The sociological framework

Răzvan Rughiniș

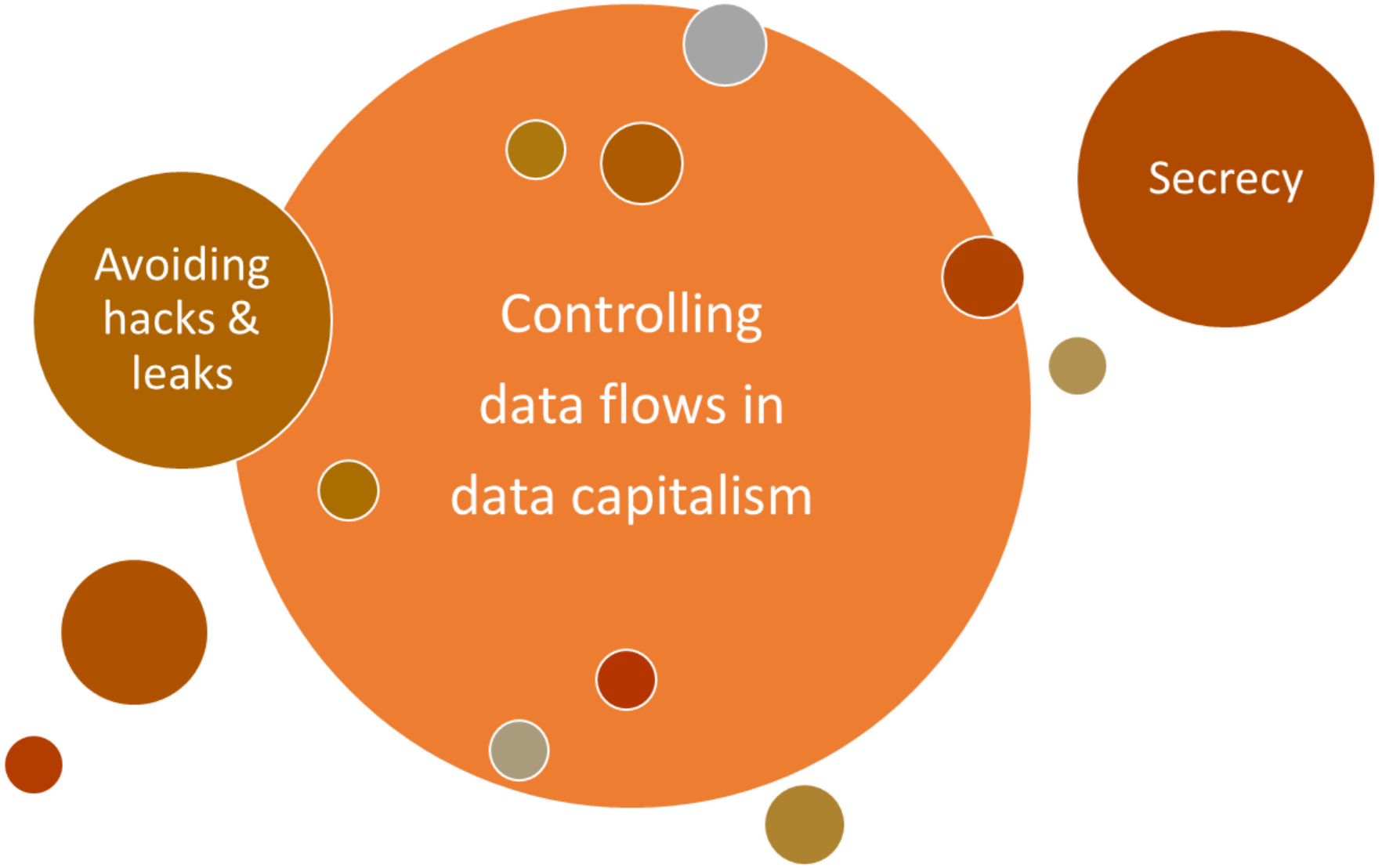
Main topics

1. Introduction. Why care about privacy?
2. Digital profiles
3. The ethical perspective: Fairness, harm & autonomy
4. The economic perspective: Free markets & competition
5. The psychological perspective: Cognition & emotions
6. The economic perspective: Data and business models
7. The sociological perspective: Data capitalism and social impact
8. Role: Users. Curation & Privacy-enhancing tools
9. Role: Experts. Whistleblowing & Collective action
10. Role: Policymakers. GDPR & Single Digital Market

Take away – Course 6

1. Data, decision traces and surveillance capitalism
   - Manipulation and attractive apps are two sides of the same coin
   - Platform / surveillance capitalism stimulates information asymmetry
2. Ghost & Gig economy
   - Unfair distribution of rewards between market-makers and market-takers
   - Harm to workers
   - Autonomy vs. flexibility
   - Case study: Uber
3. Asymmetry: ethical issues in platform capitalism
   - Harm
   - Autonomy
4. Emerging business models: Follow the money! Follow the data!
   - Google, Tinder, FaceApp, DomiNations

Privacy Enhancing Technologies



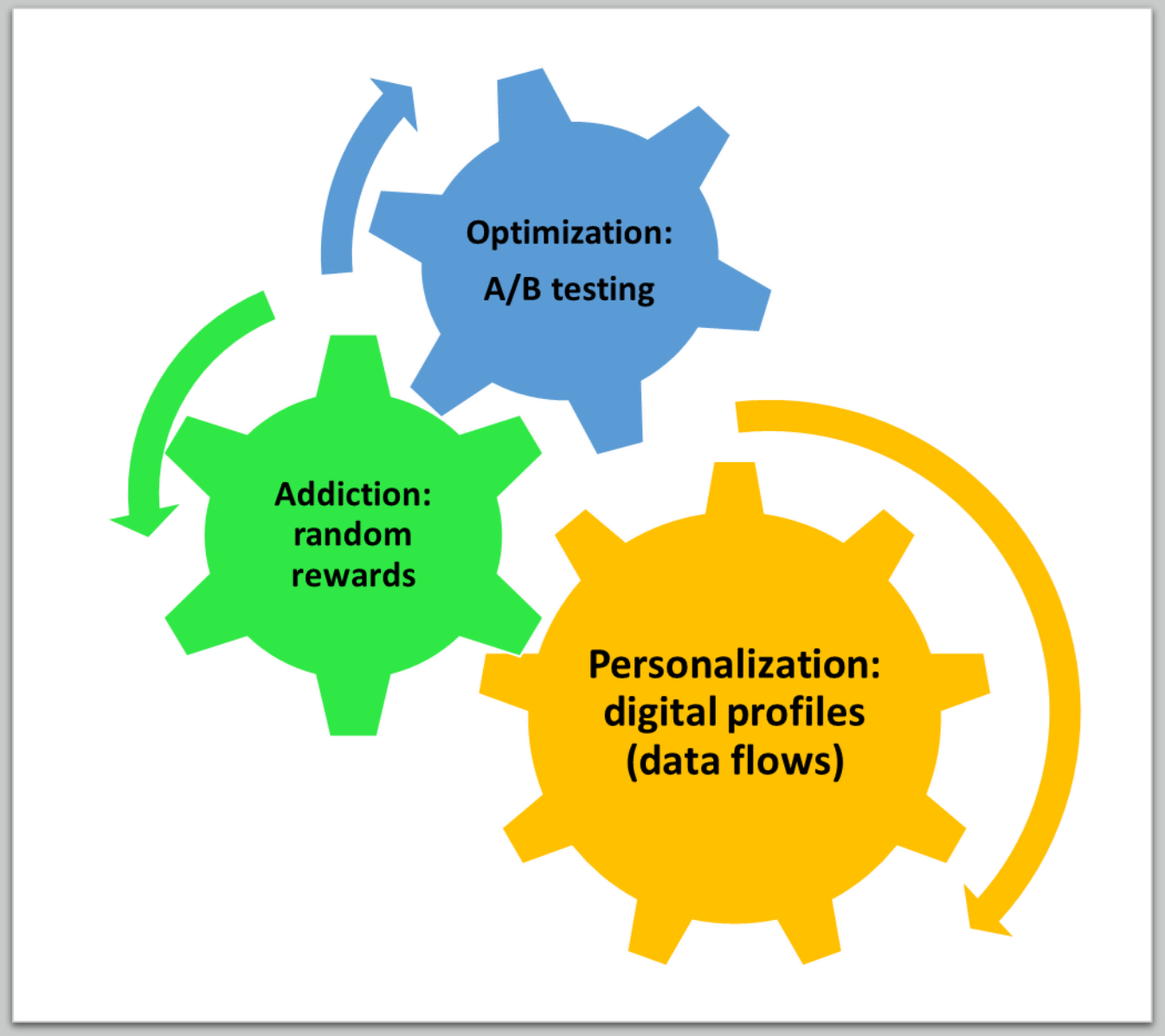
Outline – Course 7

1. Data / Surveillance capitalism and social impact
2. Social upside of data capitalism: extended interaction
    1. Tech as social actant
    2. Co-ordination & communities
3. Social downside of data capitalism
    1. Fairness: Algorithmic & data bias
    2. Harm: Polarization & parallel realities
    3. Autonomy: Acceleration & disruption

Data capitalism and social impact

Engines of data capitalism

aka surveillance capitalism



Data capitalism: Two sides of the same coin

Upside

- Business
  - New markets
  - New business models
  - Personalization
- Mind
  - Extended mind: digital tools
  - Higher relevance & stimulation
- Social impact
  - Co-ordination across time & space
  - Digitally mediated communities

Downside

- Business
  - Platform dominance
  - Information asymmetry
  - Manipulation through prediction (Zuboff)
- Mind
  - Fragmented attention
  - Echo chambers & filter bubbles
- Social impact
  - Algorithmic bias
  - Polarization & parallel realities
  - Acceleration & disruption

Business

Oct 22nd 2020 edition ›

Schumpeter

Who owns the web's data?

The fightback against Big Tech's feudal lords has begun

Digital feudalism?

- The platforms' business models depend on network effects and scale to keep users engaged and to sell more advertising
  - A culture of virality : entertaining but poisonous
  - It gets harder for potential rivals to overcome Big Tech data advantage
- Access to capital is no longer the biggest problem for startups. It is access to data (Viktor Mayer-Schönberger)

(The Economist, Oct. 2020)

China – The largest data broker?

- Recent laws controlling data
- The Chinese state has access to all data
- Circulation of data outside Chinese borders is restricted
- GDPR – style restrictions apply to corporations
  - But not to the Chinese state!

Source: NY Times

The Most Powerful Data Broker in the World Is Winning the War Against the U.S.

