

**California lawmakers ban facial-recognition software from police body cams**

**How AI learns the biases of its creators**

Without checks and balances, algorithms can replicate harmful biases from their initial intent.

**Was it 'techno-racism'? Facial recognition bug degrades black man's passport photo**

**Facebook Algorithm Shows Gender Bias in Job Ads, Study Finds**

Researchers found the platform's algorithms promoted roles to certain users; company pledges to continue work in removing gender bias from recommendations

**The EU is considering a ban on AI for military use**

**Regulators still don't 'get' AI technology**

**When Robots Enter the World, Who Is Responsible for Them?**

# AI Ethics for All: A Broader Perspective on AI Education

# AI experts take on Amazon after researcher's findings of racial bias in facial recognition

How AI learns the biases creators

*Facial Recognition Technology in Public Housing Prompts Backlash*

**California lawmakers ban facial-recognition software from police body cams**

Was it 'techno-racism'? Facial recognition bug de  
Black man's passport photo

**Airports and airlines embrace facial recognition technology amid debate over privacy and**



## 70,000 OkCupid Users Just Had Their Data Published

## New AI can guess whether you're gay or straight from a photograph

An algorithm deduced the sexuality of people on a dating site with up to 91% accuracy, raising tricky ethical questions

### TECHNOLOGY

## YouTube Videos Are a Gold Mine for Health Researchers

“Digital exhaust” from online life could be transformed into health insights. Should it be?

REPORT / TECH / ARTIFICIAL INTELLIGENCE

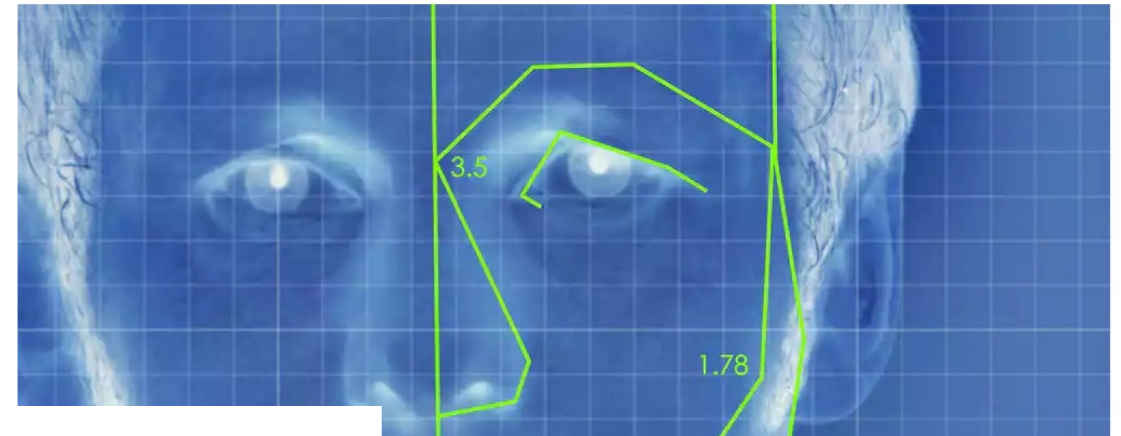
## Transgender YouTubers had their videos grabbed to train facial recognition software

### TECHNOLOGY

## You No Longer Own Your Face

Students were recorded for research—and then became part of a data set that lives forever online, potentially accessible to anyone.

SIDNEY FUSSELL JUNE 27, 2019



future tense

## Should Researchers Be Allowed to Use YouTube Videos and Tweets?

## **‘The situation is the same as it was last year’: Black creators say TikTok’s problems with race and diversity persist**

**Instagram apologises for user misleading algorithm mistake**

## **Instagram apologizes after algorithm promotes harmful diet content to people with eating disorders**

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INTERNET

Twitter to check algorithm after image-cropping bias accusation

## **Twitter To Study Whether Its Algorithm Causes Unintentional Harms**

**HOME OFFICE ALGORITHM TO DETECT SHAM MARRIAGES MAY CONTAIN BUILT-IN DISCRIMINATION**

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**AI Is Probably Using Your Images and It's Not Easy to Opt Out**

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**Transgender YouTubers had their videos grabbed to train facial recognition software**

Twitter To Study Whether Its Algorithm Causes Unintentional Harms

**How AI learns the biases of its creators**

*In the race to train AI, researchers are taking data first*

Without checks and balances, algorithms can replicate harmful biases and veer away from its initial intent.

