CS 182: Ethics, Public Policy, and Technological Change

Rob Reich
Mehran Sahami
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Philosophy Papers: WIM deadline

Special Event with Minister Audrey Tang:
Tuesday, March 16, 4-5pm
Module: Technology, Inclusion, and Inequality

1. The Concept of Equality: the most fundamental value of all?

2. Equality and Inequality in Tech
   A. How Tech Increases Equality
   B. How Tech Worsens Inequality

3. Diversity and Inclusion
   A. Fairness Argument
   B. The Social Science Argument for Diversity
   C. Epistemic Benefits of Inclusion/Diversity
Major philosophical frameworks in this class

John Rawls’s theory of justice
  justice as fairness
  pure procedural justice (the original position + veil of ignorance)
  two principles of justice

Utilitarianism (Bentham and Mill)
  happiness as the supreme and most fundamental value
  greatest good for the greatest number
  cost-benefit analysis
  the optimization mindset of the technologist

Value Pluralism (Isaiah Berlin)
  no single supreme value; no unity of all value
  value incompatibility and value trade-offs
Liberty vs Security

• No supreme value. A world of plural values with no stable hierarchy. Sometimes liberty, sometimes security.

• Easy to see the tradeoff between them. Justice Sandra Day O’Connor,

• We’re likely to experience more restrictions on our personal freedom than has ever been the case in our country. . . . It will cause us to re-examine some of our laws pertaining to criminal surveillance, wiretapping, immigration, and so on.

9/29/2001
The extent of a man’s, or a people’s liberty to choose to live as he or they desire must be weighed against the claims of many other values, of which equality, or justice, or happiness, or security, or public order are perhaps the most obvious examples. For this reason, [liberty] cannot be unlimited.
Isaiah Berlin

“Liberty for the wolves is death to the lambs.”

Berlin encouraged us to consider a realm of plural values in which no final unity of all values is possible.

How should we make such tradeoffs?
Today we consider the value/ideal of equality.

Equality is a core value; and especially prominent in the modern world.

Initial puzzle: equality as a descriptive versus normative ideal.

What does it mean to talk about the moral equality of human beings?
We hold these truths to be self-evident: that all men are created equal

Declaration of Independence, 1776
Four score and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal.
I have a dream that one day this nation will rise up and live out the true meaning of its creed: ‘We hold these truths to be self-evident: that all men are created equal.’

MLK’s I Have a Dream Speech, 1963
All human beings are born free and equal in dignity and rights

"" Universal Declaration of Human Rights, 1948
Equality

Equality is the central and fundamental ideal behind any flourishing society
Equality

How is equality different from other fundamental or first-order ideals, such as liberty or security?

**Answer:** equality is a *fundamentally comparative* concept.
Fairness involves equal treatment and expectations of fair outcomes.

Three examples:

- Orange juice experiment
- Ultimatum game
- Monkey experiment
Alternatives to Equality?

Equality versus Adequacy/Sufficiency

What matters most is not that we are equal (in outcomes or opportunities), but that every person has enough.

Consider:
- Domestic poverty?
- Global poverty?
- Life expectancy?
Conception 1:  
EQUALITY AS STATUS IDEAL

Equality as a description about the status of human beings, about how we stand in relation to one another. That we are to be treated as an equal, that we are beings who matter equally, whose interests matter equally.
A theory of **justice** demands equal consideration, or treatment of every citizen as an equal.

Every person has interests, and every person’s interest *count equally.*
Conception 2:
EQUALITY AS DISTRIBUTIVE IDEAL

Equality as an ideal or value that governs the distribution of various goods. Equality as a distributive ideal.
Equality as a Distributive Ideal

Two Distinct Ways to Understand:

1. Equality of Outcome
2. Equality of Opportunity
What Share of the Pie?
Sierra Camp Staph Model:
Share of USA Income and Wealth, by Quintile, 2009
Facts about Global Inequality

• Today global inequality is shrinking.
• Growth of China and India has been modestly equalizing.
• Global inequality less a consideration of social class position than location: the citizenship premium.
• How you fare today, globally, depends very much on the accident of your place of birth.
Equal Opportunity?


