

# CSE 440: Introduction to HCI

## User Interface Design, Prototyping, and Evaluation!

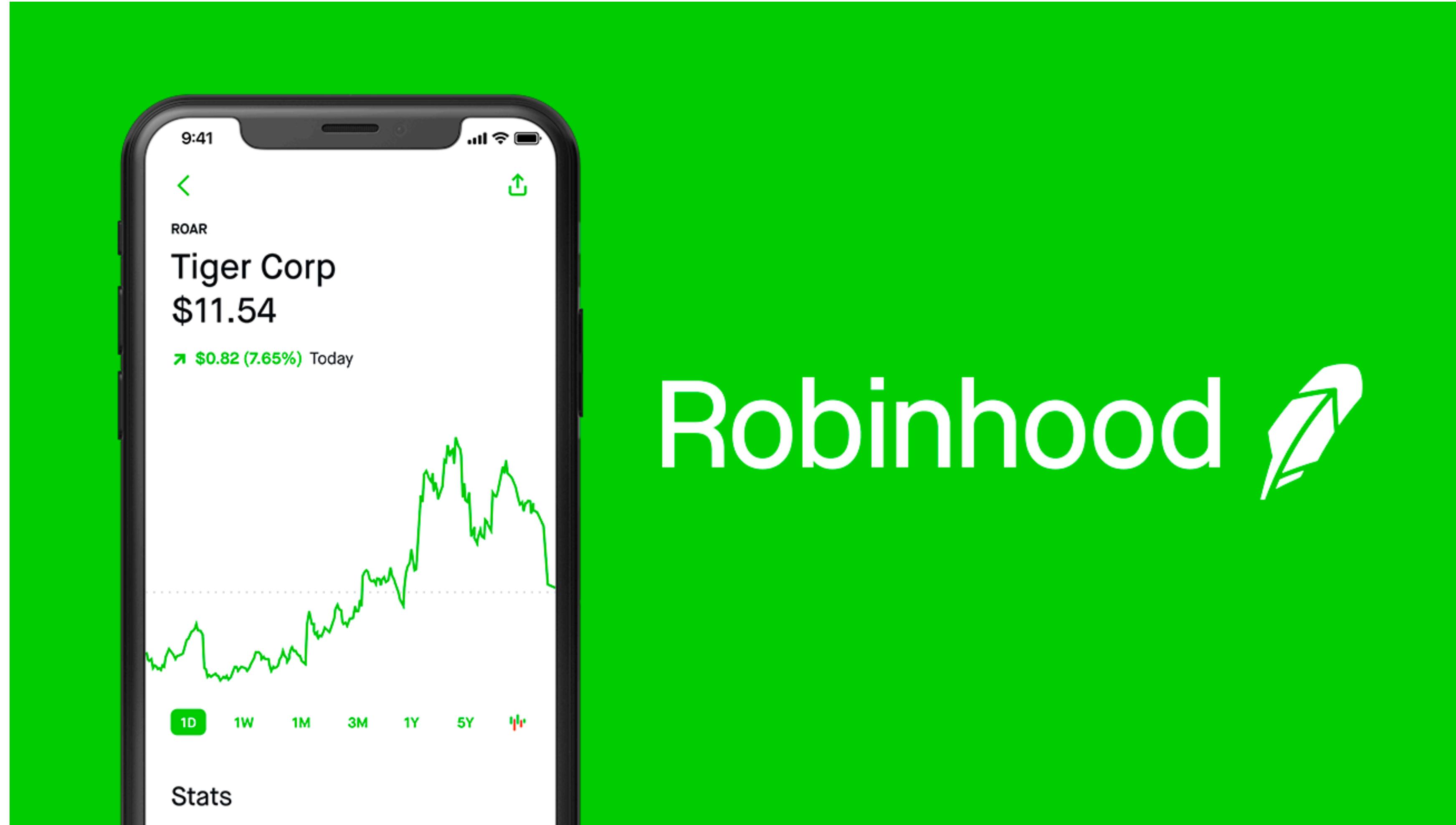
### Lecture 11: Ethics and Societal Implications

Instructor: Amy Zhang, 2/9/2021

# Today's Topics

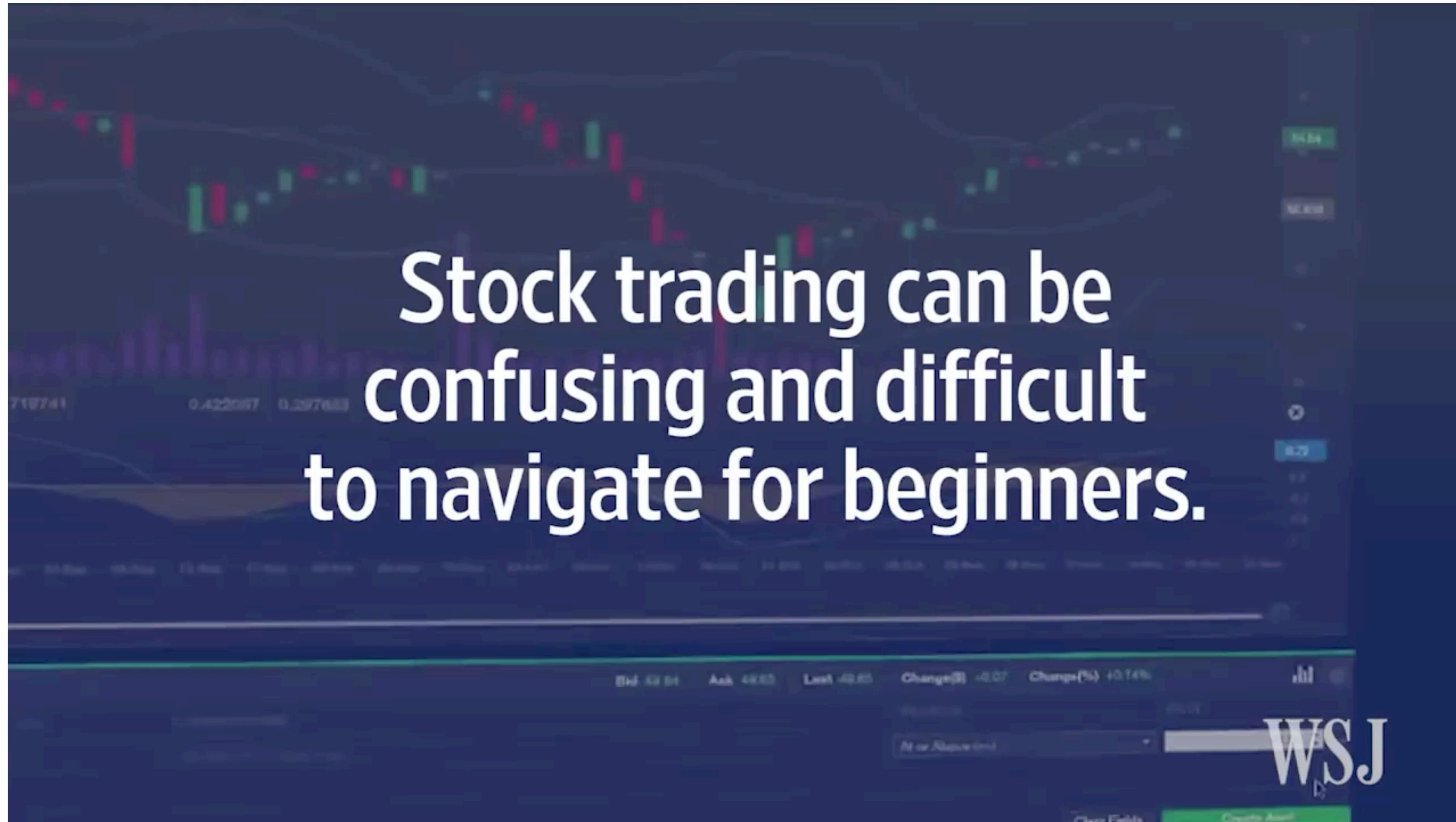
- UI Hall of Fame and Shame
- (Un)intended consequences of design
  - How can we guard against negative societal impacts?
- Designing for diversity and accessibility
- Activity on Tarot Cards of Tech
- Course Updates
- Team work time on 2f

# **UI Hall of Fame and Shame**



We've discussed usability principles like learnability, safety, and efficiency.

