Silicon vs Carbon: Professional Ethics

Rob Reich, Professor of Political Science

GoldLab Symposium, May 2022

Stanford | McCoy Family Center for Ethics in Society

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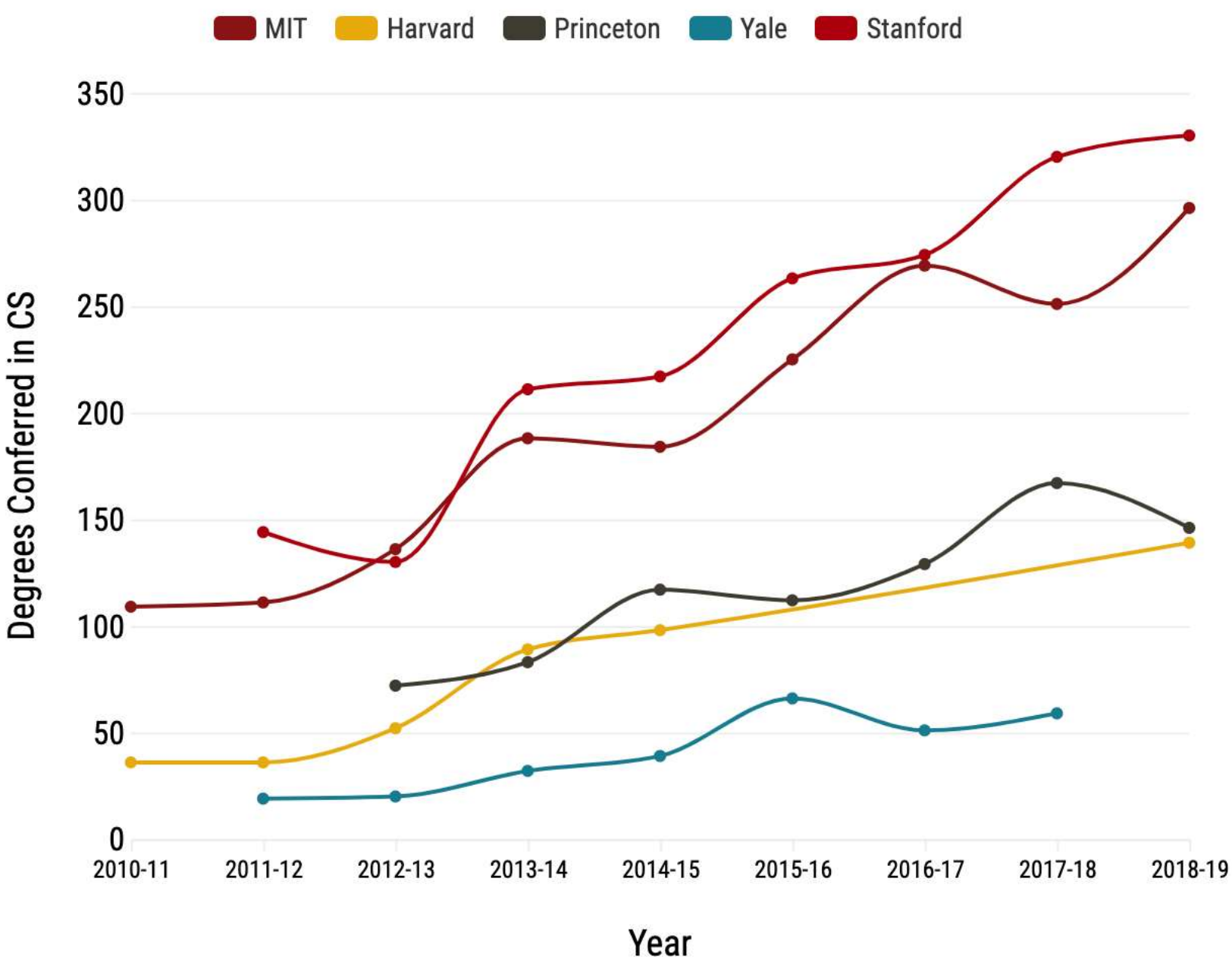
New Ethics, Society, and Technology Hub

Stanford has launched a new **Ethics, Society, and Technology** (EST) Hub. The mission of the EST Hub is to deepen Stanford's strength in ethics and generate a fundamental shift in how faculty, staff, and students, whatever their disciplinary home, choice of major, and career pathway, think about our role as enablers and shapers of scientific discovery and technological change in society. The Hub is managed jointly by the McCoy Family Center for Ethics in Society and the Center for Advanced Study in the Behavioral



The Atlantic

TECHNOLOGY

Stanford's Top Major Is Now Computer Science

THE NEW YORKER

GET RICH U.

There are no walls between Stanford and Silicon Valley. Should there be?

The New York Times

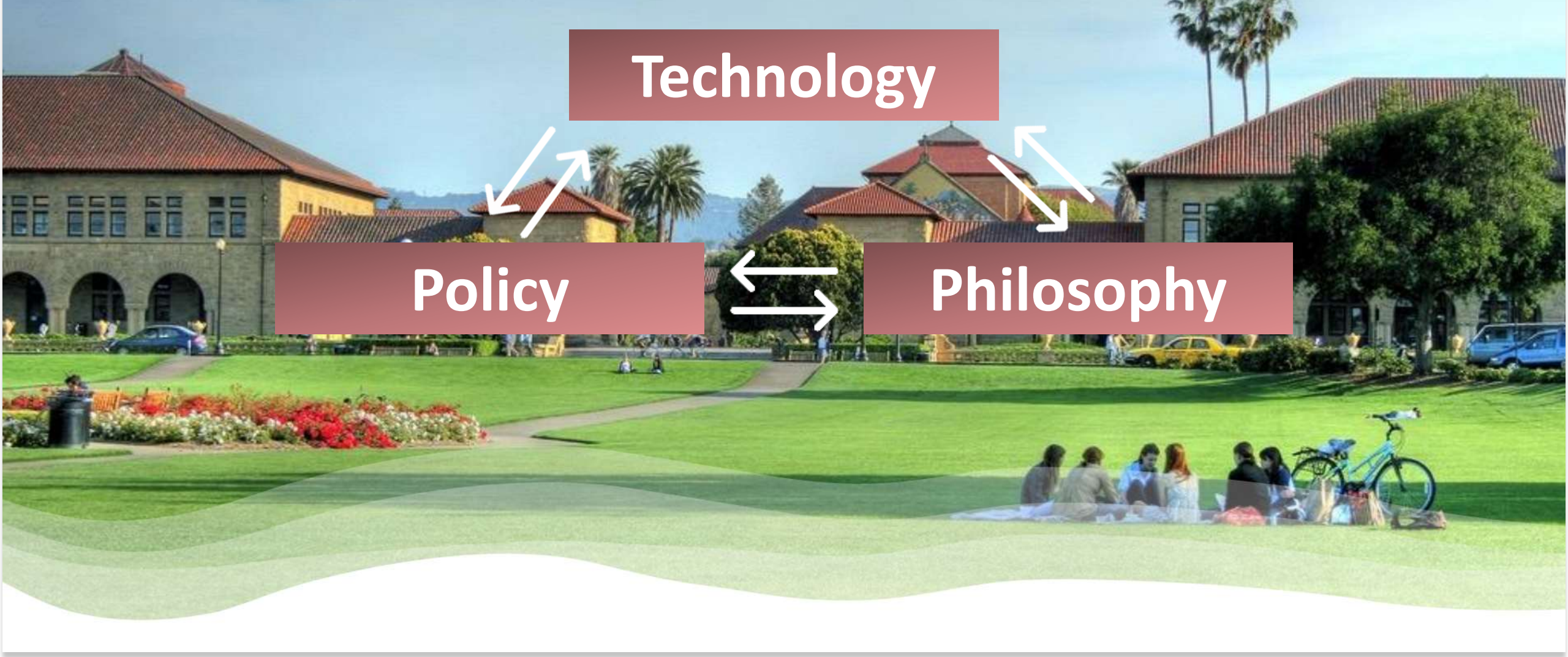
Tech's Ethical 'Dark Side': Harvard, Stanford and Others Want to Address It

