Challenges and Opportunities for Artificial Intelligence Policymaking
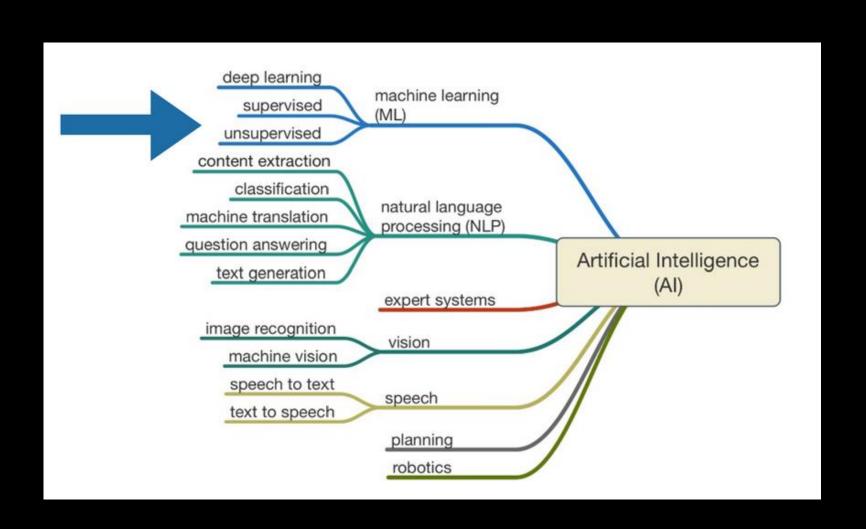
Professor Jason M. Schultz

September 9, 2020

What is Artificial Intelligence?
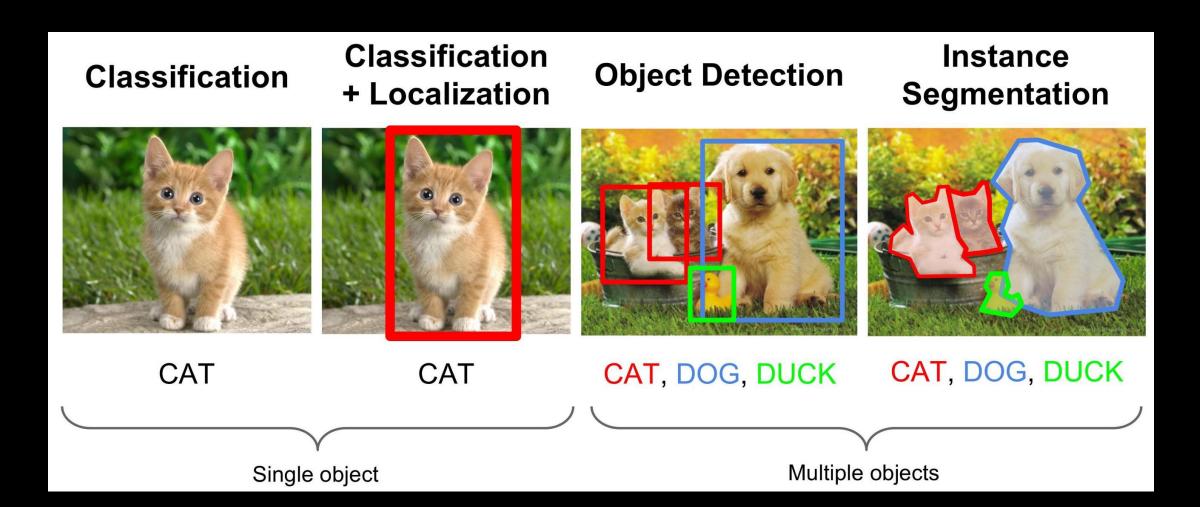
What is Artificial Intelligence?

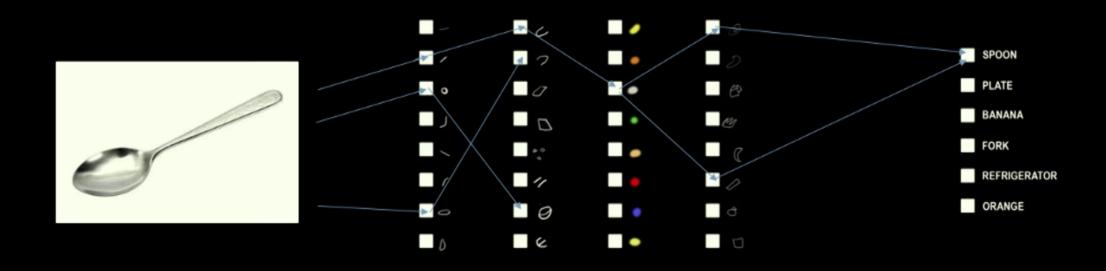# What is Machine Learning?

What is Deep Learning?