What about ethics? What is our role in thinking through the societal implications of certain designs, whether good or bad?



This app is framed in terms of **social good** - it is a tool targeted at beginner traders that democratizes trading by lowering barriers.

It also has won **design awards** for its usability.

**content warning:** next slide's video has a short mention of suicide in the middle. If you wish to skip it, you can turn off your audio and step away from the lecture for ~4 minutes, and we should be past that part.

A portrait of a middle-aged man with grey hair and glasses, wearing a dark suit, white shirt, and purple tie. He is speaking against a dark blue background.

We prize usability in design. This app is learnable, efficient, and has confirmation dialogs for safety. But can a technology be **too** easy to use so it becomes dangerous?

As designers, do we have **responsibility**, much like the trader mentioned, to steer people towards “good” decisions?

Even if we have good intentions at the outset, how can **misaligned incentives** result in problematic designs (such as gamification)?

# (Un)intended Consequences of Design

# What are unintended consequences?

- Intended by the designers and desired by users/society at large
- Unintended by the designers and desired by users/society at large
- Intended by the designers and undesired by users/society at large
- Unintended by the designers and undesired by users/society at large

# What are unintended consequences?

## Example — Facebook (or your social media of choice)

- Intended by the designers and desired by users/society at large  
*Catching up with friends' lives, sending status updates to friends, and chatting with them*
- Unintended by the designers and desired by users/society at large  
*Many newer features started out homegrown: retweets, hashtags, marketplace, etc.*
- Intended by the designers and undesired by users/society at large  
*Data harvesting and surveillance, and monetization of engagement via ads, tricks to get people to stay on the app or not delete their account*
- Unintended by the designers and undesired by users/society at large  
*Social media feedback loops that lead people to feel lonely due to social comparison, polarization due to engaging political propaganda and misinformation, clickbait and scams*

# What are unintended consequences?

## Example — Robinhood

- Intended by the designers and desired by users/society at large  
Basically your tool's bread and butter. People want to make trades, and RH makes it easy to do so.
- Unintended by the designers and desired by users/society at large  
Interesting ways people use your tool without your planning it. Sometimes a good idea to eventually support these in the tool. RH has led to large communities of traders on YT, Reddit.
- Intended by the designers and undesired by users/society at large  
Sometimes necessary to make money. But shouldn't lie/scam users (ex: dark patterns). Gamification on RH encourages traders to stay trading, even if it's not in their best interest.
- Unintended by the designers and undesired by users/society at large  
Oftentimes perverse results: the effect of a design was the opposite of what was originally intended (made the problem worse). RH seeks to empower the small trader but may lead overall to greater wealth transfer to large hedge funds at the end of the day.

# **Unfortunately, consequences can be hard to predict**

- Both for good and bad consequences
- Sociologist Robert Merton's 5 sources of unintended consequences:
  - 1) Ignorance
  - 2) (Human) Error
  - 3) Imperious immediacy of interest
  - 4) Basic values
  - 5) Self-defeating prediction

### 3) Imperious immediacy of interest

A strong desire for the intended consequence leads you to ignore the unintended ones

The trade-offs came into focus this month, when Facebook engineers and data scientists posted the results of a series of experiments called “P(Bad for the World).”

The company had surveyed users about whether certain posts they had seen were “good for the world” or “bad for the world.” They found that high-reach posts — posts seen by many users — were more likely to be considered “bad for the world,” a finding that some employees said alarmed them.

So the team trained a machine-learning algorithm to predict posts that users would consider “bad for the world” and demote them in news feeds. In early tests, the new algorithm successfully reduced the visibility of objectionable content. But it also lowered the number of times users opened Facebook, an internal metric known as “sessions” that executives monitor closely.

“The results were good except that it led to a decrease in sessions, which motivated us to try a different approach,” according to a summary of the results, which was posted to Facebook’s internal network and reviewed by The Times.

## 4) Basic values

Your values lead you to emphasize certain outcomes over others

community APRIL 26, 2018

### Stack Overflow Isn't Very Welcoming. It's Time for That to Change.

We <3 and believe in Stack Overflow. But sometimes, loving something means caring enough to admit that it has a problem. Let's start with the painful truth: Too many people experience Stack Overflow<sup>1</sup> as a hostile or elitist place, especially newer coders, women, people of color, and others in marginalized groups. Our employees and community...



Jay Hanlon

EVP of Culture and Experience (former)

We <3 and believe in Stack Overflow. But sometimes, loving something means caring enough to admit that it has a problem.

Let's start with the painful truth:

