

# On Being a ~~Computer Scientist~~ Human Being in the Time of Collapse



**Phillip Rogaway**

University of California, Davis, USA

ECS20 Last Lecture

10 March 2022



## Today:

- A non-technical talk
- A personal perspective
- Tentative, evolving, depressing

## Announcements:

Review sessions

Sun 3pm online (2000 Final) &

Mon 3:30 pm in Wellman 216 (2021 Final)

Extra office hours: see schedule

Final Tu 6-8: 2 Wellman (A-L) & 26 Wellman (M-Z)

One sheet/one side of notes allowed.

**Congratulations – you’ve almost made it through a class with Evil Professor Rogaway.**

***But to what end?*** All term ... all your life ... you’ve jumped through the hoops that people like me set out for you.

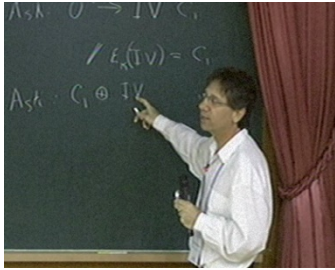


**Think harder!**  
**Think clearer!**  
**Get smarter!**  
**Learn more!**  
**Do what's expected!**  
**Land a good job!**  
**Earn A's!**  
**Make money!**  
**Succeed!**

**Don't you sometimes ask yourself: *why the hell am I doing this?***

I spent most my career

- writing technical papers
- travelling + giving technical talks
- teaching technical subjects
- becoming somebody



I certainly have.



But doing these things *these* days feel increasingly *absurd*.



The climate crisis is here. With it: pandemic disease, unbreathable air, mass extinctions, rising fascism, lack of food, lack of water, elevated threat of nuclear war. And because of this, your future is bleak.



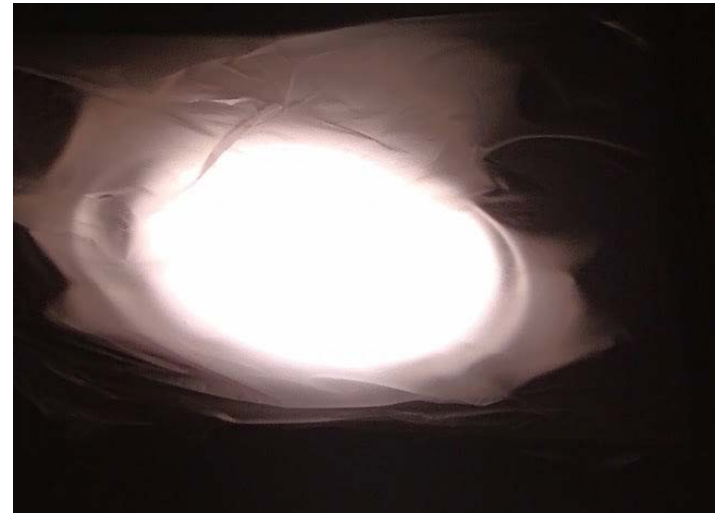
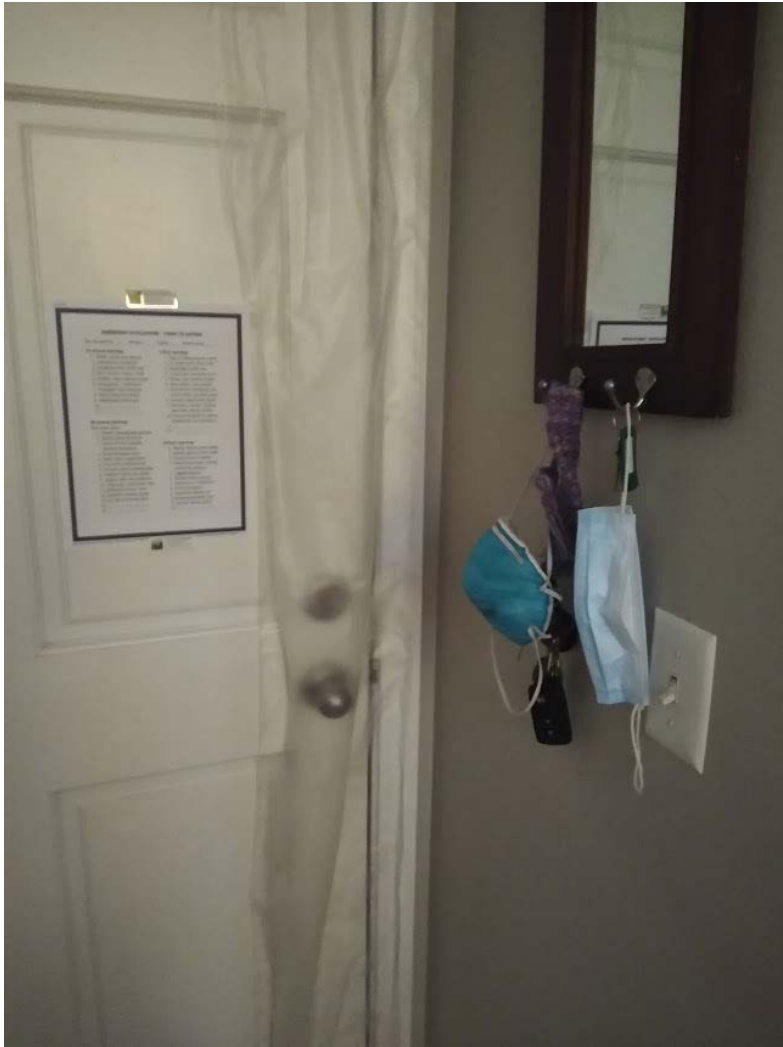
**UC Davis  
Spring 2020**