Laura Norén, who teaches a data science ethics course at New York University, said, "You can patch the software, but you can't patch a person if you, you know, damage someone's reputation."
Sam Hodgson for The New York Times

By Natasha Singer

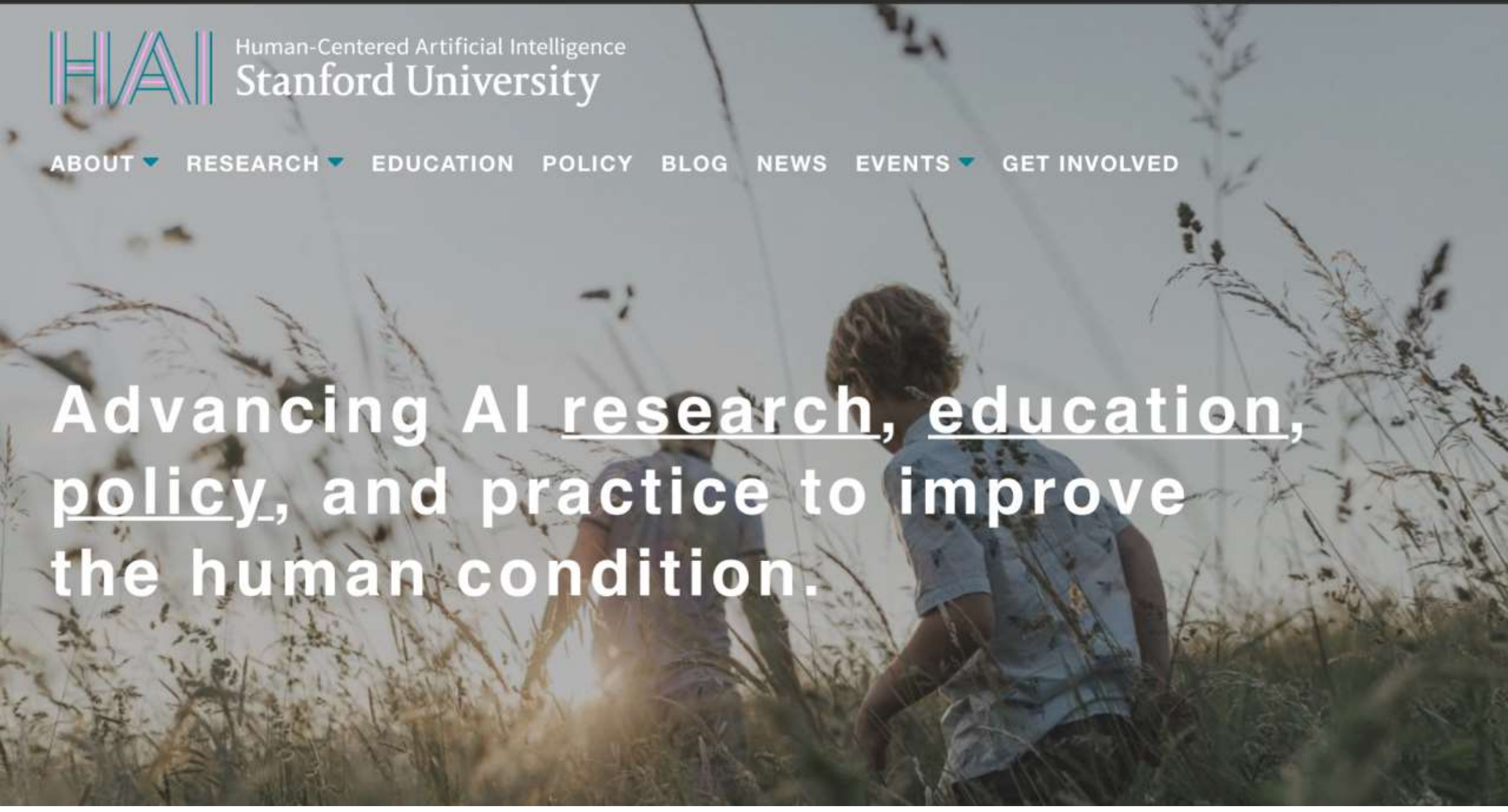
Feb. 12, 2018

Leer en español



CS182: Ethics, Public Policy, and Technological Change