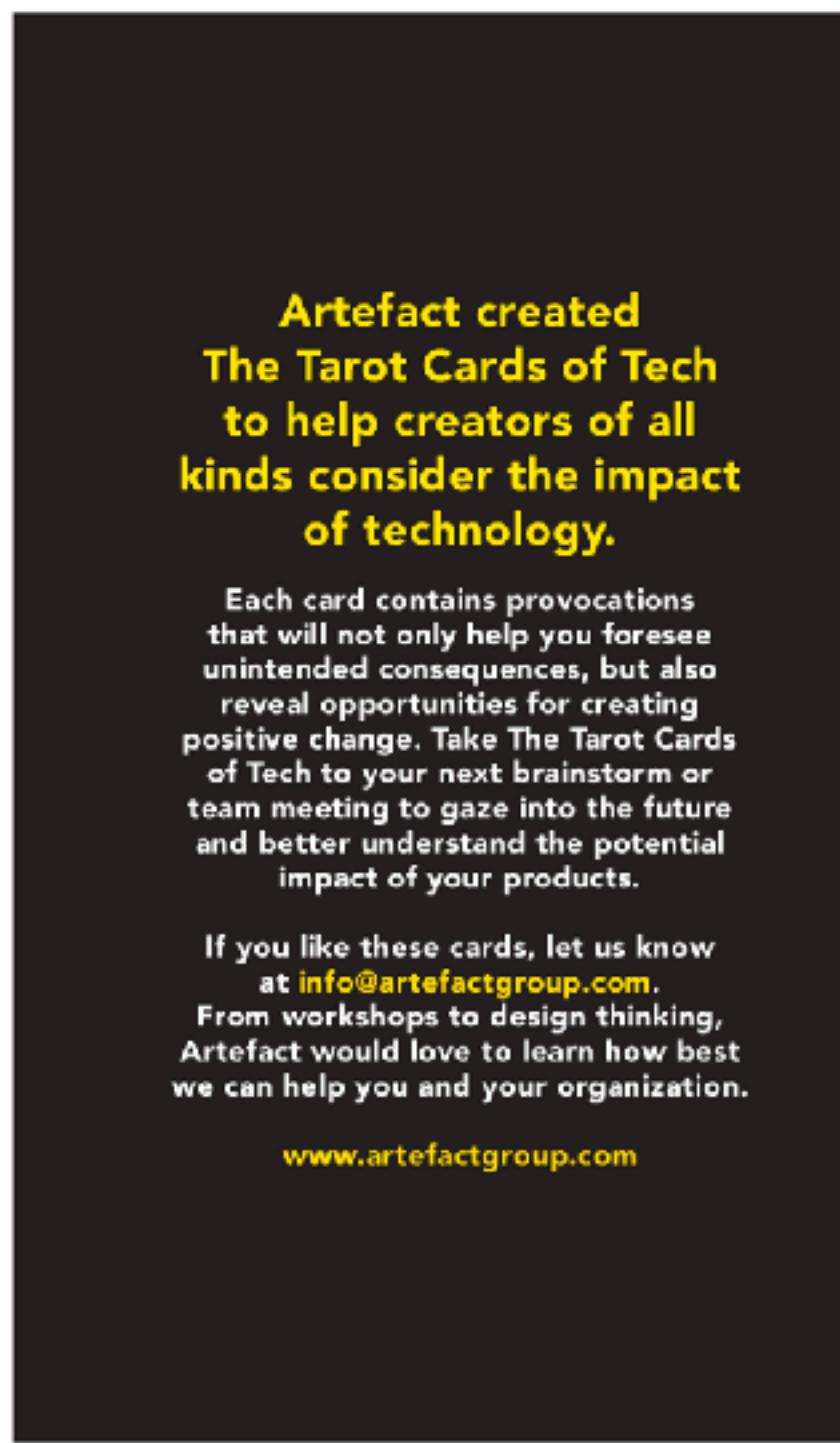
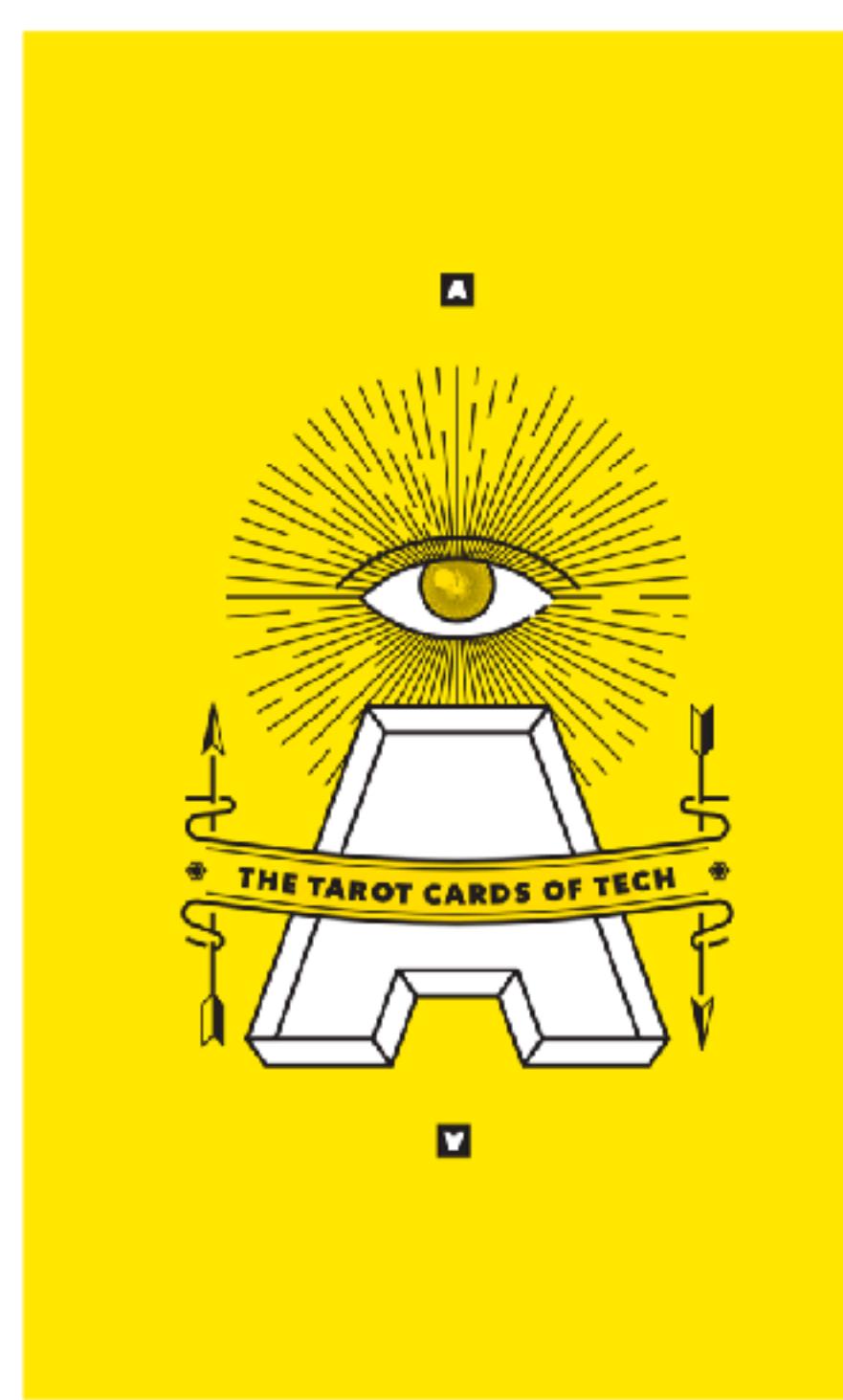
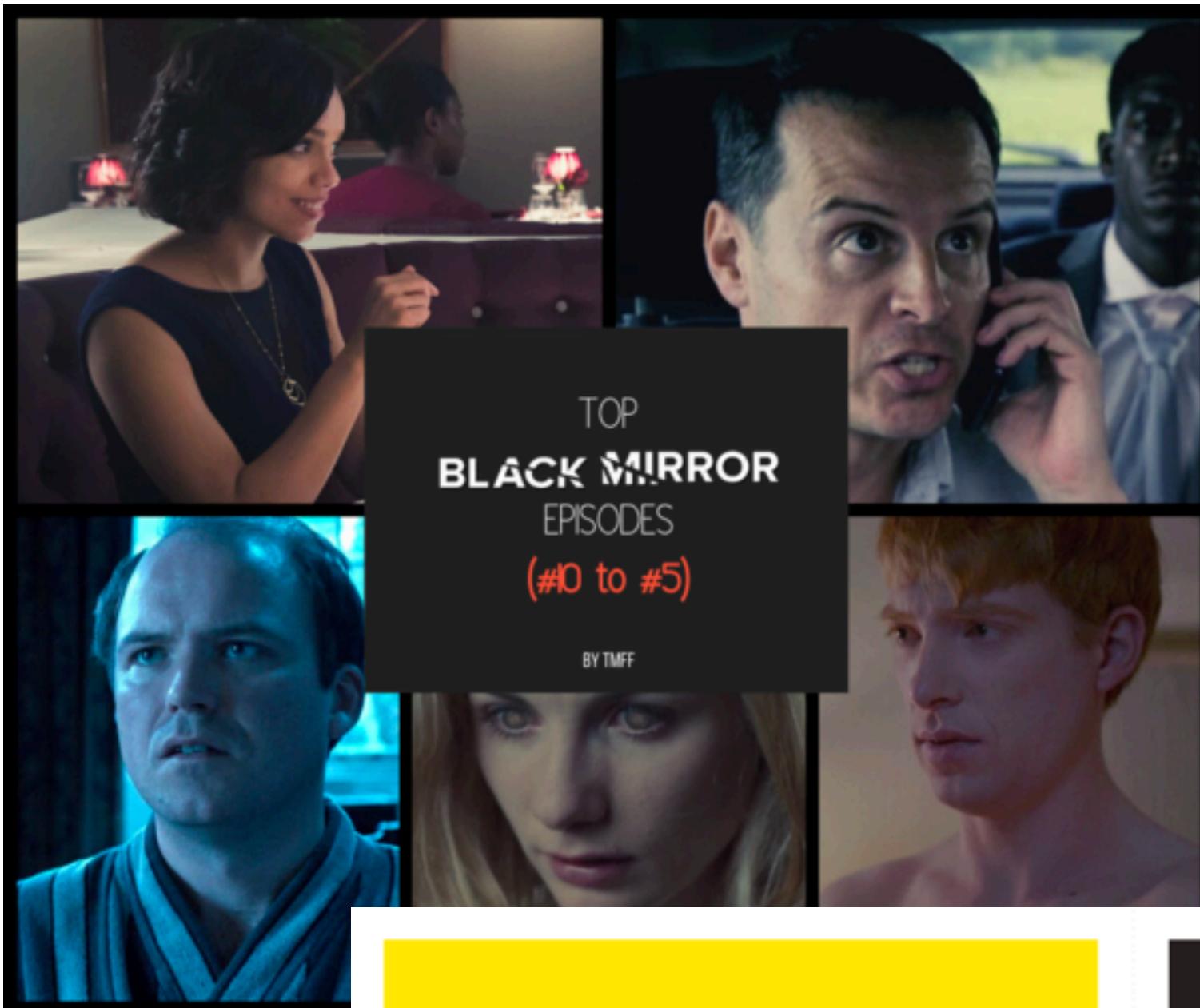
- Too many people experience Stack Overflow<sup>1</sup> as a hostile or elitist place, especially newer coders, women, people of color, and others in marginalized groups.
- Our employees and community have cared about this for a long time, but we've struggled to talk about it publicly or to sufficiently prioritize it in recent years. And results matter more than intentions.