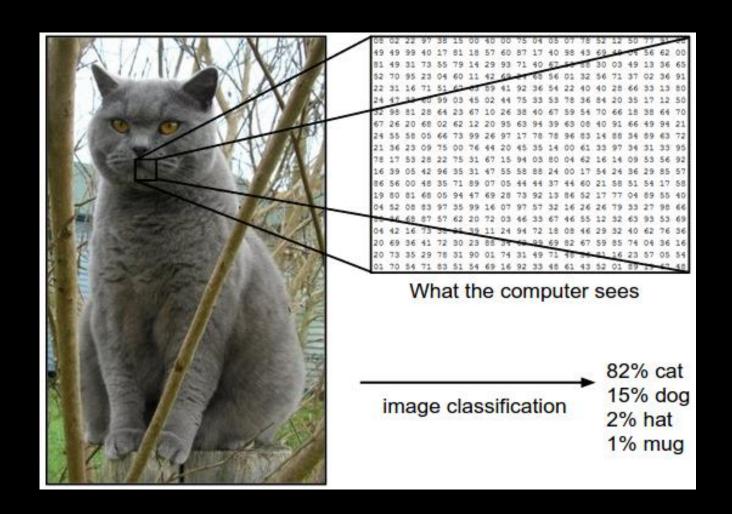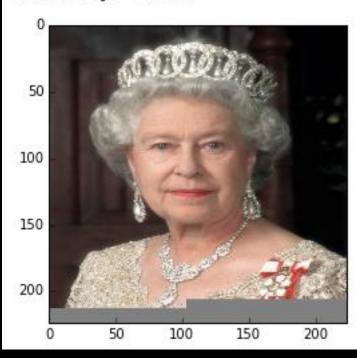| Classification	Classification + Localization	Object Detection	Instance Segmentation
CAT	CAT	CAT, DOG, DUCK	CAT, DOG, DUCK

Single object | Multiple objects

What is Deep Learning?

What Is Deep Learning?

class: 793
label: n04209133 shower cap
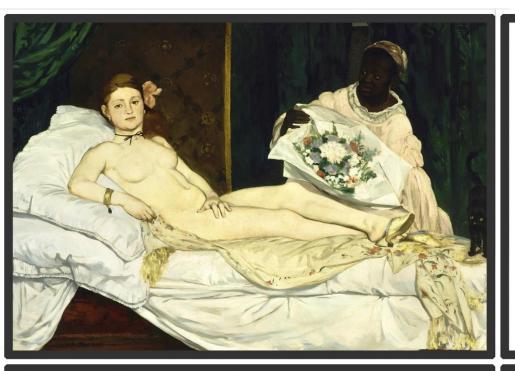certainty: 99.7%

groom
0.239694

vestment
0.0823765
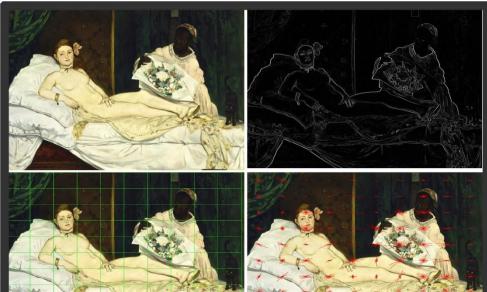
pajama
0.05495
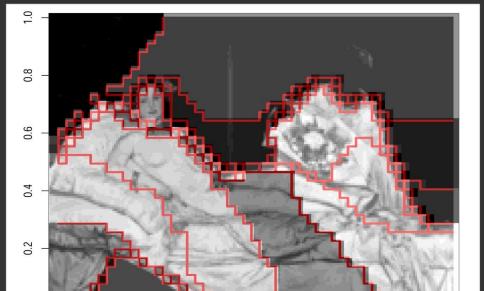
gown
0.0410753

carbonara
0.0386593

burrito
0.0321538

The Problems of Bias and Fairness

(a) Three samples in criminal ID photo set S_c.