By [James Vincent](#) | Aug 22, 2017, 10:44am EDT

## **Facebook Algorithm Shows Gender Bias in Job Ads, Study Finds**


Researchers found the platform’s algorithms promoted roles to certain users; company pledges to continue work in removing bias from recommendations

# **Was it ‘techno-racism’? Facial recognition bug denies Black man’s passport photo**

# The Ivory Tower Can't Keep Ignoring Tech

By Cathy O'Neil

Nov. 14, 2017

 Give this article



We need academia to step up to fill in the gaps in our collective understanding about the new role of technology in shaping our lives. We need robust research on hiring algorithms that [seem to filter out people](#) with mental health disorders, sentencing algorithms that [fail twice as often](#) for black defendants as for white defendants, statistically flawed [public teacher assessments](#) or [oppressive scheduling algorithms](#). And we need research to ensure that the same mistakes aren't made again and again. It's absolutely within the abilities of academic research to study such examples and to push against the most obvious statistical, ethical or constitutional failures and dedicate serious intellectual energy to finding solutions. And whereas professional technologists working at private companies are not in a position to critique their own work, academics theoretically enjoy much more freedom of inquiry.

# Tech Ethics Curricula: A Collection of Syllabi



Casey Fiesler

Jul 5, 2018 · 4 min read



COURSE TITLE	CODE	UNIVERSITY	DEPARTMENT
Algorithms and Society	EECS 395 and COMMST 395	Northwestern University	Computer Science and Communication Studies
<a href="#">Code and Power</a>	LIS 500	University of Wisconsin - Madison	Information School
Designing Field Experiments at Scale	SOC 412	Princeton University	Sociology, Center for IT Policy
Digital Anthropology	ANTH 4020	University of Colorado Boulder	Continuing Education
Ethical and Policy Dimensions of Information, Technology, and New Media	INFO 4601/5601	University of Colorado Boulder	Information Science
Ethical and Social Implications of Data		Marquette University	Computer Science
Ethics in Business Analytics	ITAO 40510	University of Notre Dame	IT, Analytics, & Operations
Ethics in Data Science		University of Utah	Computer Science

[bit.ly/ethics-syllabi](https://bit.ly/ethics-syllabi)

# Implementing A Tenth Strand in the CS Curriculum

*“Computer Science Education should not drive a wedge between the social and the technical, but rather link both through the formal and informal curriculum” [5].*

*“Societal and technical aspects of computing are interdependent. Technical issues are best understood (and most effectively taught) in their social context, and the societal aspects of computing are best understood in the context of the underlying technical detail. Far from detracting from the students’ learning of technical information, including societal aspects in the computer science curriculum can enhance students’ learning, increase their motivation, and deepen their understanding” [10].*

Martin, C.D., Huff, C., Gotterbarn, D. and Miller, K., 1996. Implementing a tenth strand in the CS curriculum. *Communications of the ACM*, 39(12), pp.75-84.



... the most glaring problem is that **proposed subject matter is not computer science**...the content of the 'strand' has no algorithms, no data structures, no mathematical analysis, neither software development nor software design, no computer science theory. In short the content is devoid of every standard element present in computer science research and education.

... **It's hard to imagine a computer scientist teaching these things.** ... Ethical and social concerns may be important, but as debating the morality of nuclear weapons is not doing physics, **discussing the social and ethical impact of computing is not doing computer science.**

Letter to the editor in *Communications of the ACM*, 1997



**Cambridge Analytica** The Cambridge Analytica Files

# Leaked: Cambridge Analytica's blueprint for Trump victory

## Facebook gave data about 57bn friendships to academic

Exclusive: Former employee explains how presentation showed technique

ADAM ROGERS SCIENCE 03.25.18 07:00 AM

## Mark Zuckerberg takes out full-page newspaper ads to say 'sorry' for Cambridge Analytica scandal

By Nicole Darrah | Fox News

# THE CAMBRIDGE ANALYTICA DATA APOCALYPSE WAS PREDICTED IN 2007

## Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach

### Cambridge Analytica active in elections, big data projects for years

KIM HJELMGAARD | USA TODAY  
Updated 2:58 p.m. EDT Mar. 22, 2018

# The shady data-gathering tactics used by Cambridge Analytica were an open secret to online marketers. I know, because I was one

*Market researchers have used these tricks for years*

By Alexandra Samuel | Mar 25, 2018, 1:19pm EDT

IDEAS | YONATAN ZUNGER

# Computer science faces an ethics crisis. The Cambridge Analytica scandal proves it.

By Yonatan Zunger , March 22, 2018, 6:47 p.m.



“Software engineers continue to treat safety and ethics as specialties rather than as the foundation of all design.”