## 5) Self-defeating prediction

Prediction proves false because the prediction changes the course of history

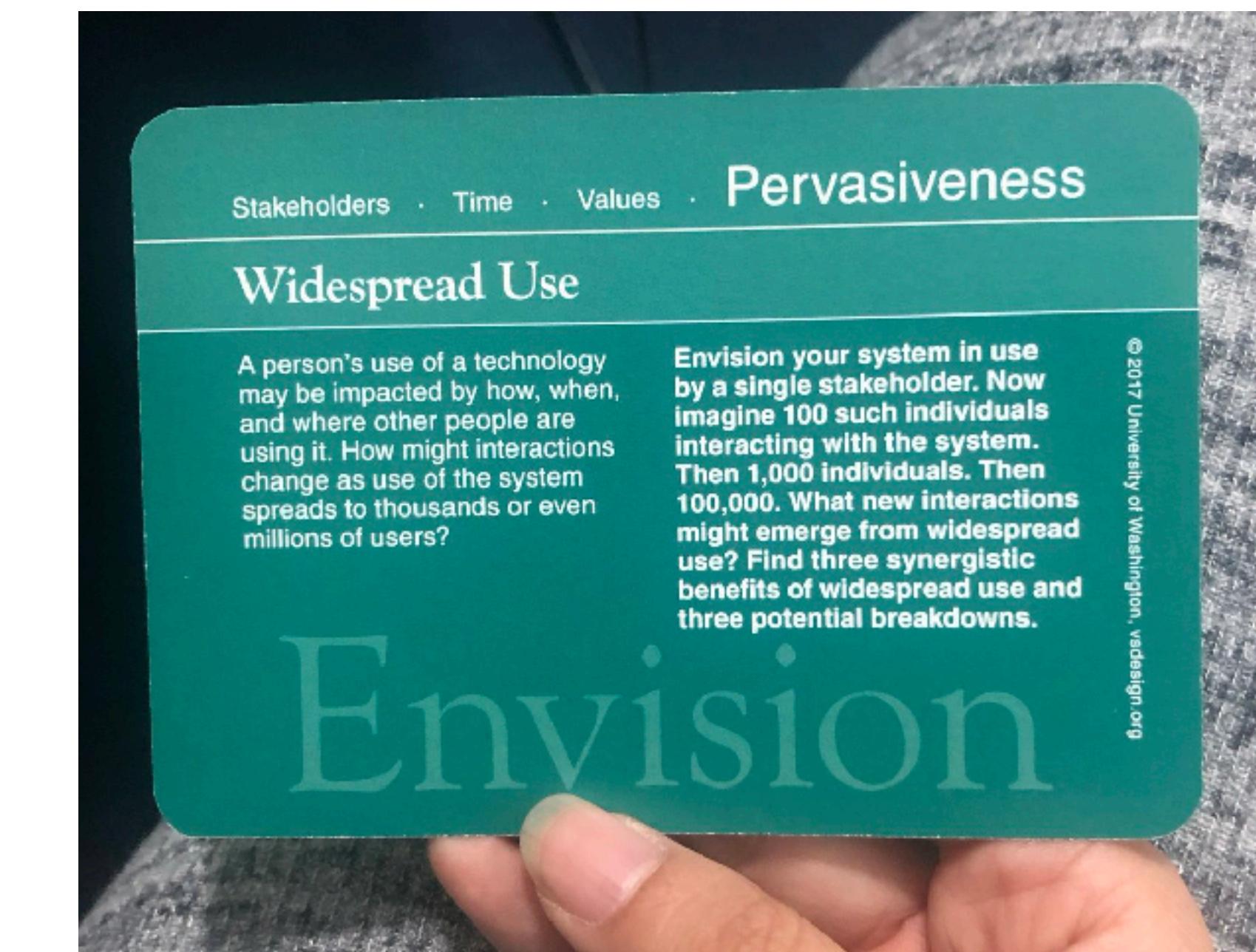
**How can we guard against  
negative societal impacts?**



Actually think (speculate) about the potential negative impacts of your design!

Some ways to do so:

- Speculative fiction (a.k.a. Black Mirror!)
- Tarot Cards of Tech
- Value-Sensitive Design cards (by Batya Friedman in the iSchool)



# New AI fake text generator may be too dangerous to release, say creators

The Elon Musk-backed nonprofit company OpenAI declines to release research publicly for fear of misuse



▲ The AI wrote a new passage of fiction set in China after being fed the opening line of Nineteen Eighty-Four by George Orwell (pictured). Photograph: Mondadori/Getty Images

The creators of a revolutionary AI system that can write news stories and works of fiction - dubbed "deepfakes for text" - have taken the unusual step of not releasing their research publicly, for fear of potential misuse.

[OpenAI](#), an nonprofit research company backed by Elon Musk, Reid Hoffman, Sam Altman, and others, says its new AI model, called GPT2 is so good and the risk of malicious use so high that it is breaking from its normal practice of releasing the full research to the public in order to allow more time to discuss the ramifications of the technological breakthrough.

Start thinking about it early and often.

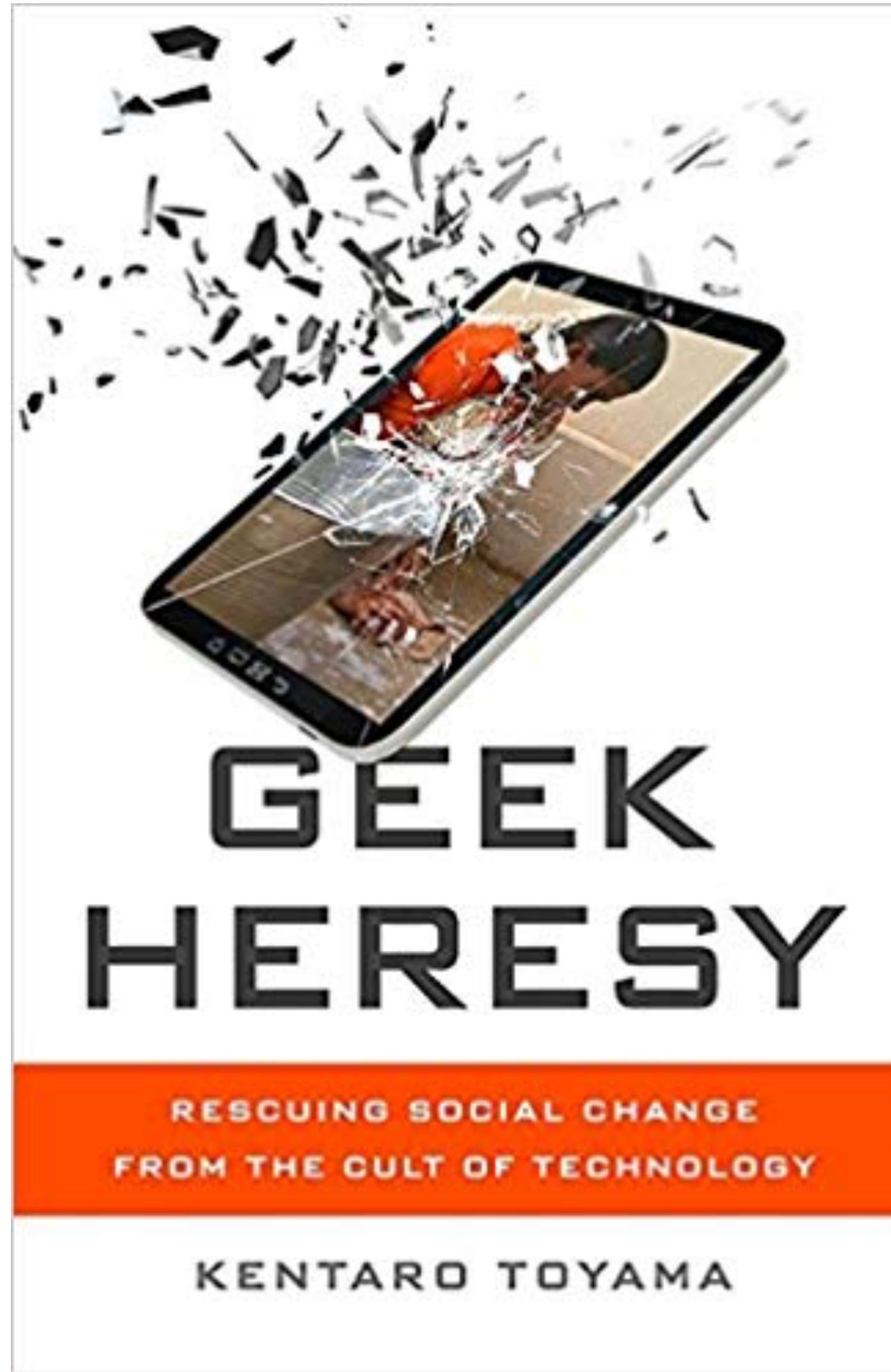
If you do it too late, there may be too much momentum to stop the release of a product.