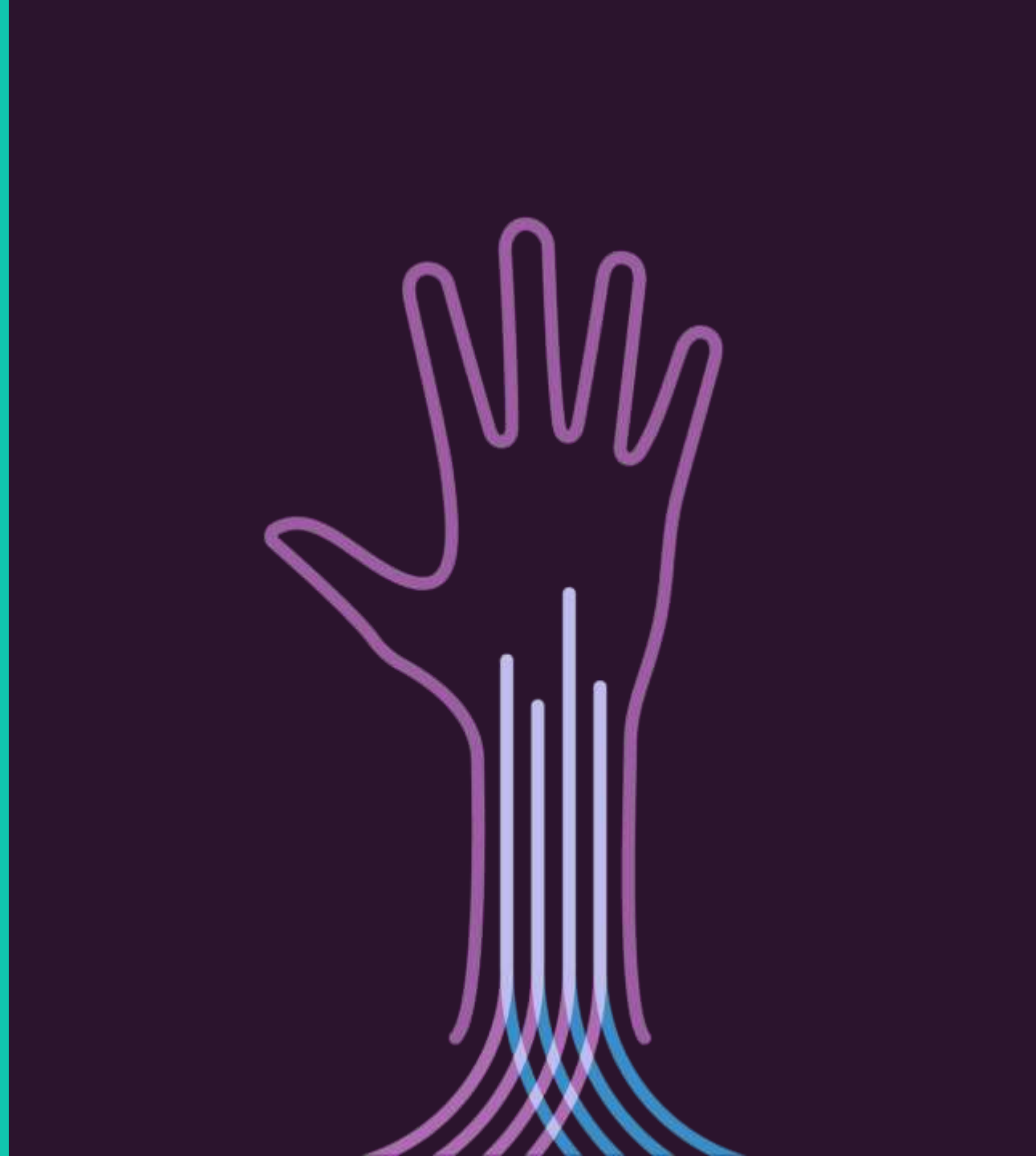
Also Comm 182, Philosophy 82, Political Science 182, Public Policy 182


HAI
Human-Centered Artificial Intelligence
Stanford University
ABOUT
RESEARCH
EDUCATION
POLICY
BLOG
NEWS
EVENTS
GET INVOLVED
Advancing AI research, education, policy, and practice to improve the human condition.

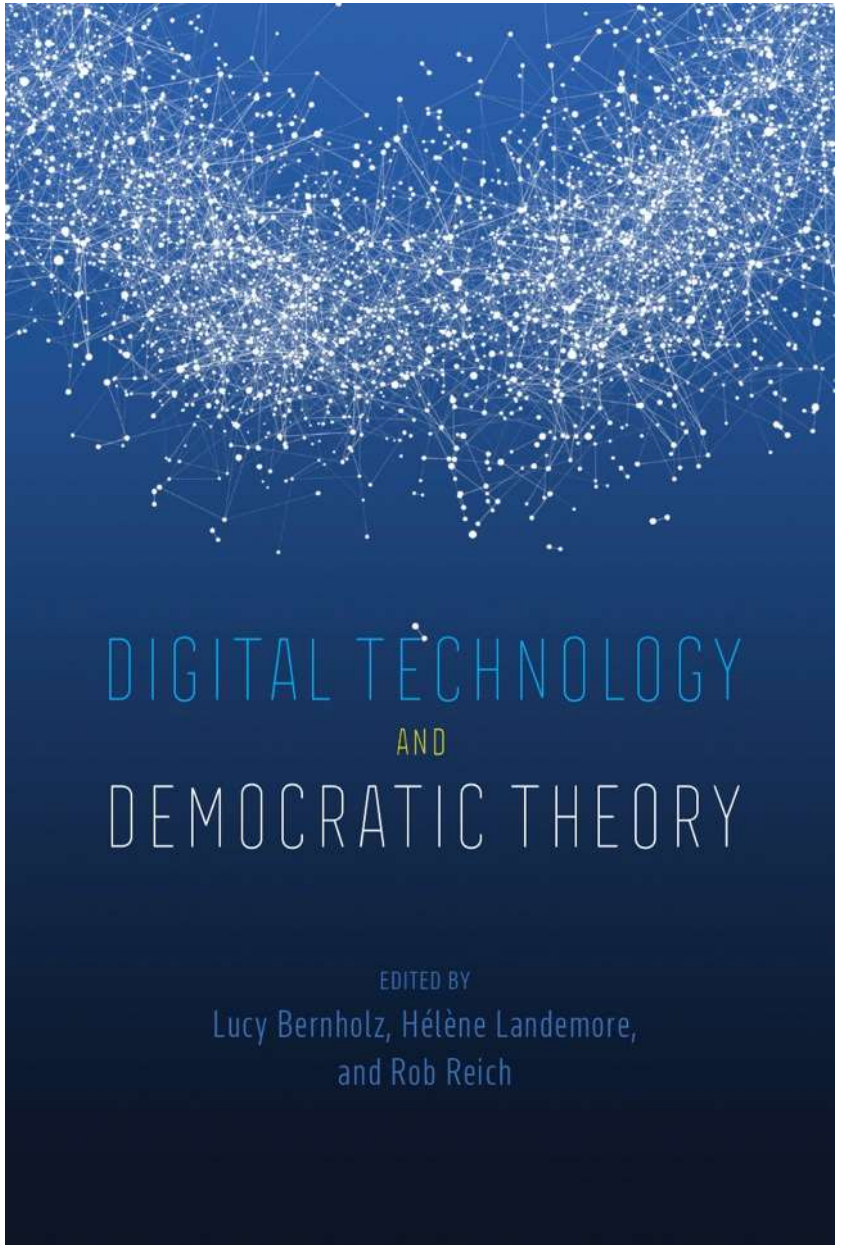
AI should be inspired by human intelligence