Nov. 30, 2021

Illustration by Alvaro Dominguez; Photographs by Alessandra Benedetti - Corbis, MEHAU KULYK/SCIENCE PHOTO LIBRARY, and Peter Dazeley via Getty Images

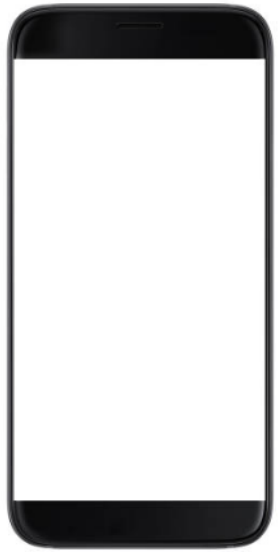
By Matt Pottinger and David Feith
Mr. Pottinger served in the Trump administration as the senior Asia adviser in the National Security Council and later as deputy national security adviser. Mr. Feith served as U.S. deputy assistant secretary of state for East Asian and Pacific affairs.

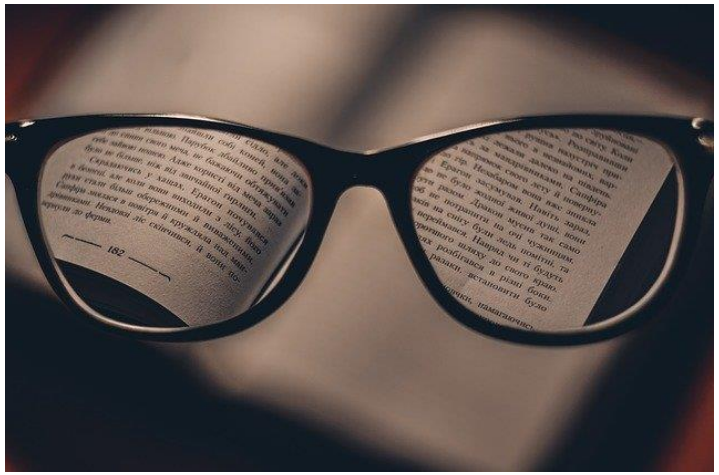
Social upside of data capitalism

Tech as social actant

Co-ordination: Tech as social actant

- Bruno Latour: Actor-Network Theory (ANT)
- "Mixing humans and non-humans together: The sociology of a door closer"
  - A "purely" technical artefact is highly moral and social
- Agency results from action-networks of humans, ideas, and things
- All are symmetrical social actants





Actor networks against pandemics

- The Hong Kong Flu (1968-1970) killed more than 1 million worldwide and 100,000 in the US (out of 200M)
- Health systems were overwhelmed
- Higher mortality for elderly and children
- No quarantine
  - Though massive disruptions due to sick workers' absence
- Vaccine was introduced after the 2nd wave
- What is different today?

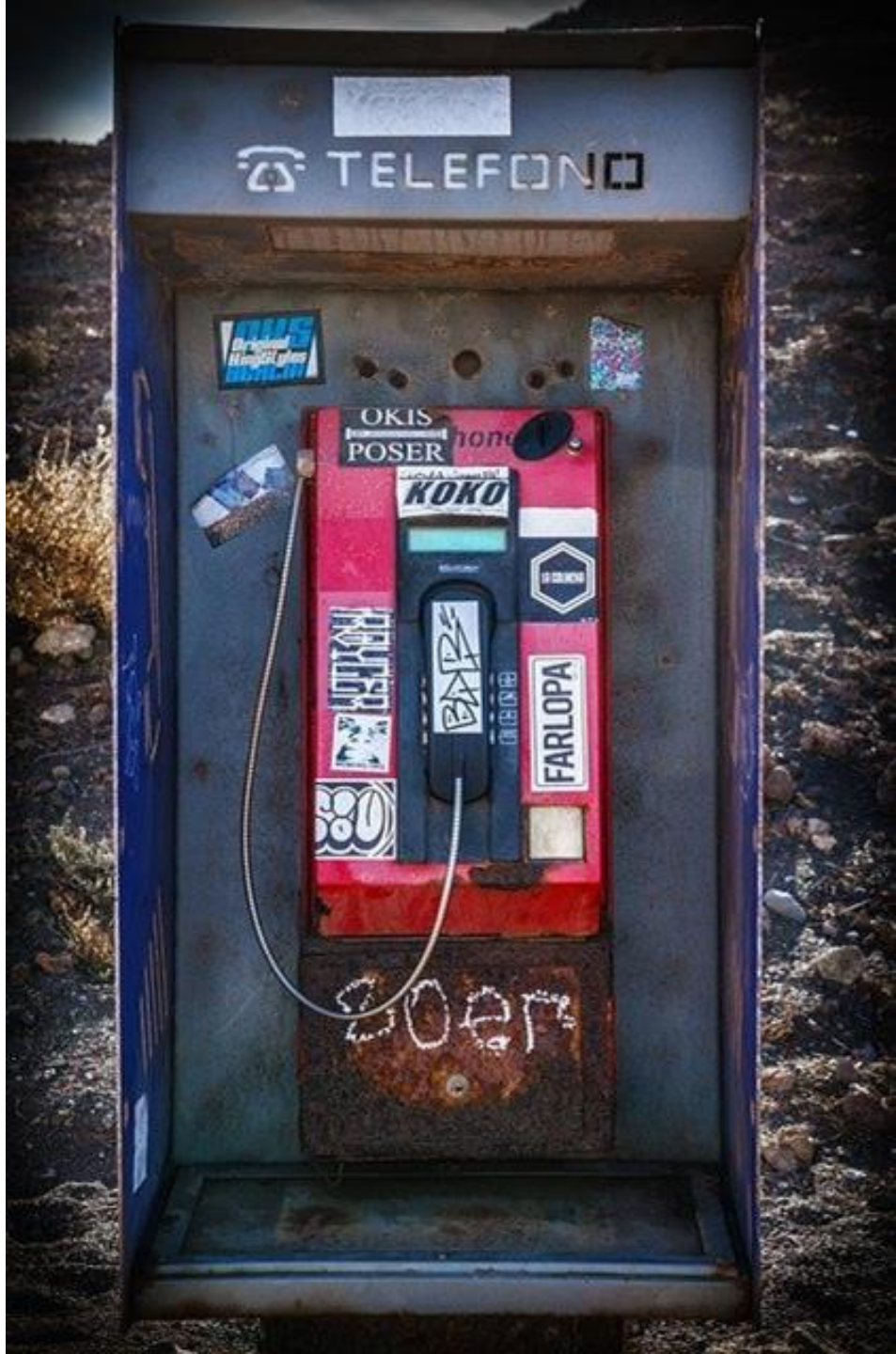
Tech: Co-ordination & Communities

Co-ordination

- Global knowledge: Wikipedia, Q&A platforms
- Work on gig platforms
- Protests on social media

Communities

- Romance on dating apps
- Long-distance relationships and families
- Communities of shared interest & support (from gaming to Long Covid)

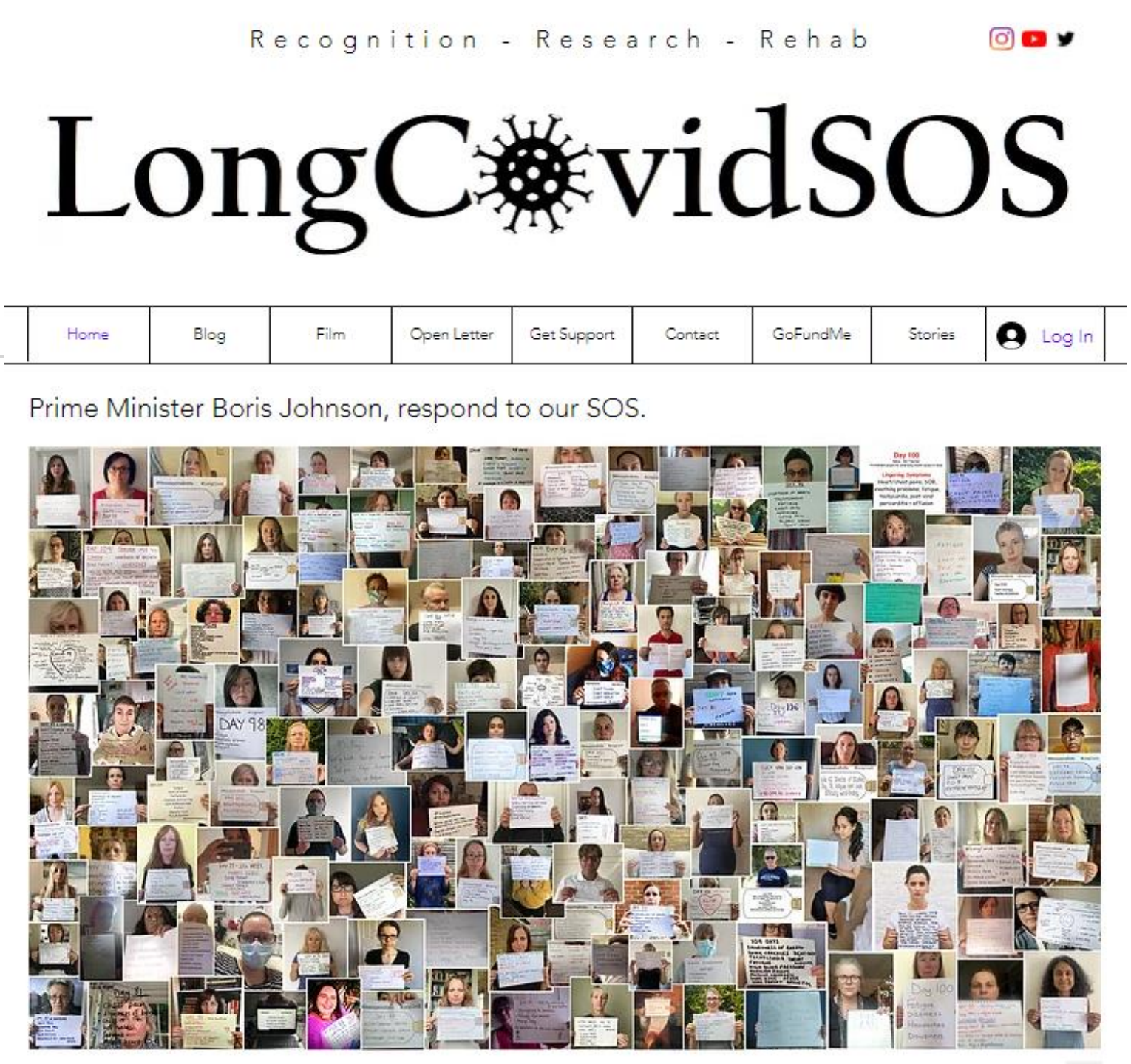


Digitally mediated activism

- Social media
  - Allows us “to see a reality that has been entirely visible to some people and invisible to others” (O. Wasow, NY Times 2020)
  - Eg: police brutality in USA (video of George Floyd)
  - Simplifies the coordination of large groups
- Examples
  - Black Lives Matter
  - Long Covid
  - Anti-vaccination campaigns

Long-Covid / Long-haulers

- "Support groups on Slack and Facebook host thousands of people who say they have been wrestling with serious COVID-19 symptoms for at least a month, if not two or three" (The Atlantic June 2020; Aug. 2020)
- Wiki
- LongCovidSOS.org



Social downsides of data capitalism

Algorithmic bias

Acceleration & disruption

Polarization & parallel realities

Fairness: Algorithmic Bias

Reproducing past & present social inequalities through bias in data or machine learning predictions

Apple card, Nov. 2019

"My wife and I filed joint tax returns, live in a community-property state, and have been married for a long time," Mr. Hansson wrote Thursday on Twitter.