# What Our Tech Ethics Crisis Says About the State of Computer Science Education

If you work in tech and you're not thinking about ethics, you're bad at your job



Casey Fiesler

Dec 5, 2018 · 9 min read



**Ethics is not (just)  
a specialization.**

# is ethics an explicit part of university AI/ML/data science classes?

School	Total ML related Courses	Ethics-Specific Courses	Technical Courses w/ Ethics	Courses without Ethics
A	9	1	4	4
B	13	4	1	8
C	9	3	0	6
D	7	0	2	5
E	11	1	2	8
F	8	1	1	6
G	13	1	2	10
H	9	0	2	7
I	11	2	0	9
J	17	0	3	14
K	8	1	0	7
L	8	0	1	7
M	8	0	1	7
N	9	0	1	8
O	9	0	1	8
P	10	0	1	9
Q	8	0	0	8
R	5	0	0	5
S	6	0	0	6
T	8	0	0	8
<b>Total (# Courses)</b>	<b>186</b>	<b>14</b>	<b>22</b>	<b>150</b>
<b>Total (# Institutions)</b>	<b>20</b>	<b>8</b>	<b>13</b>	<b>20</b>

Saltz, Jeffrey, Michael Skirpan, Casey Fiesler, Micha Gorelick, Tom Yeh, Robert Heckman, Neil Dewar, and Nathan Beard. "Integrating Ethics within Machine-learning Courses." *ACM Transactions on Computing Education (TOCE)* 19, no. 4 (2019): 32.

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12% of technical classes included explicit mention of ethics, privacy, etc. in the course description or (when available) syllabus.

Saltz, Jeffrey, Michael Skirpan, Casey Fiesler, Micha Gorelick, Tom Yeh, Robert Heckman, Neil Dewar, and Nathan Beard. "Integrating Ethics within Machine-learning Courses." *ACM Transactions on Computing Education (TOCE)* 19, no. 4 (2019): 32.

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## More Than “If Time Allows”: The Role of Ethics in AI Education

Natalie Garrett  
Information Science  
University of Colorado  
Boulder, CO USA  
natalie.garrett@colorado.edu

Nathan Beard  
Information Studies  
University of Maryland  
College Park, MD USA  
nbeard@umd.edu

Casey Fiesler  
Information Science  
University of Colorado  
Boulder, CO USA  
casey.fiesler@colorado.edu

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Garrett, N., Beard, N., & Fiesler, C. (2020, February). More Than “If Time Allows”: The Role of Ethics in AI Education. In *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society* (pp. 272-278).



# benefits of standalone classes

- ▶ taught by experts with deep subject matter expertise
- ▶ room to discuss ethical foundations and theory in addition to specific application
- ▶ provides a way of thinking as a foundation for other coursework

# the case for ethics integration

- ▶ emphasizes ethics as part of technical practice, not as a specialization or an add-on
- ▶ avoids isolating ethics from its context
- ▶ ensures that everyone who takes a technical class is exposed to ethics content

# recommendations for ethics integration

- ▶ discussion of relevant current events
- ▶ modules developed in conjunction with experts
- ▶ explicit ethical components as part of projects/assignments
- ▶ use real-world datasets with social implications
- ▶ re-contextualizing existing assignments to include implicit ethical components
- ▶ starting at the beginning

# barriers to ethics integration

- ▶ too much material to cover
- ▶ not part of course materials provided / not enough control over curriculum
- ▶ lack of understanding for how it relates to the course
- ▶ perception of not enough expertise

Smith, J.J., Payne, H.P., Klassen, S., Doyle, D.P., and Fiesler, C. Incorporating Ethics in Computing Courses: Barriers, Support, and Perspectives from Educators. Forthcoming, 2023.

# Structures to support ethics integration

- ▶ community
- ▶ collaboration
- ▶ confidence building
- ▶ open resources

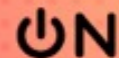
Smith, J.J., Payne, H.P., Klassen, S., Doyle, D.P., and Fiesler, C. Incorporating Ethics in Computing Courses: Barriers, Support, and Perspectives from Educators. Forthcoming, 2023.

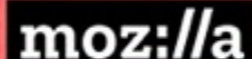
# Responsible Computer Science Challenge

*We must fundamentally reimagine the way we train the tech industry's future leaders during their undergraduate years.*

**ResponsibleCS.org**    **#ResponsibleCS**

a partnership of

 **OMIDYAR NETWORK**



**SCHMIDT FUTURES**

**Craig Newmark Philanthropies**

[tinyurl.com/rcs-materials](https://tinyurl.com/rcs-materials)

# Ethics-Based Computer Science Assignments

Below are materials for computer science assignments that promote ethical reasoning. We invite you to adapt these assignments for your classroom.

## College Admissions Algorithms

**Authors:** Natalie Garrett and Casey Fiesler

**Theme:** Create an automated system to process college applications.

**Context:** Intro-level programming or non-coding algorithmic thinking homework assignment

**Programming Topics:** Lists and functions

**Ethical Reasoning:** Algorithmic decision-making and representations of people in data, understanding outliers, missing information in data, and human judgements in algorithmic decisions

### Materials:

- [Coding assignment instructions](#)
- [Dataset CSV](#)
- [Starter code \(Google CoLab\)](#)
- [No-Code algorithmic thinking assignment](#)

### Instructor Guidance:

- [Teacher slides](#)

### Supplementary Reading:

- [Colleges Mine Data on Their Applicants - WSJ](#)

[internetruleslab.com/responsible-computing](https://internetruleslab.com/responsible-computing)

# NeurIPS Broader Impact Statements

“In order to provide a balanced perspective, authors are required to include a statement of the potential broader impact of their work, including its ethical aspects and future societal consequences. Authors should take care to discuss both positive and negative outcomes.”



