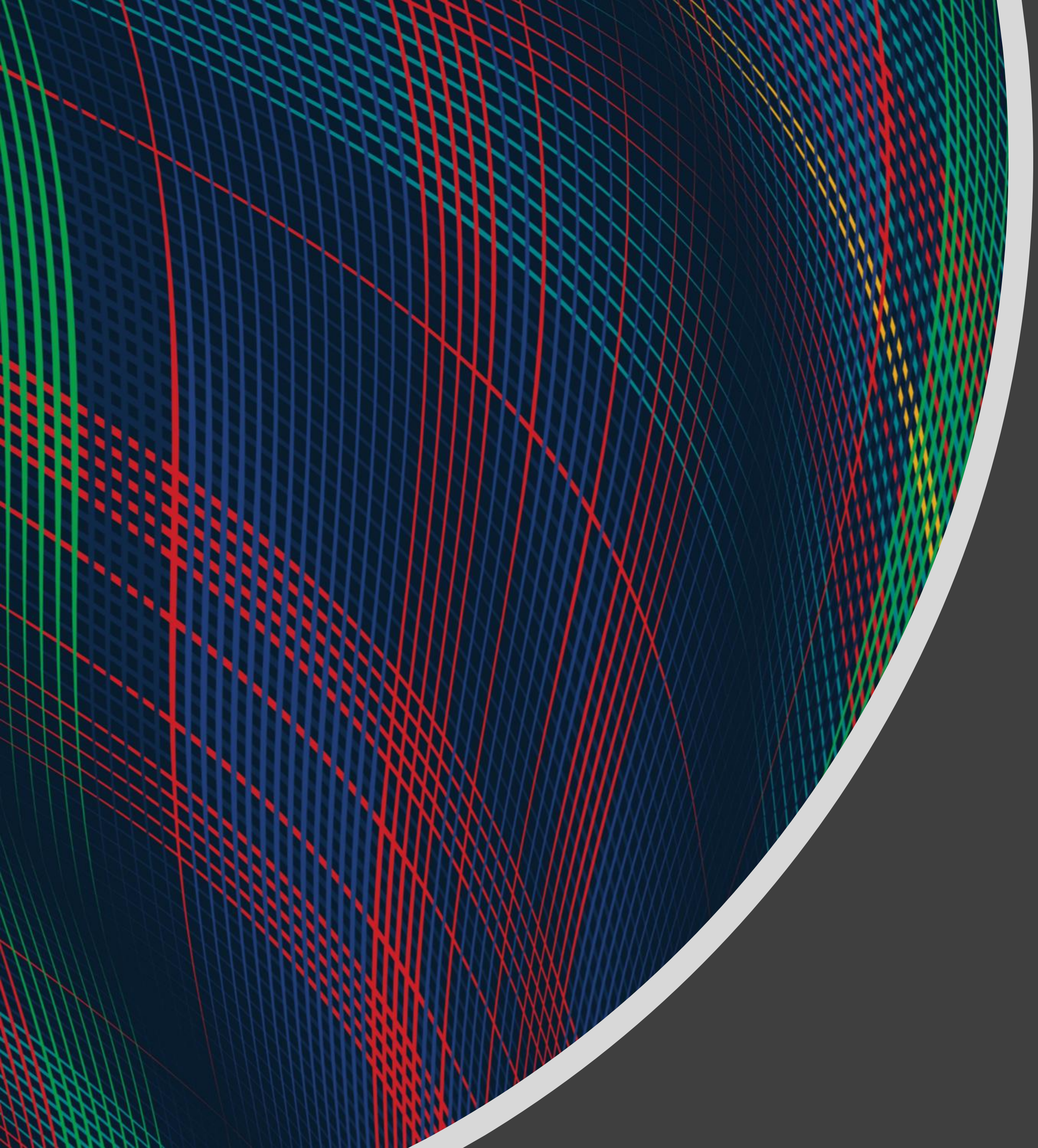
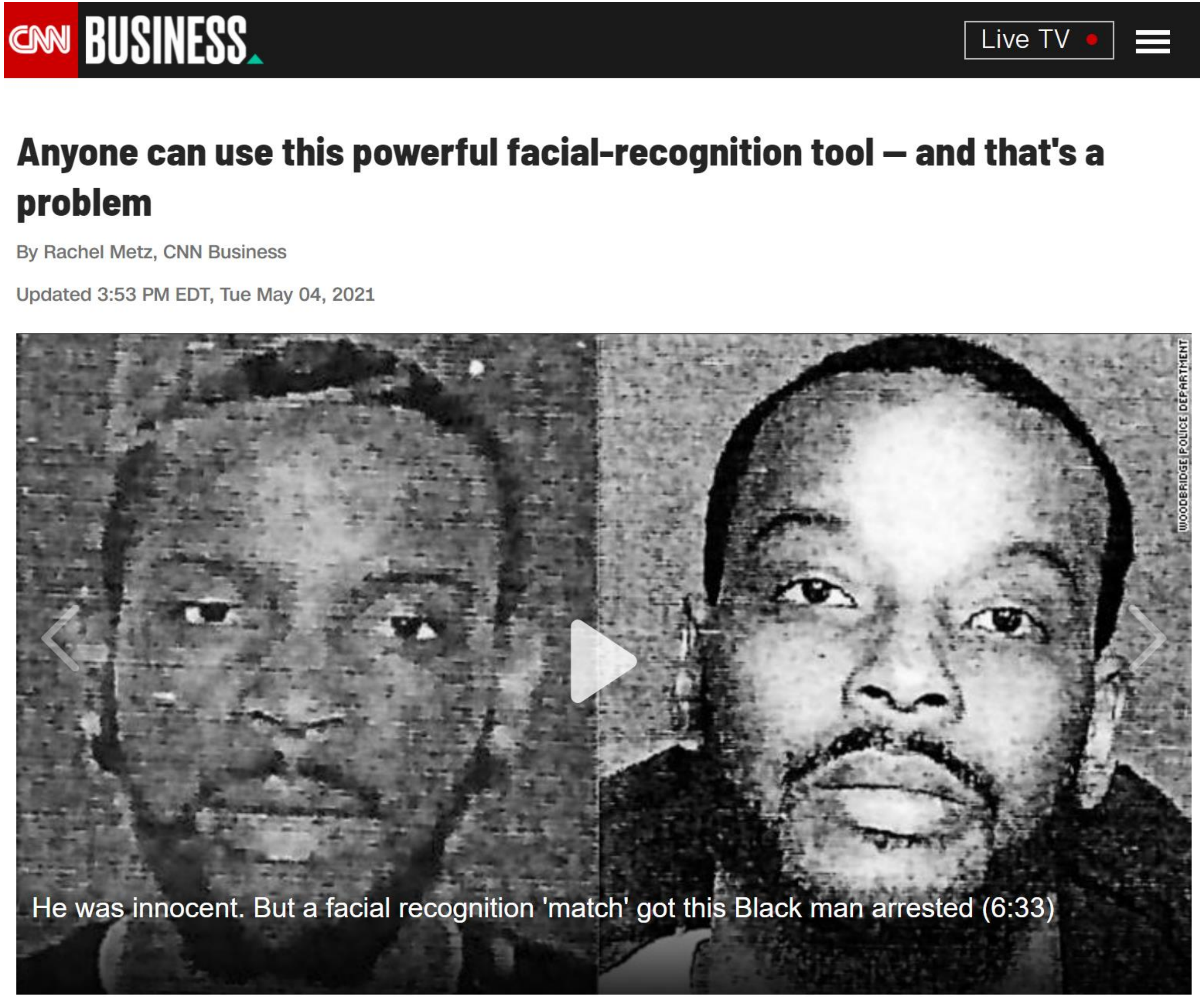


Demystifying AI

Human Compatible AI

Instructor: Pat Virtue

AI in the News



Anyone can use this powerful facial-recognition tool — and that's a problem

By Rachel Metz, CNN Business

Updated 3:53 PM EDT, Tue May 04, 2021

WOODBRIDGE POLICE DEPARTMENT

He was innocent. But a facial recognition 'match' got this Black man arrested (6:33)

https://amp.cnn.com/cnn/2021/05/04/tech/pimeyes-facial-recognition/index.html

AI in the News

The New York Times

The Secretive Company That Might End Privacy as We Know It

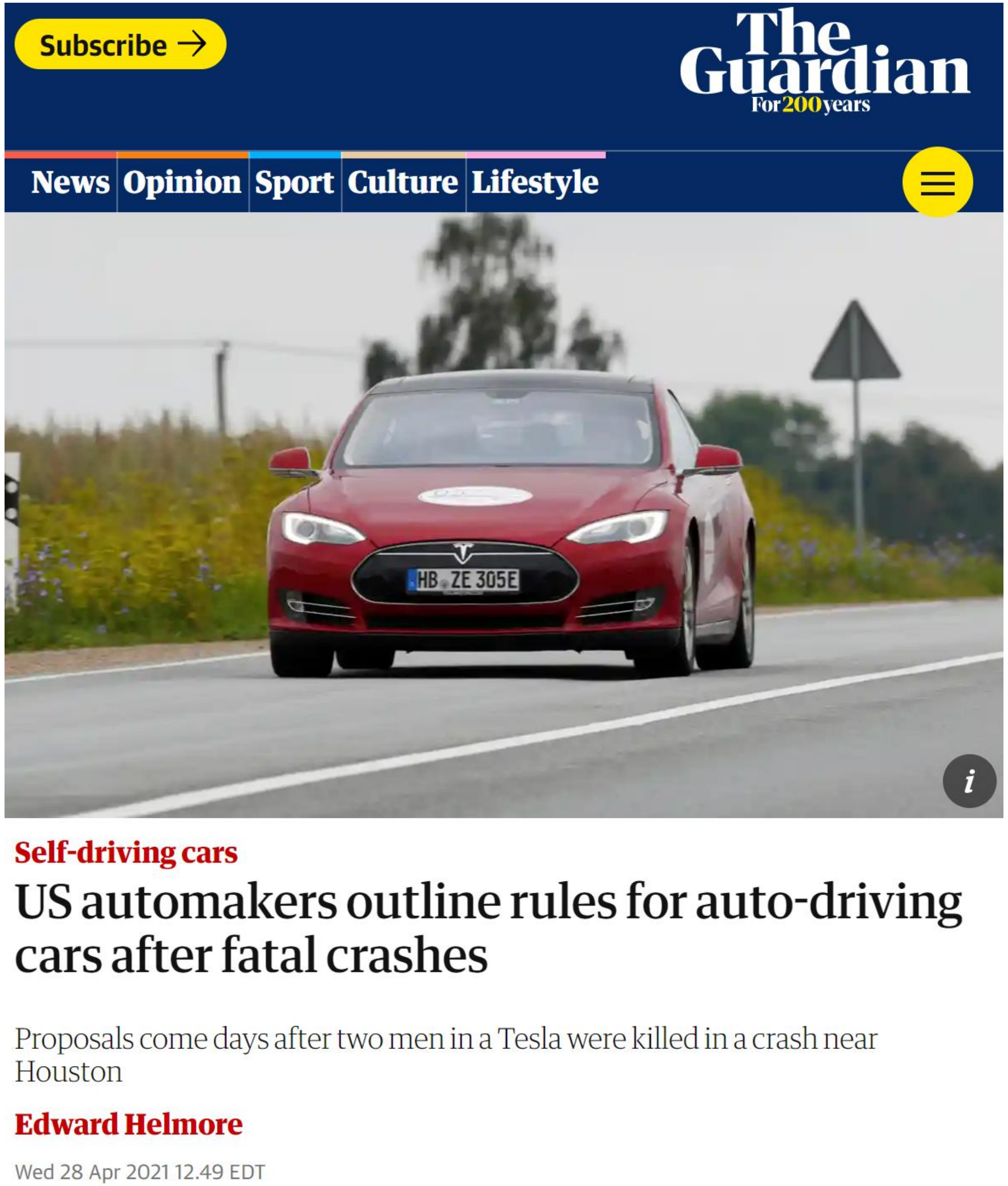
A little-known start-up helps law enforcement match photos of unknown people to their online images — and “might lead to a dystopian future or something,” a backer says.

