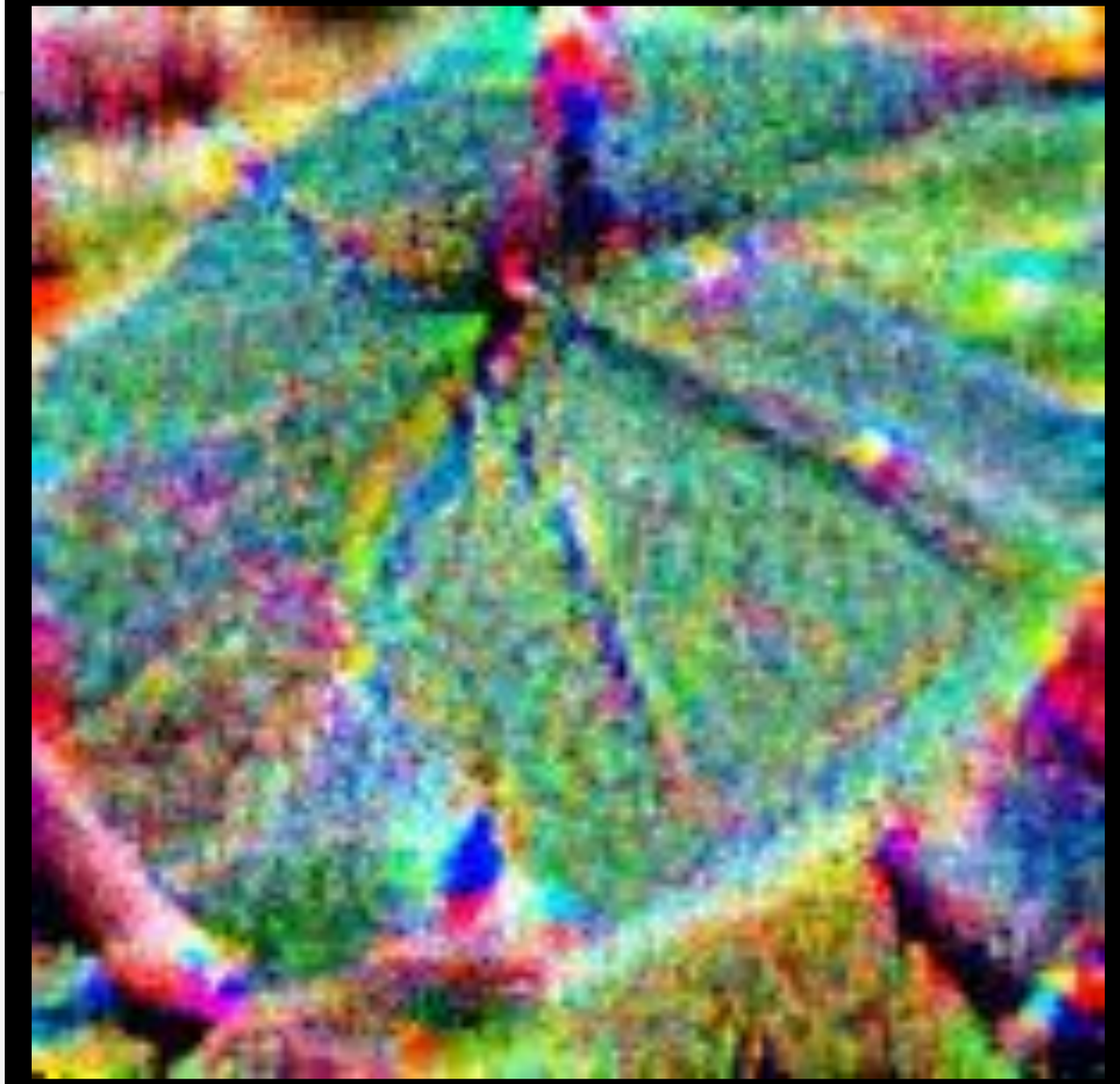
MIT Technology Review

Artificial Intelligence Apr 23

How to hide from the AI surveillance state with a color printout



AI-powered video technology is becoming ubiquitous, tracking our faces and bodies through stores, offices, and public spaces. In some countries the technology constitutes a powerful new layer of policing and government surveillance.