# NeurIPS Broader Impact Statements

“Some respondents... said they did not feel ‘qualified to address the broader impact of [their] work.’”

Abuhamad, Grace, and Claudel Rheault. "Like a researcher stating broader impact for the very first time." *arXiv preprint arXiv:2011.13032* (2020).

**“Science fiction writers foresee the inevitable, and though problems and catastrophes may be inevitable, solutions are not.”**

**- Isaac Asimov**

NETFLIX ORIGINAL

# BLACK MIRROR

2019 TV-MA 5 Seasons

Watch Season 5 Now

"Nosedive"

A woman desperate to boost her social media score hits the jackpot when she's invited to a swanky wedding. But the trip doesn't go as planned.

[▶ NEXT EPISODE](#)

[+ MY LIST](#)



Creators: Charlie Brooker

[OVERVIEW](#)

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# Black Mirror, Light Mirror: Teaching Technology Ethics Through Speculation

Even if we can't predict the future, we can use science fiction to think through different possibilities



Casey Fiesler

Oct 15, 2018 · 9 min read

[tinyurl.com/blackmirrorwritersroom](https://tinyurl.com/blackmirrorwritersroom)

NETFLIX ORIGINAL

# BLACK MIRROR

2019 TV-MA 5 Seasons

## “Revisionist History”

Imagine a new teaching paradigm where your textbook app becomes customized to your interests.

Simoné doesn't seem to be on the same page as the rest of her class when she starts reading books to study for the AP US History exam.

▶ NEXT EPISODE

+ MY LIST



Image Credit: Pexels (Burst, free to use)

“People tend to lean on **their own experiences...** and don't, unless, they're very carefully prompted, consider broader context. [For user personas] almost universally people would be like, **the user is a middle-class white person** and here's what they're going to do...”

Shamika Klassen and Casey Fiesler. “Run a little wild with your imagination”: Ethical speculation in computing education with Black Mirror. *SIGCSE 2022*.

**Zoombombing: Local government faces obscene attack on virtual meeting**

**Muscogee County School District students witness pornographic material during Zoom-bombing**

**'Zoombombing' City Hall: Online Harassment Surges As Public Meetings Go Virtual**

**Illinois student moons Zoom class, uses racial slur as learning goes remote**

**Teachers, students using Zoom for e-learning see alarming behavior on platform**

**CMS class interrupted with inappropriate behavior during 'zoom bombing'**

**Zoombombing: Local government faces obscene attack on virtual meeting**

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**“The risks, the misuse, we never thought about that.”**