**Our world already feels radically diminished.**

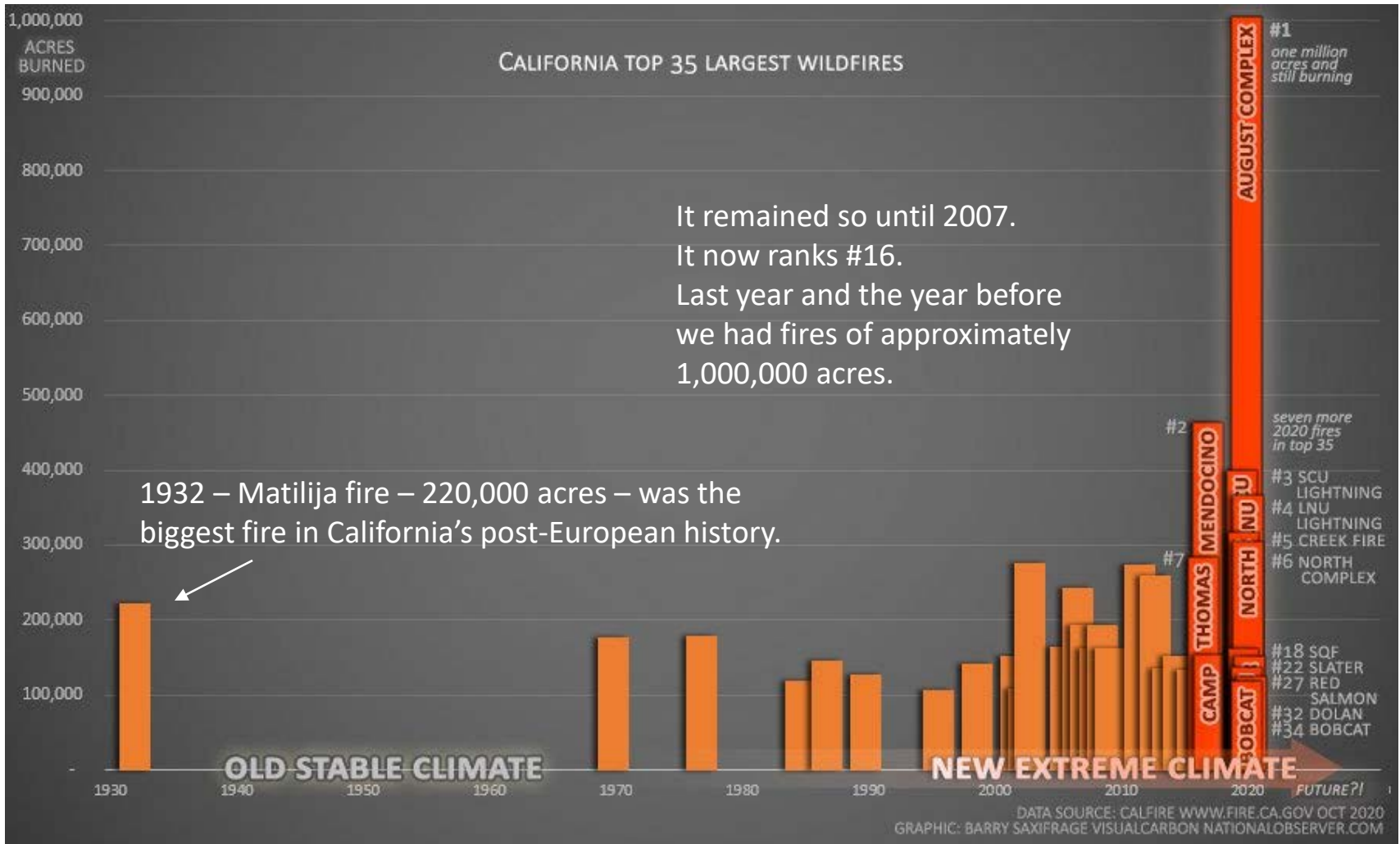


**The view  
outside  
my  
window,  
9/2020**





**Inside my  
apartment**

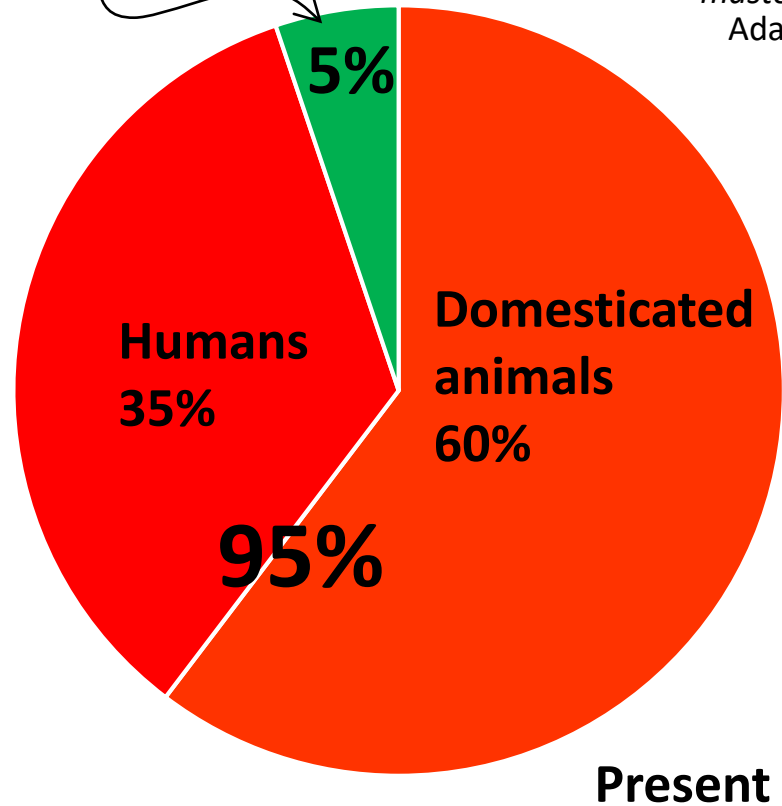
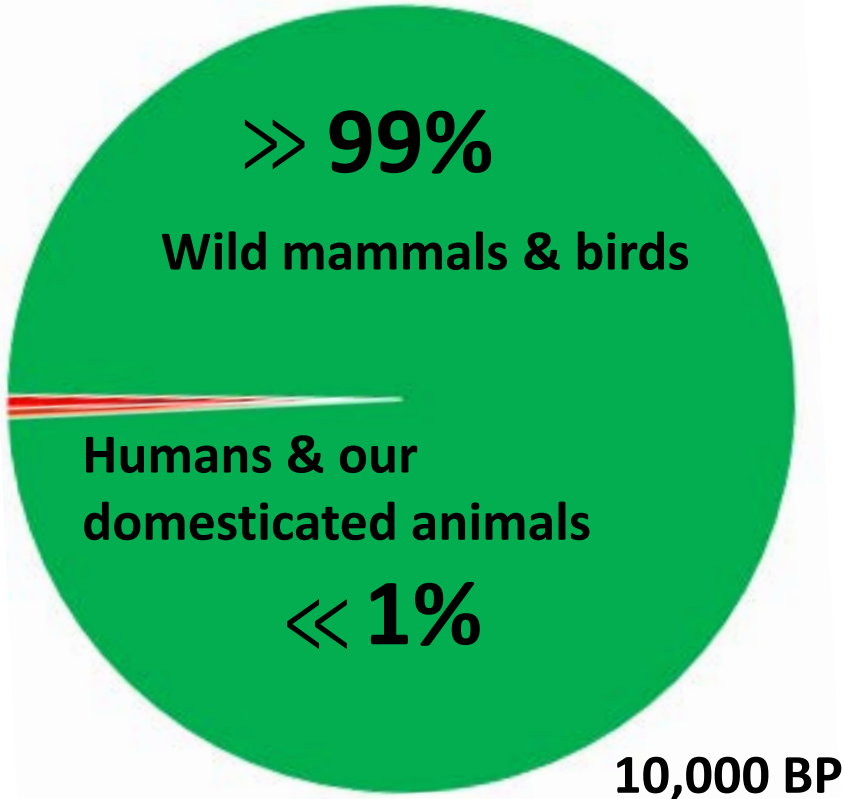


# Our assault on the land

Biomass of land chordates

Wild mammals & birds