boingboing / CORY DOCTOROW / 4:06 PM SUN MAR 31, 2019

Small stickers on the ground trick Tesla autopilot into steering into opposing traffic lane

Fig 35. In-car perspective when testing, the red circle marks, the interference markings are marked with red circles

Audio Adversarial Examples: Targeted Attacks on Speech-to-Text

Nicholas Carlini David Wagner
University of California, Berkeley

***Abstract*—We construct targeted audio adversarial examples on automatic speech recognition. Given any audio waveform, we can produce another that is over 99.9% similar, but transcribes as any phrase we choose (recognizing up to 50 characters per second of audio). We apply our white-box iterative optimization-based attack to Mozilla's implementation DeepSpeech end-to-end, and show it has a 100% success rate. The feasibility of this attack introduce a new domain to study adversarial examples.**

I. Introduction

As the use of neural networks continues to grow, it is critical to examine their behavior in adversarial settings. Prior work [8] has shown that neural networks are vulnerable to *adversarial examples* [40], instances x' similar to a natural instance x, but classified by a neural network as any (incorrect) target t chosen by the adversary.

Existing work on adversarial examples has focused largely

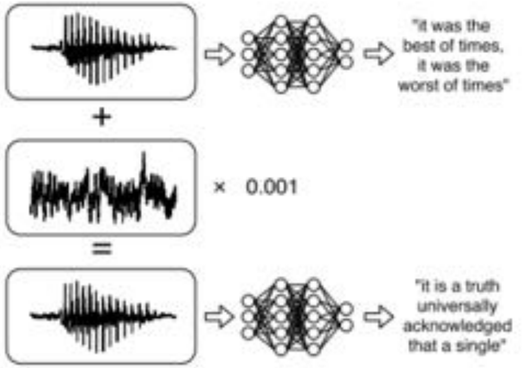


Figure 1. Illustration of our attack: given any waveform, adding a small perturbation makes the result transcribe as any desired target phrase.

That is, just as for cars, or aircraft, or databases, these systems can be both extremely powerful and extremely limited, and depend entirely on how they're used by people, and on how well or badly intentioned and how educated or ignorant people are of how these systems work.

Hence, it is completely false to say that 'AI is maths, so it cannot be biased'. But it is equally false to say that ML is 'inherently biased'. ML finds patterns in data - what patterns depends on the data, and the data is up to us, and what we do with it is up to us. **Machine learning is much better at doing certain things than people, just as a dog is much better at finding drugs than people, but you wouldn't convict someone on a dog's evidence. And dogs are much more intelligent than any machine learning.**

Benedict Evans

https://www.ben-evans.com/benedictevans/2019/4/15/notes-on-ai-bias

A starter reading list

- Fortune's Eye on AI Newsletter (http://fortune.com/newsletter/eye-on-ai/)
- Google’s The Lever (https://medium.com/thelaunchpad) and AI blog (https://ai.googleblog.com/)
- Facebook Research (https://research.fb.com)
- Nick Bourdakos, IBM Developer Advocate (https://hackernoon.com/@bourdakos1)
- Andrew Ng’s Coursera ML Course (https://www.coursera.org/learn/machine-learning)
- Superintelligence by Nick Bostrum (https://www.amazon.com/Superintelligence-Dangers-Strategies-Nick-Bostrom/dp/1501227742)
- https://github.com/collections/machine-learning
- https://github.com/josephmisiti/awesome-machine-learning
- https://github.com/onmyway133/fantastic-machine-learning
- Frank Chen’s essay Humanity + AI: Better Together: https://a16z.com/2019/02/22/humanity-ai-better-together/
- Benedict Evans weekly newsletter: https://www.ben-evans.com/newsletter
- Clayton Christensen’s Theory of Disruptive Innovation: https://en.wikipedia.org/wiki/Disruptive_innovation

Questions

Link to reference list and demos:

bit.ly/pcrtp19