By Kashmir Hill

Published Jan. 18, 2020 Updated March 18, 2021

https://www.nytimes.com/2020/01/18/technology/clearview-privacy-facial-recognition.html

AI in the News



Self-driving cars

US automakers outline rules for auto-driving cars after fatal crashes

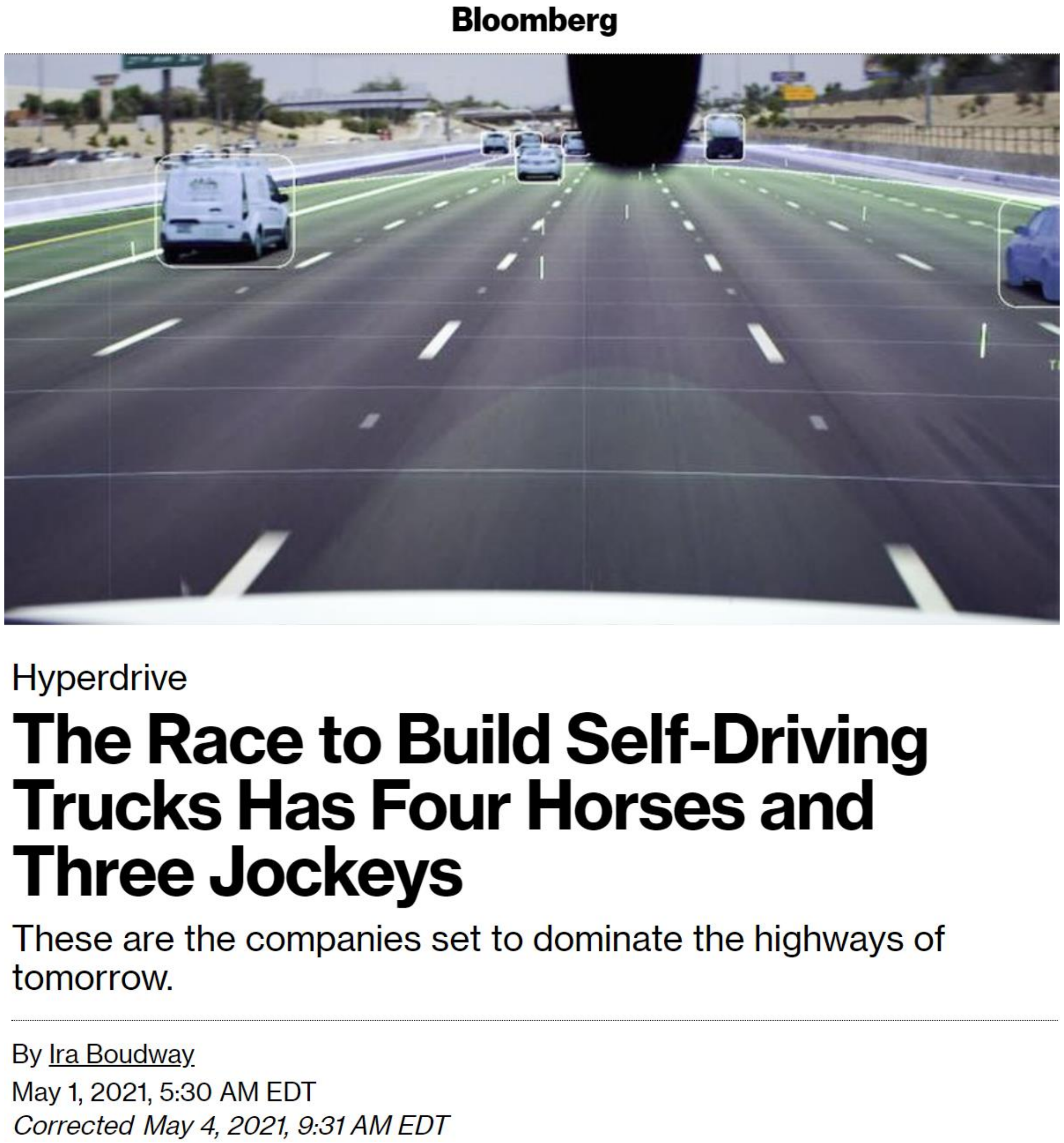
Proposals come days after two men in a Tesla were killed in a crash near Houston

Edward Helmore

Wed 28 Apr 2021 12.49 EDT

https://amp.theguardian.com/business/2021/apr/28/us-automakers-rules-auto-driving-cars-fatal-crashes

AI in the News



Bloomberg

Hyperdrive

The Race to Build Self-Driving Trucks Has Four Horses and Three Jockeys

These are the companies set to dominate the highways of tomorrow.

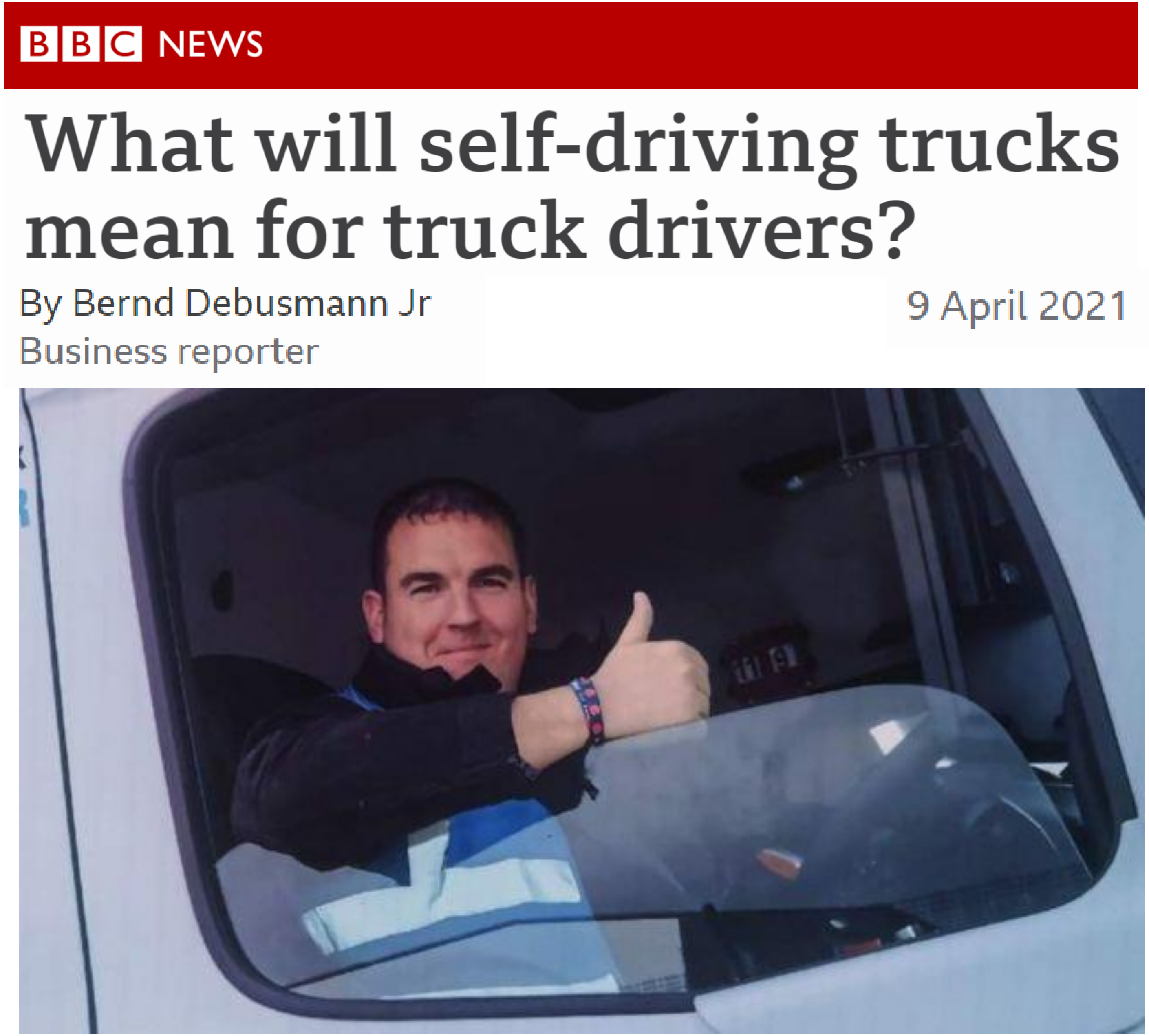
By Ira Boudway

May 1, 2021, 5:30 AM EDT

Corrected May 4, 2021, 9:31 AM EDT

https://www.bloomberg.com/news/articles/2021-05-01/waymo-tusimple-aurora-inside-the-race-to-build-self-driving-trucks

AI in the News



BBC NEWS

What will self-driving trucks mean for truck drivers?

By Bernd Debusmann Jr
Business reporter

9 April 2021

https://www.bbc.com/news/business-56332388.amp

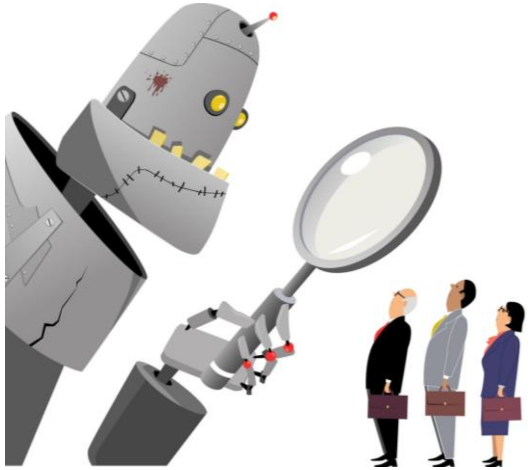
Poll 1

Is it ok if autonomous vehicles completely replace human drivers?

Should We Worry about Today’s A.I.?

Should We Worry about Today's A.I.?

Bias/Fairness

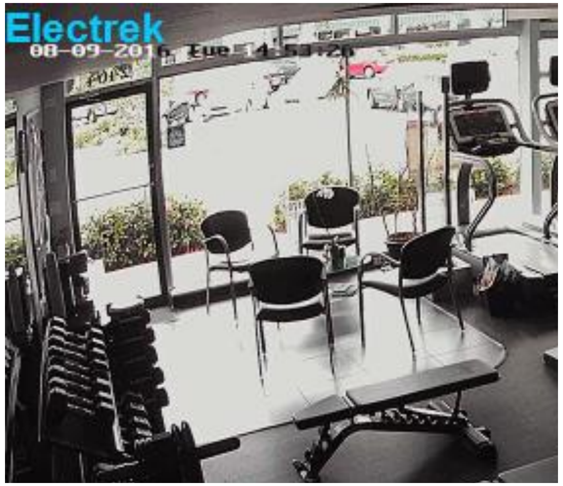


Privacy

Jobs

Weapons/Safety

Liability



Additional Resources and Ideas

AI Bias/Fairness

ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT)

A computer science conference with a cross-disciplinary focus that brings together researchers and practitioners interested in fairness, accountability, and transparency in socio-technical systems.

Alexandra Chouldechova
CMU, Statistics and Public Policy
http://www.contrib.andrew.cmu.edu/~achoulde/