AI should be guided by a concern for its impact on human society

AI should augment, not replace, human capabilities



RECENT BOOKS

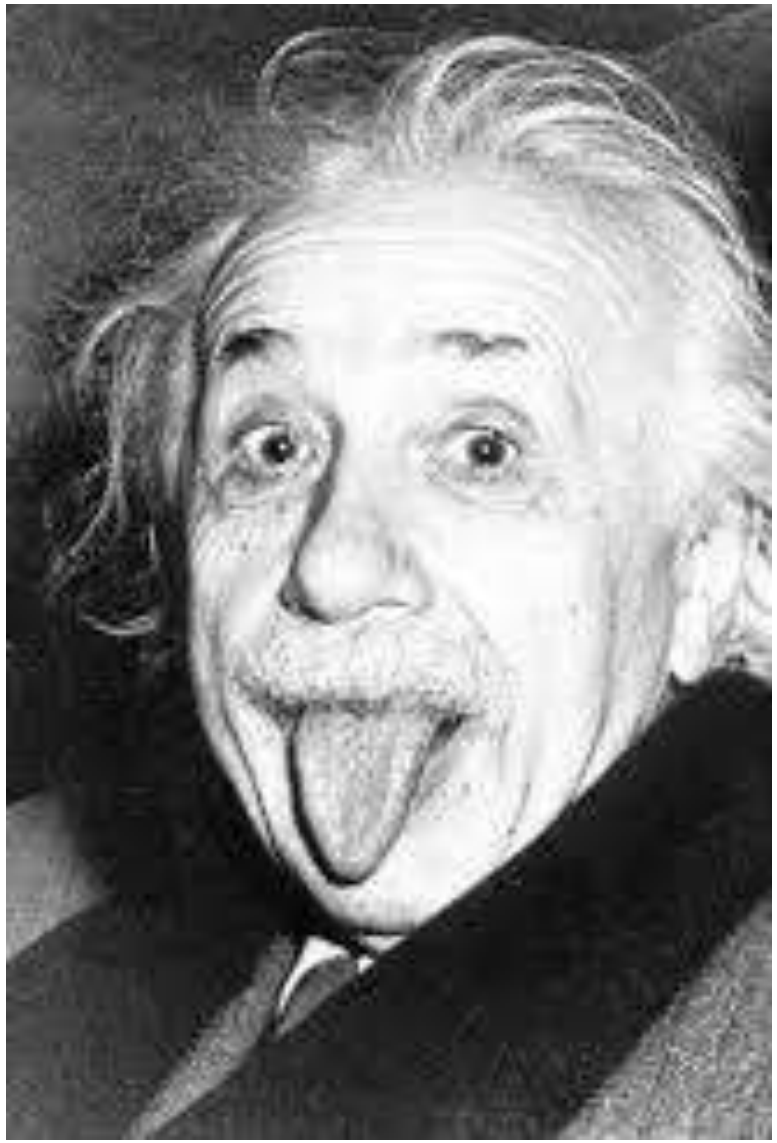


WHO SAID THIS?

"What the inventive genius of mankind has bestowed upon us in the last hundred years could have made human life care free and happy if the development of the organizing power of man had been able to keep step with his technical advances.

As it is, the hardly bought achievements of the machine age in the hands of our generation are **as dangerous as a razor** in the hands of a three-year-old child."

ALBERT EINSTEIN, 1932



21st Century Science: Biotech + AI

The twin revolutions in biotechnology and information technology call into question nothing less than what it means to be human and the place of humans in the natural world.

The promise of AI is a world of superintelligent machines.

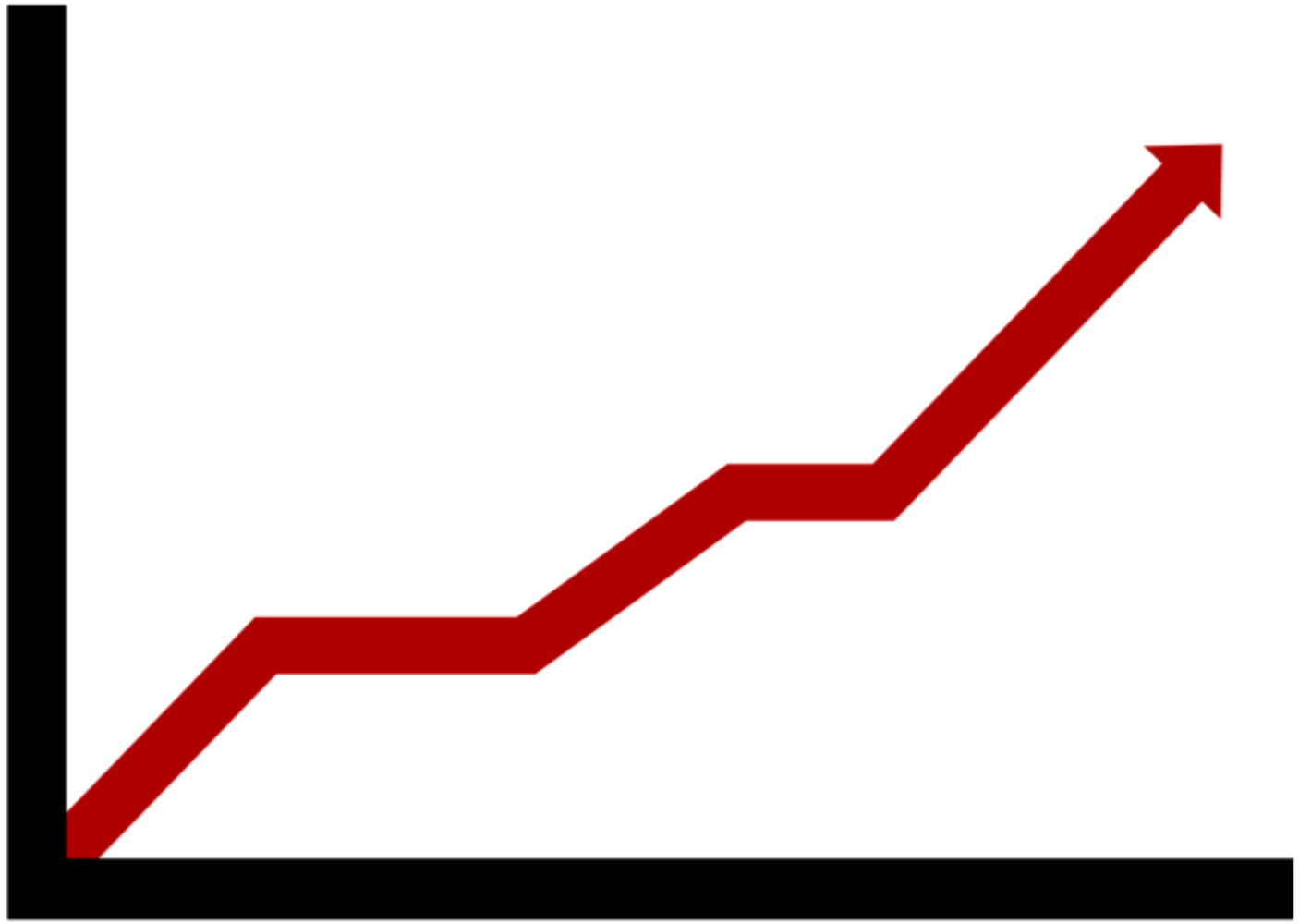
The promise of bioengineering is the deliberate human intervention in the genetic code of individuals (and other species) and to shape evolution itself.

Both promise to transform what it means to be human.