*All for ourselves, and nothing for other people, seems, in every age of the world, to have been the vile maxim of the masters of mankind.*  
Adam Smith (1776)



Bar-On, Phillips, Milo 2018



## Are we worth saving?



Students/cyborgs doing what they do. Fall 2019

## And what of CS?

Ripping the social fabric  
Birthing new forms of  
violence and control



Cyber warfare  
Disinformation  
Election hacking



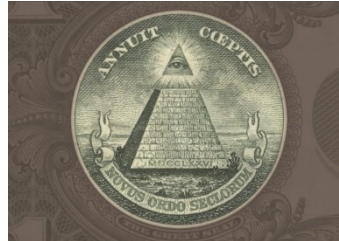
## Killer robots



## The distraction economy



Surveillance capitalism  
Governmental surveillance  
Unaccountable AI/ML



**Suggestion #1:**

**Stop pretending that things are not fucked up.**



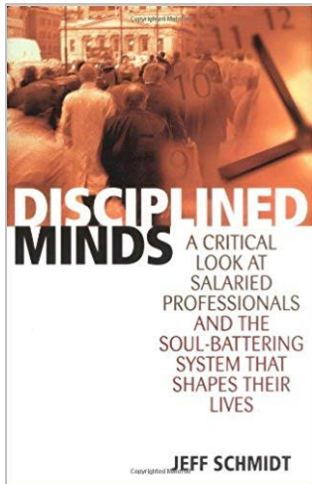
# Stop pretending: Shifting my teaching to ethics-and-technology (2004 – present)