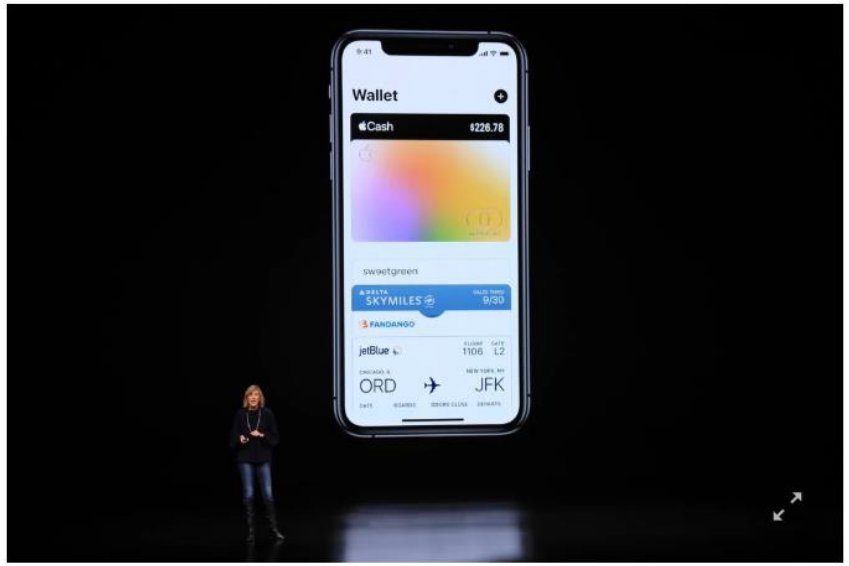
"Yet Apple's black box algorithm thinks I deserve 20x the credit limit she does."

NY Times, Nov. 2019

The New York Times

Apple Card Investigated After Gender Discrimination Complaints

A prominent software developer said on Twitter that the credit card was "sexist" against women applying for credit.



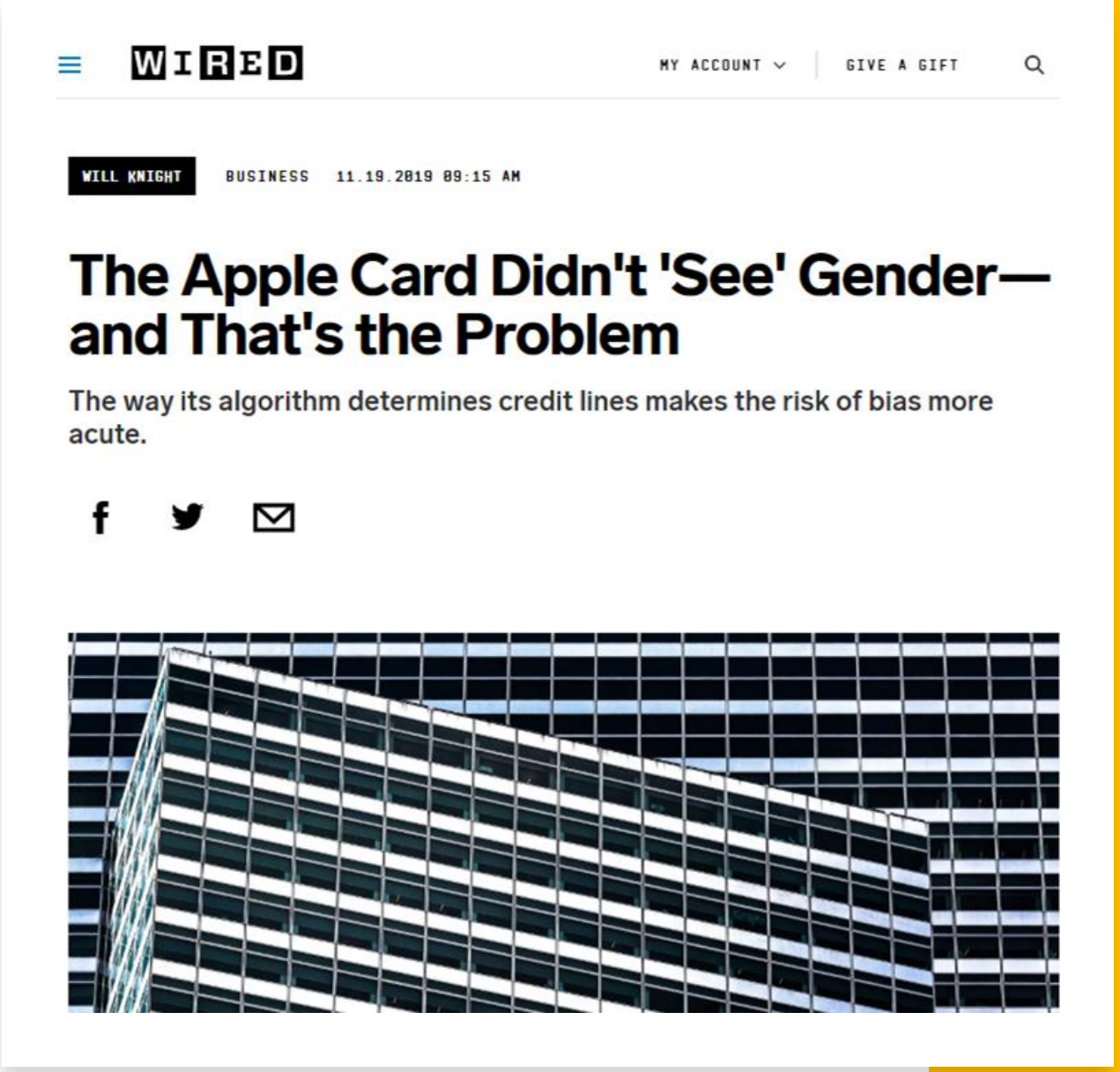
Jennifer Bailey, vice president of Apple Pay. Regulators are investigating Apple Card's algorithm, which is used to determine applicants' creditworthiness. Jim Wilson/The New York Times

By Neil Vigdor

Gender-blind?

- “No one from the company seemed able to describe how the algorithm even worked, let alone justify its output.
- Goldman Sacks landed on what sounded like an ironclad defense: The algorithm, it said, (…) doesn’t even use gender as an input. How could the bank discriminate if no one ever tells it which customers are women and which are men?”

Wired, Nov. 2019



Mandated ignorance

- We prevent unfair discrimination through mandated ignorance: Justice is blind
- Employers, hospitals etc. must ignore…
  - Gender, race, sexual orientation
  - Other irrelevant actions or traits
- ML decisions based on Big Data cannot enforce ignorance
- Protected traits are inferred from apparently neutral data
  - Shopping patterns predict gender, age etc.

Google programmer portrait

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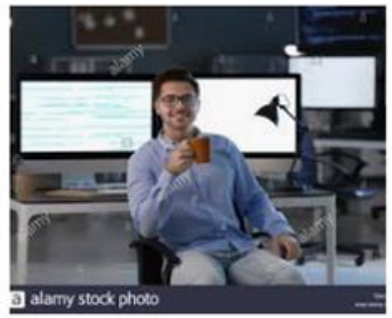

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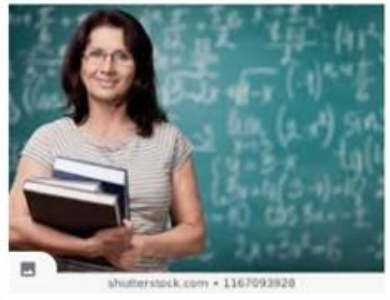

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Algorithmic bias: How?

- Big Data reproduces past & present patterns in data
  - Past bias becomes present training & testing data
  - Predictions are stereotypical
  - Unfair discrimination on gender, race, age etc.
- Digital profile labels influence decisions in unseen ways
  - “Alcohol at Home Heavy Spenders” = ?
  - “Baby Nappies & Wipes” = ?
- ML decisions cannot be reverse-engineered

Photo by Simon Connellan on Unsplash

Algorithmic bias: Examples

- Personalization = bias
  - Facebook ads for **high paying jobs** appear more often to men (The Guardian 2015)
  - Facebook ads for **housing** appears less for couples with children, non-Americans, non-Christians, disabled people, Hispanics (Economist 2019)
- Advertisers target people in low-income neighborhoods with **high-interest loans** (O'Neil 2016)
- **Facial recognition failure** for non-white faces (Joy Buolamwini)
- Predictive estimates of **recidivism** over-estimate risks for blacks (ProPublica, 2016)

Algorithms as poverty traps

- Credit scores are more influent
- Algorithmic & data black boxes
- Very difficult to remediate