**- Zoom CEO**

**CMS class interrupted with inappropriate behavior during ‘zoom bombing’**



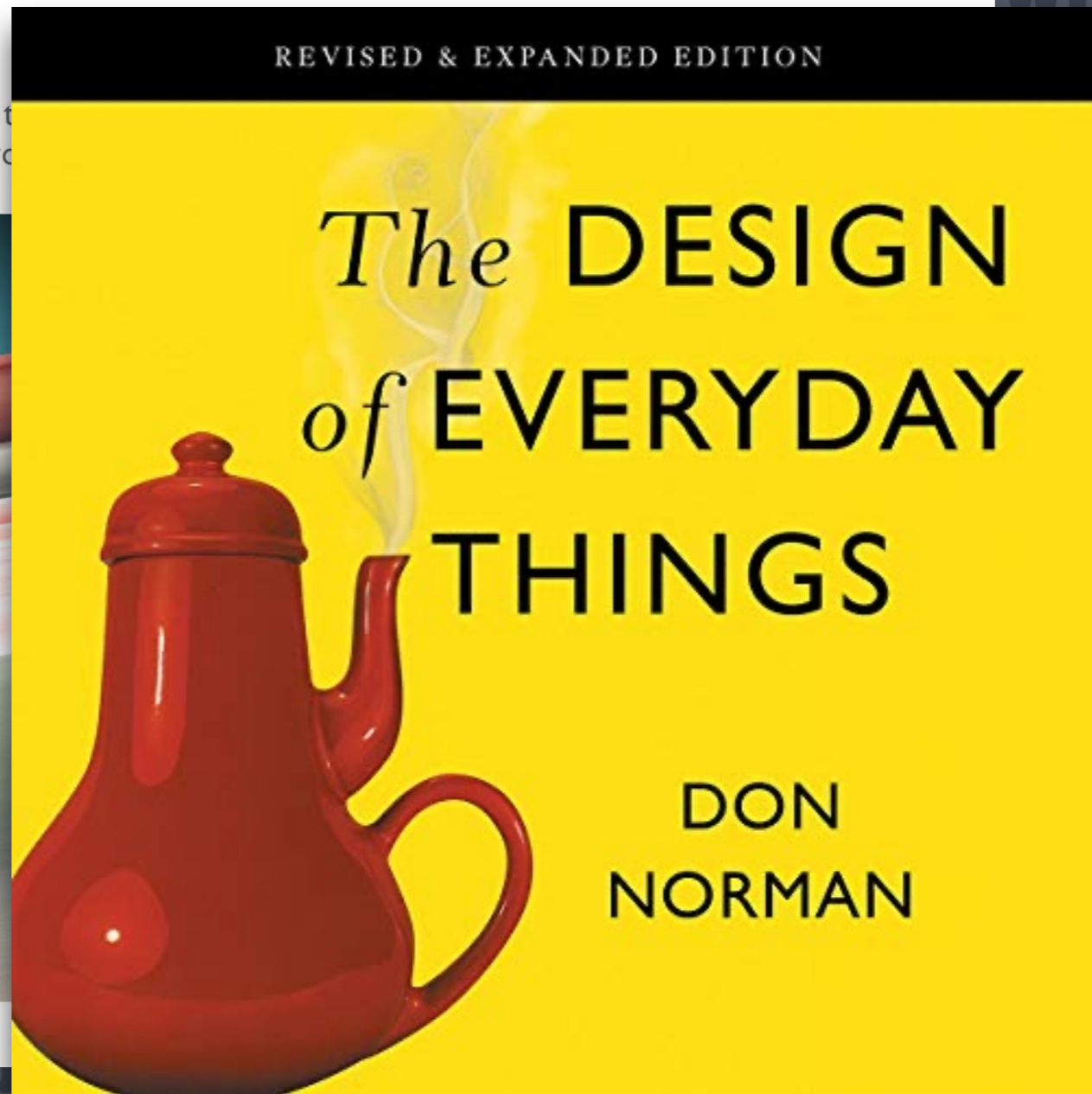
05-08-19 | THE NEW BUSINESS OF GROWING OLD

# I wrote the book on user-friendly design. What I see today horrifies me

The world is designed against the user. The industry bible *Design of Everyday Things*



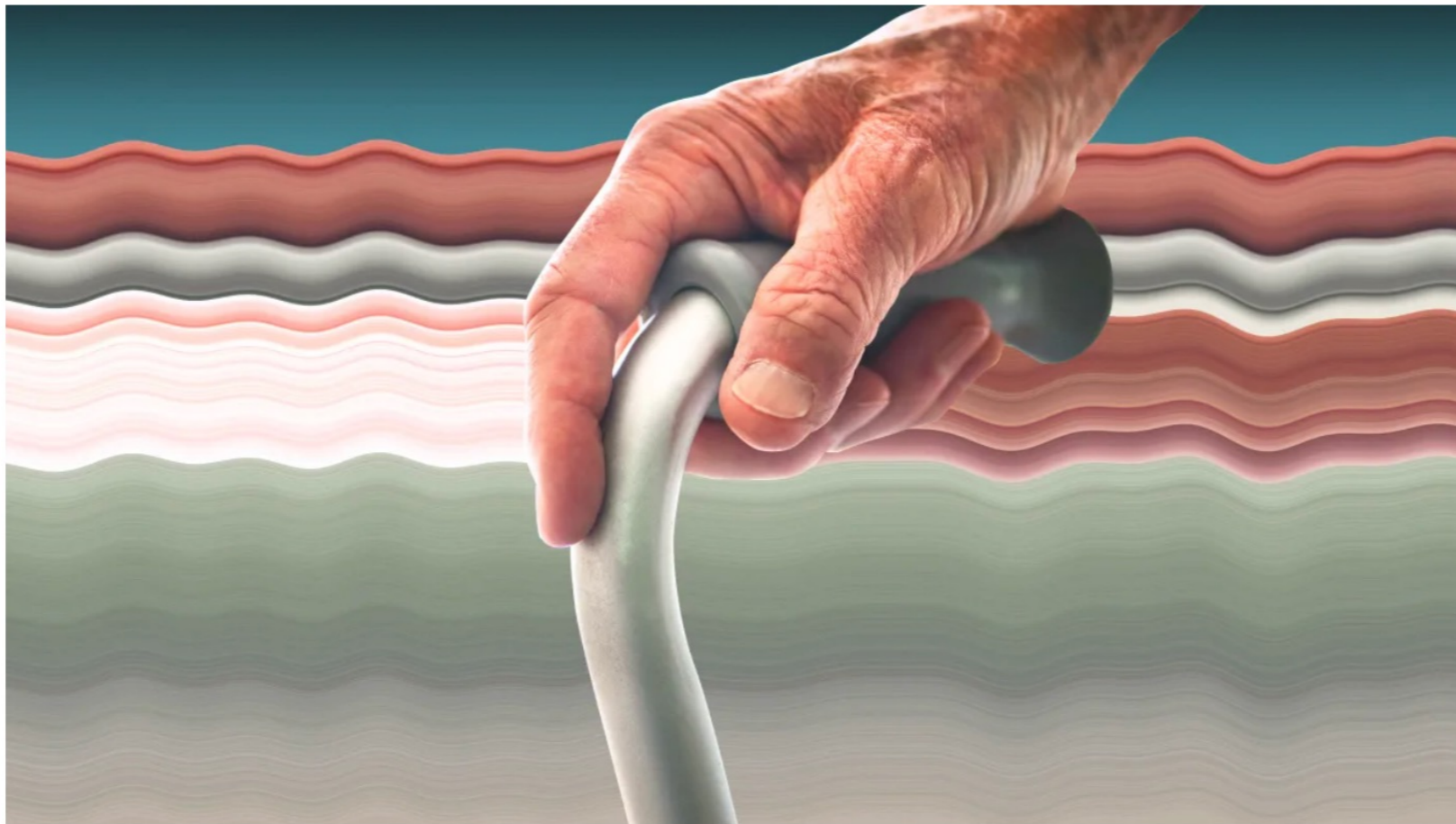
[Photo: Tetra Images/Getty Images]