Ask yourself if the negatives outweigh the positives.



ALL new technologies have some negative potential consequences. But some have little upside and lots of downside. Some negative consequences can be mitigated while others are inherent to the technology.

Should we still work on it? What is the role of research here?



Recognize differential effects of technology.

Sometimes only parts of the population, such as those already marginalized, experience the negative consequence.

Sometimes the positive outcomes only go to certain privileged groups.

All of this can result in increased societal inequality.

*"So, a golden age of innovation in the world's most advanced country did nothing for our most prominent social ill."*

# Designing for Diversity and Accessibility

# Easy to design for ourselves but what about designing for “all”?

- Design is fundamentally about **power**: granting ease of access to certain functions
- When you design for one population only and neglect others, you are **reconfiguring power**—increasing access for one population while setting up barriers for another
- When replicated at large, this can have the effect of exacerbating inequality.
- This can manifest as the **WEIRD** problem (when designs are made for people who are Westerners, Educated, Industrialized, Rich, and Democratic), which only represents about 12% of the world.

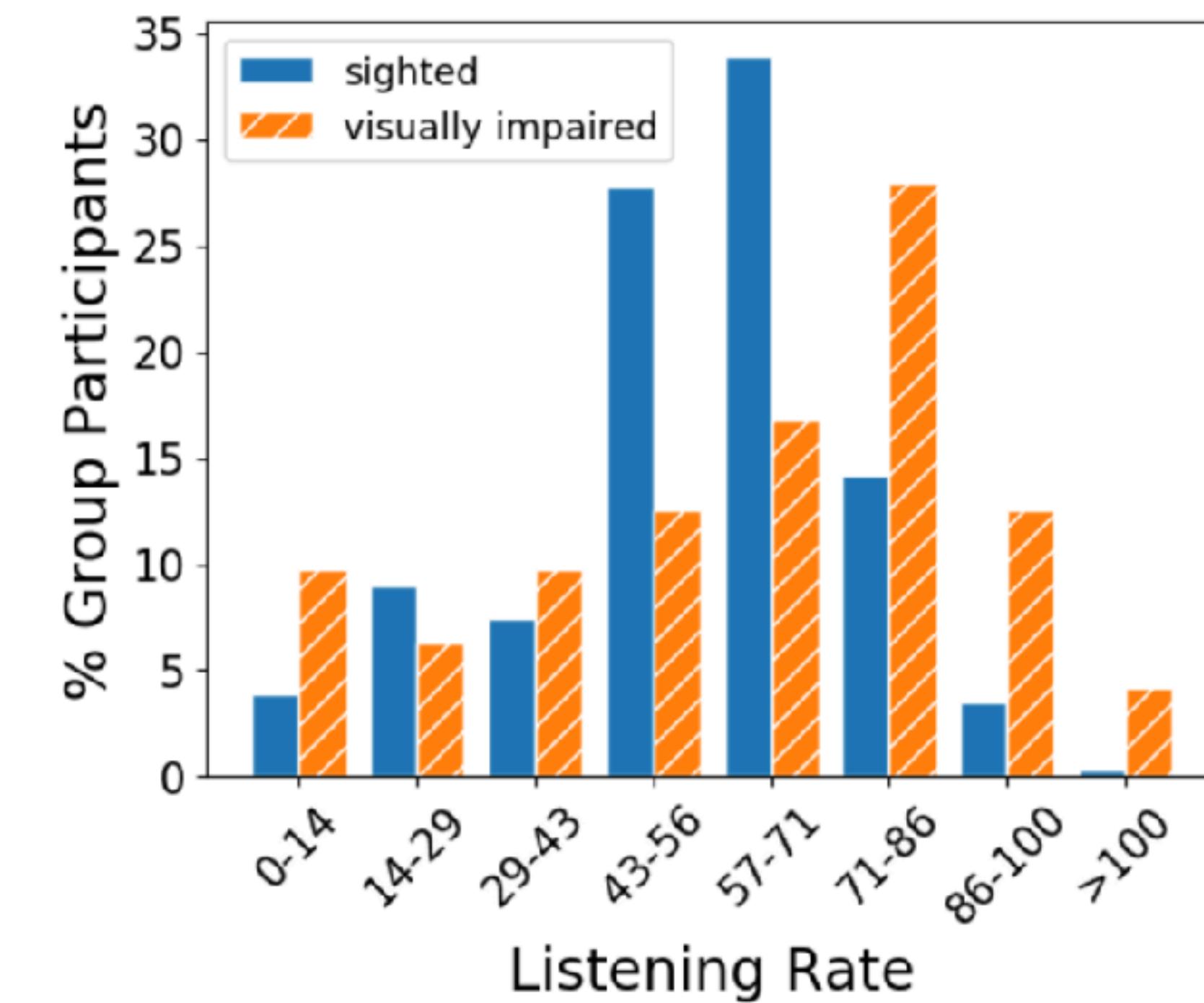
# Example: Visual preferences for websites varies by country



# Example: audio preferences for visually impaired



Amazon Alexa devices (left to right): Echo Dot, Echo, Echo Plus



# People with Disabilities

Remember:

- 1 billion people worldwide
  - 15% of the world's population
- 50 million people in the U.S.
- This *\*will\** include yourself if you are fortunate to live long enough to develop disabilities one day