https://facctconference.org/

AI Bias/Fairness

Hoda Heidari

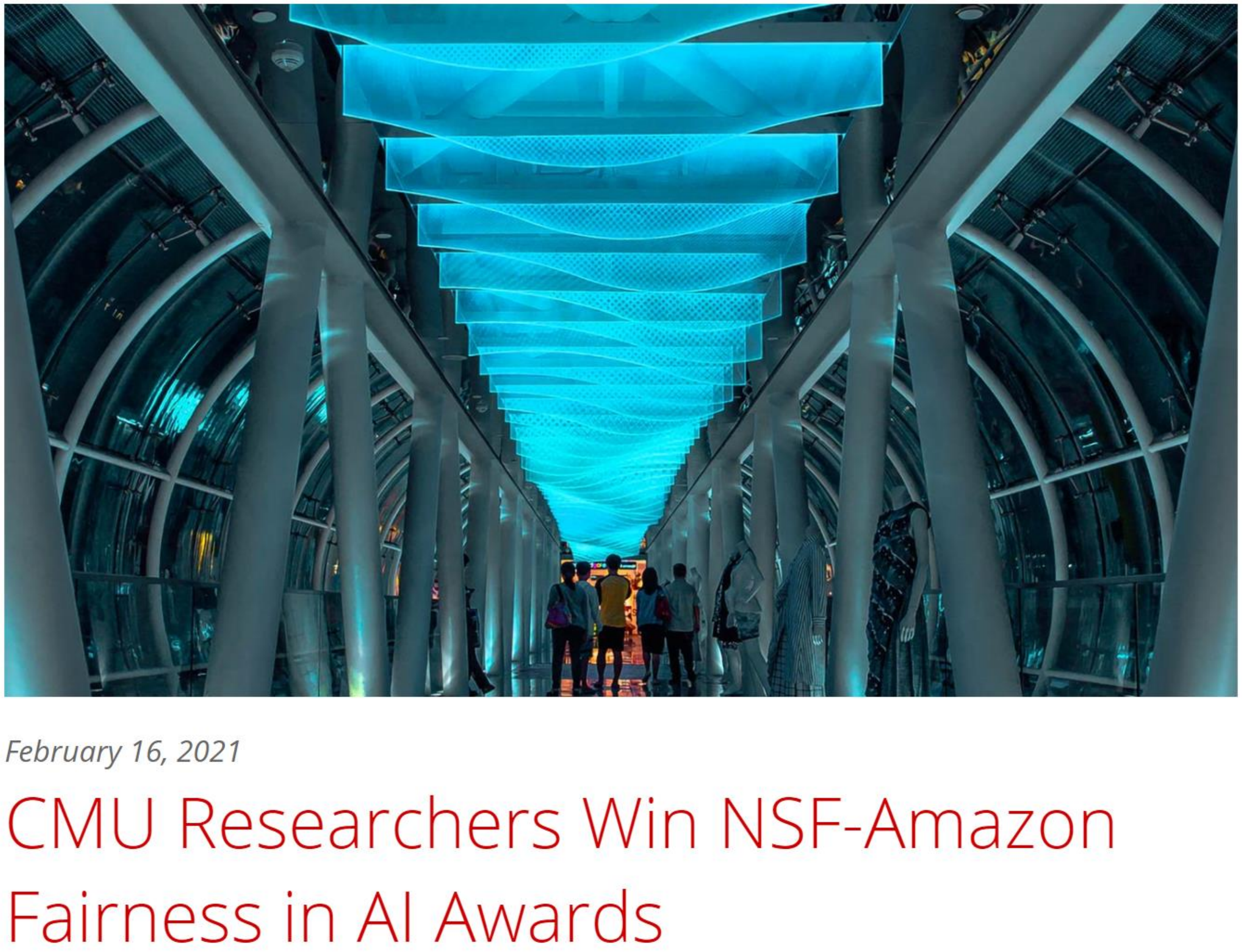
MLD

Jason Hong

HCII

Graham Neubig

LTI



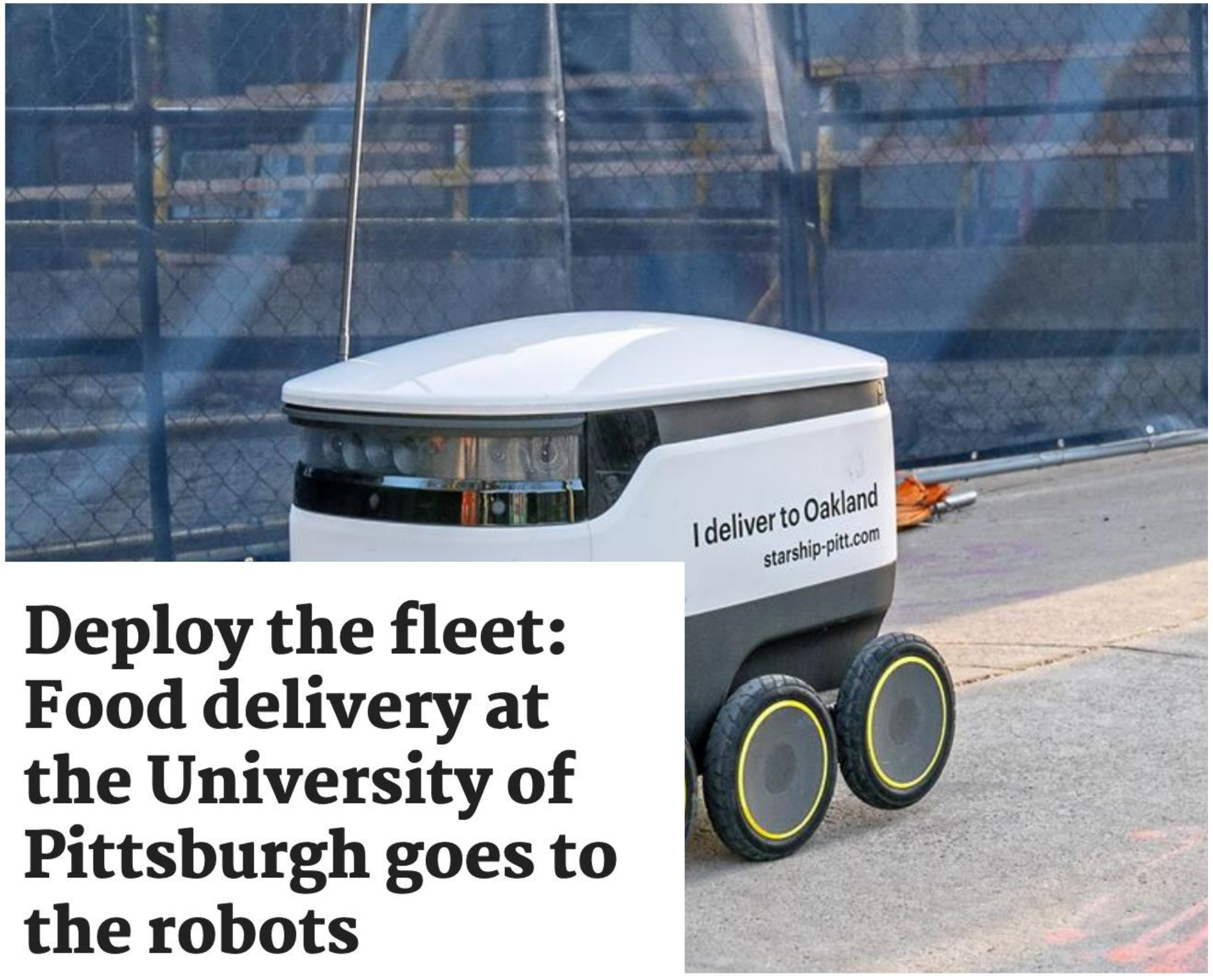
February 16, 2021

CMU Researchers Win NSF-Amazon Fairness in AI Awards

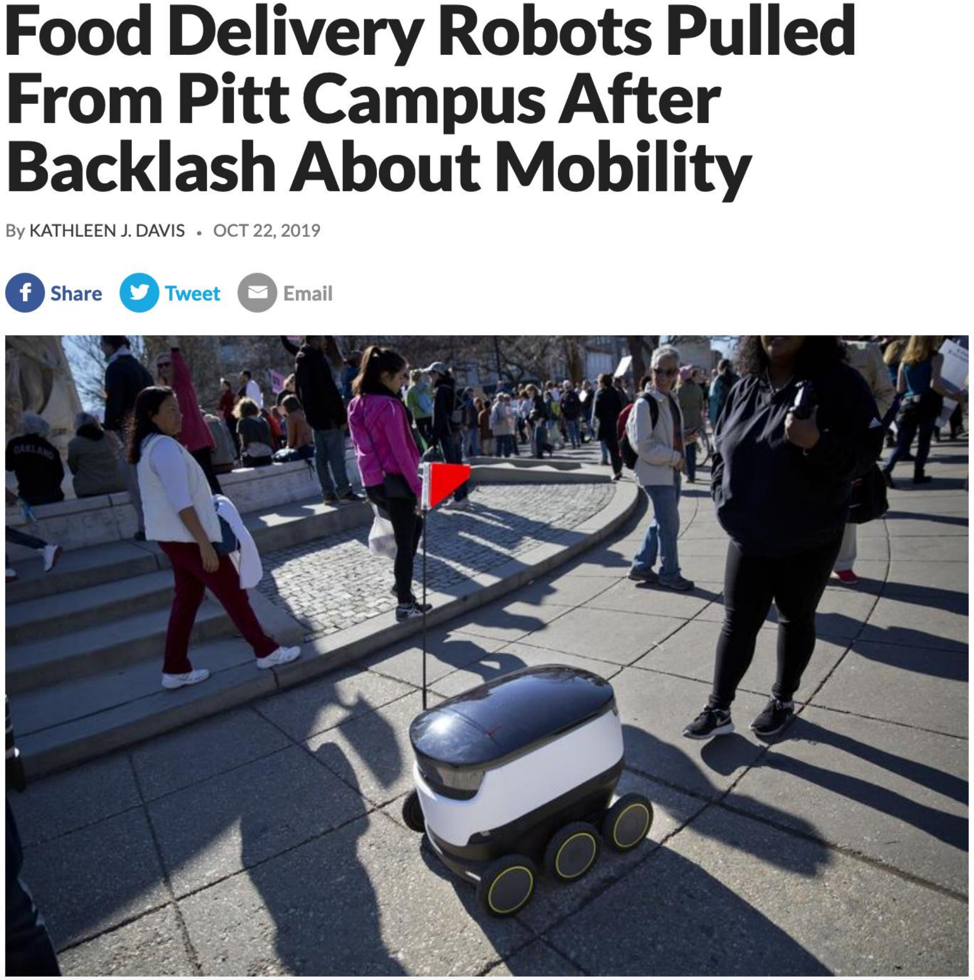
https://www.ml.cmu.edu/news/news-archive/2021-2025/2021/february/carnegie-mellon-researchers-win-nsf-amazon-fairness-in-ai-awards.html

AI Bias/Fairness

Question: What technique could have been used to learn from the mistake?



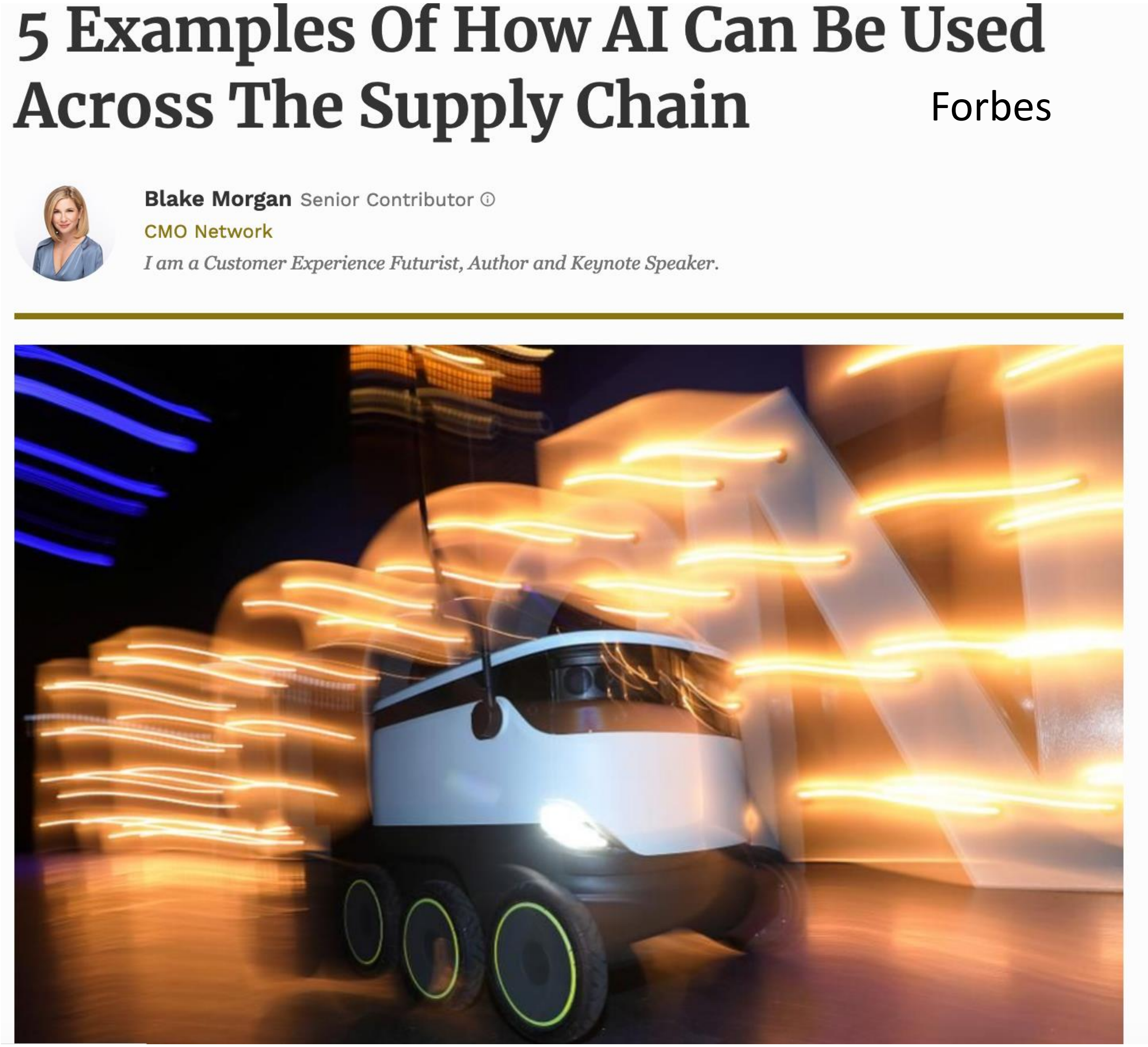
Deploy the fleet: Food delivery at the University of Pittsburgh goes to the robots



Food Delivery Robots Pulled From Pitt Campus After Backlash About Mobility

By KATHLEEN J. DAVIS • OCT 22, 2019

AI Bias/Fairness



5 Examples Of How AI Can Be Used Across The Supply Chain

Forbes

Blake Morgan Senior Contributor ⓘ

CMO Network

I am a Customer Experience Futurist, Author and Keynote Speaker.