05-08-19 | THE NEW BUSINESS OF GROWING OLD

# I wrote the book on user-friendly design. What I see today horrifies me

The world is designed against the elderly, writes Don Norman, 83-year-old author of the industry bible *Design of Everyday Things* and a former Apple VP.



[Photo: Tetra Images/Getty Images]

AT WORK

# Silicon Valley's Achilles' heel threatens to topple its supremacy in innovation

PUBLISHED WED, JUN 20 2018•9:55 AM EDT | UPDATED WED, JUN 20 2018•11:59 AM EDT

## Five Years of Tech Diversity Reports—and Little Progress

In 2014, when Silicon Valley companies began disclosing the demographics of their workforces, advocates hoped for change. It hasn't worked out that way.

■ August 3, 2020, 3:00 AM MDT

## On Diversity, Silicon Valley Failed to Think Different

CURRENCY

## WHY CAN'T SILICON VALLEY SOLVE ITS DIVERSITY PROBLEM?

## **‘The situation is the same as it was last year’: Black creators say TikTok’s problems with race and diversity persist**

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**HOME OFFICE ALGORITHM TO DETECT SHAM MARRIAGES MAY CONTAIN BUILT-IN DISCRIMINATION**

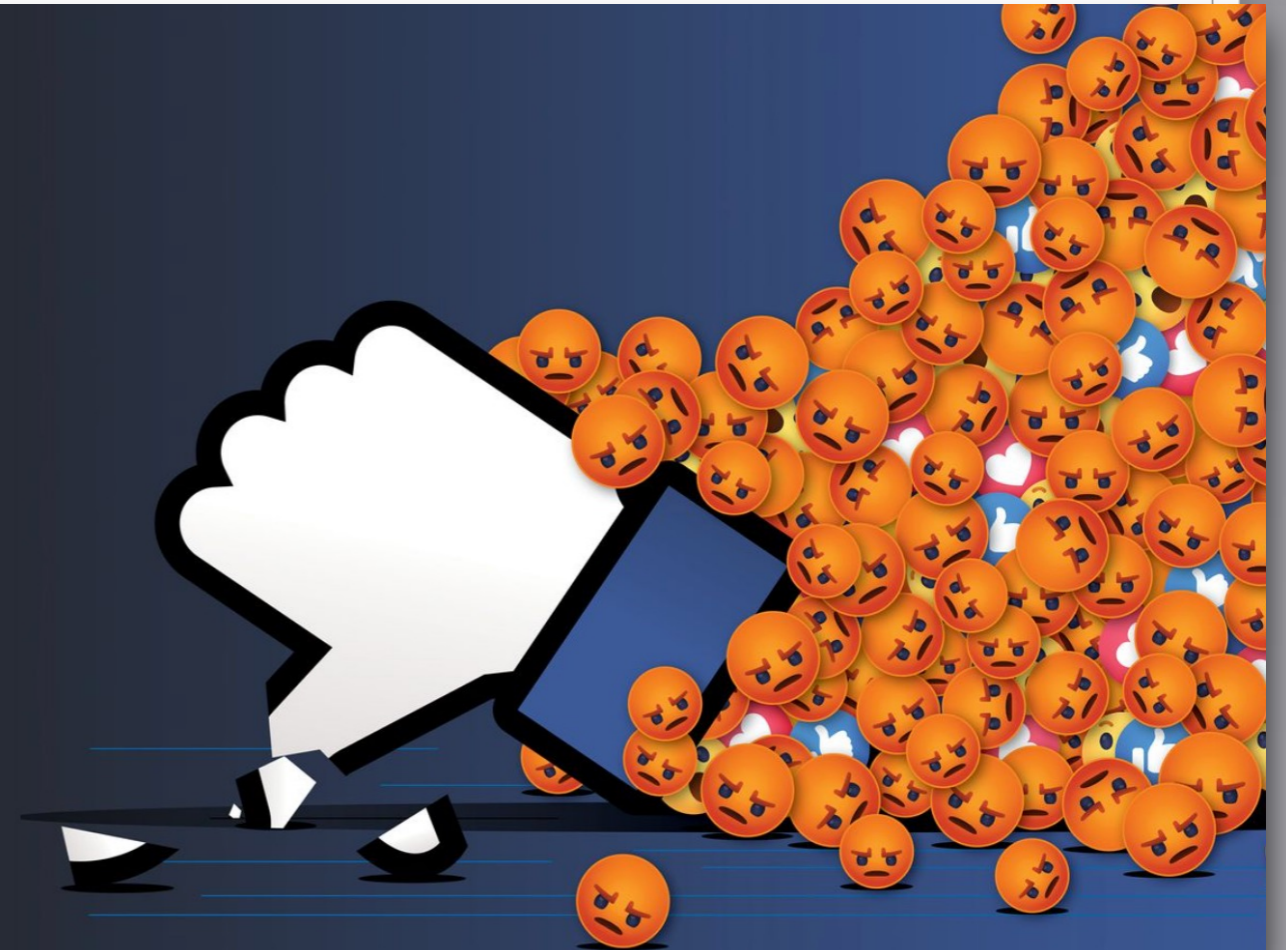
# 'The situation is the same as it was last year': Black creators say TikTok's problems with race and diversity persist