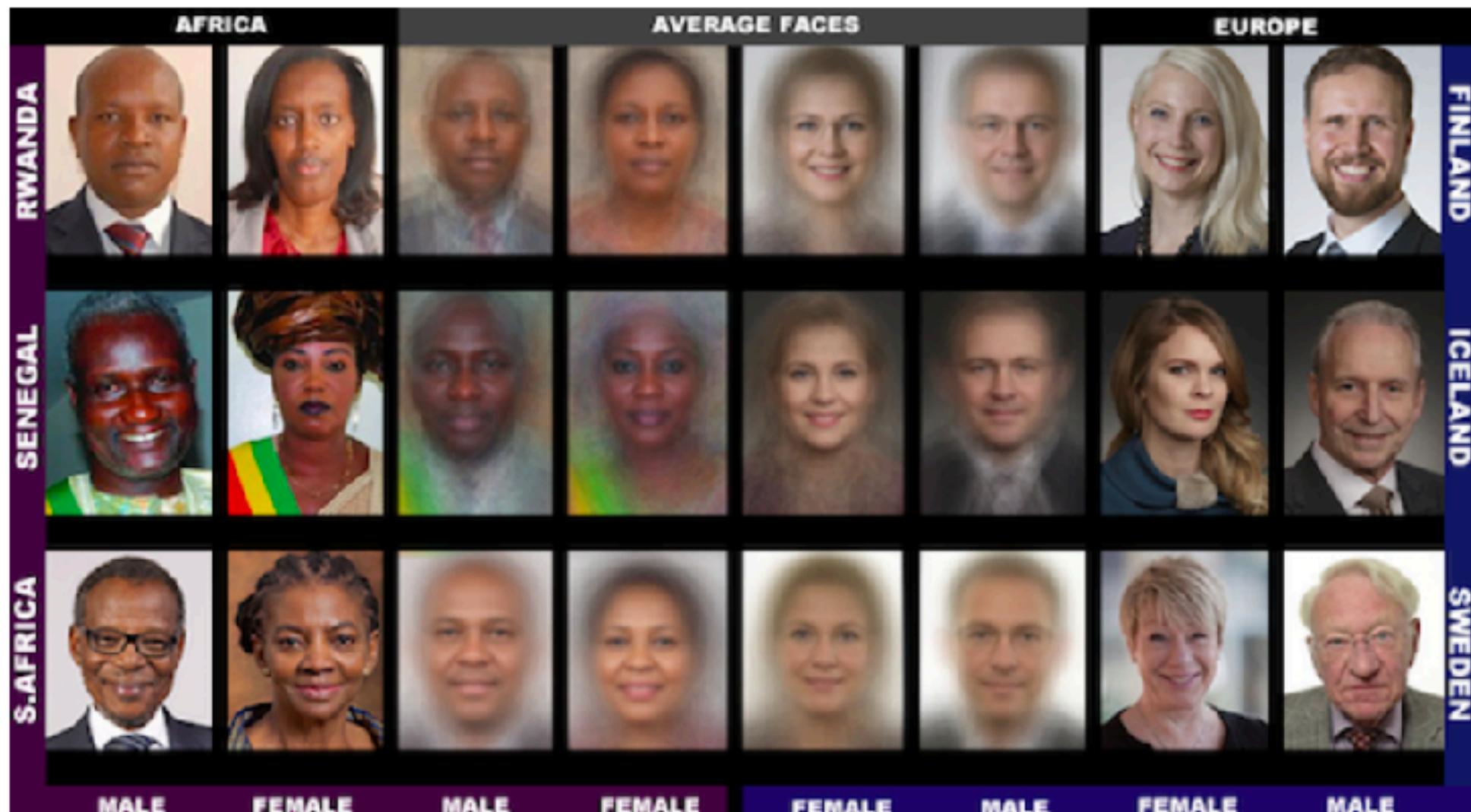
**Chukwuemeka Afigbo** @nke\_ise · Aug 16, 2017

...

If you have ever had a problem grasping the importance of diversity in tech and its impact on society, watch this video



## Example: Algorithms and sensors that discriminate based on skin tone or gender

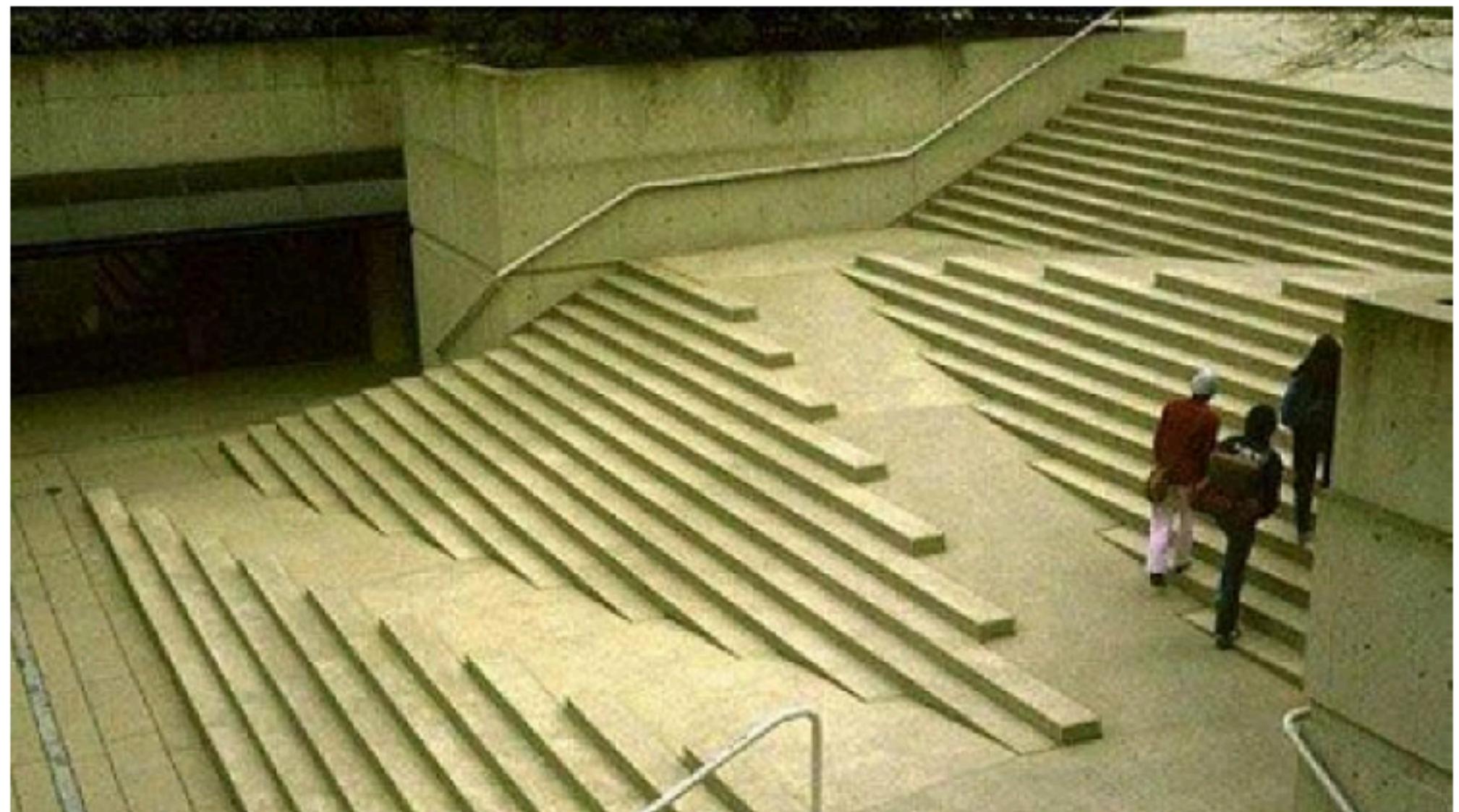


Pilot Parliaments Benchmark

# How to better design for diversity and accessibility?

- People have different preferences
  - We can study those preferences
  - Sometimes, we can even predict those preferences
- We've already talked about diversity in the design team and engaging with diverse users in user research.
- A design that emphasizes one preference will disadvantage some other preference
  - We could abandon the notion of one-size-fits-all or a “best” design
  - Instead, we could consider adaptive or malleable software designs that can adjust to match the abilities of the user
  - We could also make more designs that are each customized to a particular context

# Universal Design vs. Assistive Technology



# Ways to learn more and get involved in accessible and diverse design

CSE 490D: Designing Technology for Resource-Constrained Environments

CSE 482A: Accessibility Capstone

More here: <https://create.uw.edu/join-us-accessibility-related-uw-courses/>

Jen Mankoff's Make4All Lab

Katharina Reinecke's LabintheWild

Jon Froehlich's Makeability Lab

Richard Ladner's AccessComputing Alliance

Jacob Wobbrock's ACE Lab

Leah Findlater's Inclusive Design Lab

...so much more!

CREATE Center

Taskar Center

The screenshot shows the UW CREATE website. At the top is a purple header bar with the UW logo, the word "CREATE", and "UNIVERSITY of WASHINGTON". To the right are a search icon and a "Quick Links" button. Below the header is a navigation menu with links for HOME, FACULTY, PARTNERS, RESEARCH, NEWS & EVENTS, ABOUT, and PARTICIPATE IN CREATE. A breadcrumb trail shows the user is at the "UW CREATE" page. The main content area features a paragraph about the mission of CREATE, followed by a grid of six small portraits of diverse individuals. To the right of the portraits is a section titled "Cross-campus, Interdisciplinary Team" with a description of the consortium. On the far right, there is a sidebar with a "NEWS & ANNOUNCEMENTS" section featuring a link to a "Data Science for Social Good summer program".