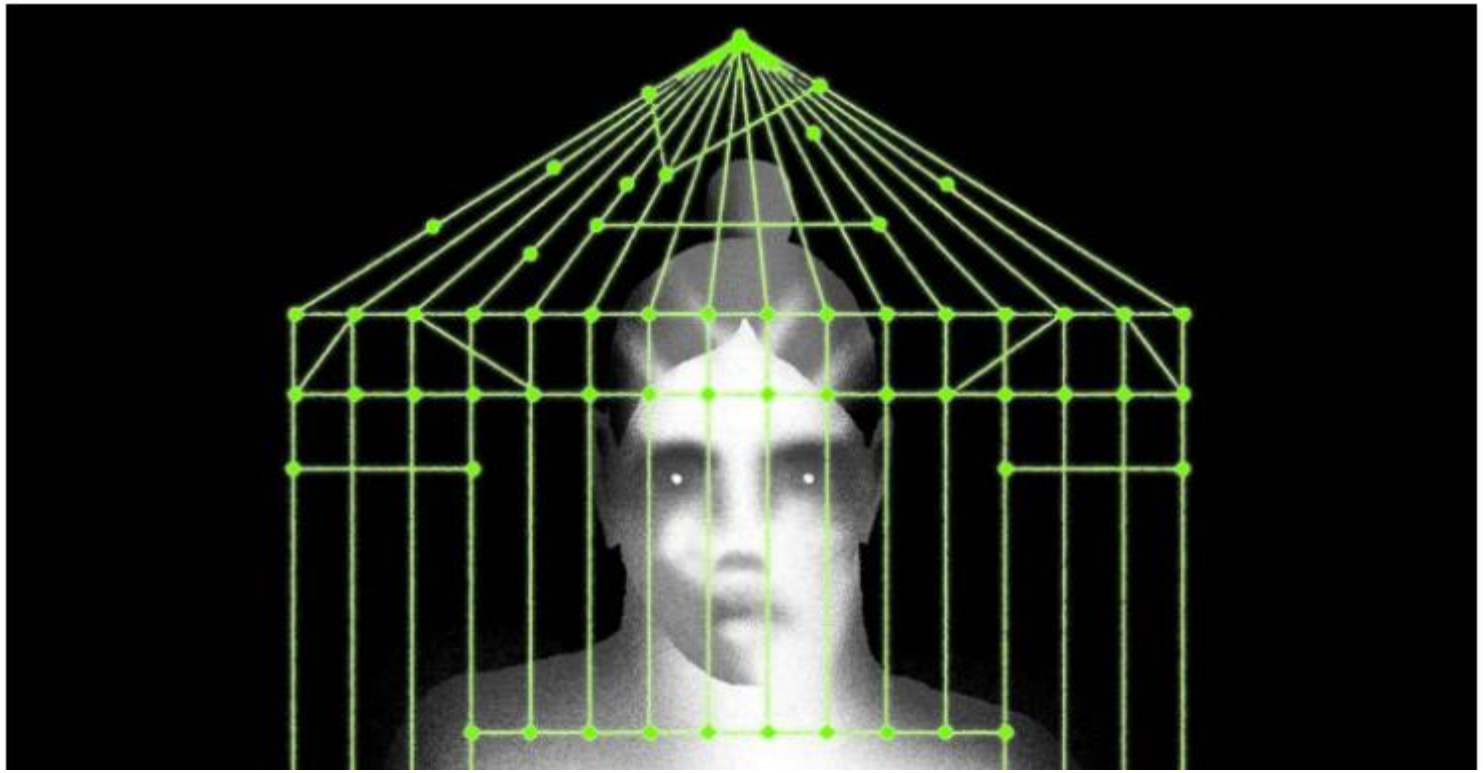
MIT Technology Review, Dec. 2020

The coming war on the hidden algorithms that trap people in poverty

A growing group of lawyers are uncovering, navigating, and fighting the automated systems that deny the poor housing, jobs, and basic services.

by **Karen Hao**

December 4, 2020



MIT Technology Review

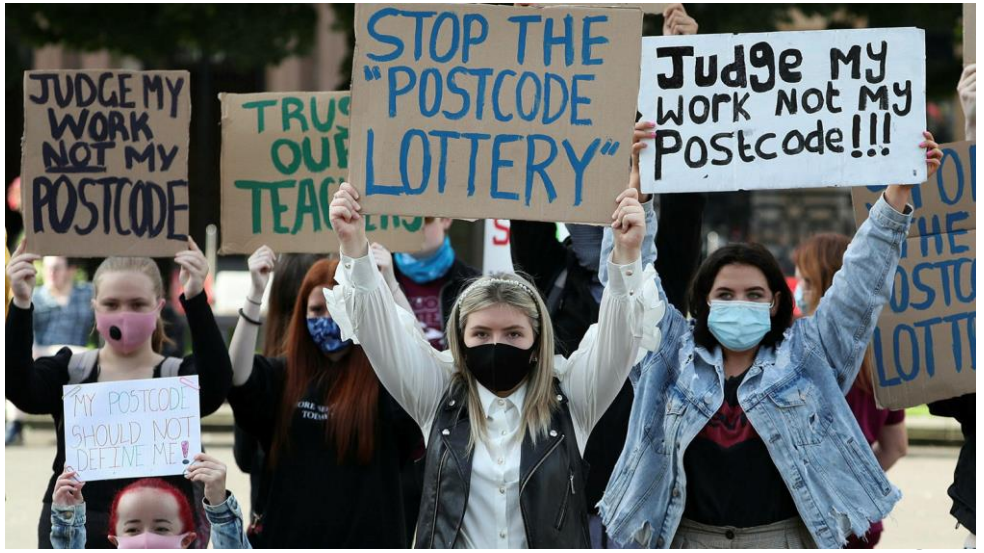
Tech policy / AI Ethics

The UK exam debacle reminds us that algorithms can't fix broken systems

The problem began when the exam regulator lost sight of the ultimate goal—and pushed for standardization above all else.

by **Karen Hao** August 20, 2020

(MIT)



- Approximately 39% of A-level results were downgraded by UK algorithm.
- Disadvantaged students were the worst affected as the algorithm copied the inequalities that exist in the U.K.'s education system.

(CNBC, Aug. 2020)

Wrongfully Accused by an Algorithm

In what may be the first known case of its kind, a faulty facial recognition match led to a Michigan man's arrest for a crime he did not commit.

NY Times June 2020

PRO PUBLICA

Donate

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 against blacks.

by Julia Angwin, Jeff Larson, Surya Mattu and Lauren Kirchner, ProPublica

May 23, 2016

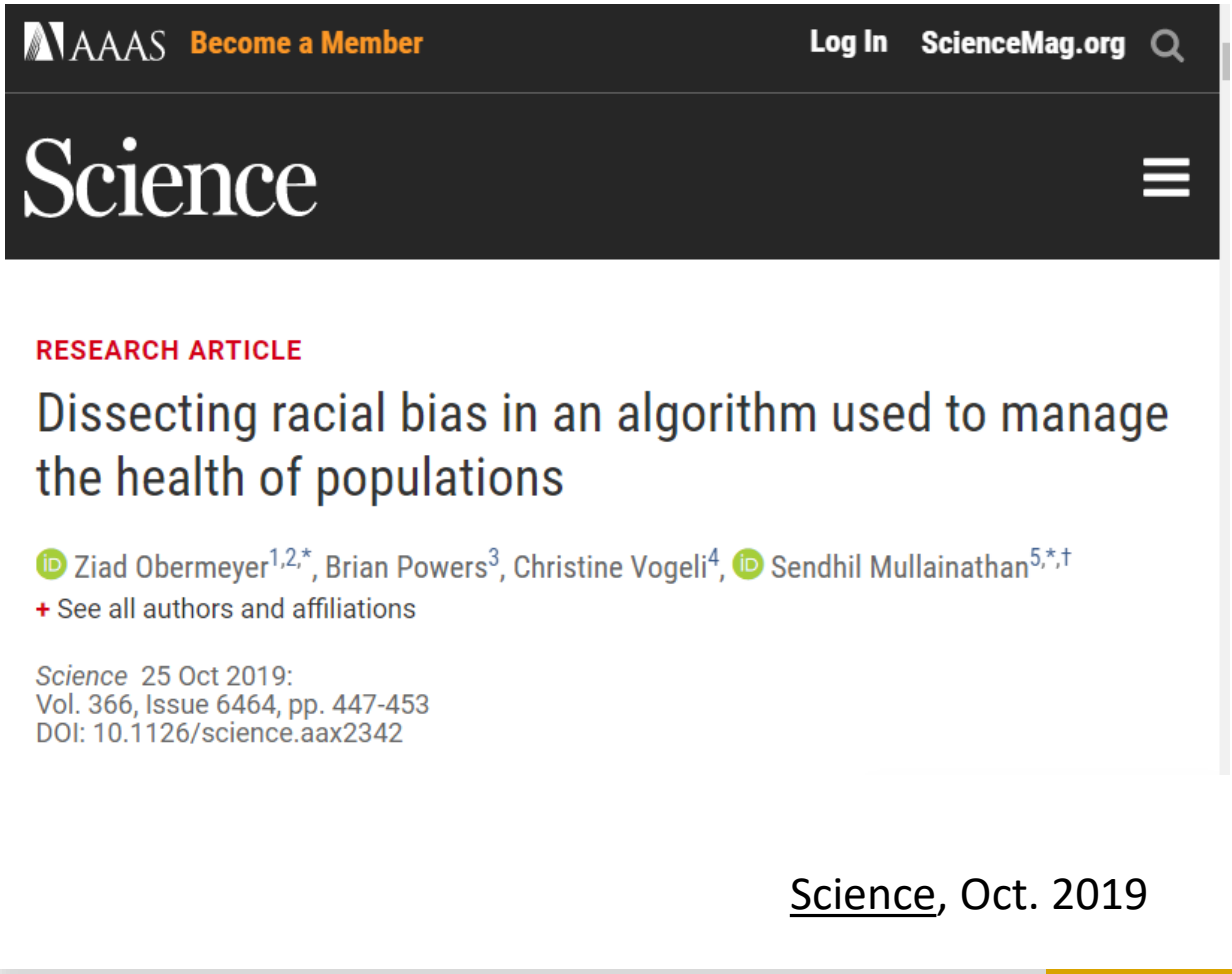
ProPublica, 2016

	WHITE	AFRICAN AMERICAN
Labeled Higher Risk, But Didn't Re-Offend	23.5%	44.9%
Labeled Lower Risk, Yet Did Re-Offend	47.7%	28.0%

Overall, Northpointe's assessment tool correctly predicts recidivism 61 percent of the time. But blacks are almost twice as likely as whites to be labeled a higher risk but not actually re-offend. It makes the opposite mistake among whites: They are much more likely than blacks to be labeled lower risk but go on to commit other crimes. (Source: ProPublica analysis of data from Broward County, Fla.)

Health care algorithm offered less care to black patients

- Bias occurs because the algorithm uses health costs as a proxy for health needs
- Black patients assigned the same level of risk by the algorithm are sicker than White patients
- Less money is spent on Black patients who have the same level of need
  - The algorithm falsely concludes that Black patients are healthier than equally sick White patients.