The Optimization Mindset

Three Levels of Ethics

Optimization mindset of technologists



The Engineer's Error: Misunderstanding the Value of Efficiency

It's better to get something done efficiently rather than inefficiently

It's better still to optimize

Everything is an optimization problem

Conclusion: efficiency/optimization are good, even intrinsically good

Three Problems with the Optimization Mindset

Core issue: optimization is a means, not an end

1. Problem of bad goals or ends
2. Problem of identifying measurable proxies for good goals
3. Problem of multiple valuable goals

Speed bumps

Delayed results until Polls close

Deliberate in the jury box

Efficiency and optimization are not intrinsically good

Facebook's Mission Statement

Facebook VP on Measuring Progress

So we connect more people

That can be bad if they make it negative. Maybe it costs a life by exposing someone to bullies. Maybe someone dies in a terrorist attack coordinated on our tools.

And still we connect people.

The ugly truth is that we believe in connecting people so deeply that **anything that allows us to connect more people more often is *de facto* good.** It is perhaps the only area where the metrics do tell the true story as far as we are concerned.

Source: BuzzFeed News March 2018

soylent

SHOP ABOUT BLOG EMERGENCY

STORE LOCATOR

The Soylent Story

From Silicon Valley Powdered Meals to International Complete Nutrition Platform.

“I started wondering why something as simple and important as food was still so inefficient, given how streamlined and optimized other modern things are.”

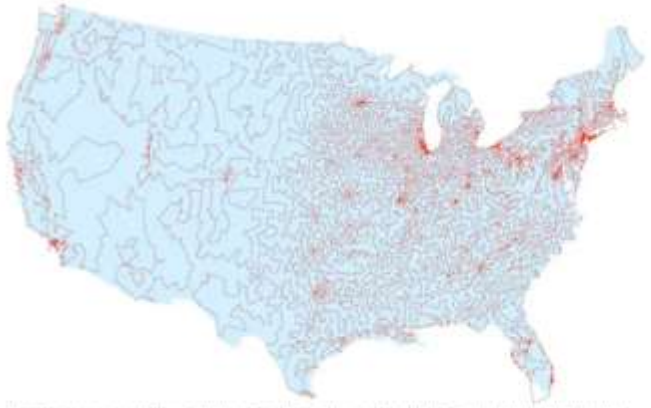
Rob Rhinehart, Co-Founder

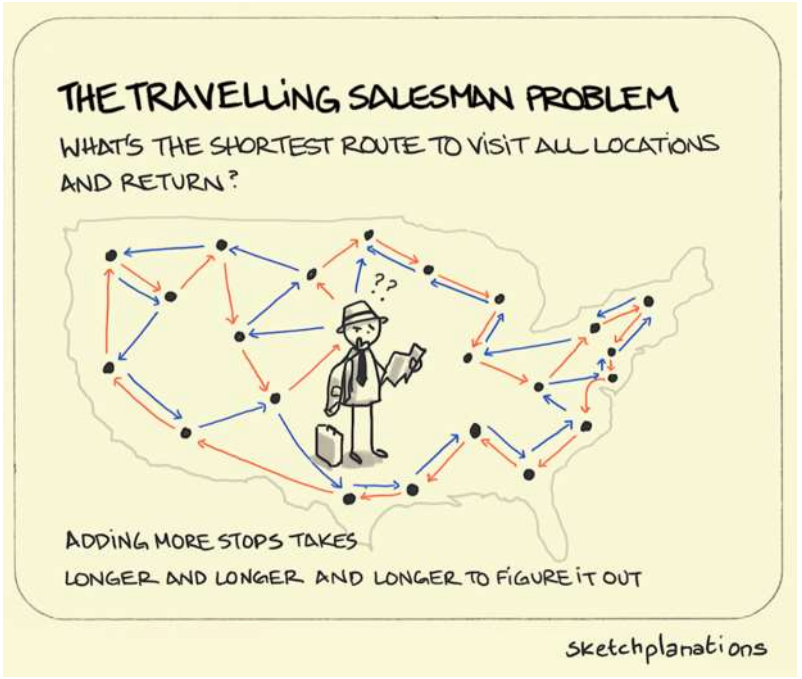
“Everything is an optimization problem.”

WIRED

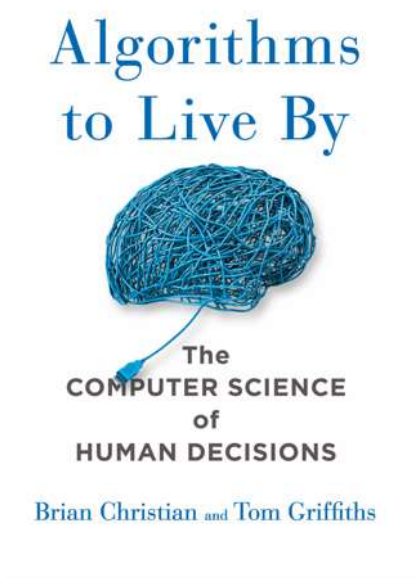
Computer Scientists Find New Shortcuts for Infamous Traveling Salesman Problem

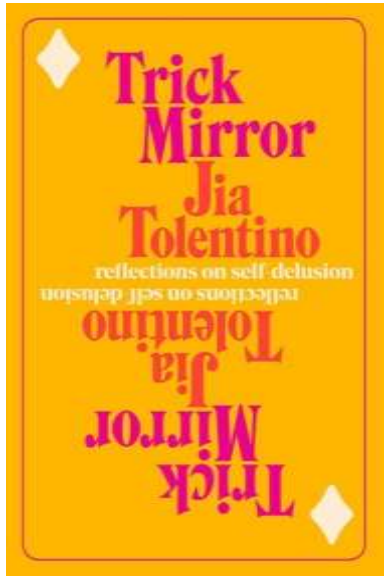
The traveling salesman problem asks: Given a collection of cities connected by highways, what is the shortest route that visits every city and returns to the starting place? The answer has practical applications to processes such as drilling holes in circuit boards, scheduling tasks on a computer and ordering features of a genome. Now, a long-sought advance in the traveling salesman problem is breathing new life into the search for improved approximate solutions.





Optimization becomes an orientation to life





The Optimization Mindset

Three Levels of Ethics

Three Ethical Lenses

- **Personal Ethics**
  - What does it mean to be a good person? What is your moral compass?
- **Social/Political Ethics**
  - How to create a framework of rules and laws that facilitate social cooperation, respect rights, and prevent harm.
  - Governance, law, and policy
- **Professional Ethics**
  - What are the standards of behavior that regulate my professional role?

An Ethical Lens

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ERIN GRIFFITH BUSINESS 03.14.2018 03:12 PM

Theranos and Silicon Valley's 'Fake It Till You Make It' Culture

Elizabeth Holmes, the CEO of the once highly touted blood-testing startup, is accused of an "elaborate years-long fraud."