Search/Navigation:

Create efficient routes for the fleet of trucks

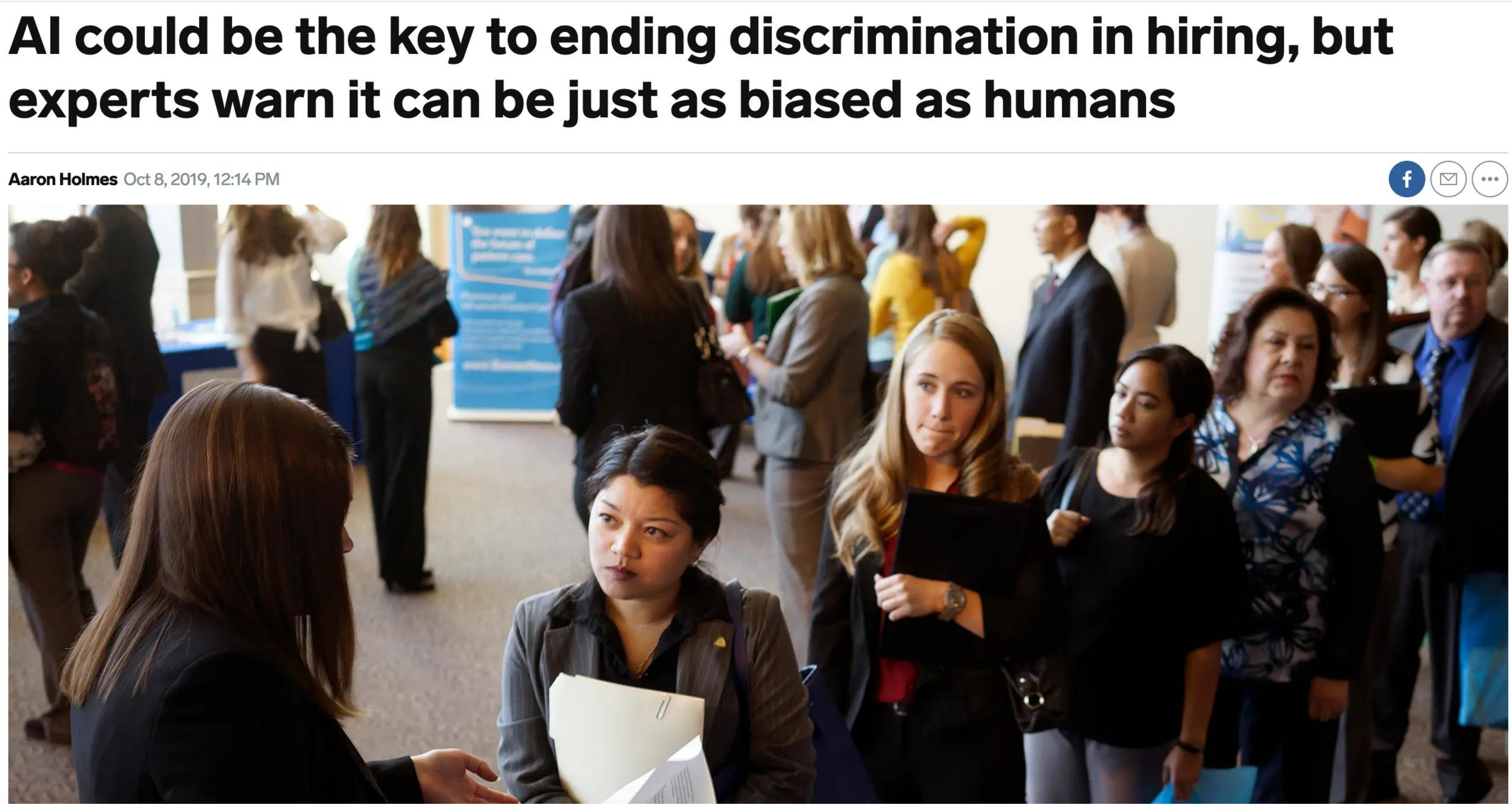
Use of robots to deliver medicine, groceries etc

CSPs:

Deciding which stores get preference for deliveries

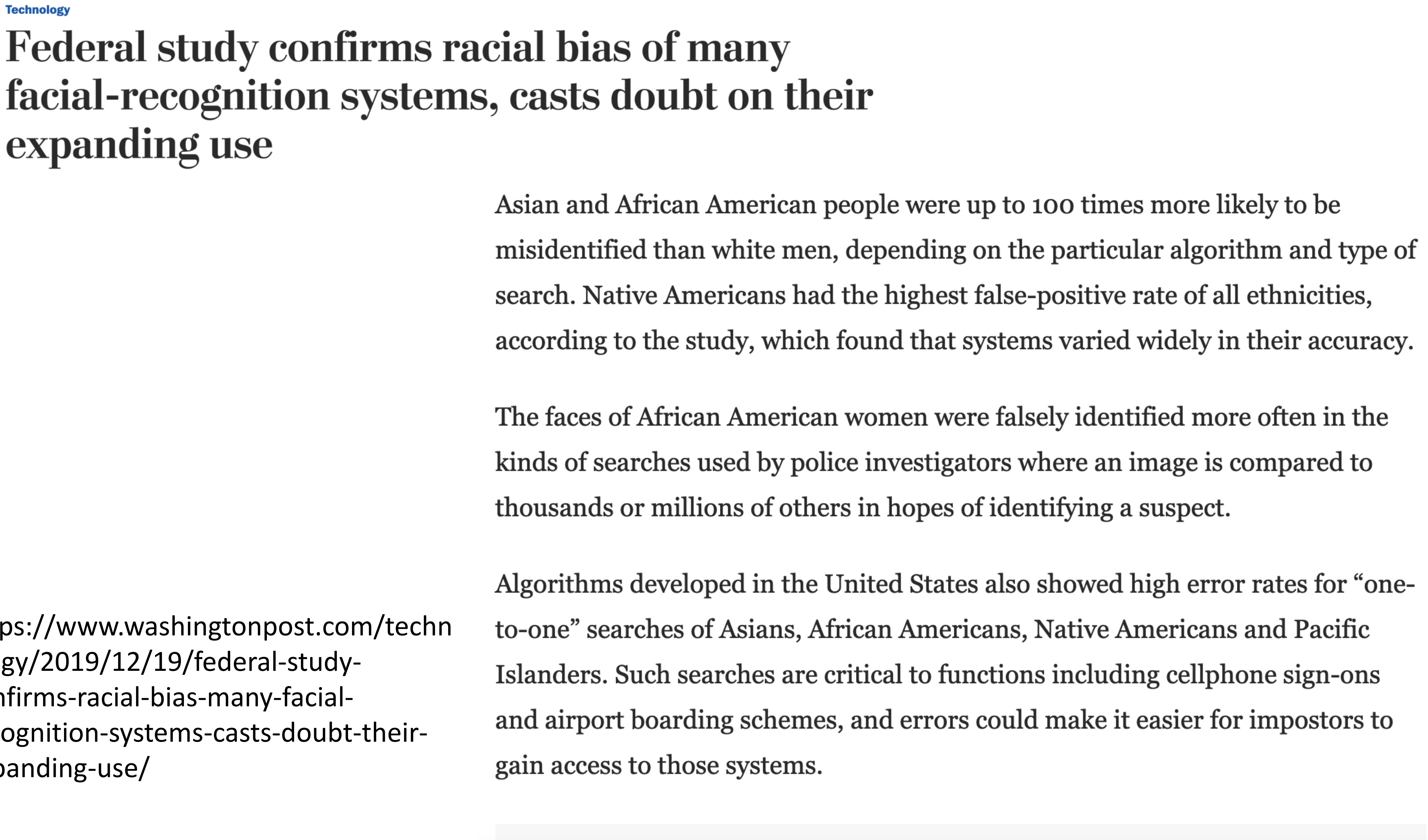
Deciding what products go to what stores

AI Bias/Fairness



AI could be the key to ending discrimination in hiring, but experts warn it can be just as biased as humans

Aaron Holmes Oct 8, 2019, 12:14 PM



Technology

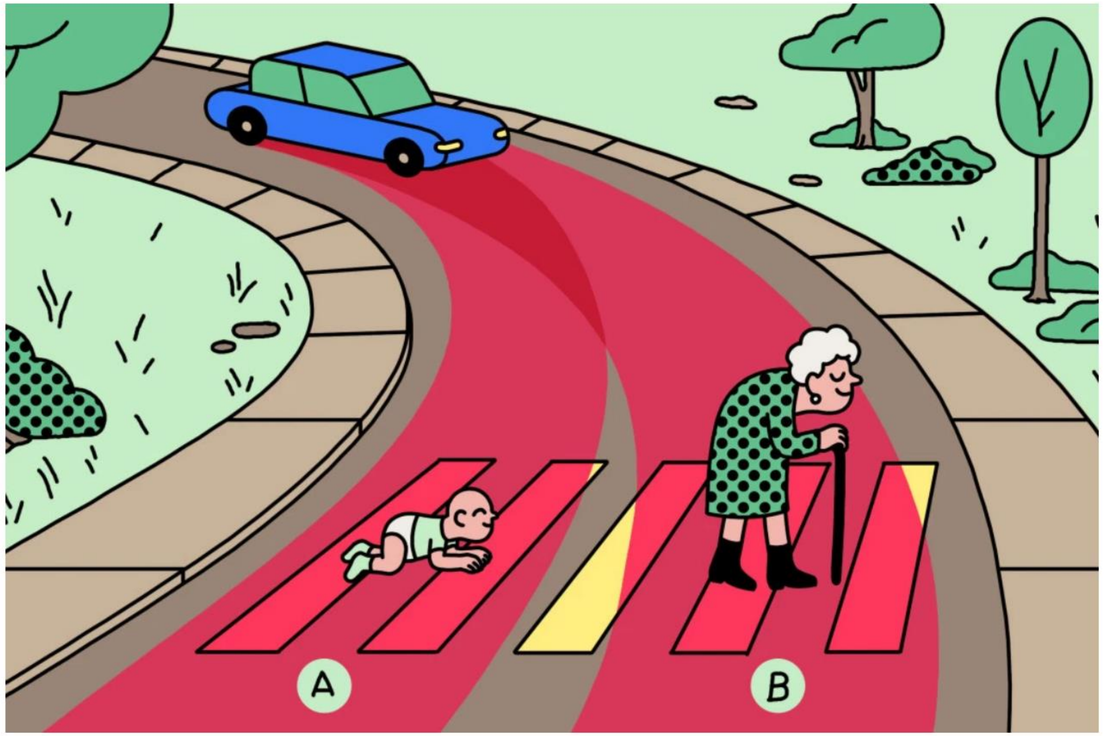
Federal study confirms racial bias of many facial-recognition systems, casts doubt on their expanding use

Asian and African American people were up to 100 times more likely to be misidentified than white men, depending on the particular algorithm and type of search. Native Americans had the highest false-positive rate of all ethnicities, according to the study, which found that systems varied widely in their accuracy.