- Bottom 20%
- Top 20%

Expenditures (in $2008)

- $3,536 (1972-73)
- $1,264 (1983-84)
- $1,173 (1994-95)
- $1,315 (2005-06)

- $8,872 (Top 20%)
- $5,650 (Bottom 20%)

$10,000
$9,000
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0

1972-73
1983-84
1994-95
2005-06
Enrollment at Selective Colleges

The bar chart shows the percent of students from each income category enrolling at different types of colleges. The categories are:

- No post-secondary
- Community college
- Less- and non-competitive
- Competitive
- Most competitive

The income categories are divided into:

- Bottom quartile
- Top quartile

The chart indicates a higher percentage of students from the top quartile enrolling in competitive and most competitive colleges compared to other income categories.
Economic diversity and student outcomes at

Stanford University
Stanford, California

The median family income of a student from Stanford is $167,500, and 66% come from the top 20 percent. About 2.2% of students at Stanford came from a poor family but became a rich adult.

A new study, based on millions of anonymous tax records, shows that some colleges are even more economically segregated than previously understood, while others are associated with income mobility.

Below, estimates of how Stanford compares with its peer schools in economic diversity and student outcomes.

ACCESS
What kind of students attend Stanford

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<th>IN THE PAC-12</th>
<th>IN CALIFORNIA</th>
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<td>Average income percentile</td>
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## Iris Marion Young: 5 Faces of Oppression

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<th>Targets of Oppression</th>
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How Tech Increases Equality

- Stock options in compensation
- Fairer way of compensating people, such that employees receive actual stimulus in company’s success
In 1999 This Chef Took A Job At Google. He Had No Idea Just How Rich It Would Make Him

By Brian Warner on January 16, 2014 in Articles > Entertainment

- Charlie was employee #56 at Google. And like most early employees at a tech firm, Charlie was given a grant of options in the privately held company.
- By 2007, thanks the explosion of online ad revenue at Google, Charlie's equity was worth more than $26 million.
- As of January 16, 2014, Google is trading at $1,155 per share, therefore making Charlie's equity worth $46.2 million.
In 2005, he was given a choice between cash and company stock. When Facebook went public at $38 a share in 2012, his stock options were worth $200 million, making him a bona fide multimillionaire. (Today the common stock is at more than $171 per share.)
How does Stock compensation works now?

Facebook:
- Most full-time employees receive RSUs (restricted stock units) which are shares that become sellable on a set schedule over four years. Unlike stock options, they maintain their value even if the price goes down. Facebook stopped giving out stock options in October 2007.

Google:
- Google provides what are called GSU's instead of RSU's. Not all employees are eligible to receive them. GSUs are different from RSUs: the amount you vest is scaled based on performance (works out the be the equivalent of a bonus).

In general:
- Most Silicon Valley companies deal in RSUs, or variants on RSUs, like the GSUs, rather than ISOs (Incentive Stock Options), unless they are very early-stage startups.
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How Tech Produces Inequality

1. The Gig Economy

2. Creation of enormous income and wealth inequality
Gig Economy

• Gig workers are independent contractors, online platform workers, contract firm workers, on-call workers and temporary workers. They enter into formal agreements with on-demand companies to provide services to the company's clients.
• **Examples:** TaskRabbit, Doordash, Uber/Lyft, Airbnb
Results of Gig Economy

Disadvantages for the worker: lack of minimum wage, overtime payment, employment insurance coverages, paid time off, employer contributions to retirement savings, extended health and maternity benefits (leads to profound economic insecurity)

- **36% of U.S. workers** join in the gig economy through either their primary or secondary jobs
- it is estimated that gig worker's size, which covers independent or non-conventional workers, is 20% to 30% of the economically active population in the United States and Europe
Federal Reserve’s latest report on economic wellbeing in the US: “in 2018, workers who supported themselves through the gig economy struggled financially far more than the average person.