(b) Three samples in non-criminal ID photo set S_n

The Problems of Bias and Fairness

Figure 8. (a) FGM results; (b) Three discriminative features ρ, d and θ.
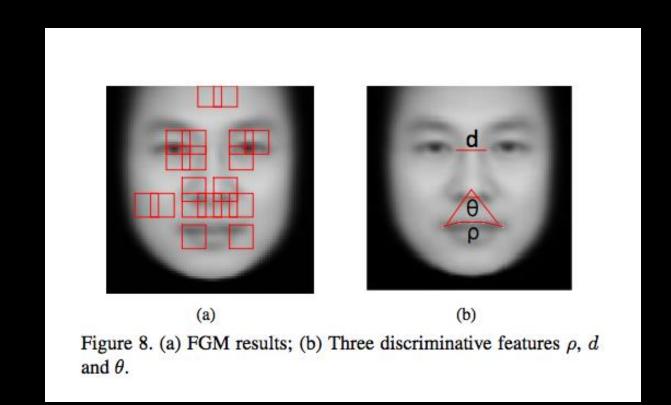
Amazon Rekognition FALSE MATCHES
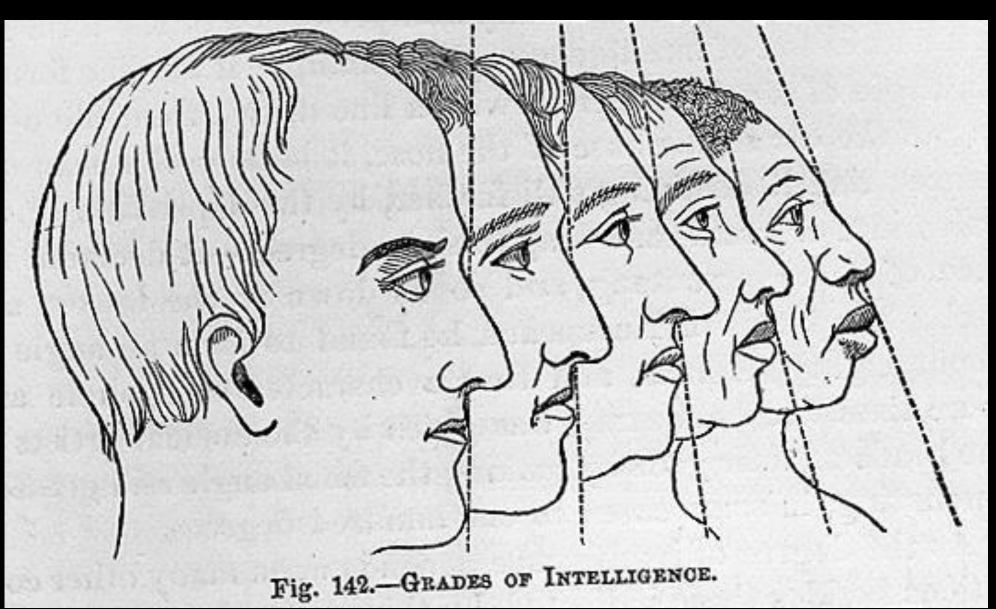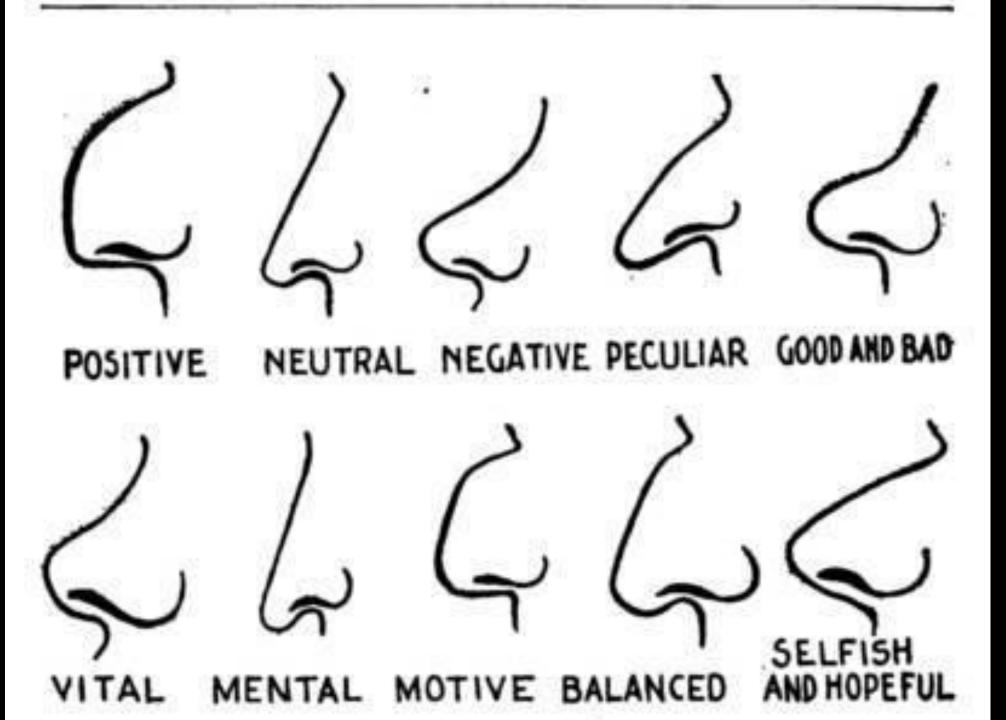
28 current members of Congress

AUG 2

Amazon's
biggest hiring event
of the year

The Problems of Bias and Fairness

Bernard Parker, left, was rated high risk; Dylan Fugett was rated low risk. (Josh Ritchie for ProPublica)

Machine Bias

There's software used across the country to predict future criminals. And it's biased

Fig. 142.—GRADES OF INTELLIGENCE.

POSITIVE   NEUTRAL   NEGATIVE   PECULIAR   GOOD AND BAD

VITAL   MENTAL   MOTIVE   BALANCED   SELFISH AND HOPEFUL

Brand Promoter

Endowed with a high self-confidence, authoritative, charismatic and magnetic personality, with high intellect and high verbal ability. Tends to be kind, sociable and direct, and very practical.