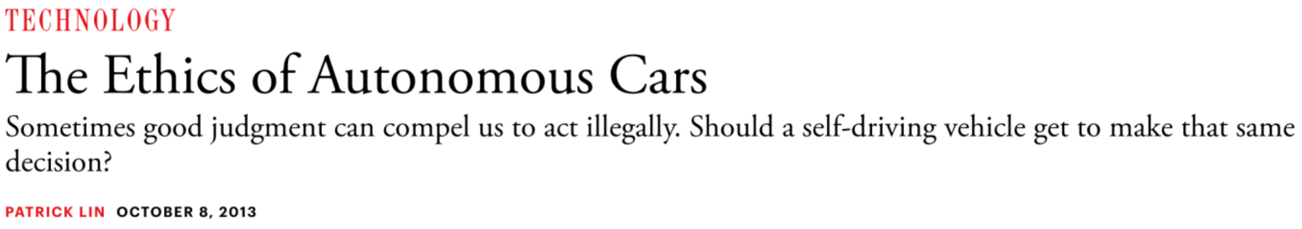
The faces of African American women were falsely identified more often in the kinds of searches used by police investigators where an image is compared to thousands or millions of others in hopes of identifying a suspect.

Algorithms developed in the United States also showed high error rates for “one-to-one” searches of Asians, African Americans, Native Americans and Pacific Islanders. Such searches are critical to functions including cellphone sign-ons and airport boarding schemes, and errors could make it easier for impostors to gain access to those systems.

https://www.washingtonpost.com/technology/2019/12/19/federal-study-confirms-racial-bias-many-facial-recognition-systems-casts-doubt-their-expanding-use/



SIMON LANDREIN



TECHNOLOGY

The Ethics of Autonomous Cars

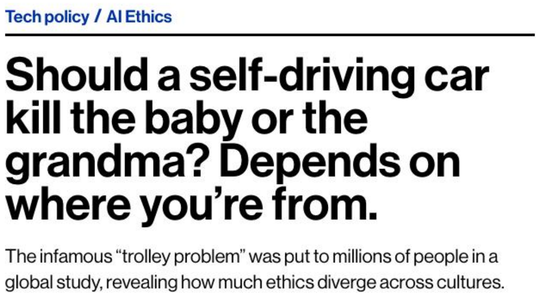
Sometimes good judgment can compel us to act illegally. Should a self-driving vehicle get to make that same decision?

PATRICK LIN OCTOBER 8, 2013

NEWS · 24 OCTOBER 2018

Self-driving car dilemmas reveal that moral choices are not universal

Survey maps global variations in ethics for programming autonomous vehicles.



Tech policy / AI Ethics

Should a self-driving car kill the baby or the grandma? Depends on where you're from.

The infamous "trolley problem" was put to millions of people in a global study, revealing how much ethics diverge across cultures.

https://www.moralmachine.net/

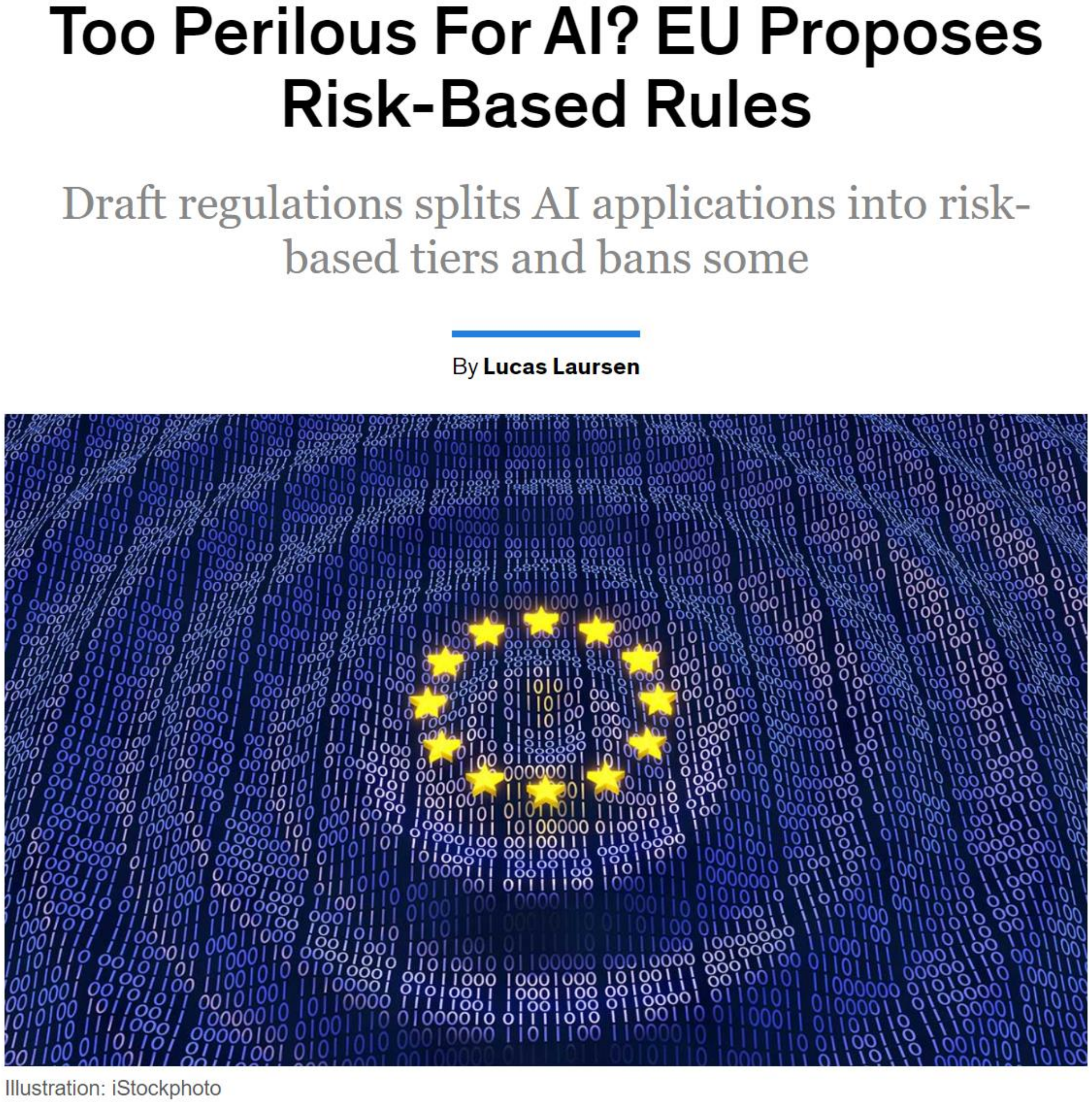
https://www.technologyreview.com/2018/10/24/139313/a-global-ethics-study-aims-to-help-ai-solve-the-self-driving-trolley-problem/

https://www.theatlantic.com/technology/archive/2013/10/the-ethics-of-autonomous-cars/280360/

AI Weapons/Safety

https://www.youtube.com/watch?v=9CO6M2HsoIA

AI Weapons/Safety



Too Perilous For AI? EU Proposes Risk-Based Rules

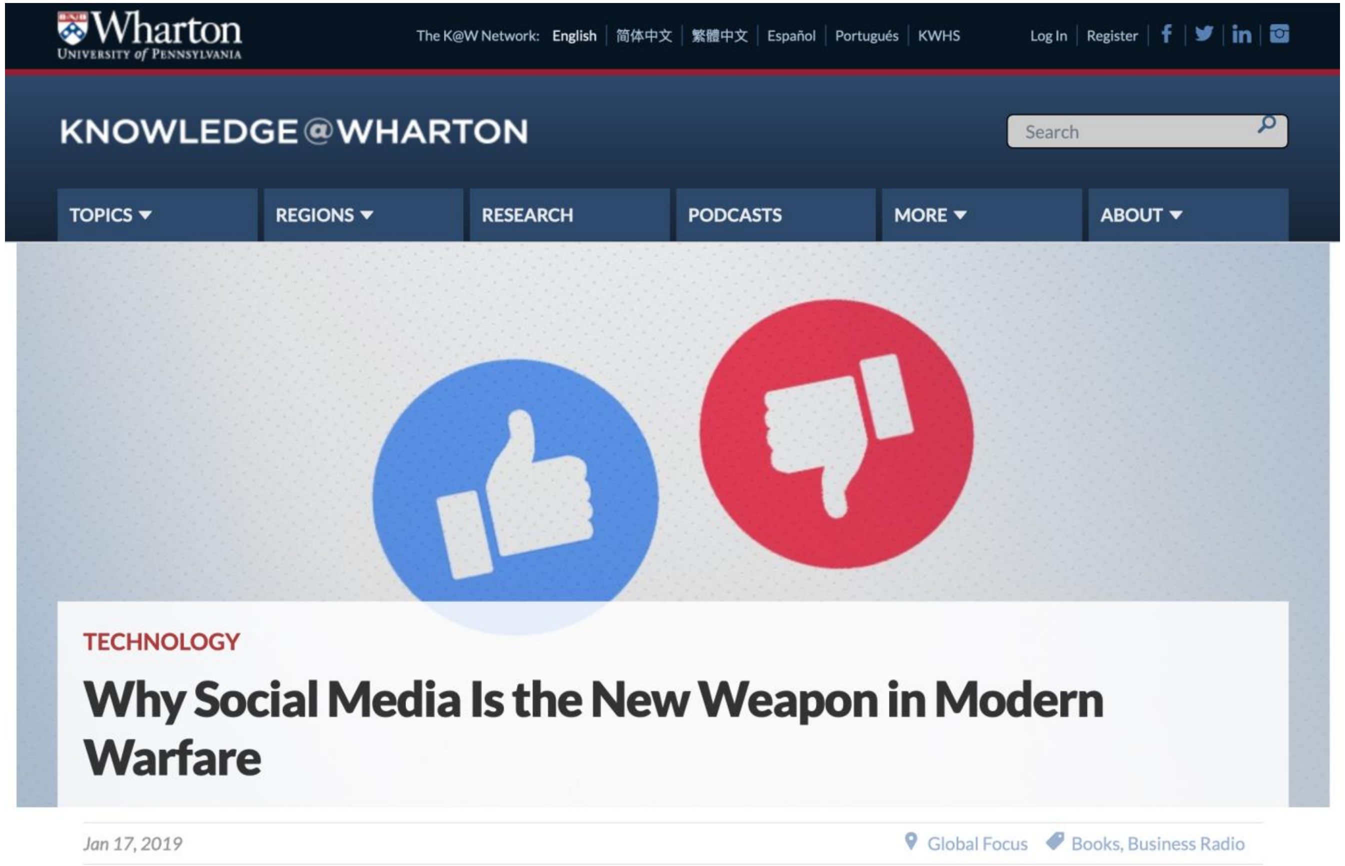
Draft regulations splits AI applications into risk-based tiers and bans some

By Lucas Laursen

Illustration: iStockphoto

https://spectrum.ieee.org/tech-talk/artificial-intelligence/embedded-ai/euairules

AI Weapons/Safety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University of Pennsylvania
The K@W Network: English | 简体中文 | 繁體中文 | Español | Português | KWHS
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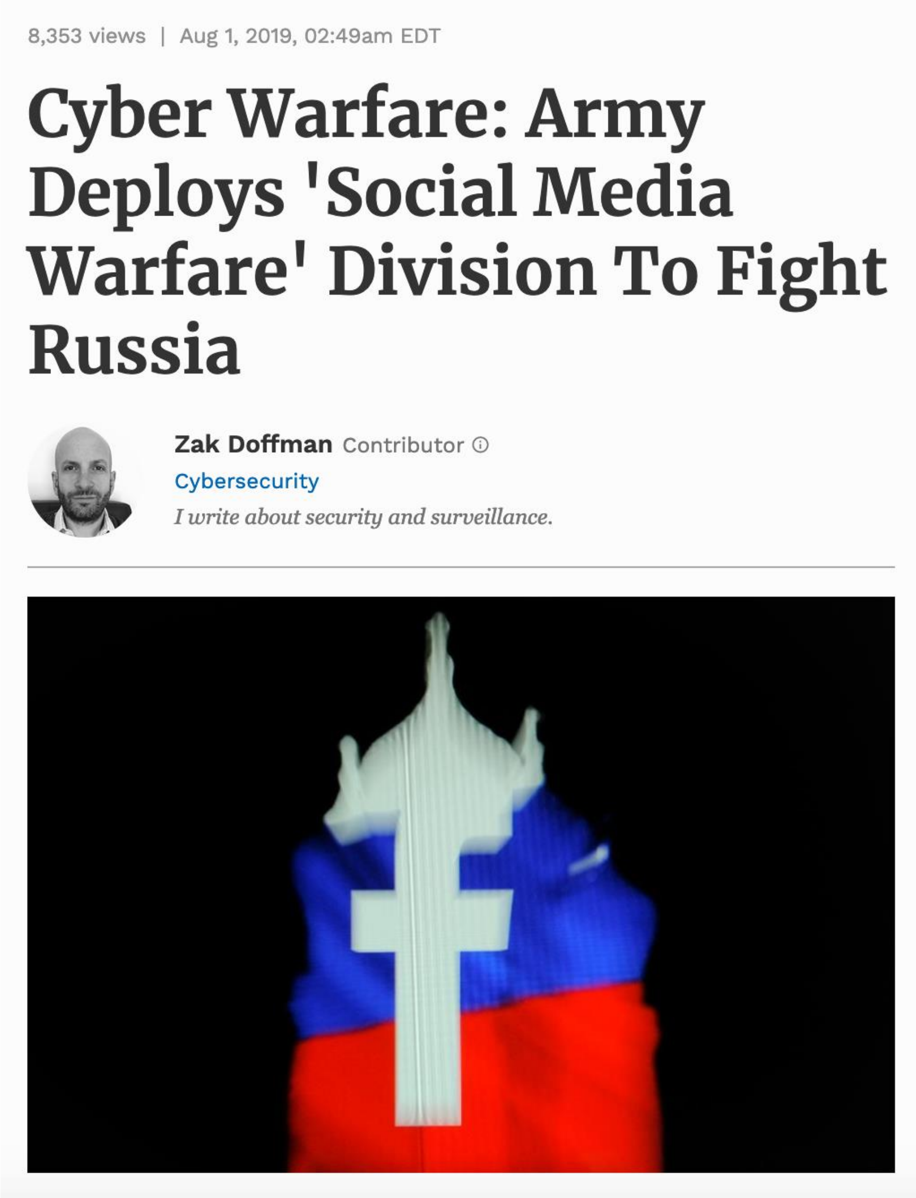
TECHNOLOGY