58 percent of full-time gig workers said they would have a hard time coming up with $400 to cover an emergency bill — compared to 38 percent of people who don’t work in the gig economy. Both numbers are alarming, but the gap suggests that this informal economy is far more destabilizing than Silicon Valley investors care to admit.”
 Proposition 22

Ballot initiative in California in 2020 state election which granted app-based transportation and delivery companies an exception to Assembly Bill 5 by classifying their drivers as "independent contractors", rather than "employees", thereby exempting employers from providing the full suite of mandated employee benefits (which include time-and-a-half for overtime, paid sick time, employer-provided health care, bargaining rights, and unemployment insurance - among others) while instead giving drivers new protections of:

• 120 percent of the local minimum wage for each hour a driver spends driving (with passenger or en route), but not time spent waiting
• $0.30/mile for expenses for each mile driven with passenger or en route
• health insurance stipend for drivers who average more than 15 hours per week driving
• requires the companies to pay medical costs and some lost income for drivers hurt while driving or waiting
• prohibits workplace discrimination and requires that companies: develop sexual harassment policies, conduct criminal background checks, and mandate safety training for drivers
<table>
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<th>Response</th>
<th>Votes</th>
<th>%</th>
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<tr>
<td>✅ Yes</td>
<td>9,957,858</td>
<td>58.63%</td>
</tr>
<tr>
<td>✗ No</td>
<td>7,027,467</td>
<td>41.37%</td>
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<tr>
<td>Valid votes</td>
<td>16,985,325</td>
<td>95.50%</td>
</tr>
<tr>
<td>Invalid or blank votes</td>
<td>799,826</td>
<td>4.50%</td>
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<tr>
<td><strong>Total votes</strong></td>
<td><strong>17,785,151</strong></td>
<td><strong>100.00%</strong></td>
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<td>Registered voters/turnout</td>
<td>22,047,448</td>
<td>80.67%</td>
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</table>
The gap between the Bay Area’s haves and have-nots is wider than anywhere else in the state.

- Top income earners in the Bay Area make 12.2 times as much as those at the bottom of the economic ladder, according to new research from the Public Policy Institute of California, which analyzed 2018 U.S. Census Bureau data.
- Bay Area residents in the 90th percentile of incomes earned an average of $384,000 a year, compared to just $32,000 for those in the bottom 10th percentile.
- People who have gotten rich are mostly white and male, which is very unreflective of the whole population.
2019 data: **CEO salaries rose 15% last year across the tech sector** and averaged $6.6m. In comparison, the **average median worker pay declined by 2%** to $82,500.

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**U.S. Billionaires Gained $1 Trillion Since The Pandemic Started**

Change in the wealth of U.S. billionaires since the beginning of the pandemic

<table>
<thead>
<tr>
<th></th>
<th>March 18</th>
<th>November 24</th>
<th>% growth (Mar 18-Nov 24)</th>
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<tbody>
<tr>
<td>Jeff Bezos</td>
<td>$113.0b</td>
<td>$182.4b</td>
<td>61.4%</td>
</tr>
<tr>
<td>Elon Musk</td>
<td>$24.6b</td>
<td>$126.2b</td>
<td>413.0%</td>
</tr>
<tr>
<td>Bill Gates</td>
<td>$98.0b</td>
<td>$119.4b</td>
<td>21.8%</td>
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<tr>
<td>Mark Zuckerberg</td>
<td>$54.7b</td>
<td>$101.7b</td>
<td>85.9%</td>
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<tr>
<td>Warren Buffett</td>
<td>$67.5b</td>
<td>$88.3b</td>
<td>30.8%</td>
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</table>

**Total U.S. billionaire wealth**

- Jeff Bezos: $3,956.2b
- Elon Musk: $2,947.5b

Source: Institute For Policy Studies
Study shows Stanford alumni create nearly $3 trillion in economic impact each year

A study by two Stanford professors determines that companies founded by the university's alumni generate trillions in annual revenue and have created 5.4 million jobs.
Cost of Living in Silicon Valley

- Silicon Valley has the highest housing costs in the U.S.
- Citing figures from the U.S. Census, the index calculates that the San Jose/Sunnyvale/Santa Clara area’s monthly average housing costs are the highest in the U.S. at an estimated $2,341 per month. The SF/Oakland/Hayward area comes in second with $2,059 per month.
- Affordable housing development across the region is dismal.
20% of all net worth is concentrated in the 30 wealthiest zip codes, home to just 2% of Californians. African American and Latino families have much lower wealth levels compared with white families; nationwide, the typical (median-wealth) white family has more than eight times the wealth of a typical African American or Latino family (Data: Public policy institute of California).
Average Palo Alto home prices climbed from $1,315,000 to $2,279,000 from 2010 to 2015, according to the Environmental Impact Report (EIR) submitted by Stanford University as part of its General Use Permit.