White-Collar Offender

Tends to have a low self-esteem, a high IQ and charisma. Anxious, tensed and frustrated, competitive, ambitious and dominant. Usually loves to take risks and have a dry sense of humor.
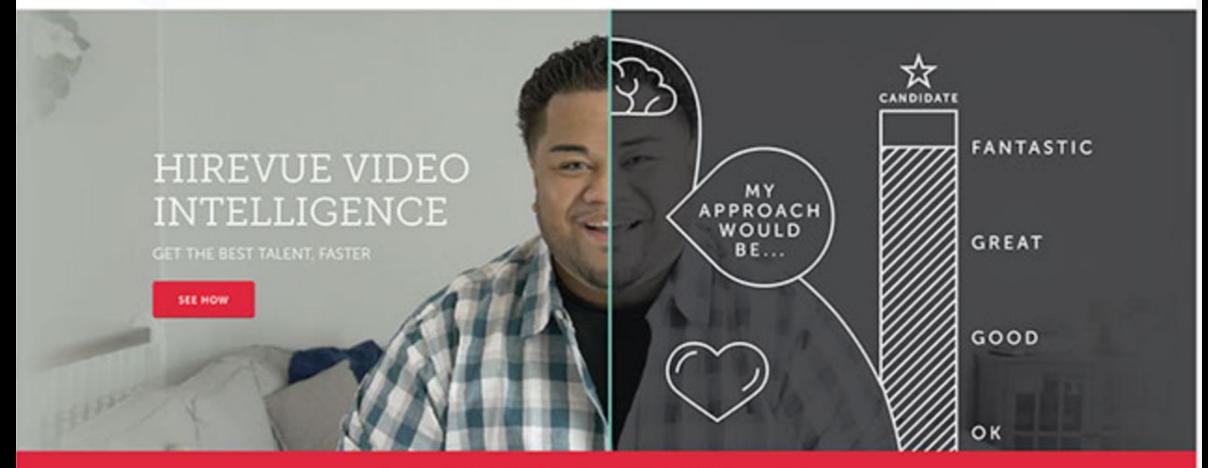
Terrorist
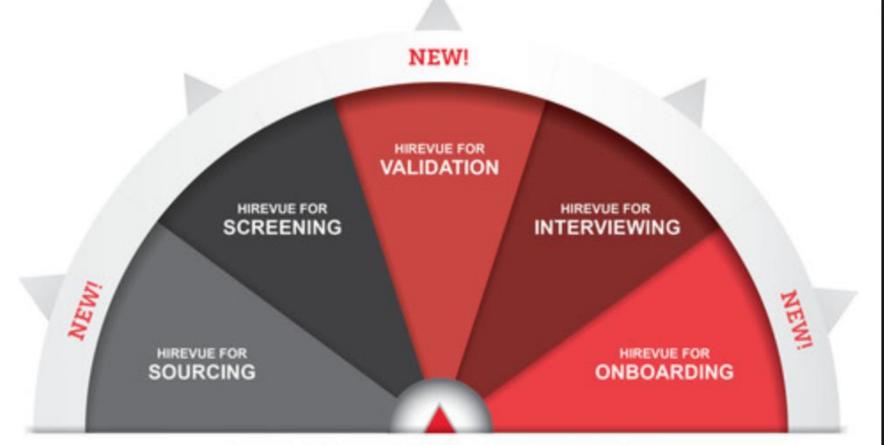
Tends to be aggressive, active, thrill seeking, cruel and psychologically unbalanced. Usually suffers from mood swings, a sense of inferiority and unsettled self-confidence.

Pedophile

Suffers from a high level of anxiety and depression. Introverted, lacks emotion, calculated, tends to pessimism, with low self-esteem, low self image and mood swings.

The Seven Universal Facial Expressions of Emotion

fear

1. eyebrows raised and pulled together
2. raised upper eyelids
3. tensed lower eyelids
4. lips slightly stretched horizontally back to ears

	Composite heterosexual faces	Composite gay faces
Male		
Female		

Average facial landmarks

• gay
• straight

1   AN ACT concerning employment.

2   **Be it enacted by the People of the State of Illinois,**
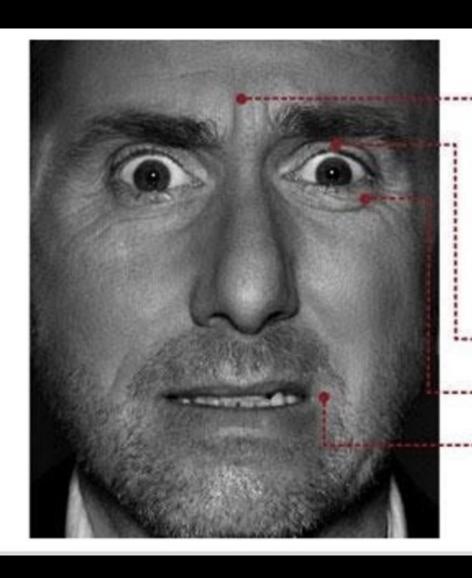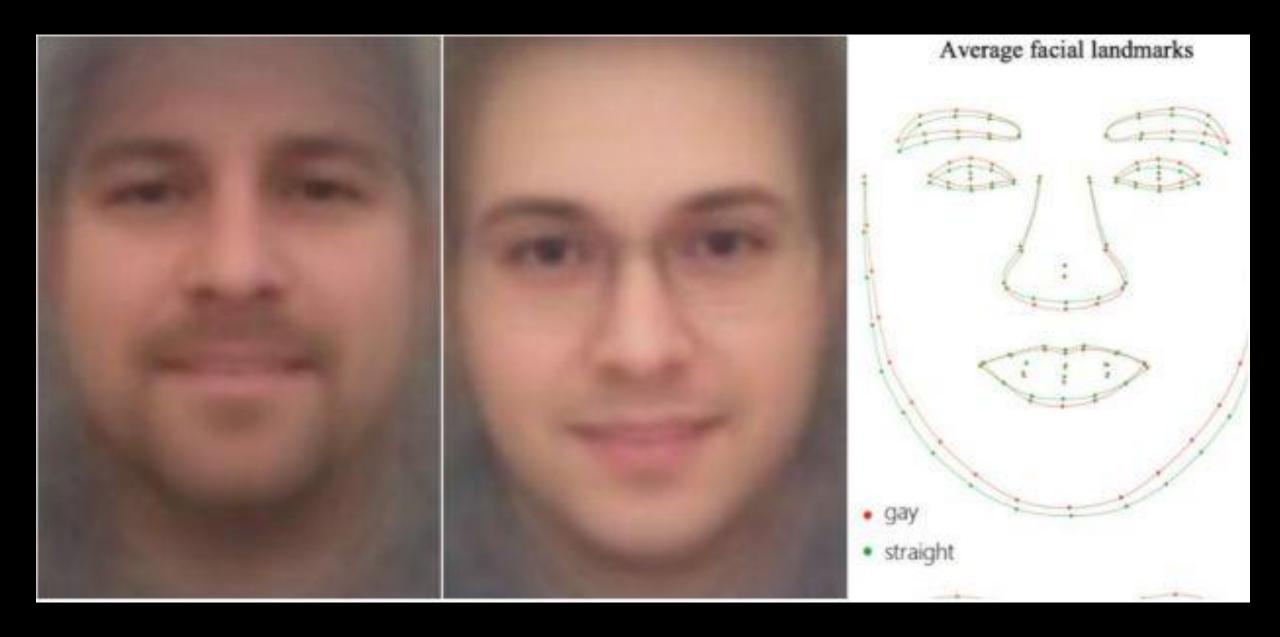3   **represented in the General Assembly:**