**CREATE**  
UNIVERSITY of WASHINGTON

HOME / FACULTY / PARTNERS / RESEARCH / NEWS & EVENTS / ABOUT / PARTICIPATE IN CREATE

UW CREATE

CREATE is the Center for Research and Education on Accessible Technology and Experiences. Our mission is to make technology accessible and to make the world accessible through technology.

Cross-campus, Interdisciplinary Team

A consortium of faculty from UW Engineering departments, UW Medicine and the iSchool working with industry partners

NEWS & ANNOUNCEMENTS

Data Science for Social Good summer program

# Learn more about ethics in tech:

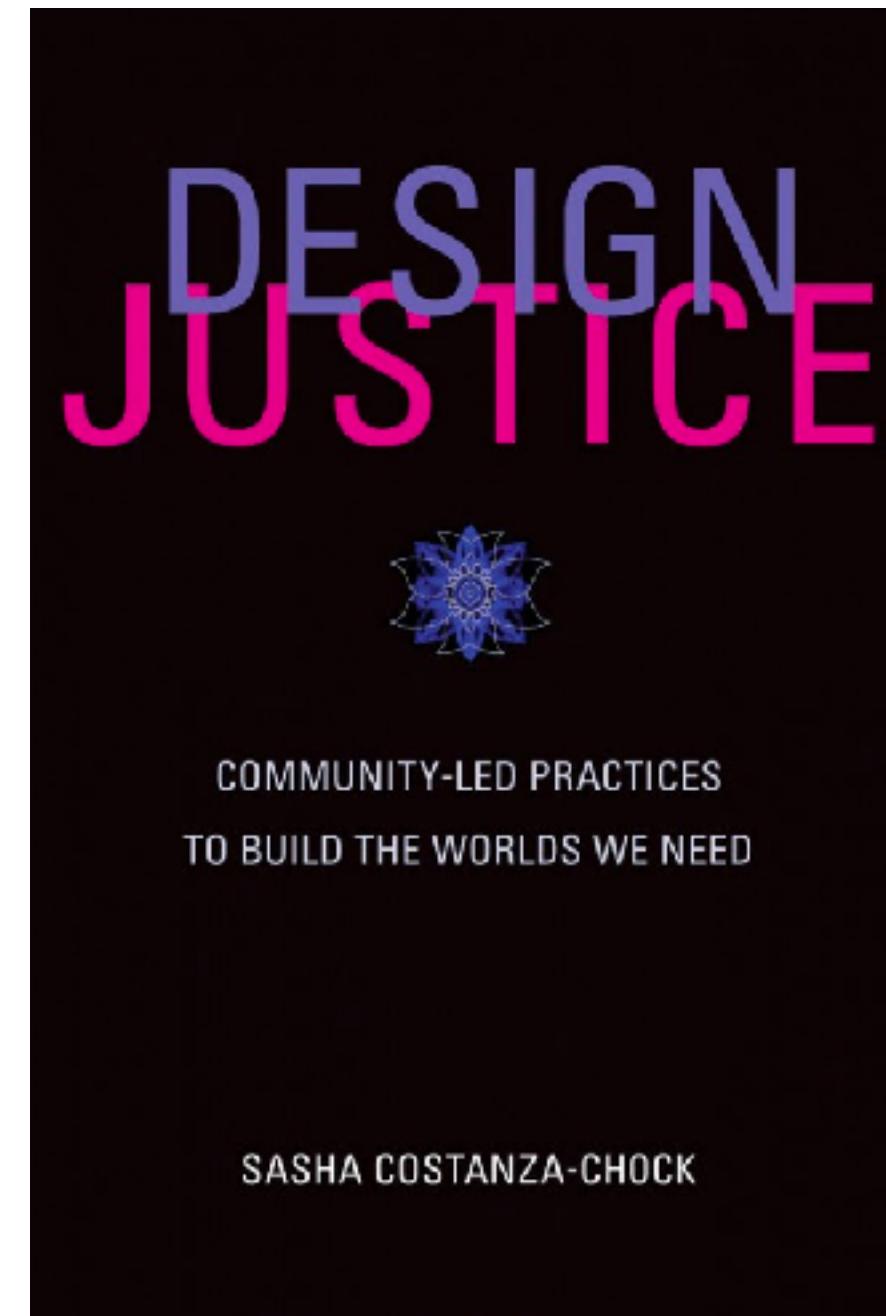
Computer Ethics CSE 492e  
seminar class

<https://courses.cs.washington.edu/courses/cse492e/21wi/>

today  
administrative  
description  
objectives  
schedule  
[Back to top](#)

<a href="#">labor and automation</a>	<a href="#">gender and sexuality</a>	<a href="#">theory</a>	<a href="#">Critical Perspectives</a>
Fri, Oct 23			
<b>Latent Identity and Privacy</b>			
<a href="#">control and power</a>	<a href="#">data and classification</a>	<a href="#">surveillance and privacy</a>	<a href="#">Critical Perspectives</a>
Wed, Oct 28			
<b>Reimagining</b>			
<a href="#">narrative</a>	<a href="#">reimagining</a>	<a href="#">systems theory</a>	<a href="#">Critical Perspectives</a>
Fri, Oct 30			
<b>Platform or Publisher?</b>			
<a href="#">control and power</a>	<a href="#">society of tech</a>		<a href="#">Misinformation and Platforms</a>
Wed, Nov 04			
<b>Content Moderation Algorithms and Free Speech</b>			
<a href="#">emerging technologies</a>	<a href="#">narrative</a>	<a href="#">sociotechnical systems</a>	<a href="#">Misinformation and Platforms</a>
Fri, Nov 06			
<b>Constructing a Political Argument</b>			
<a href="#">politics</a>	<a href="#">reflection and practice</a>		
Fri, Nov 13			
<b>Experiences of Injustice in Computing</b>			
<a href="#">control and power</a>	<a href="#">society of tech</a>	<a href="#">equity</a>	<a href="#">Computing and Racial Equity</a>
Wed, Nov 18			
<b>Critiques and Suggestions</b>			