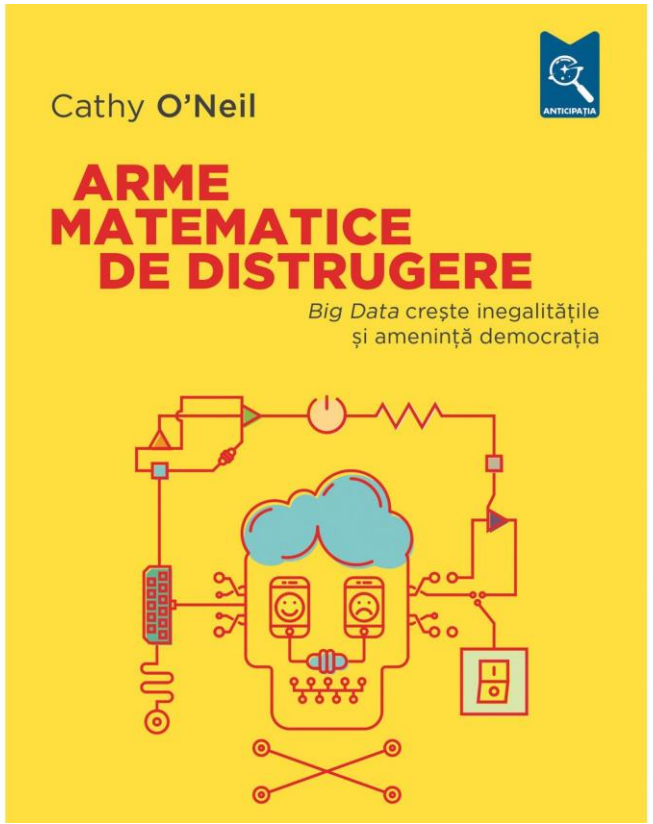


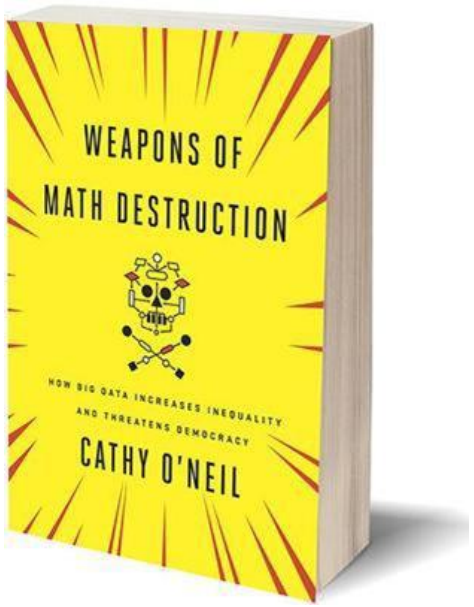
Science, Oct. 2019

Personalized pricing

- An offer that we cannot refuse?
- What about liberty of choice?
- What about vulnerabilities?
  - E-cig offers for ex-smokers
  - Higher prices for chronic medicines

Lucrurile bune vin ușor,
acum cu promoții
PERSONALIZATE
pe bune.
Card

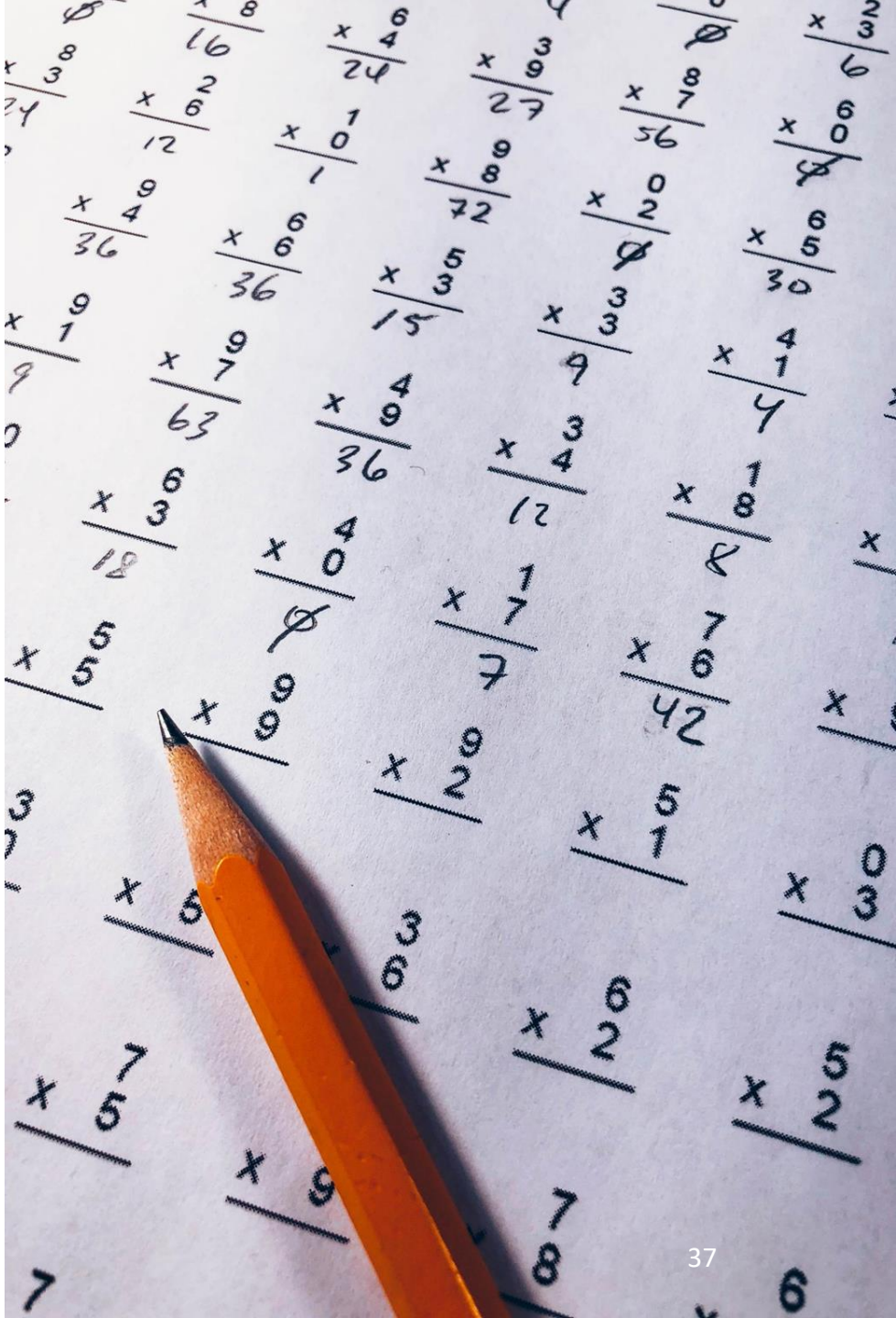




Algorithmic Bias Theorized

O’Neil: Weapons of math destruction

- Algorithms don’t mean objectivity
  - They automate the status-quo
  - They can codify prejudice
- Algorithms are opinions translated in code
- Algorithms may fail invisibly
  - Proprietary algorithms
  - ML is not reversible
- “There’s a lot of money to be made in unfairness”



Attempts to train ML models for fairness

- Example: ML solution to classify and remove harmful comments
- Fairness
  - Equal rate of false positives across social groups (*incorrectly* remove safe comments)
  - Equal rate of false negative (incorrectly approve toxic comments)

Mitigating Unfair Bias in ML Models with the MinDiff Framework

Monday, November 16, 2020

Posted by Flavien Prost, Senior Software Engineer and Alex Beutel, Staff Research Scientist, Google Research