4   Section 1. Short title. This Act may be cited as the
5   Artificial Intelligence Video Interview Act.

6   Section 5. <u>Disclosure of the use of artificial intelligence</u>
7   analysis. An employer that asks applicants to record video
8   interviews and uses an artificial intelligence analysis of the
9   applicant-submitted videos shall do all of the following when
10   considering applicants for positions based in Illinois before
11   asking applicants to submit video interviews:
12   (1) <u>Notify each applicant before the interview</u> that
13   artificial intelligence may be used to analyze the
14   applicant's video interview and consider the applicant's
15   fitness for the position.
16   (2) Provide each applicant with information before the
17   interview <u>explaining how the artificial intelligence works</u>
18   and what general types of characteristics it uses to
19   evaluate applicants.
20   (3) Obtain, before the interview, consent from the
21   applicant to be evaluated by the artificial intelligence
22   program as described in the information provided.
23   An employer may not use artificial intelligence to evaluate

Cambridge
Analytica
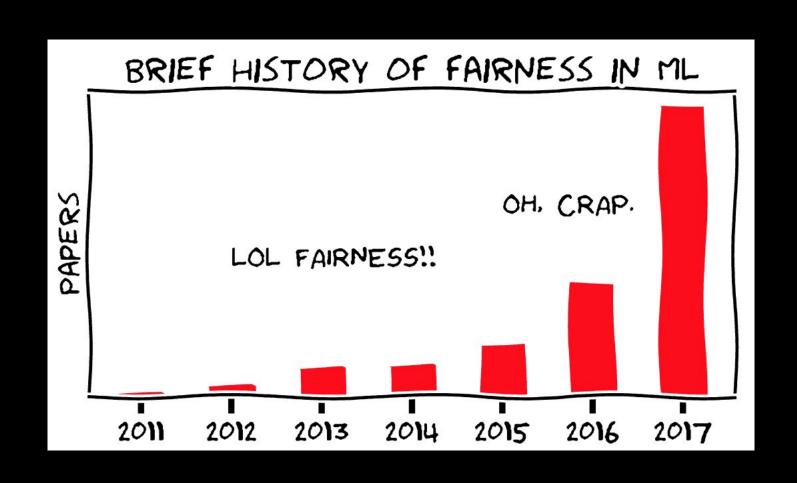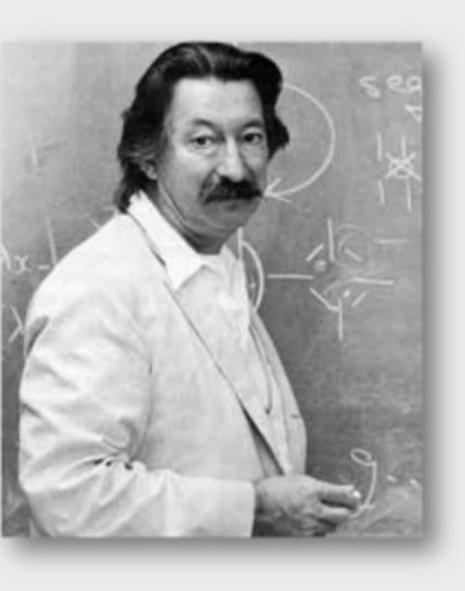
The Problems of Bias and Fairness

> Hello, I am Eliza.
* I am afraid.
> How long have you been afraid?
* Since midterms.
> Tell me more...
* I am afraid that I will fail my course.
> Do you enjoy being afraid that you will fail your course?

FIGURE 93. Eliza in action

Chinese Social Credit Score: Utopian Big Data Bliss Or Black Mirror On Steroids?

Bernard Marr Contributor ⓘ
Enterprise & Cloud

Most of you will be familiar with a financial credit score that rates your financial trustworthiness. It's intended to give creditors an indication of risk and how likely you will repay your loan commitments. With a massive helping hand from high-tech and big data, China is rolling out a social credit scoring system that rates your trustworthiness far beyond that of your financial credit score. Let's take a look at the Chinese Social Credit score system.

Temp: 98.6°F
Mask: Yes

FIG. 1
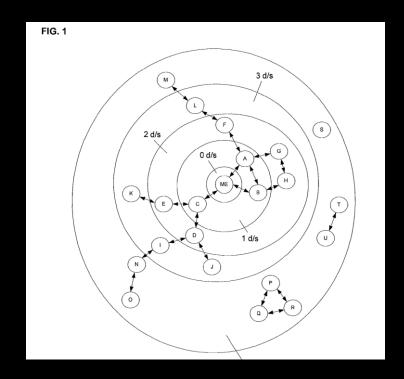
Could a Bank Deny Your Loan Based on Your Facebook Friends?

A recent patent from the company judges your own creditworthiness by your friends.

In a fourth embodiment of the invention, the service provider is a lender. When an individual applies for a loan, the lender examines the credit ratings of members of the individual's social network who are connected to the individual through authorized nodes. If the average credit rating of these members is at least a minimum credit score, the lender continues to process the loan application. Otherwise, the loan application is rejected.