Living on four wheels: The people inside the RVs on Palo Alto's El Camino Real

Some call their RV a home away from home, but others say it's all they have

by Cierra Bailey / Photographs by Veronica Weber / Palo Alto Weekly
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Diversity and Inclusion

1. Diversity and Inclusion
   A. Fairness Argument: Tech is not representative of the population
   B. The Social Science Argument for Diversity
   C. Epistemic Benefits of Inclusion/Diversity
18% of authors at leading AI conferences are women, and more than 80% of AI professors are men.

This disparity is extreme in the AI industry: women comprise only 15% of AI research staff at Facebook and 10% at Google.

For black workers, the picture is even worse. For example, only 2.5% of Google’s workforce is black, while Facebook and Microsoft are each at 4%. Given decades of concern and investment to redress this imbalance, the current state of the field is alarming.
Lack of diverse representation suggests unfairness.

But, what is the goal of inclusion?

• Equal opportunity
• Equal representation
Narrowing stairway to the top, except for white employees

Asian employees make up a greater share of Silicon Valley’s professional workforce than other minority groups, but their representation decreases at the managerial and executive levels. White women have poor overall representation in the tech industry, but their percentages are relatively consistent across levels.

Source: Center for Employment Equity. Averages for 177 Silicon Valley companies based on data from 2016 EEO-1 reports. Credit: Gabriel Hongsdusit and Sinduja Rangarajan/Reveal
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Diversity Trumps Ability

If you're an academic and you're hiring postdocs, why would you hire postdocs from your advisor? Or you go to the International Monetary Fund and you see economists populating their teams with other economists who went to the same graduate schools. If you hire people from the same ethnic group, who went to the same schools, worked at the same places-you're just kind of shooting for a B-plus there. Nothing great's going to happen. So the short answer is to think of people as toolboxes, as opposed to numbers. And then ask yourself: “What does the full set of tools look like that I'm putting together to solve a problem?”

Scott Page
Guess the number of Jellybeans in this Jar
diversity prediction theorem states:
Collective error = average individual error – prediction diversity

Probabilistically, the collective is often better than even the best of the individuals. So, a diverse collective always beats the average individual, and frequently beats everyone. And the individuals who do beat the collective generally change, suggesting they are more of a statistical vestige than super-smart people.
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What problems are worth solving?

- When there is lack of diverse representation in the tech, the problems are solved for the people working in the tech industry (aka white guys in their 20s).

- **Question:** if the ecosystem prioritized diversity, would this affect the landscape of start-up companies?
Our Story
From Silicon Valley Powdered Meals to International Complete Nutrition Platform.

Our Products
We thought about your food, so you wouldn’t have to.
Escape Locally
Book a local private pool by the hour

Where would you like to take a dip?

What’s Near Me?
How Swimply Works?
“Let’s, Like, Demolish Laundry”  
By Jessica Pressler

There was a problem with the cookies.

When Jordan Metzner and Juan Dulanto launched Washio, it had already distinguished itself from other laundry and dry-cleaning services. There was no storefront, no rotating rack, no little pieces of paper to keep track of. Customers ordered their clothing picked up via the website or a mobile app, and it was returned to them not in a tangle of WE ❤️ OUR CUSTOMERS hangers.
Uber Founder Launches Luxury Airline So Rich People Can Go on COVID Vacations

One health expert calls Aero’s timing ‘tone-deaf’ as governments try to limit travel.

By Kevin Maimann
Ready when you are
Fly smarter and safer

From
Los Angeles, USA

Destination
Aspen, USA
Startups' new frontier: Optimizing your friendships

Kia Kokalitcheva

CRM ("customer relationship management") software is how salespeople keep track of their targets. Now "personal CRM," which applies the same techniques to personal relationships, has become one of the hottest app categories in Silicon Valley, with three companies pursuing it in accelerator program Y Combinator’s most recent class.

Why it matters: Techies are drawn to optimizing and managing all aspects of their lives, from finances to health, so it’s no surprise they’re looking to do the same with their relationships with other people.