The Ugly Unethical Underside of Silicon Valley

Too many startups are taking "fake it till you make it" too far.

BY **ERIN GRIFFITH**

December 28, 2016 3:30 AM PST

The New York Times

The Epic Rise and Fall of Elizabeth Holmes

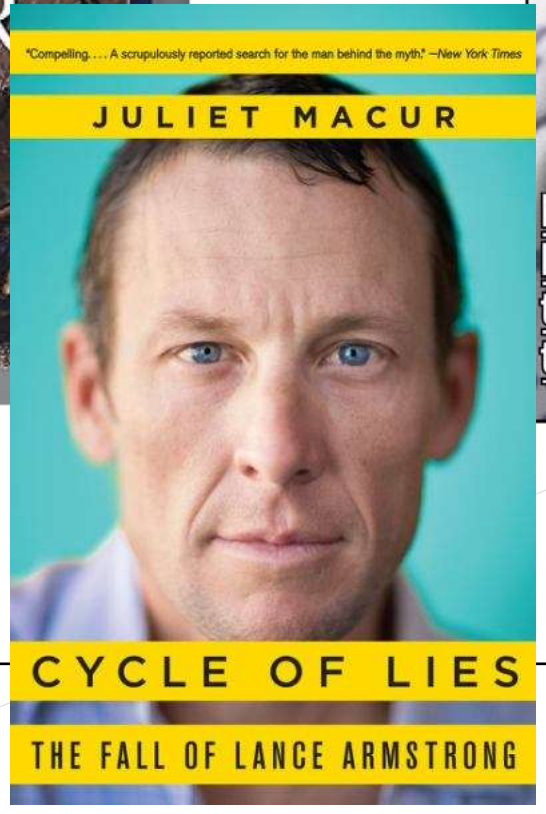
In Silicon Valley's world of make-believe, the philosophy of "fake it until you make it" finally gets its comeuppance.

AUTONOMOUS VEHICLE PIONEER SENT TO JAIL OVER STEALING TRADE SECRETS (2020)

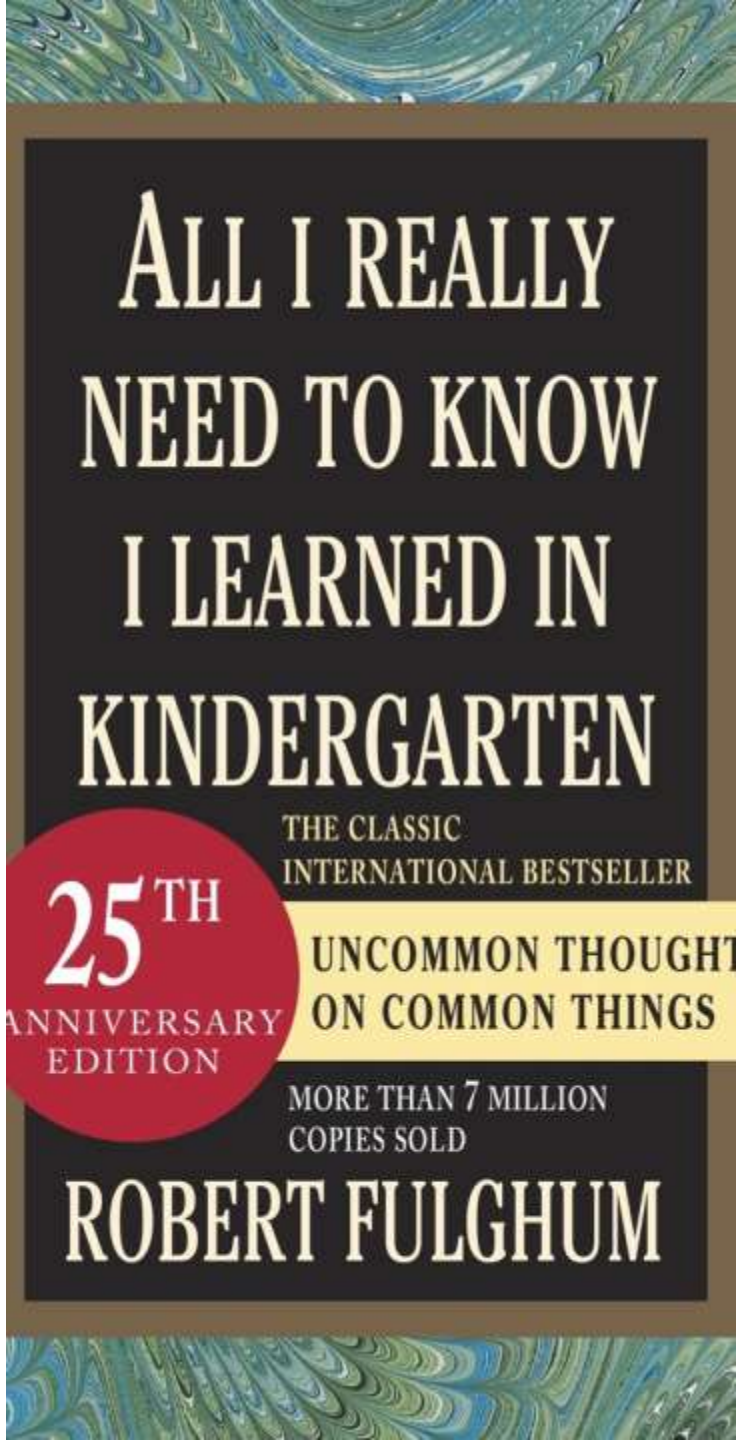
Star Technologist Who Crossed Google Sentenced to 18 Months in Prison

Anthony Levandowski, a onetime star Silicon Valley engineer of self-driving cars, had pleaded guilty to stealing trade secrets.

Anthony Levandowski, a former Google and Uber engineer, agreed to pay $756,499 to



Lance Armstrong, 7 time winner of Tour de France.



Personal Ethics

- Important, but not especially interesting.
- No good argument for cheating, lying, stealing.
- Must design society to assume moral imperfection.