Legal Implications

Business

Facebook agrees to overhaul targeted advertising system for job, housing and loan ads after discrimination complaints

Report: IBM Watson delivered 'unsafe and inaccurate' cancer recommendations

JULY 25, 2018 BY FINK DENSFORD — LEAVE A COMMENT
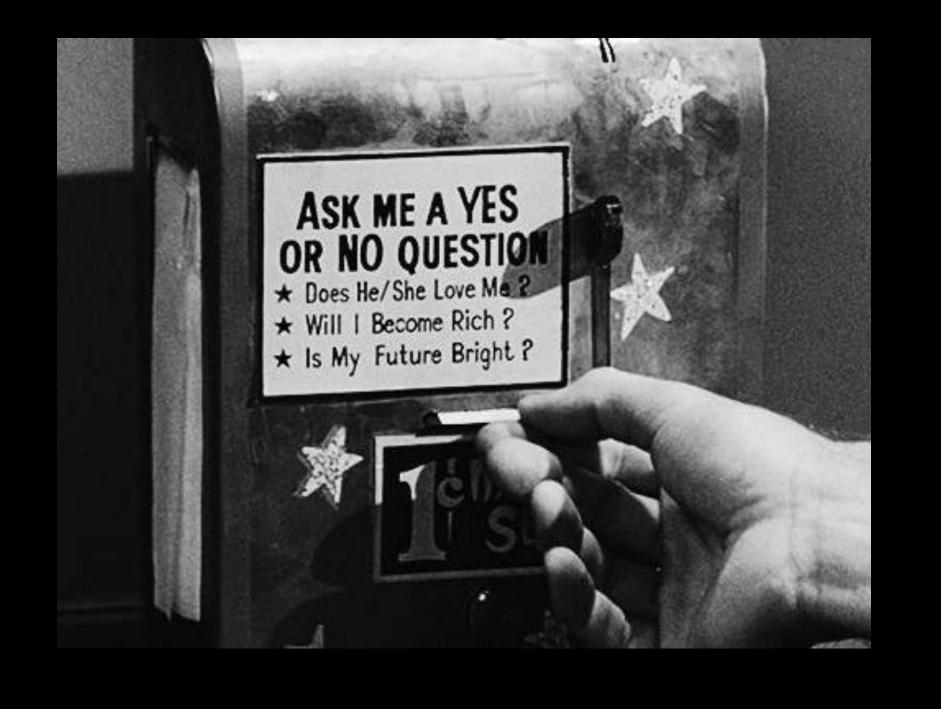
Internal documents from IBM Watson Health (NYSE:IBM) indicate that the company's Watson for Oncology product often returns "multiple examples of unsafe and incorrect treatment recommendations," according to a new report from *STAT News*.

The documents come from slides presented last year by IBM Watson Health's deputy chief health officer, according to the report, and include feedback from customers that indicated the product is "often inaccurate" and that its recommendations bring to light "serious questions about the process for building content and the underlying technology."

The issues were blamed on training the Watson product received by IBM engineers and physicians at the Memorial Sloan Kettering Cancer Center, which included "synthetic," or hypothetical patients and cases, instead of real patient data, *STAT* reports.

LITIGATING ALGORITHMS:

CHALLENGING GOVERNMENT USE OF ALGORITHMIC DECISION SYSTEMS

An AI Now Institute Report

In collaboration with
Center on Race, Inequality, and the Law
Electronic Frontier Foundation
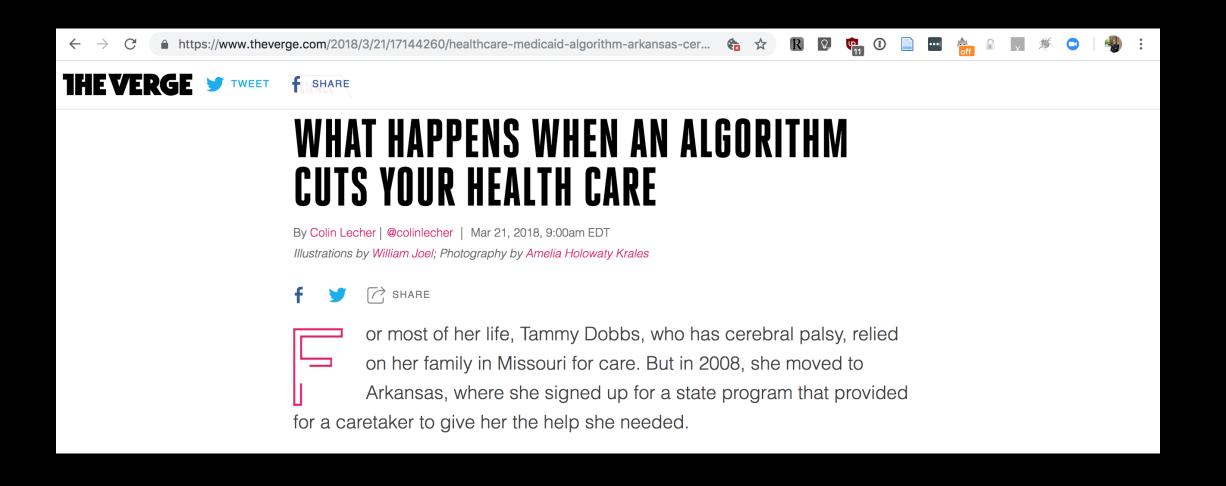
SEPTEMBER 2018

Case Study#1: Medicaid and Gov't benefits

Case Study#1: Medicaid and Gov't benefits

THE VERGE 🐦 TWEET f SHARE

https://www.theverge.com/2018/3/21/17144260/healthcare-medicaid-algorithm-arkansas-cer...