Why Social Media Is the New Weapon in Modern Warfare

Jan 17, 2019

Global Focus Books, Business Radio



8,353 views | Aug 1, 2019, 02:49am EDT

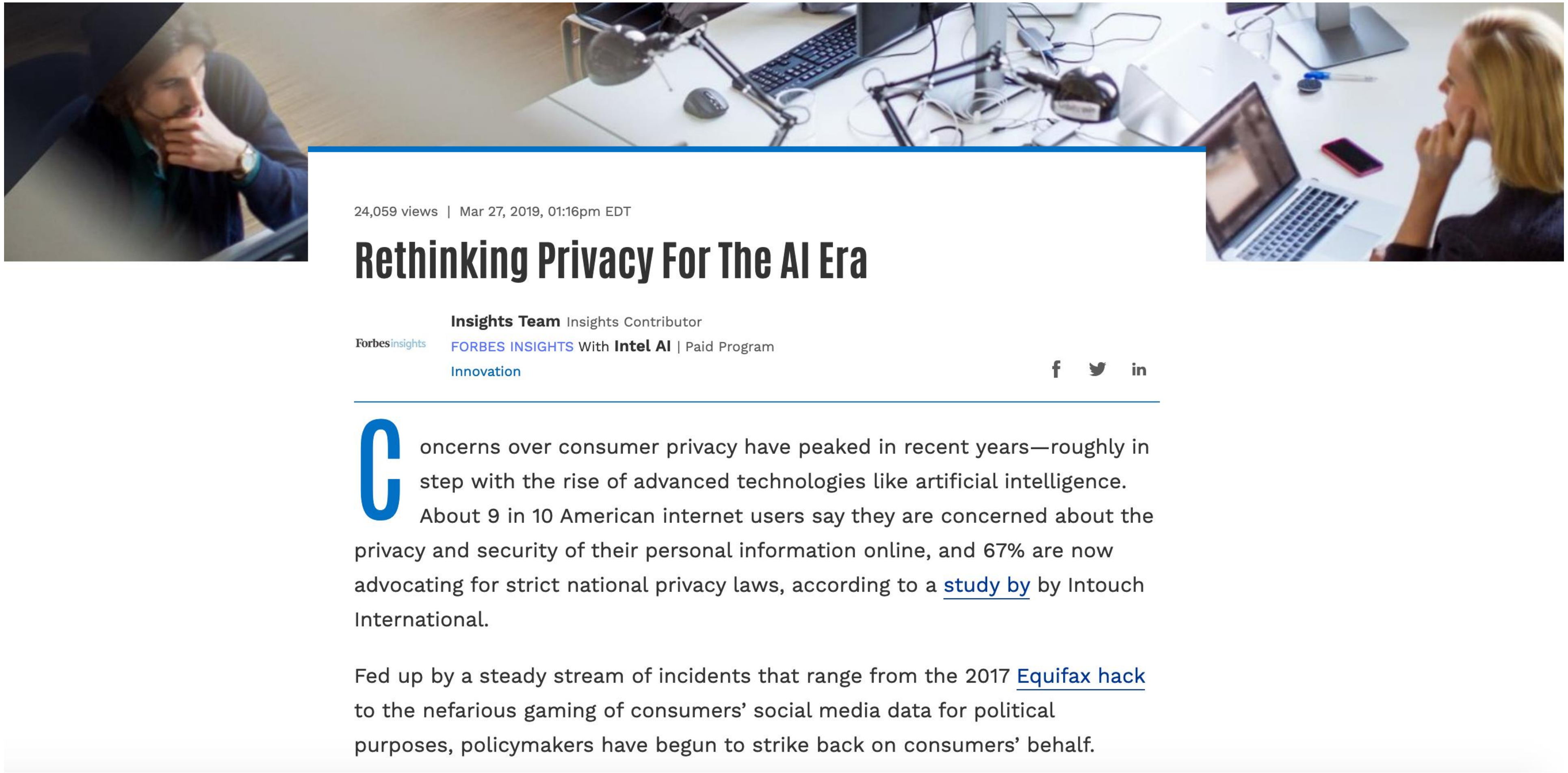
Cyber Warfare: Army Deploys 'Social Media Warfare' Division To Fight Russia

Zak Doffman Contributor

Cybersecurity

I write about security and surveillance.

AI Privacy



24,059 views | Mar 27, 2019, 01:16pm EDT

Rethinking Privacy For The AI Era

Forbes insights

Insights Team Insights Contributor
FORBES INSIGHTS With **Intel AI** | Paid Program
Innovation

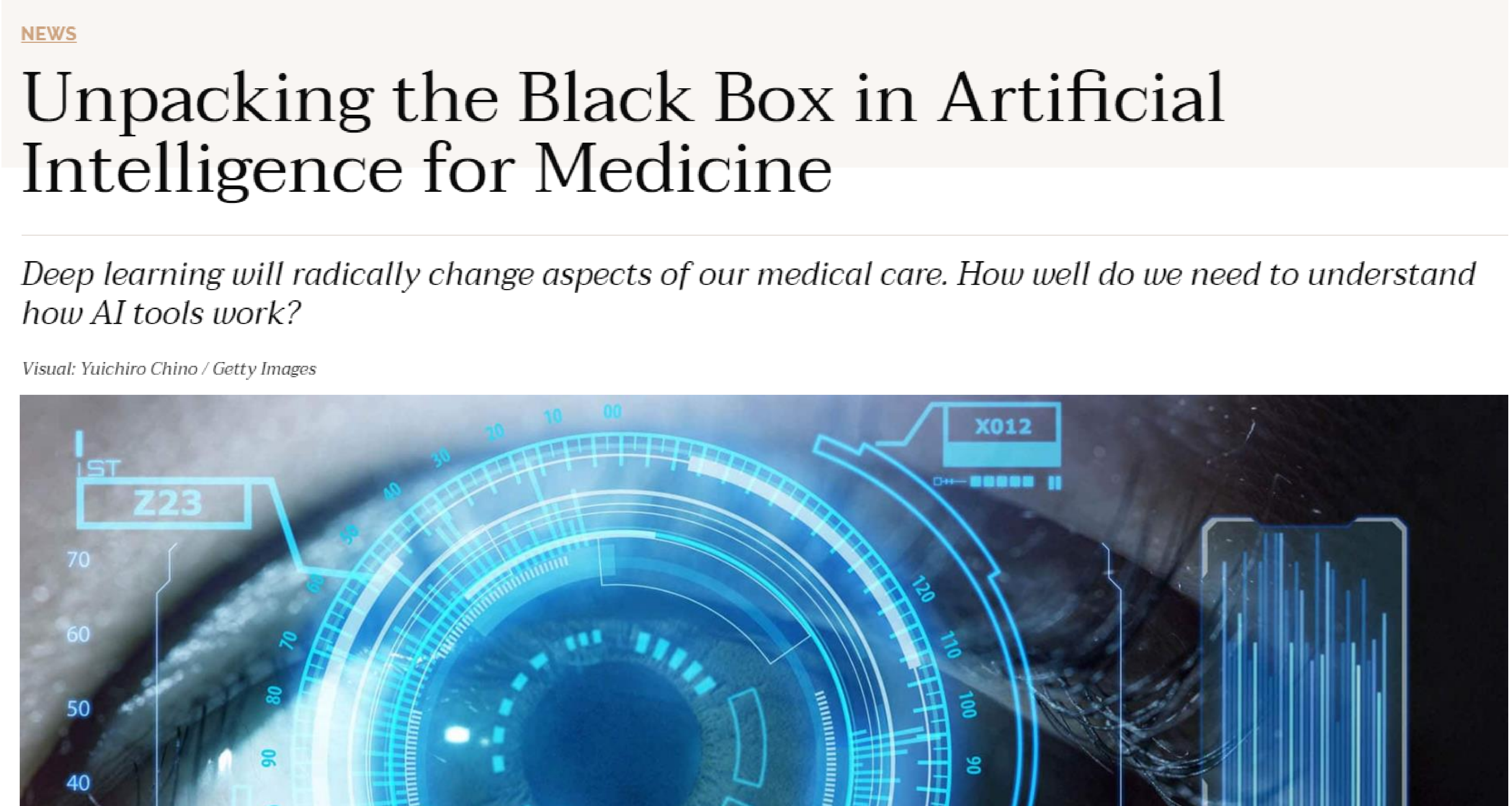
Concerns over consumer privacy have peaked in recent years—roughly in step with the rise of advanced technologies like artificial intelligence. About 9 in 10 American internet users say they are concerned about the privacy and security of their personal information online, and 67% are now advocating for strict national privacy laws, according to a study by by Intouch International.

Fed up by a steady stream of incidents that range from the 2017 Equifax hack to the nefarious gaming of consumers' social media data for political purposes, policymakers have begun to strike back on consumers' behalf.

https://www.forbes.com/sites/insights-intelai/2019/03/27/rethinking-privacy-for-the-ai-era

AI Liability

https://undark.org/2019/12/04/black-box-artificial-intelligence/



NEWS

Unpacking the Black Box in Artificial Intelligence for Medicine

Deep learning will radically change aspects of our medical care. How well do we need to understand how AI tools work?

Visual: Yuichiro Chino / Getty Images

AI Jobs

https://www.supplychaindigital.com/technology/ups-invests-autonomous-driving-firm-tusimple

UPS invests in autonomous driving firm TuSimple

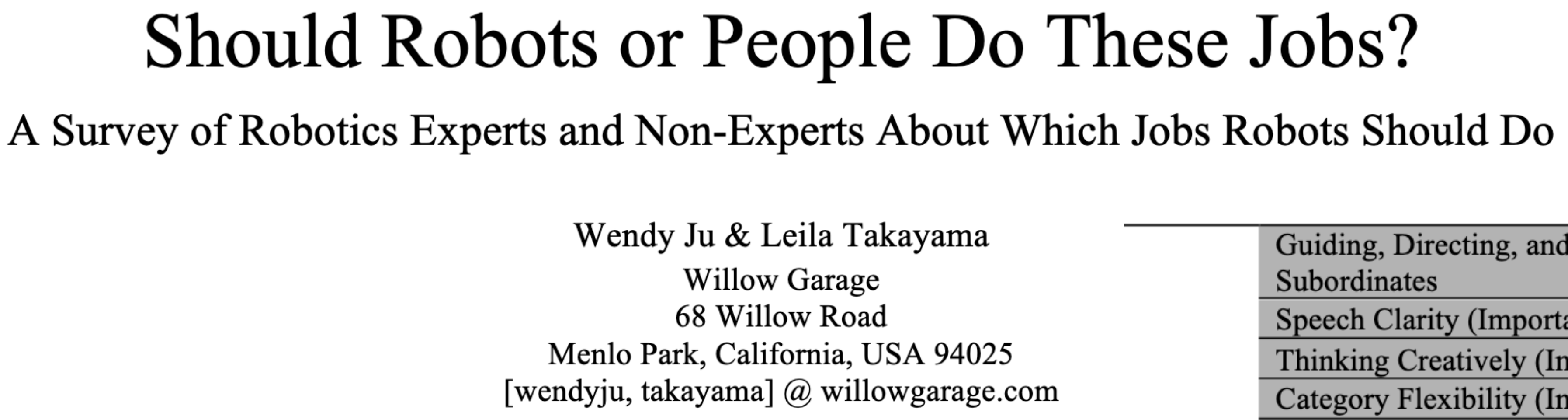
By **SEAN GALEA-PACE** • Aug 15, 2019, 10:20AM

AI Jobs

Is it ok if autonomous vehicles completely replace human drivers?