Instagram apologises for user misleading algorithm mistake

the facebook files

## Facebook Tried to Make Its Platform a Healthier Place. It Got Angrier Instead.

Internal memos show how a big 2018 change rewarded outrage and that CEO Mark Zuckerberg resisted proposed fixes



Algorithm Causes Unintentional Harms

SHAM MARRIAGES MAY CONTAIN BUILT-IN DISCRIMINATION



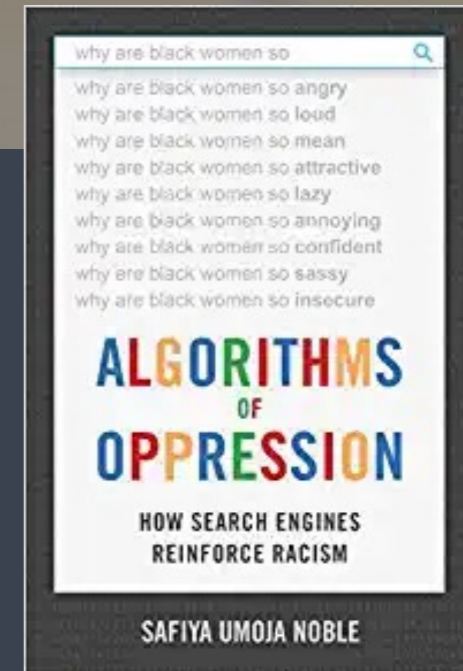
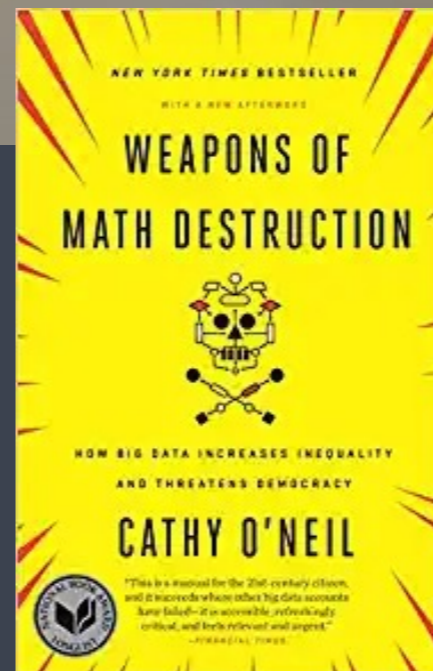
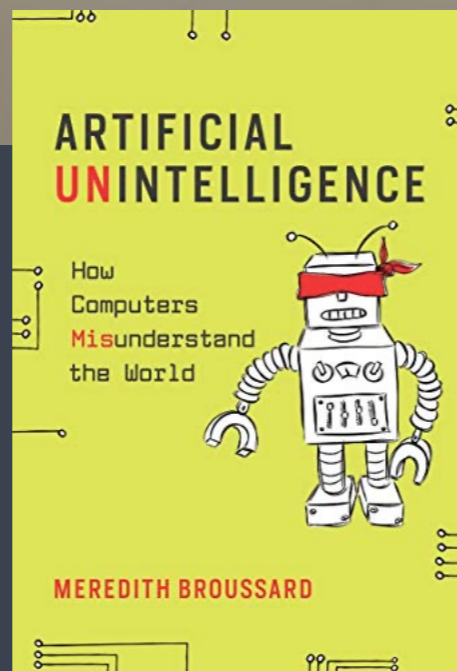
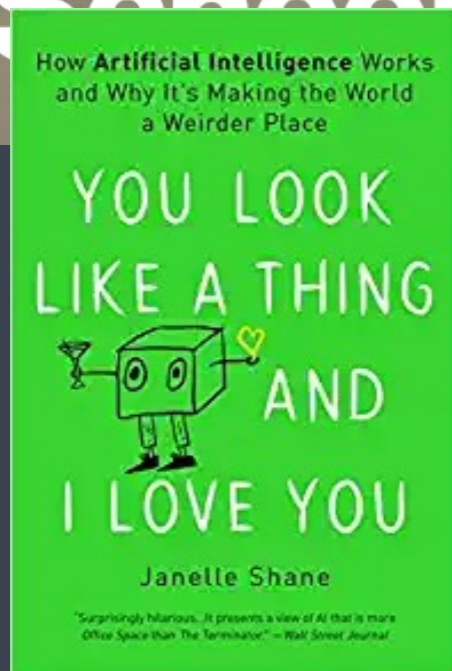
Project