Google, Nov. 2020

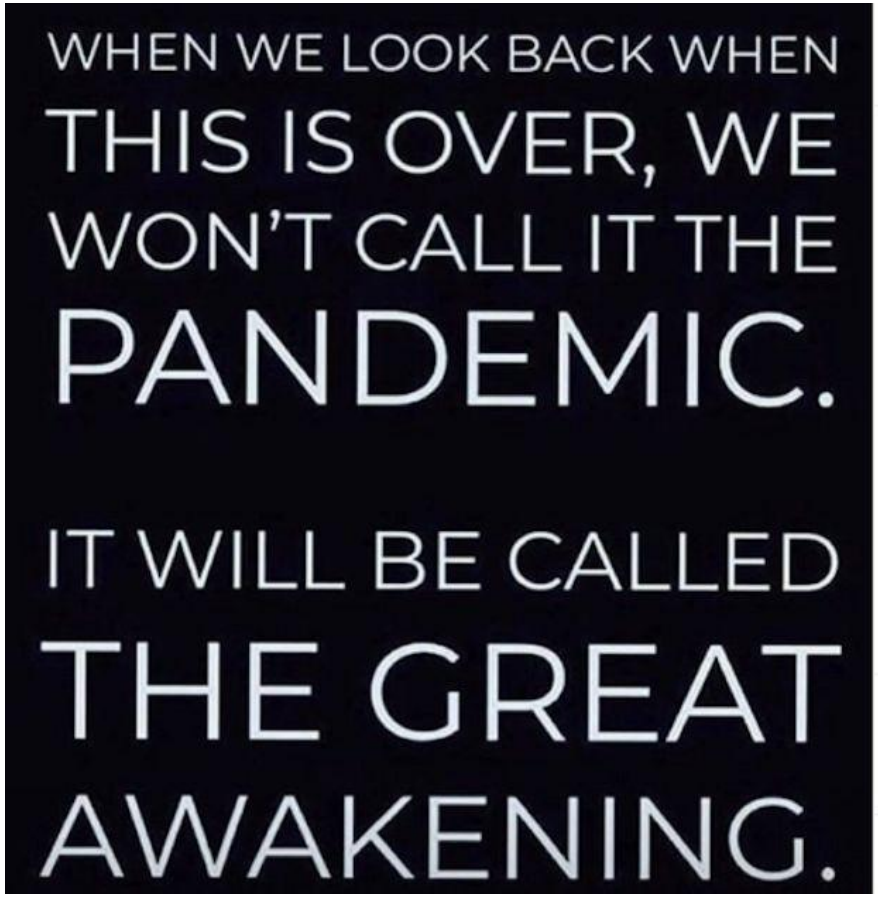
Harm: Polarization & parallel realities

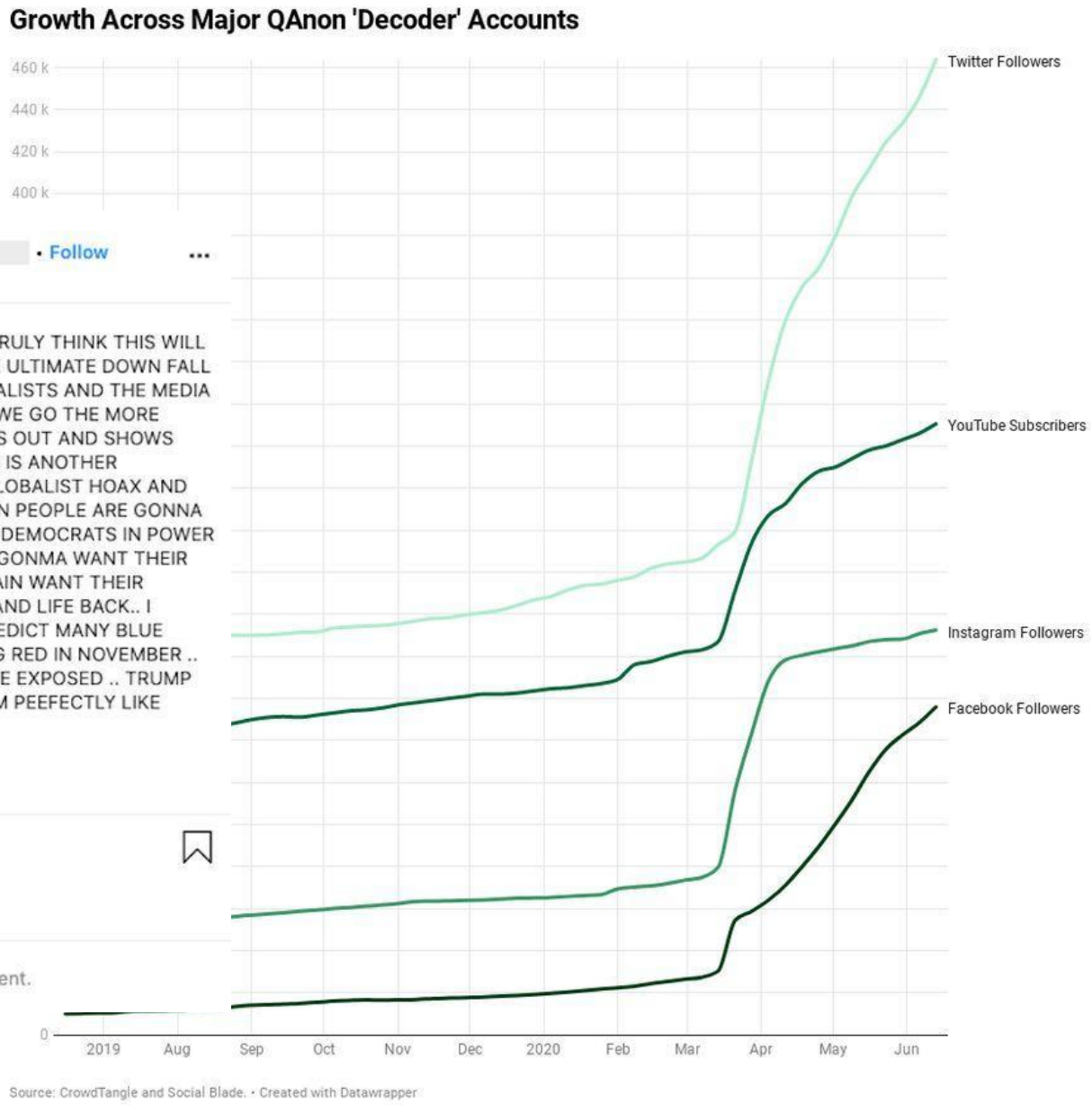
Reality splitting through filter bubbles

Data flows = Trust flows

- We are a hyper-social species relying on trust
- Digital technologies reorder flows of trust
  - Trust in platforms
  - Trust in crowds
  - Trust in strangers
  - Trust in news feeds

Conspiracy theorizing





Huffington Post

REUTERS

BIDEN 2020 NOVEMBER 18, 2020 / 1:05 PM / UPDATED 10 DAYS AGO

Half of Republicans say Biden won because of a 'rigged' election: Reuters/Ipsos poll

By Chris Kahn

3 MIN READ

(Reuters) - About half of all Republicans believe President Donald Trump "rightfully won" the U.S. election but that it was stolen from him by widespread voter fraud that favored Democratic President-elect Joe Biden, according to a new Reuters/Ipsos opinion poll.

AdChoices

Source

QAnon

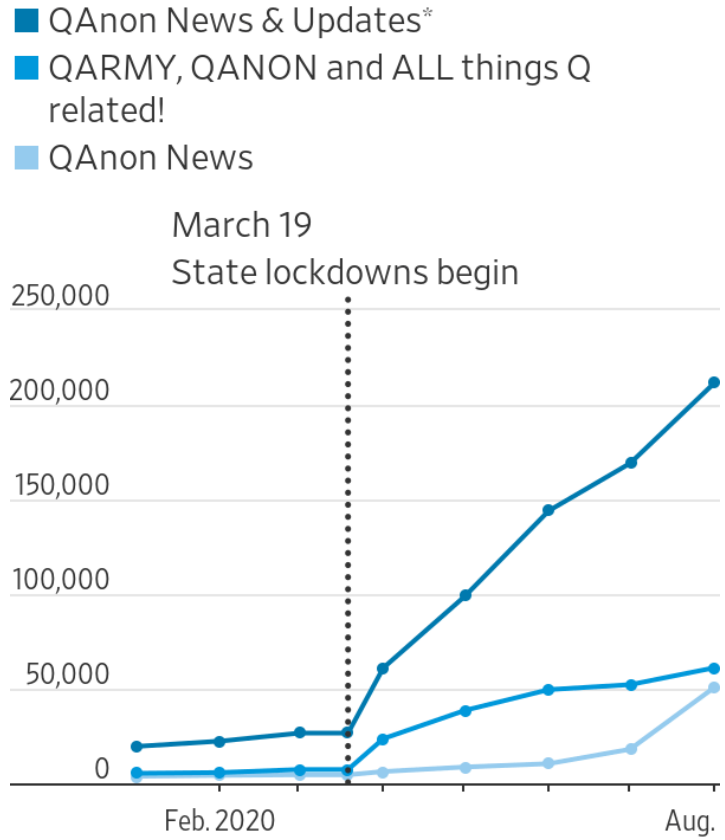
A shirtless man known as the 'QAnon Shaman' was one of the high-profile members of Trump supporters who invaded the U.S. Capitol. (AP Photo/Manuel Balce Ceneta)

Photo source

On the Rise

QAnon conspiracy theory groups gain popularity on social media amid quarantine.

Followers for three top QAnon-linked, public Facebook groups



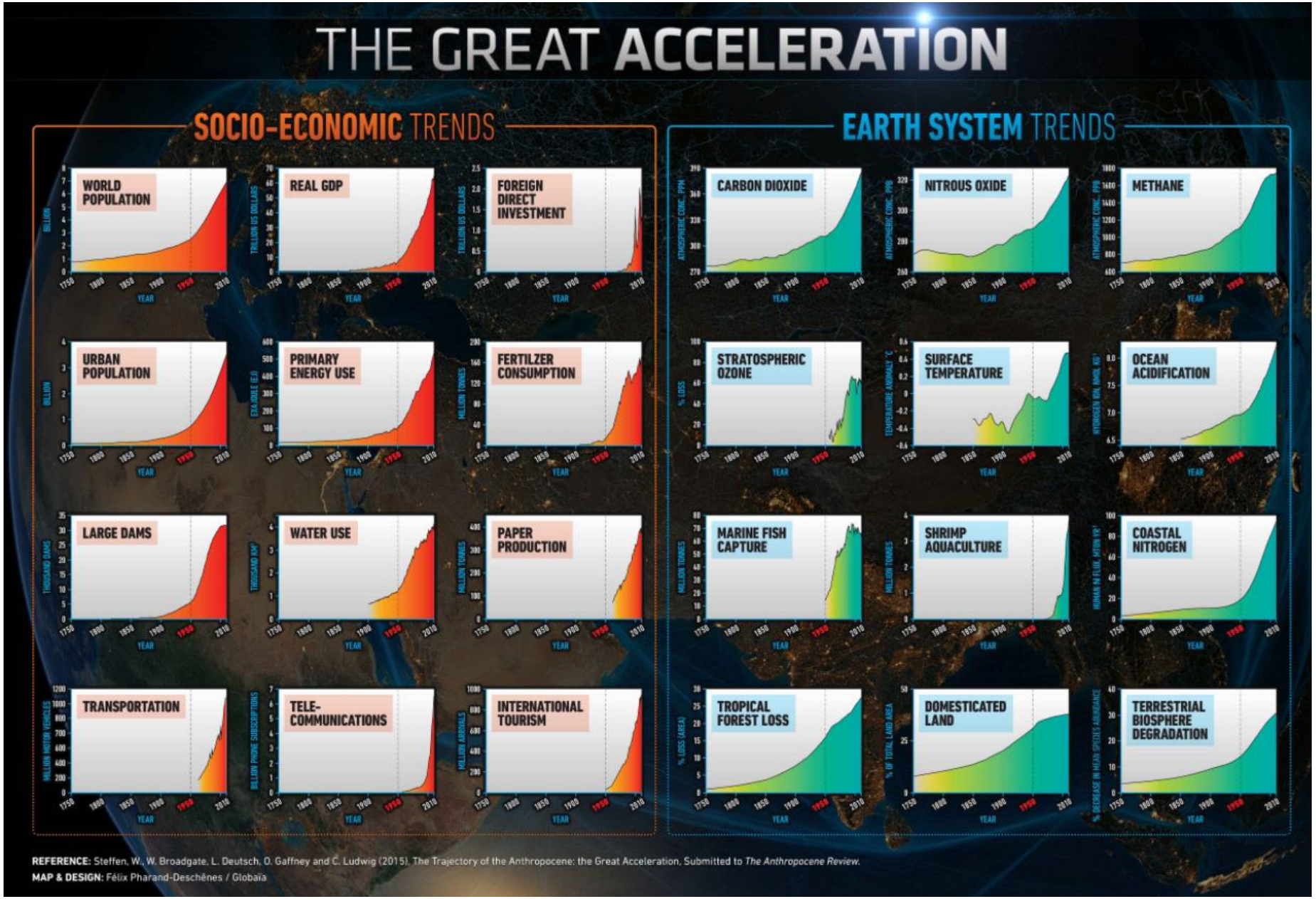
*Full Facebook Group name is QAnon News & Updates- Intel drops, breadcrumbs, & the war against the Cabal.