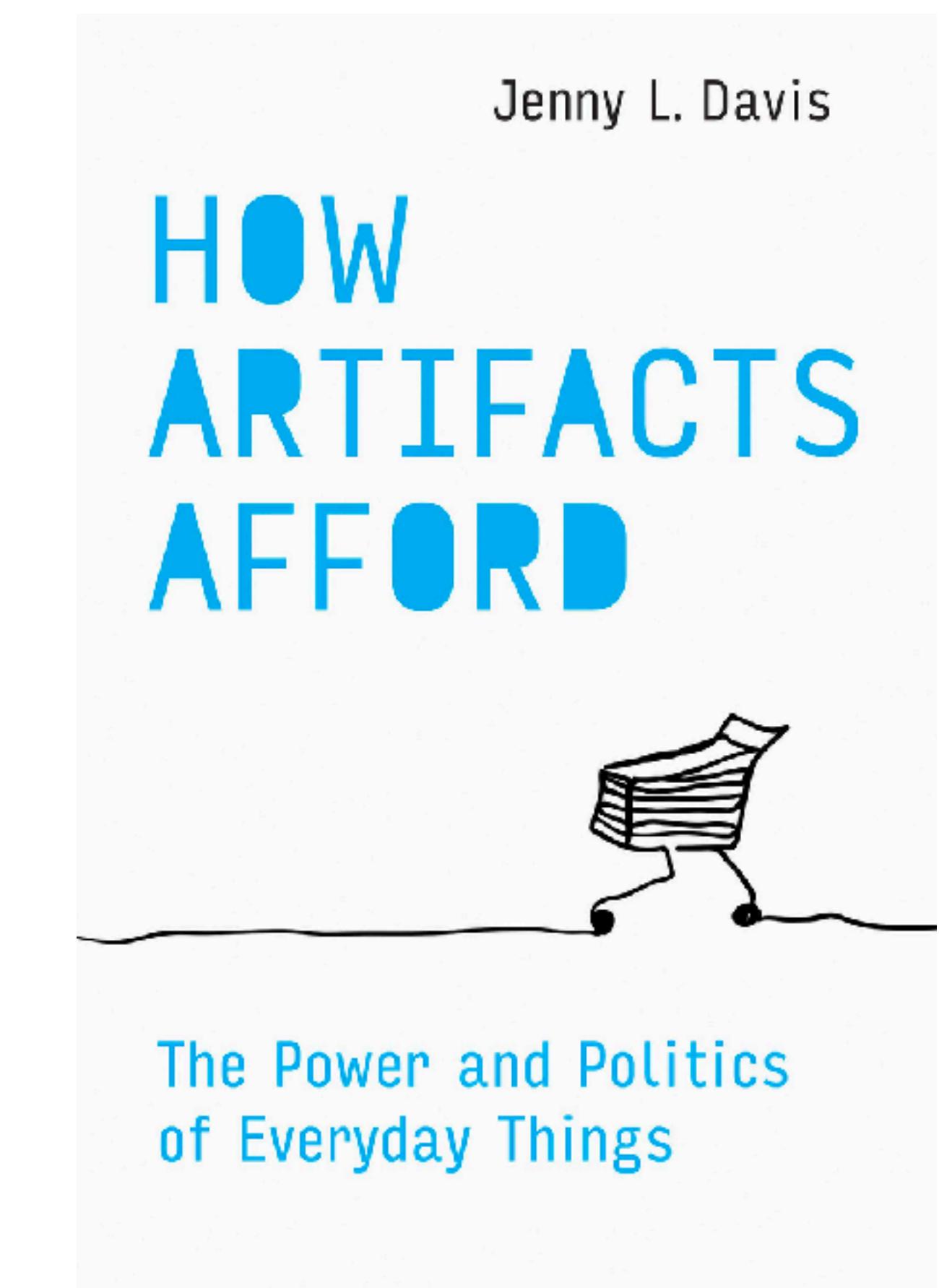
# Specifically ethics as it relates to design:



Design Justice: Community-Led  
Practices to Build the Worlds We Need  
Book by Sasha Costanza-Chock

Free online: <http://design-justice.pubpub.org/>

How Artifacts Afford: The  
Power and Politics of  
Everyday Things  
Book by Jenny Davis



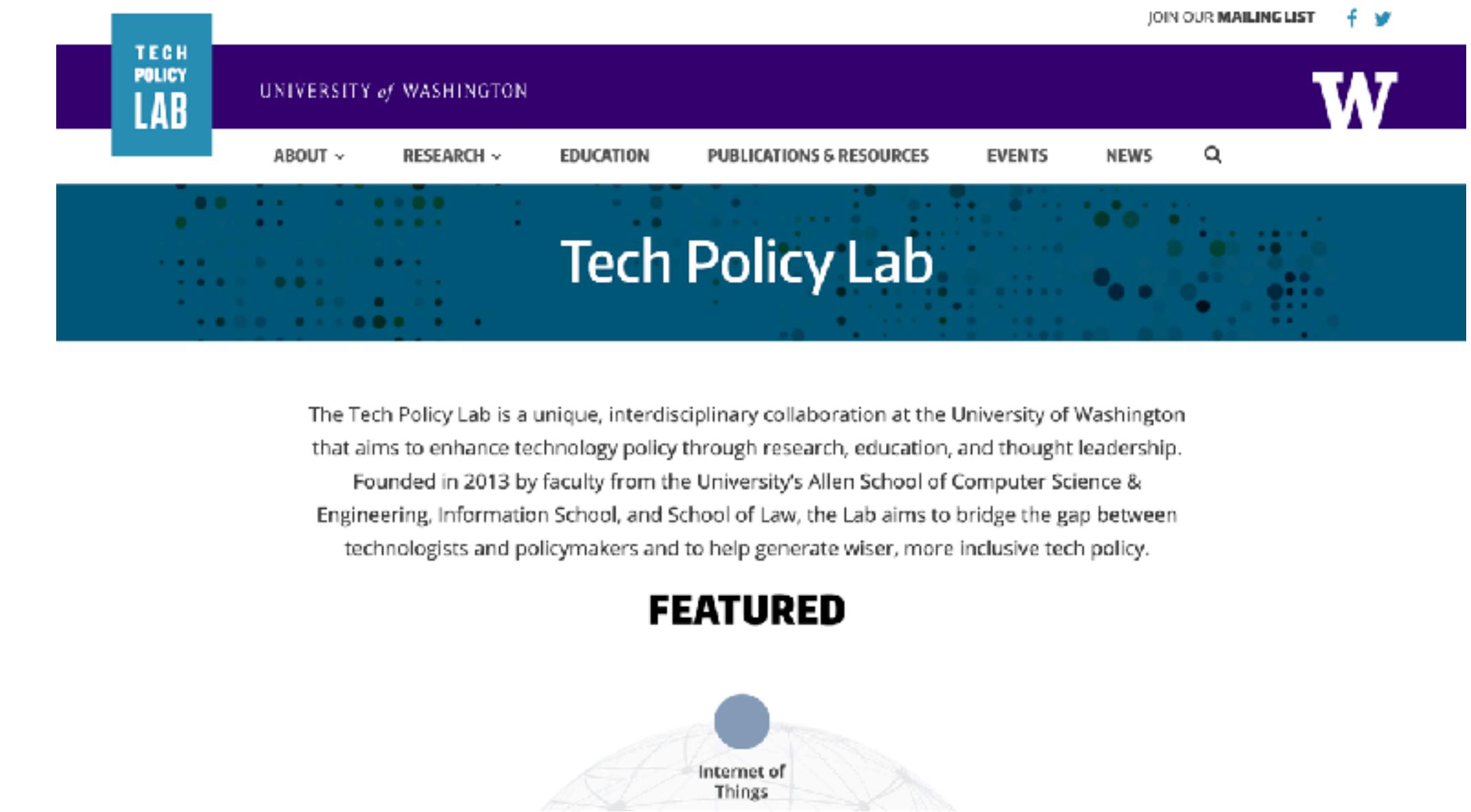
## **One final note: Regulation**

Often happens in response to negative societal implications.

Ex: EU General Data Protection Regulation (GDPR) was developed largely in response to Facebook's Cambridge Analytica scandal.

Are regulations good or bad? It depends.

- + can drive innovation in alternatives (see fuel)
- + can provide consumer protection
- can entrench big players who can eat costs
- can slow down innovation by adding hurdles



<https://techpolicylab.uw.edu/>

# Course Updates

# Looking ahead...

- 2f is due Thursday 8PM
- Presentation of preliminary 2f and feedback is in lecture on Thursday
- My office hours are tomorrow, as are TA office hours hosted by Lucy.
- This is it! This is the culmination of Assignment 2: Getting the Right Design. The design you land on for 2f is the design you're going to focus on from now on as we move into serial prototyping for Assignment 3.
- Releasing 2g later today, due next Tuesday
  - This is a public blog post summarizing all you've done in Assignment 2 on Medium!

# Sign up for Figma

- You can (don't have to) use it for 2f.
- We will later use it for parts of Assignment 3.
- You should have gotten an invite yesterday to join.
- Good Figma tutorials:
  - <https://www.youtube.com/watch?v=cCNLD5IZY34>
  - <https://www.youtube.com/c/Figmadesign/featured>
- The following templates may be useful for you:
  - <https://www.figma.com/templates/>

# Activity + Group worktime

We're about to put you in your groups for work time. Spend the first ~5-10 minutes on the following activity:

Randomly "draw" one tarot card from each row (so three cards in total). <http://tarotcardsoftech.artefactgroup.com/>

Record your answers to the following questions in this form (submit one per person please!): <http://www.yellkey.com/now>

- Discuss your answers to the questions on the cards for your group's product.
- What insights have you gained from thinking through these questions? Anything that surprised you or challenged your thinking?
- How would these considerations impact your product design (whether just the tasks you focus on for the course or thinking ahead to if a fully-featured product was launched widely)