WHAT HAPPENS WHEN AN ALGORITHM CUTS YOUR HEALTH CARE

By Colin Lecher | @colinlecher | Mar 21, 2018, 9:00am EDT

Illustrations by William Joel; Photography by Amelia Holowaty Krales

f 🐦 ↗ SHARE

For most of her life, Tammy Dobbs, who has cerebral palsy, relied on her family in Missouri for care. But in 2008, she moved to Arkansas, where she signed up for a state program that provided for a caretaker to give her the help she needed.

Case Study#2: Public Employee Termination

Case Study#2: Public Employee Termination

"When a public agency adopts a policy of making high stakes employment decisions based on secret algorithms incompatible with minimum due process, the proper remedy is to overturn the policy, while leaving the trade secrets intact."

- Magistrate Judge Steven Smith
- *HFT v. HISD*, 251 F.Supp.3d 1168 (S.D. Tex. 2017)

Case Study #3: Unemployment Benefits

Michigan unemployment agency made 20,000 false fraud accusations - report

Automated system erroneously accused claimants in 93% of cases, state review finds: 'It's balancing the books on the backs of the poorest,' lawyer says

▲ Michigan's governor, Rick Snyder. A government agency in the state made wrongful accusations of fraud in tens of thousands of cases, a state review found. Photograph: Saul Loeb/AFP/Getty Images

Office of the Auditor General
Performance Audit Report

Michigan Integrated Data Automated System (MiDAS)
Unemployment Insurance Agency, Department of Talent and Economic Development and Department of Technology, Management, and Budget

February 2016

Case Study #2: Unemployment Benefits

Did you intentionally provide false information to obtain benefits you were not entitle[d] to receive?

   Yes   No

Why did you believe you were entitled to benefits?

1. I needed the money
2. I had not received payment when I reported for benefits
3. I reported the net dollar amount instead of the gross dollar amount paid
4. I did not understand how to report my earnings or separation reason
5. I thought my employer reported my earnings for me
6. Someone else certified (reported) for me
7. Someone else filed my claim for me
8. Other

Case Study #2: Unemployment Benefits

LANSING, MI - Under new management, the state's Unemployment Insurance Agency has completed a review of unemployment fraud findings between Oct. 2013 and Aug. 2015, when a state computer system was incorrectly flagging people for fraud.

People flagged as fraudsters were assessed 400 percent fines and saw things like wage garnishments or the seizure of tax returns if they didn't pay.

> **'Making us feel like criminals;' How a computer system labeled Michiganders as fraudsters**
> A 2013 computer system change labeled thousands as having defrauded the state.

The state reviewed a total of 62,784 cases in which people were assessed a fraud penalty and did not seek an appeal. Of those, 40,195 were originally resolved by the computer program alone, and 22,589 had some level of human involvement.

Of the cases judged solely by the computer program, the state reversed 34,018, or about 85 percent of the computer program's decisions. Of the cases with some human involvement, the state reversed about 44 percent, or 9,910 of the decisions.

Michigan Supreme Court ruling lets lawsuit against state in unemployment fraud scandal move forward

Updated Apr 5, 2019; Posted Apr 5, 2019

AI Systems as State Actors?

AI Systems as State Actors?

West v. Atkins, **487 U.S. 42, 55-56 (1988)** (finding private physician personally constitutionally liable for failure to provide adequate medical care to prisoners):

"It is the physician's function within the state system, not the precise terms of his employment, that determines whether his actions can fairly be attributed to the State."

AI Systems as State Actors?

Cahoo v. SAS, Inc., **322 F.Supp.3d 772, 784-5 (E.D. Mich 2018):**

"There is no question these contracted companies and individuals, working along side State officials, played some role in implementing a defective system that placed a significant financial burden on unemployment beneficiaries, and they acted under color of state law when doing so."

Compliance Implications

POLICY \ US & WORLD \ TECH

A new bill would force companies to check their algorithms for bias

By Adi Robertson | @thedextriarchy | Apr 10, 2019, 3:52pm EDT

IN THE SENATE OF THE UNITED STATES

Mr. WYDEN (for himself and Mr. BOOKER) introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To direct the Federal Trade Commission to require entities that use, store, or share personal information to conduct automated decision system impact assessments and data protection impact assessments.

1 Be it enacted by the Senate and House of Representa-
2 tives of the United States of America in Congress assembled,
3 **SECTION 1. SHORT TITLE.**
4   This Act may be cited as the "Algorithmic Account-
5 ability Act of 2019".

H-0758.1

HOUSE BILL 1655

State of Washington   66th Legislature   2019 Regular Session

By Representatives Hudgins, Shea, Morris, Kloba, and Valdez

Read first time 01/25/19.   Referred to Committee on Innovation, Technology & Economic Development.

1   AN ACT Relating to establishing guidelines for government
2 procurement and use of automated decision systems in order to protect
3 consumers, improve transparency, and create more market
4 predictability; adding a new section to chapter 49.60 RCW; and adding
5 a new chapter to Title 43 RCW.