An Ethical Lens

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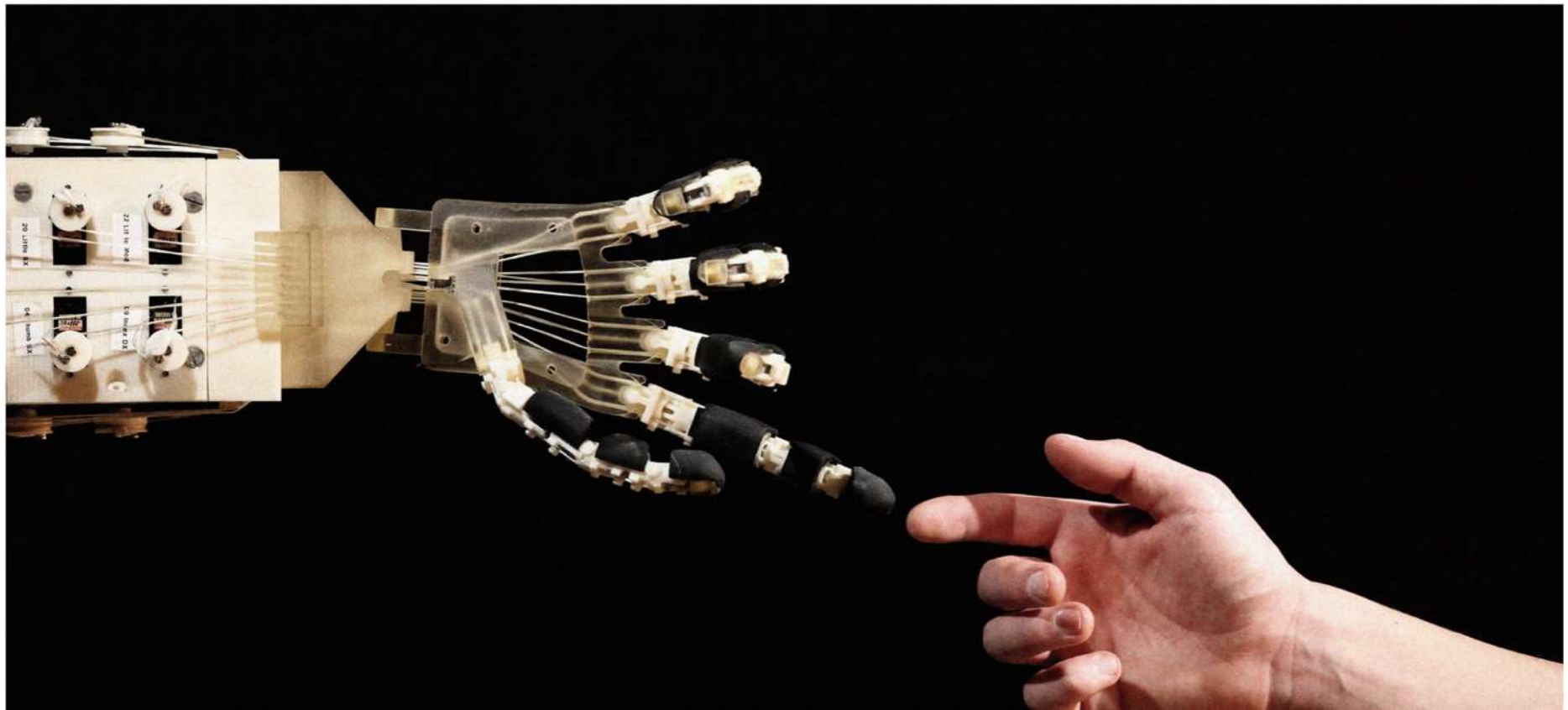
Democracy Is Losing Its Race With Disruption

New technologies have accumulated tremendous power over our politics, economy, and lives—no one knows what to do about it.

By Rob Reich, Mehran Sahami, and Jeremy M. Weinstein



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COMPARE PROFESSIONAL ETHICS IN BIOMEDICAL RESEARCH VERSUS COMPUTER SCIENCE RESEARCH

BIOMEDICAL RESEARCH

- Hippocratic oath: do no harm
- Professional licensure requirements.
- Institutional Review Board (IRB) with ethics review
- Strong regulation by the Federal Drug Administration (FDA)
- Well developed institutional footprint in universities and hospitals (bioethics as a scholarly field, ethics committees at hospitals)

COMPUTER SCIENCE RESEARCH

- ACM Code of Ethics
- No IRB for data science
- No single regulatory body


Stanford

BIOTECHNOLOGY

A prudent path forward for genomic engineering and germline gene modification

A framework for open discourse on the use of CRISPR-Cas9 technology to manipulate the human genome is urgently needed

The New York Times

PLAY

Chinese Scientist Who Genetically Edited Babies Gets 3 Years in Prison

He Jiankui's work was also carried out on a third infant, according to China's state media, in a new disclosure that is likely to add to the global uproar over such experiments.

The scientist He Jiankui at a medical conference in Hong Kong last year, when he announced he had created the world's first genetically edited babies. Kin Cheung/Associated Press

Biotechnology / CRISPR

Stanford will investigate its role in the Chinese CRISPR baby debacle

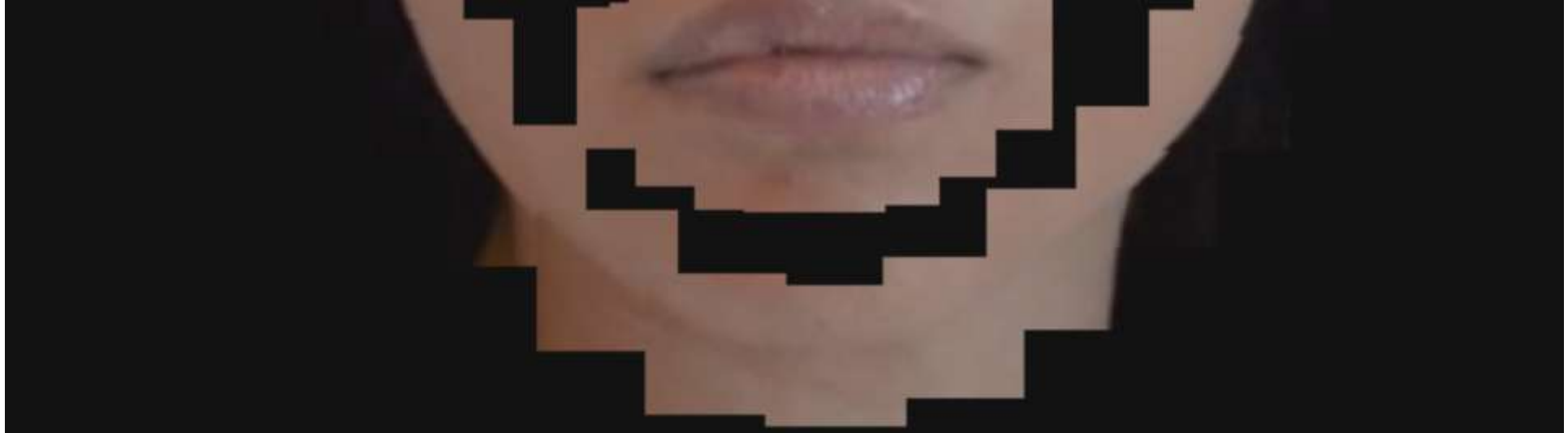
The university wants to learn what ties its faculty members had to He Jiankui, the researcher who created gene-edited humans.

by **Antonio Regalado** Feb 7, 2019

Officials at Stanford University have opened an investigation into what several high-profile faculty members knew about a Chinese effort to create gene-edited babies led by a onetime researcher at the California school, He Jiankui.

The investigation, according to people familiar with it, aims to understand what liabilities or risks Stanford may have in connection with the controversial medical experiment, which led last year to the birth of two girls whose genomes had been altered with a molecular tool called CRISPR to render them immune to HIV.