# AI + Ethics Curriculum for Middle School



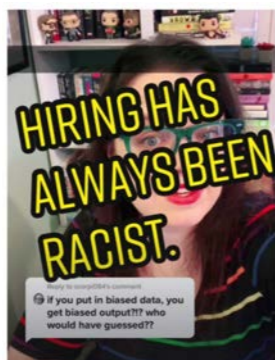
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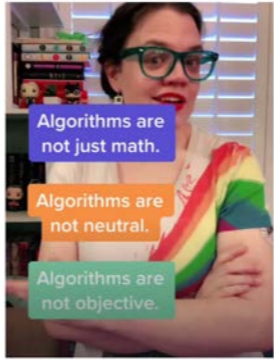
#stitch with jchu2chu so yeah there is some... 320.3K 1-3



Reply to @scorpi084 #Racism in hiring is an #... 4040 2-21



Reply to @myvanwym Another example of... 119.6K 2-20



People need to know this: An #algorithm can be jus... 43.5K 2-19



#duet with mahamaven Listen to this. Yes, there's... 12.8K 1w ago



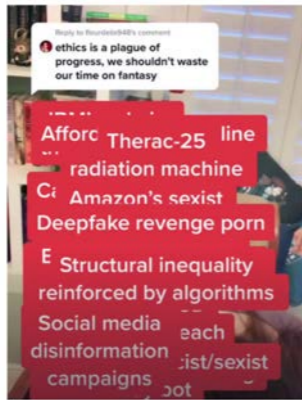
Reply to @salairnoo Robert Moses' bridges are a gre... 133.3K 5d ago



A passage from Safiya Noble's Algorithms of... 3663 6d ago



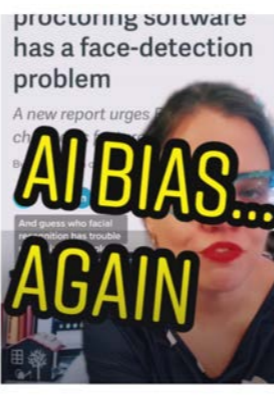
Reply to @sesamestreetfan69... 451.6K 1-4



Reply to @proust15 I wish #tech #ethics issues wer... 23K 1-26



Reply to @pretzelseasoning now... 15.2K 4-25



#stitch with joris\_explains More on... 4340 4-22



#stitch with lifeslittlelies How #insurance... 3403 4-2



Reply to @helenahelena9292 bla... 4690 3-2



Reply to @fuzzymurdermittens w... 2676 2-28



Reply to @thesgc facial recognition bias Part 1 fe... 3025 1-4



#stitch with hankgreen1 What if instead of talking... 5457 1-7



Reply to @urspeciesfeces Your photo is probably in ... 2820 1-24



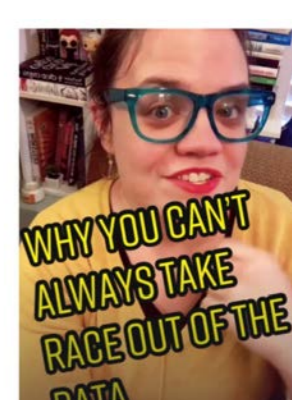
Reply to @professorcasey More on why #moderatio... 2494 4-26



Did you know that scientists are studying... 892 1-27



Reply to @nautical\_love\_triangle... 906 2-6



#stitch with jayrscotty sometimes you can't take... 4552 5-3



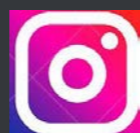
**“There will be an opportunity finally for every youngster, and indeed every person, to learn.”**  
- Isaac Asimov

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@professorcasey

E



R

Critique the things you love.

S

D

F