ALGORITHMIC IMPACT ASSESSMENTS:
A PRACTICAL FRAMEWORK FOR PUBLIC AGENCY ACCOUNTABILITY

Dillon Reisman, Jason Schultz, Kate Crawford, Meredith Whittaker

APRIL 2018

AINOW

AN ACT
RELATING TO CRIMINAL PROCEDURE; AMENDING CHAPTER 19, TITLE 19, IDAHO CODE,
BY THE ADDITION OF A NEW SECTION 19-1910, IDAHO CODE, TO PROVIDE CERTAIN
REQUIREMENTS FOR PRETRIAL RISK ASSESSMENT TOOLS AND TO DEFINE A TERM.

Be It Enacted by the Legislature of the State of Idaho:

SECTION 1. That Chapter 19, Title 19, Idaho Code, be, and the same is hereby amended by the addition thereto of a <u>NEW SECTION</u>, to be known and designated as Section 19-1910, Idaho Code, and to read as follows:

19-1910. <u>PRETRIAL RISK ASSESSMENT TOOLS</u>. (1) All pretrial risk assessment tools shall be transparent, and:

(a) All documents, data, records, and information used by the builder to build or validate the pretrial risk assessment tool and ongoing documents, data, records, and written policies outlining the usage and validation of the pretrial risk assessment tool shall be open to public inspection, auditing, and testing;

(b) A party to a criminal case wherein a court has considered, or an expert witness has relied upon, a pretrial risk assessment tool shall be entitled to review all calculations and data used to calculate the defendant's own risk score; and

(c) No builder or user of a pretrial risk assessment tool may assert trade secret or other intellectual property protections in order to quash discovery of the materials described in paragraph (a) of this subsection in a criminal or civil case.

(2) For purposes of this section, "pretrial risk assessment tool" means a pretrial process that creates or scores particular factors in order to estimate a person's level of risk to fail to appear in court, risk to commit a new crime, or risk posed to the community in order to make recommendations as to bail or conditions of release based on such risk, whether made on an individualized basis or based on a grid or schedule.

	GDPR		CCPA
Scope	EU personal data *processed*	)(	California residents' personal data *collected*
Right to access	Right to access all EU personal data processed	)(	Right to access California personal data collected in last 12 months, delineated between sold and transferred
Right to portability	Must export and import certain EU personal data in a user-friendly format	)(	All access requests must be exported in user-friendly format, but there is no import requirement
Right to correction	Right to correct errors in EU personal data processed	✖	Not included in CCPA
Right to stop processing	Right to withdraw consent or otherwise stop processing of EU personal data	)(	Right to opt-out of selling personal data only; must include opt-out link on website
Right to stop automated decision-making	Right to require a human to make decisions that have a legal effect	✖	Not included in CCPA
Right to stop third-party transfer	Right to withdraw consent for data transfers involving second purposes of special categories of data	)(	Right to opt-out of selling personal data to third parties
Right to erasure	Right to erase EU personal data, under certain conditions	≈	Right to erase personal data collected, under certain conditions
Right to equal services and price	At most, implicitly required	( )	Explicitly required
Private right of action damages	No floor or ceiling	)(	Floor of $100 and ceiling of $750 per consumer per incident
Regulator enforcement penalties	Ceiling of 4% of global annual revenues	( )	No ceiling - $7,500 per violation

)(Narrower   ( ) Broader   ≈ Similar   ✖ Absent

Big Tech's 'dark patterns' could be outlawed under new Senate bill

It's one of the first bills expected out of Warner's office
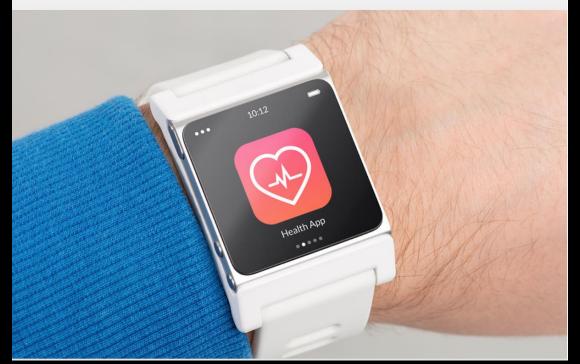
By Makena Kelly | @kellymakena | Apr 9, 2019, 1:13pm EDT

A BILL

To prohibit the usage of exploitative and deceptive practices by large online operators and to promote consumer welfare in the use of behavioral research by such providers.

1   *Be it enacted by the Senate and House of Representa-*

2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4   This Act may be cited as the "Deceptive Experiences

5 To Online Users Reduction Act" or the "DETOUR Act".

John Hancock Will Only Sell Interactive Life Insurance with Fitness Data Tracking

By Suzanne Barlyn | September 19, 2018

NY DFS Delivers an Icy Blast to Insurers Using External Data Sources and Algorithmic Underwriting

Tuesday, January 29, 2019

On January 18, 2019, a wintry wind blew when the New York Department of Financial Services (NY DFS) released Circular Letter No. 1 (2019) ("Letter No. 1") "to advise insurers authorized to write life insurance in New York of their statutory obligations regarding the use of external consumer data and information sources in underwriting for life insurance." Letter No. 1 follows the 308 letter the NY DFS previously released on June 29, 2017, which sought information on life insurers' use of "external consumer data or information sources" in connection with either an "accelerated or algorithmic underwriting program" or "to supplement traditional medical underwriting." Letter No. 1 expresses the NY DFS' following two areas of concern:

- The use of external data sources, algorithms, and predictive models has a significant potential negative impact on the availability and affordability of life insurance for protected classes of consumers.
- The use of external data sources is often accompanied by a lack of transparency for consumers.

Questions