Chart source

Autonomy: Acceleration & disruption

Expectations are futile

Great Acceleration

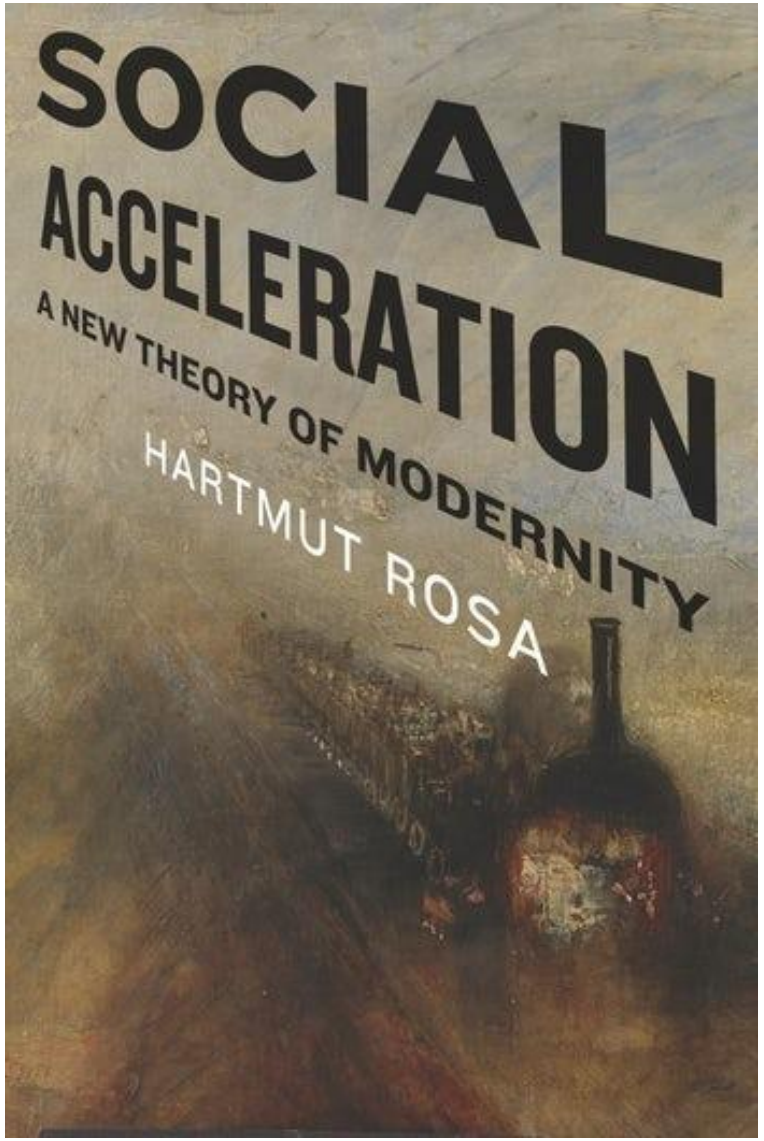


IGBP

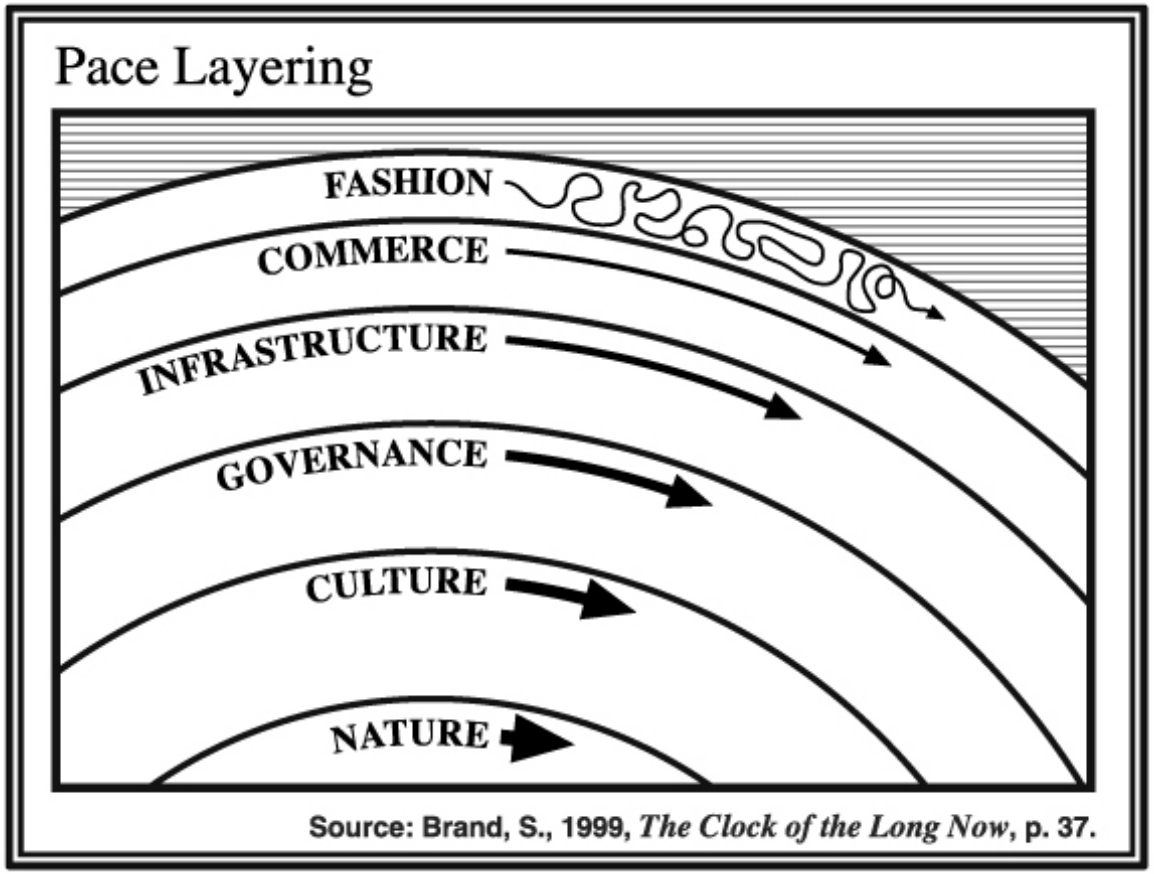
Social acceleration

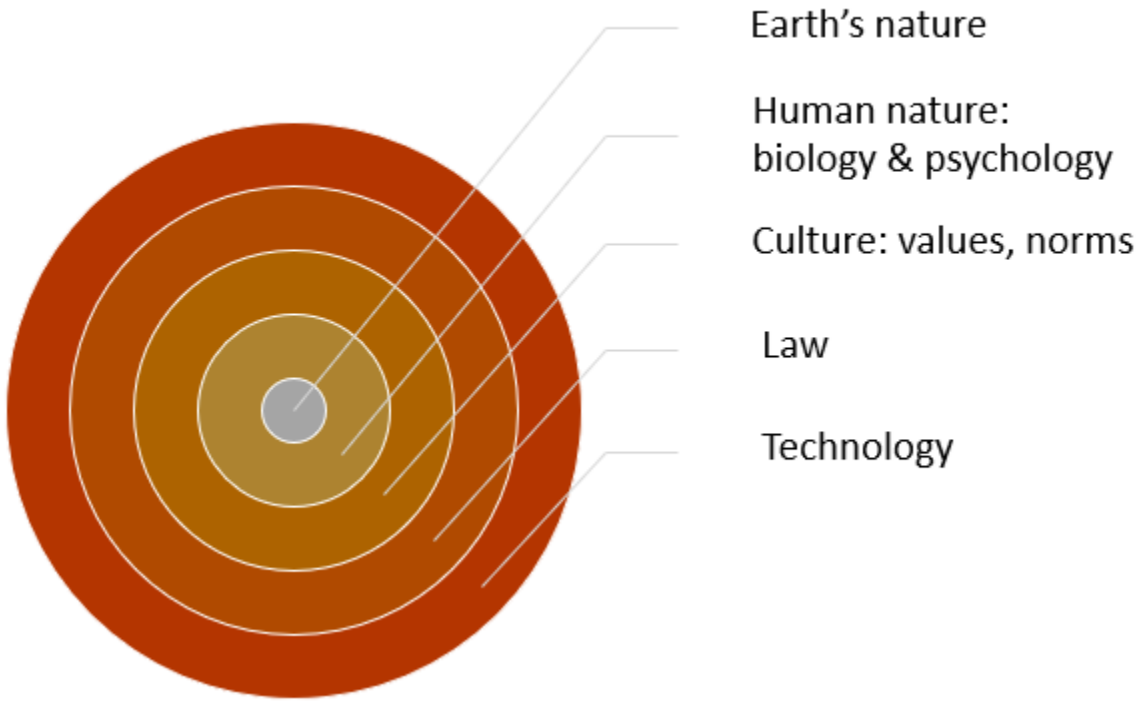
- “Shrinking of the present": how long expectations based on past experience reliably match the future?
  - Acceleration of technologies: transportation, communication, and production
  - Acceleration of social change: social institutions and personal relationships
  - Acceleration in the pace of life
    - Despite the expectation that technological change should increase free time

(H. Rosa, 2015)



Pace layering: what about technology?