In an e-mail, Stanford confirmed the inquiry. "We have a review under way of the circumstances around Dr. He's interactions with researchers at the



Your Face Is Not Your Own

When a secretive start-up scraped the internet to build a facial-recognition tool, it tested a legal and ethical limit — and blew the future of privacy in America wide open.

By Kashmir Hill
Art by Zach Lieberman

Clearview AI founder

Even if Clearview doesn't make its app publicly available, a copycat company might, now that the taboo is broken. Searching someone by face could become as easy as Googling a name. Strangers would be able to listen in on sensitive conversations, take photos of the participants and know personal secrets. Someone walking down the street would be immediately identifiable — and his or her home address would be only a few clicks away. It would herald the end of public anonymity.

Asked about the implications of bringing such a power into the world, Mr. Ton-That seemed taken aback.

"I have to think about that," he said. "Our belief is that this is the best use of the technology."

POLICY TECH

Clearview AI CEO says 'over 2,400 police agencies' are using its facial recognition software

"It's an honor to be at the center of the debate."

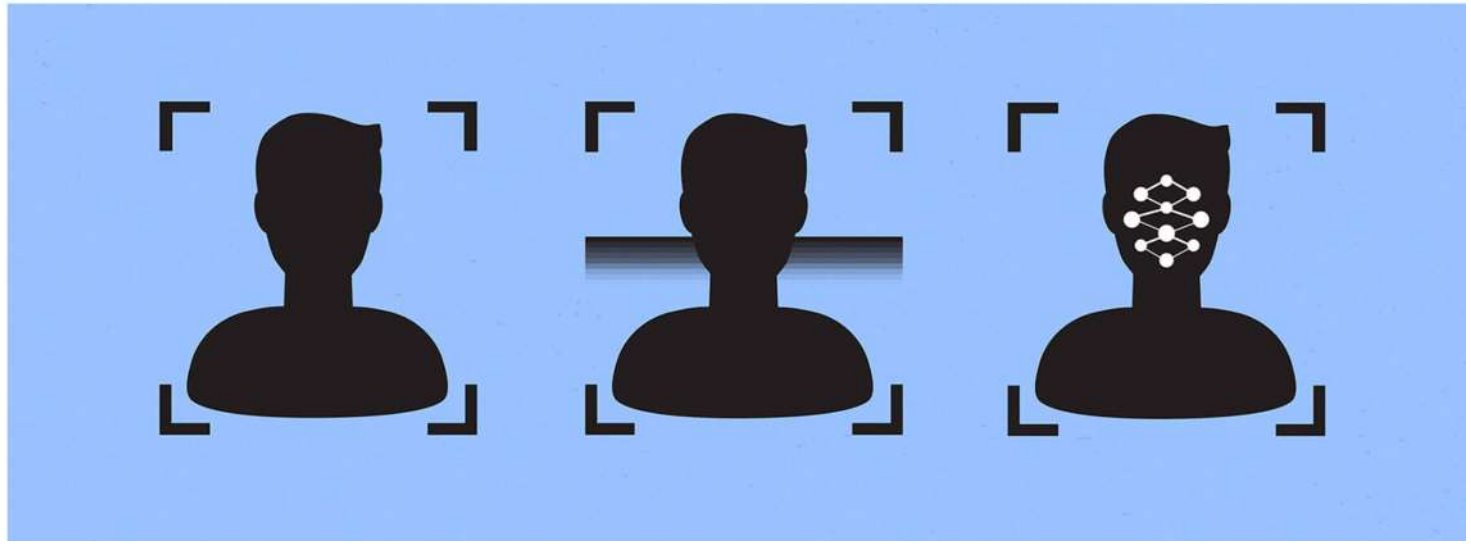
By Elizabeth Lopatto | @rmslopatto | Aug 26, 2020, 4:40pm EDT

INVESTIGATIONS

Emails show Pittsburgh police officers accessed Clearview facial recognition after BLM protests

The use of facial recognition broke bureau policy and, later, city law.

Juliette Rihl May 20, 2021



21st Century Scientific Racism?

arXiv:1611.04135v1

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ov 2016 (this version), latest version 26 May 2017 (v3)]

d Inference on Criminality using Face Images

Zhang

the first time, automated inference on criminality based solely on still face images. Via supervised machine
N, SVM, CNN) using facial images of 1856 real persons controlled for race, gender, age and facial expressi
discriminating between criminals and non-criminals. All four classifiers perform consistently well and prod
inference on criminality, despite the historical controversy surrounding the topic. Also, we find some discri
ch as lip curvature, eye inner corner distance, and the so-called nose-mouth angle. Above all, the most im
ion-criminal face images populate two quite distinctive manifolds. The variation among criminal faces is sig
. The two manifolds consisting of criminal and non-criminal faces appear to be concentric, with the non-cr
exhibiting a law of normality for faces of non-criminals. In other words, the faces of general law-biding pu
n the faces of criminals, or criminals have a higher degree of dissimilarity in facial appearance than normal

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17 07:48:10 UTC (1,964 KB)

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Hashemi and Hall J Big Data (2020) 7:2
https://doi.org/10.1186/s40537-019-0282-4

Journal of Big Data

RESEARCH Open Access

Criminal tendency detection from facial images and the gender bias effect

Mahdi Hashemi* and Margeret Hall

*Correspondence:
mhashem2@gmu.edu
Department of Information Sciences and Technology, George Mason University, 4400 University Dr, Fairfax, VA 22030, USA
Full list of author information is available at the end of the article

Abstract

Explosive performance and memory space growth in computing machines, along with recent specialization of deep learning models have radically boosted the role of images in semantic pattern recognition. In the same way that a textual post on social media reveals individual characteristics of its author, facial images may manifest some personality traits. This work is the first milestone in our attempt to infer personality traits from facial images. With this ultimate goal in mind, here we explore a new level of image understanding, inferring criminal tendency from facial images via deep learning. In particular, two deep learning models, including a standard feedforward neural network (SNN) and a convolutional neural network (CNN) are applied to discriminate criminal and non-criminal facial images. Confusion matrix and training and test accuracies are reported for both models, using tenfold cross-validation on a set of 10,000 facial images. The CNN was more consistent than the SNN in learning to reach its best test accuracy, which was 8% higher than the SNN's test accuracy. Next, to explore the classifier's hypothetical bias due to gender, we controlled for gender by applying only male facial images. No meaningful discrepancies in classification accuracies or learning consistencies were observed, suggesting little to no gender bias in the classifier. Finally, dissecting and visualizing convolutional layers in CNN showed that the shape of the face, eyebrows, top of the eye, pupils, nostrils, and lips are taken advantage of by CNN in order to classify the two sets of images.

Keywords: Image classification, Facial images, Convolutional neural network, Deep learning, Machine learning, Personality traits

Cultivating an ethic of responsibility in AI science