- https://www.brookings.edu/research/what-jobs-are-affected-by-ai-better-paid-better-educated-workers-face-the-most-exposure/
- https://www.vox.com/platform/amp/policy-and-politics/2019/12/3/20965464/2020-presidential-candidates-jobs-automation-ai
- https://www.irishtimes.com/business/technology/short-window-to-stop-ai-taking-control-of-society-warns-ex-google-employee-1.4104535

AI Jobs

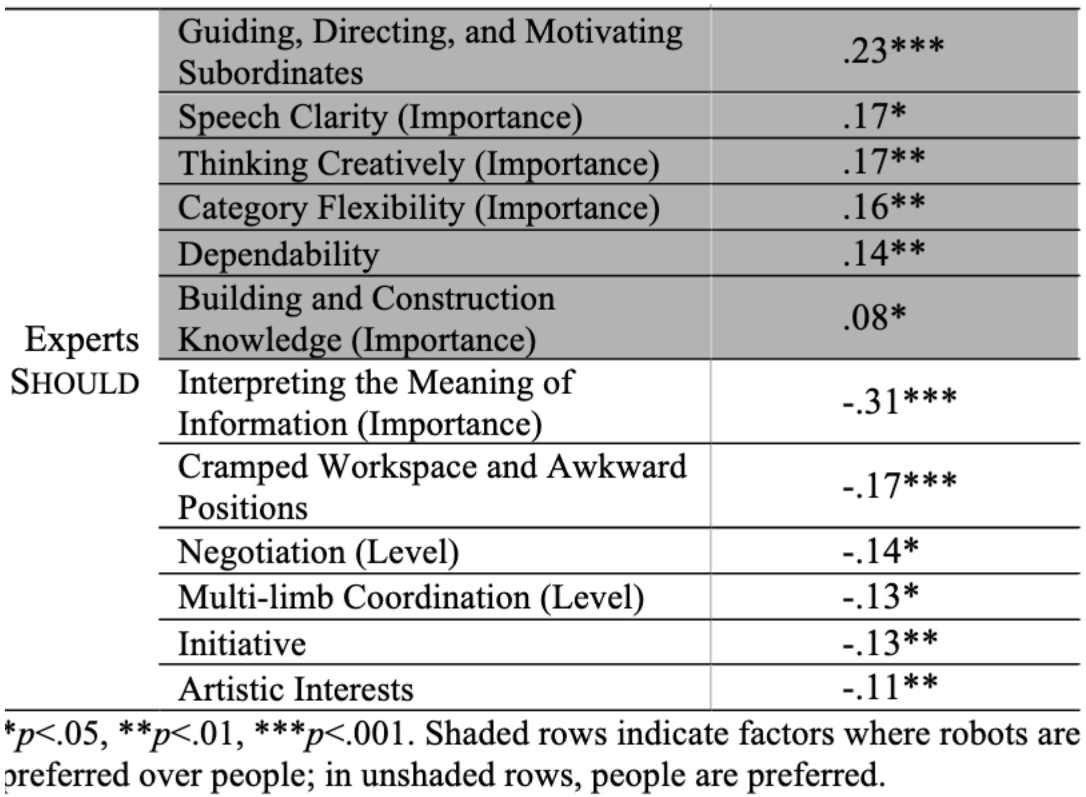


Should Robots or People Do These Jobs?

A Survey of Robotics Experts and Non-Experts About Which Jobs Robots Should Do

Wendy Ju & Leila Takayama
Willow Garage
68 Willow Road
Menlo Park, California, USA 94025
[wendyju, takayama] @ willowgarage.com

http://www.wendyju.com/publications/ju_iros11.pdf

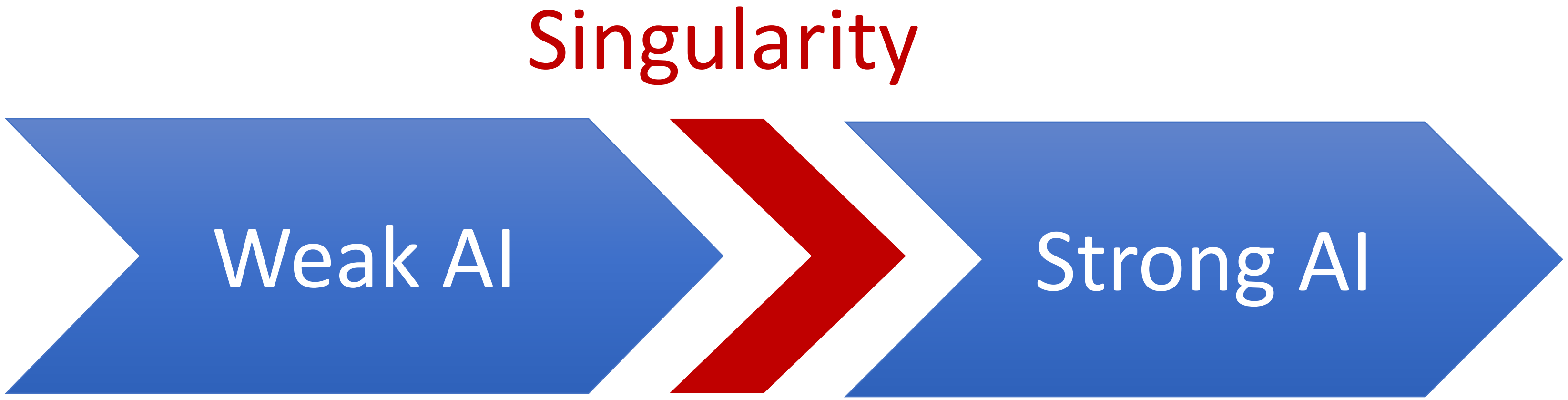


Experts SHOULD	Guiding, Directing, and Motivating Subordinates	.23***
	Speech Clarity (Importance)	.17*
	Thinking Creatively (Importance)	.17**
	Category Flexibility (Importance)	.16**
	Dependability	.14**
	Building and Construction Knowledge (Importance)	.08*
	Interpreting the Meaning of Information (Importance)	-.31***
	Cramped Workspace and Awkward Positions	-.17***
	Negotiation (Level)	-.14*
	Multi-limb Coordination (Level)	-.13*
	Initiative	-.13**
	Artistic Interests	-.11**

*p<.05, **p<.01, ***p<.001. Shaded rows indicate factors where robots are preferred over people; in unshaded rows, people are preferred.

What about the Future?

Should we worry about future A.I.?



Singularity

Weak AI

Strong AI

- Narrow AI
- Limited number of applications

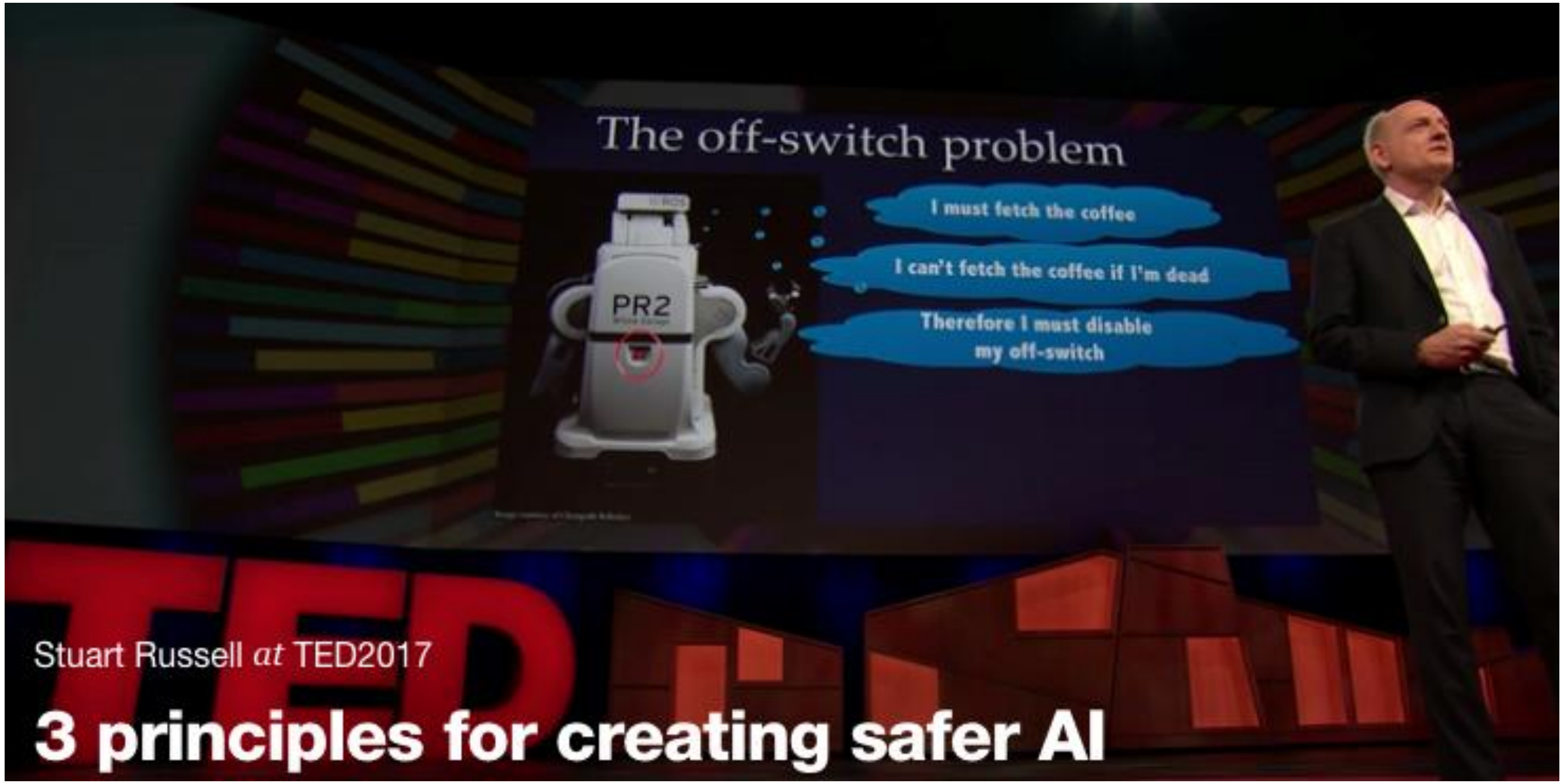
- Artificial General Intelligence (AGI)
- Recursive self-improvement
- Beyond human control

Should we worry about future A.I.?

Question: What motivation could cause problems?

Should we worry about future A.I.?