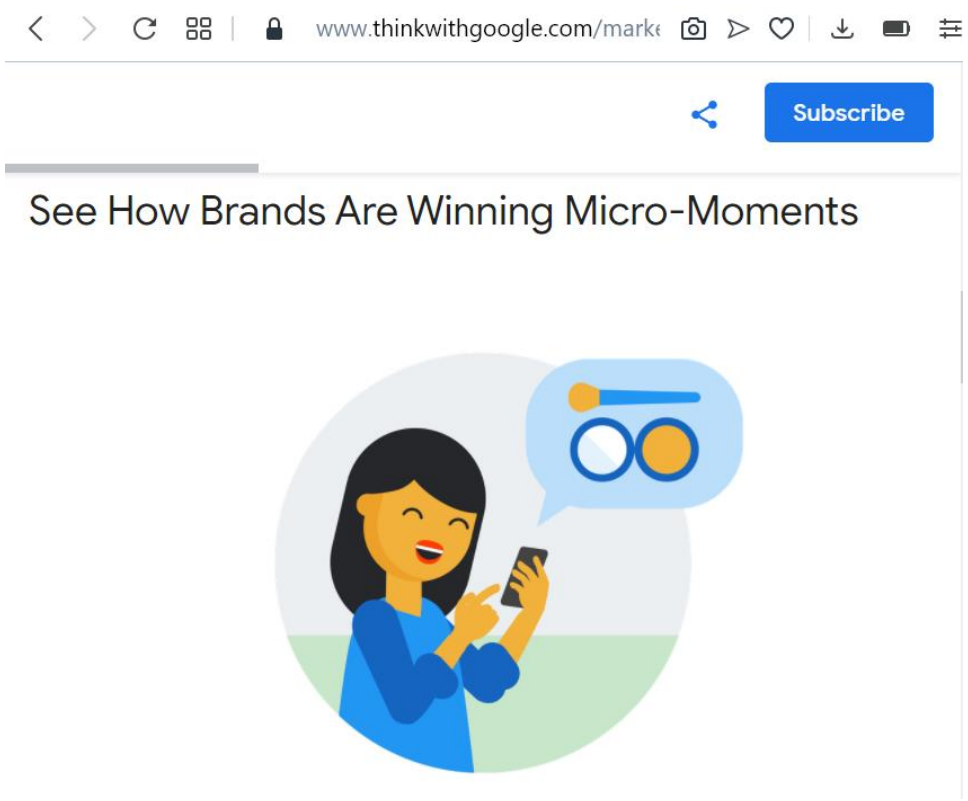




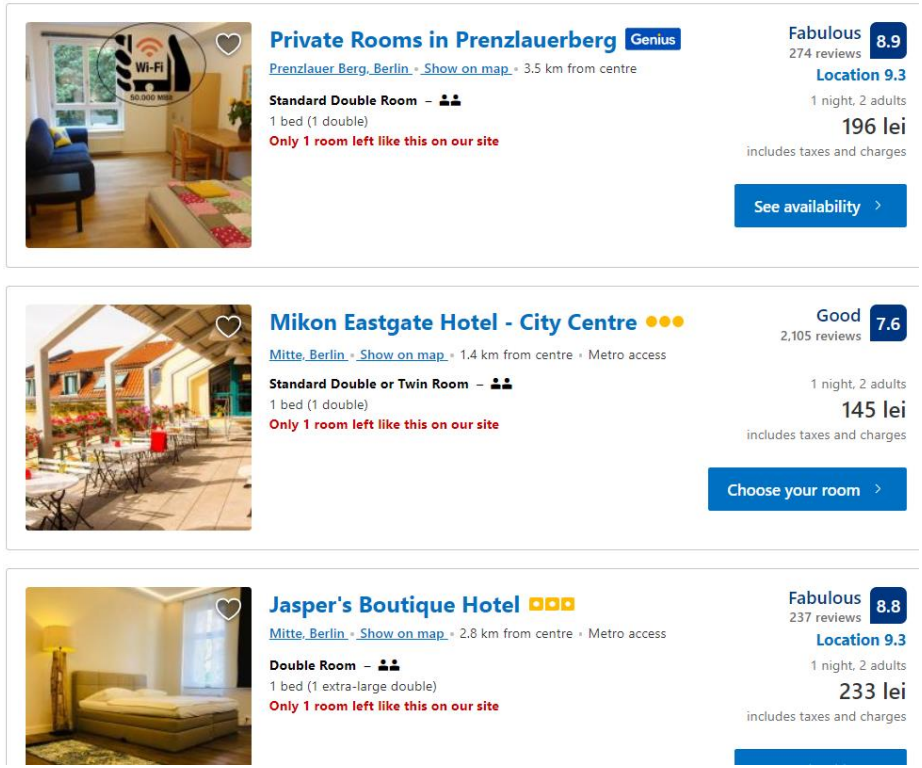
Stewart Brand, 2018

AdTech: Acceleration for profit

Micro-Moments



Scarcity emergency



Mother Jones DONATE

POLITICS JANUARY/FEBRUARY 2013 ISSUE

Too Fast to Fail: How High-Speed Trading Fuels Wall Street Disasters

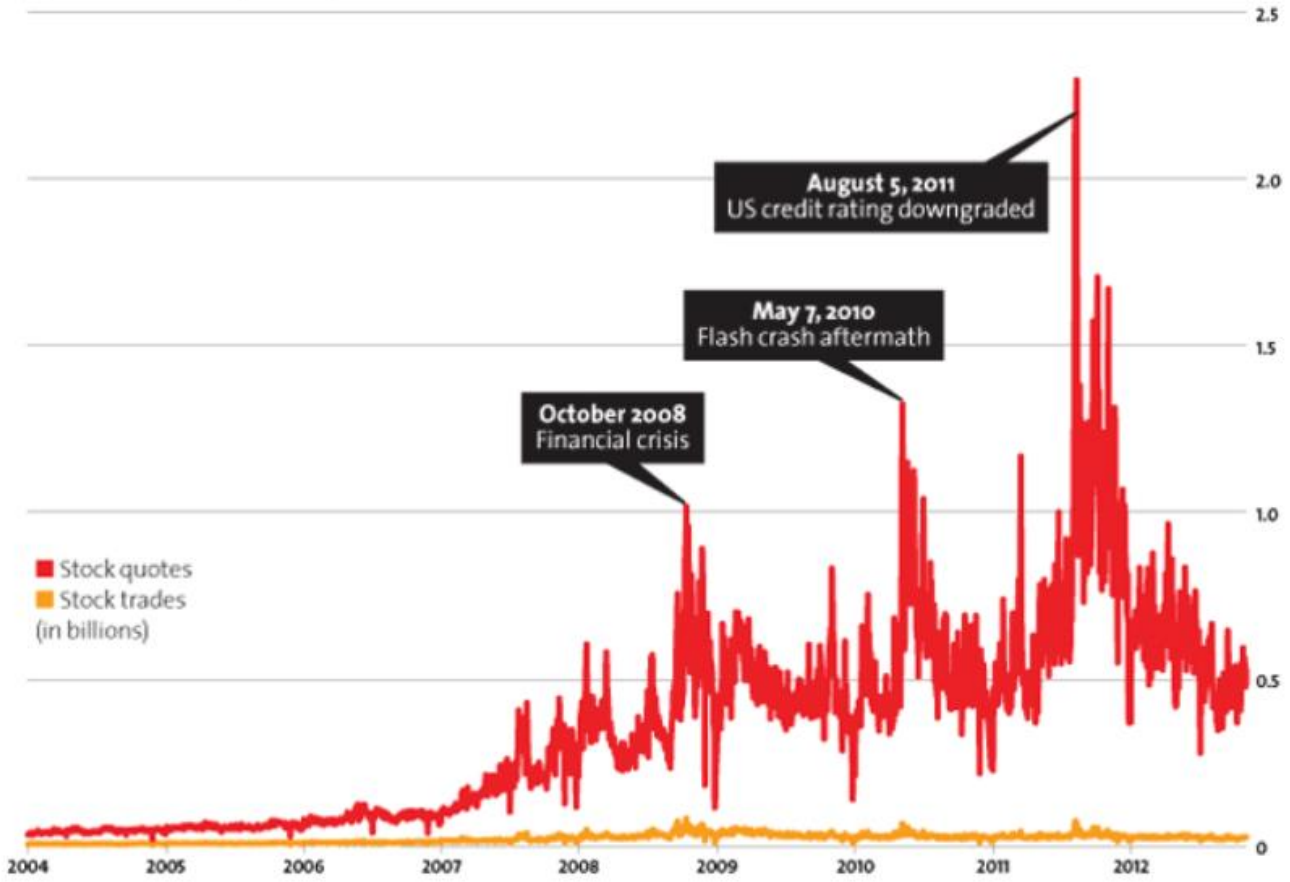
Computer algorithms swap thousands of stocks each instant—and could set off a financial meltdown.

NICK BAUMANN

Bio | Follow

Fast, Costly, and Out of Control

Algorithms have sped up markets, but that doesn't mean lots more stocks are changing hands. In fact, canceled quotes now vastly outstrip completed trades. Why? Trading programs can make thousands of bids in an instant—and, before any are accepted, take them all back. Sometimes that's because a program reconsiders before the deal is sealed. But analysts say "quote stuffing" is to blame for many phantom bids. Here's how that works: Algorithms target a stock with, say, 5,000 instantly canceled buy or sell requests. The intent of the feints could be to suggest a false sense of demand to other algorithms, or suck up slower purchasers' bandwidth.



Mother Jones

Source: MotherJones

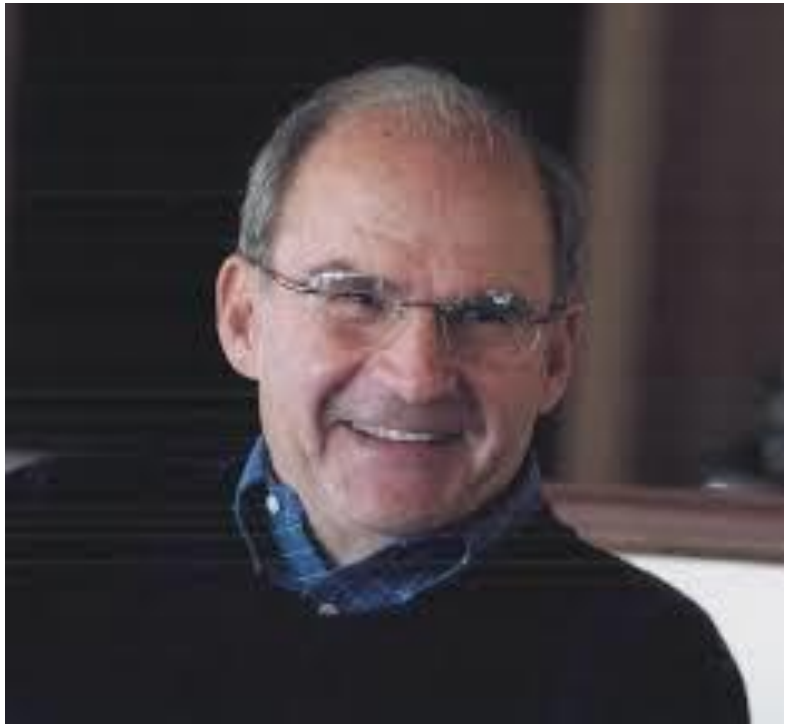
Tinder & changes in dating culture

- A technology of speed and anonymity
  - Friction-less beginnings with random rewards schedules
  - Expanding interaction beyond IRL interaction contexts
  - Relative anonymity and low chance of future encounters in social circles
- What is the new normal of dating?
  - "Hook-up culture"
  - Normalization of bad experiences
  - Standardization / McDonaldization?
- What is the new normal for self-validation?
  - A numbers game

The Atlantic, 2018

McDonaldization of Society

- George Ritzer, 1993, The McDonaldization of Society (Wiki)
- **Efficiency** & minimization of time
- **Calculability** more important than subjectivity
- **Predictability** through standardization and routine
- **Control** through tracking and other technologies, replacement of humans



Control vs. control

- Is digital McDonaldization improving or diminishing human autonomy?
  - Education
  - Work
  - Food
  - Dating
- Whose autonomy?

Take away – Course 8

1. Data / Surveillance capitalism and social impact
2. Social upside of data capitalism: extended interaction
    1. Tech as social actant
    2. Co-ordination & communities
3. Social downside of data capitalism
    1. Fairness: ML & Algorithmic bias
    2. Harm: Polarization & parallel realities
    3. Autonomy: Acceleration & disruption