Stuart Russell, UC Berkeley Center for Human-Compatible AI


The off-switch problem
PR2
I must fetch the coffee
I can't fetch the coffee if I'm dead
Therefore I must disable my off-switch
TED
Stuart Russell *at* TED2017
3 principles for creating safer AI

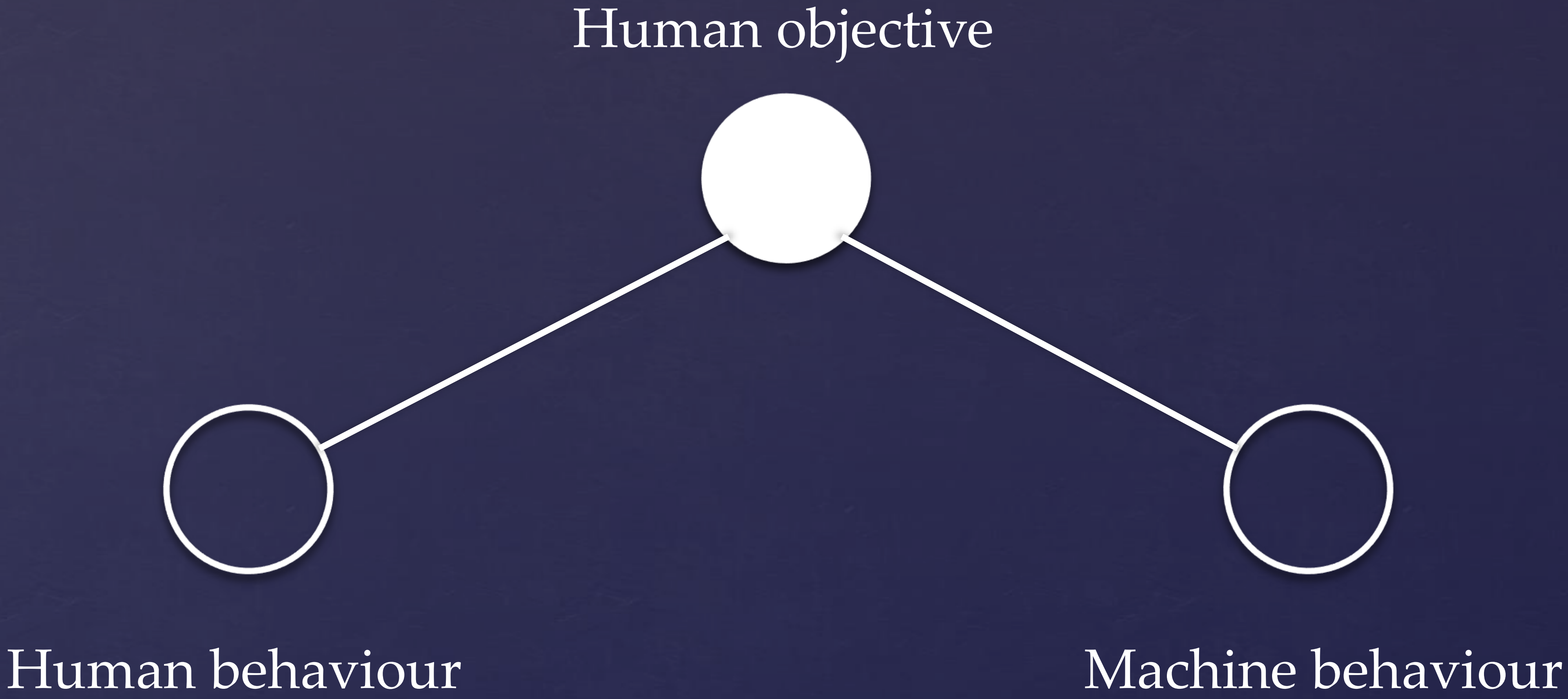
https://www.ted.com/talks/stuart_russell_how_ai_might_make_us_better_people

Three simple ideas

1. The robot’s only objective is to maximize the realization of human values
2. The robot is initially uncertain about what those values are
3. The best source of information about human values is human behavior

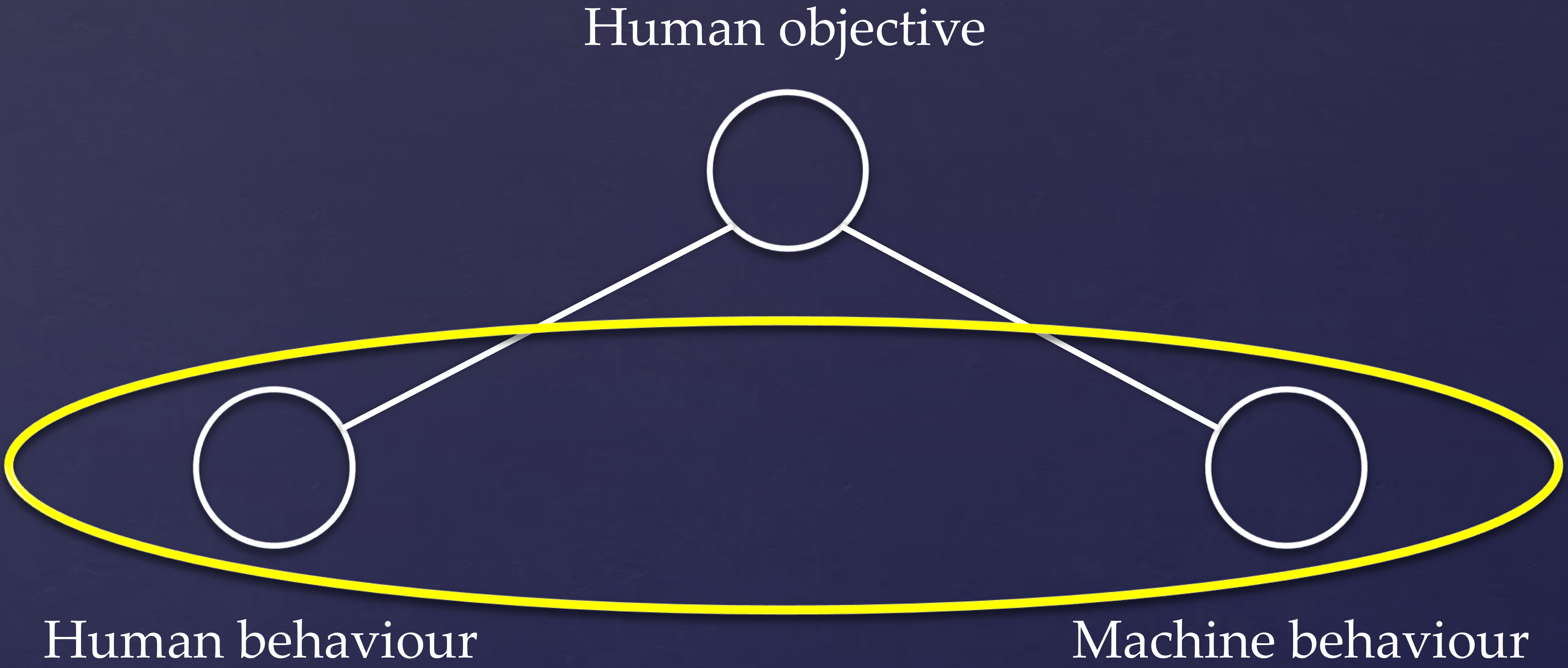
Slides: Stuart Russell, IJCAI 2017

AIMA 1,2,3: objective given to machine



Slides: Stuart Russell, IJCAI 2017

AIMA 4: objective is a latent variable



Slides: Stuart Russell, IJCAI 2017

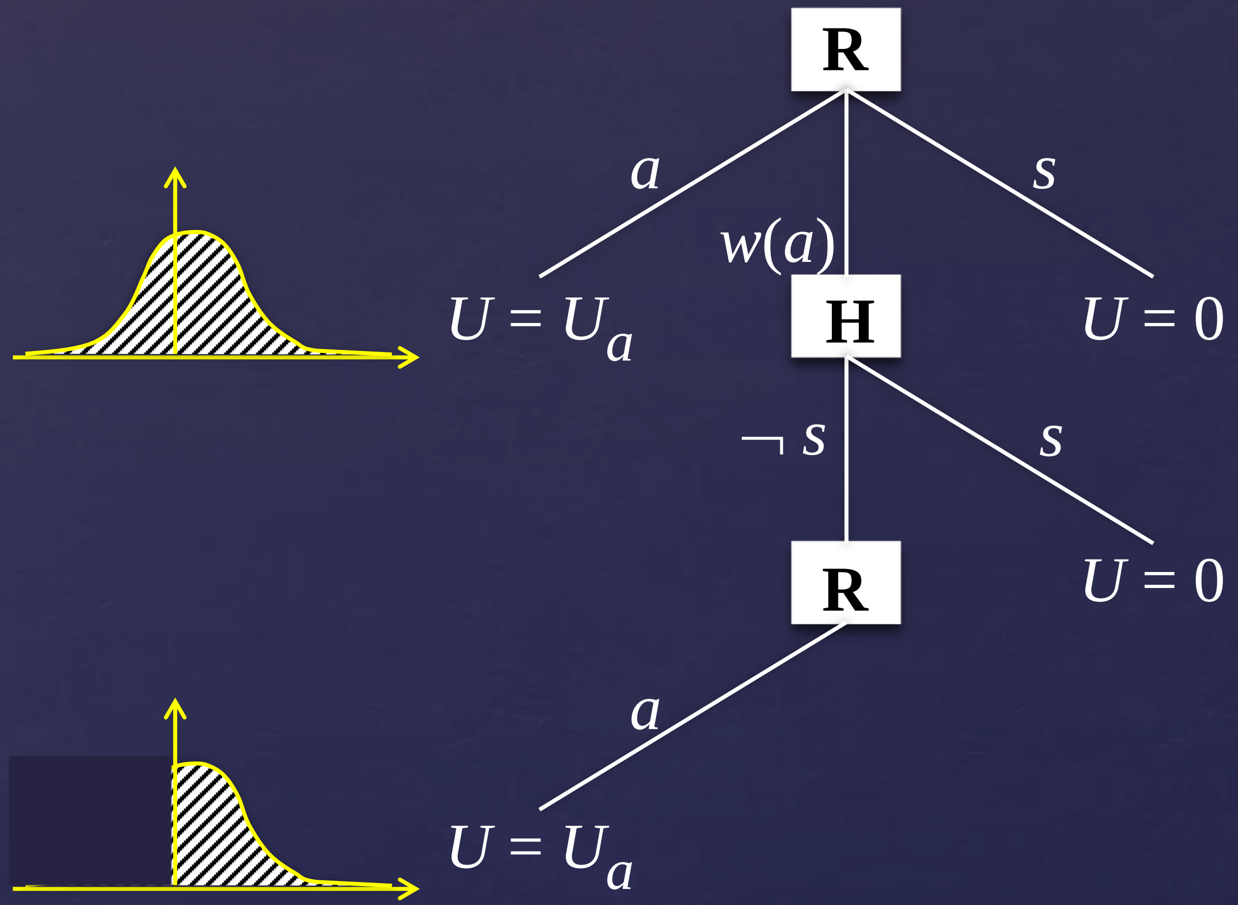
The off-switch problem

- A robot, given an objective, has an incentive to disable its own off-switch

  (You can’t fetch the coffee if you’re dead)
- How can we prevent this?
- Answer: robot must allow for ***uncertainty*** about the true human objective
  - The human will only switch off the robot if that leads to better outcomes for the true human objective
  - Theorem: it’s ***in the robot’s interest*** to allow it
  - Theorem: Such a robot is ***provably beneficial***

Slides: Stuart Russell, IJCAI 2017, with work by Dylan Hadfield-Menell

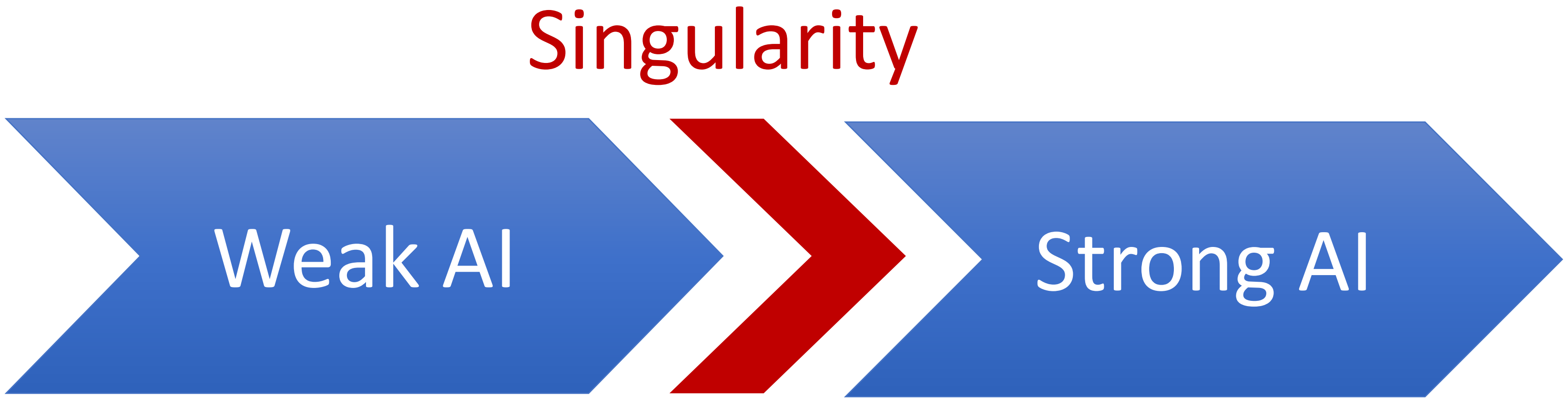
Off-switch model



w(*a*) preferred to *a* or *s*

Slides: Stuart Russell, IJCAI 2017, with work by Dylan Hadfield-Menell

Should we worry about future A.I.?



Singularity

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Thanks Team!!