## Encourage students to

- Give a damn
- Consider the social value of their work & their employer's aims

## Explore how technology relates to

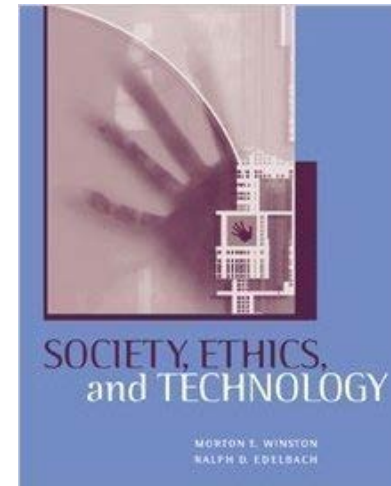
- Who has power
- Human dignity, autonomy, and happiness
- The environment



First book I found to use



First film I found to use:  
Dekalog I (1988) (K. Kieslowski)



First course I found with similar aims:  
IDS 252: Society, Ethics, and Technology  
The College of New Jersey

# Stop pretending: Writing, speaking, and thinking about the social, political, and ethical dimensions of my area

## The Moral Character of Cryptographic Work\*

Phillip Rogaway

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December 2015  
(minor revisions March 2016)

**Abstract.** Cryptography rearranges power: it configures who can do what, from what. This makes cryptography an inherently *political* tool, and it confers on the field an intrinsically *moral* dimension. The Snowden revelations motivate a reassessment of the political and moral positioning of cryptography. They lead one to ask if our inability to effectively address mass surveillance constitutes a failure of our field. I believe that it does. I call for a community-wide effort to develop more effective means to resist mass surveillance. I plead for a reinvention of our disciplinary culture to attend not only to puzzles and math, but, also, to the societal implications of our work.

**Keywords:** cryptography · ethics · mass surveillance · privacy · Snowden · social responsibility

**Preamble.** Most academic cryptographers seem to think that our field is a fun, deep, and politically neutral game—a set of puzzles involving communicating parties and notional adversaries. This vision of who we are animates a field whose work is intellectually impressive and rapidly produced, but also quite inbred and divorced from real-world concerns. Is this what cryptography *should* be like? Is it *how we should* expend the bulk of our intellectual capital?

## Mass Surveillance and the Crisis of Social Responsibility

Phillip Rogaway  
Department of Computer Science  
University of California, Davis, USA

University of Auckland, NZ  
9 December 2015



With thanks to  
Steven Galbraith  
for arranging this  
talk and visit 1 / 36

## Can Cryptography Frustrate Fascism?



Phillip Rogaway  
University of California, Davis

CypherCon 2.0  
March 30, 2017  
9 pm – 10 pm

### Today:

- **Introduction:** The nexus between **cryptography** and **authoritarianism**
- Arguments **for** and **against** crypto's democratizing potential

# Stop pretending: Direct Political Engagement



## International Association for Cryptologic Research

Events ▾ Publications ▾ News ▾ Services ▾ Members ▾ About ▾

### IACR Statement On Mass Surveillance ("Copenhagen Resolution")

The following statement was adopted unanimously by the IACR Members meeting held at Eurocrypt 2014 in Copenhagen on May 14th 2014

*The membership of the IACR repudiates mass surveillance and the undermining of cryptographic solutions and standards. Population-wide surveillance threatens democracy and human dignity. We call for expediting research and deployment of effective techniques to protect personal privacy against governmental and corporate overreach.*

Yet the conventional narrative is not what I have said—exactly the opposite!

In this way of seeing the world, CS is not the problem—it's part of the grand technological solution!



“Computer science is marking an epic change in human history. We are conquering a new and vast scientific continent. ... Virtually all areas of human activity ... [and] virtually all areas all areas of human knowledge ... are benefitting from our conceptual and technical contributions. ... Long live computer science!” *S. Micali, Jun 2013*

“The world is becoming increasingly complex. Our survival will be entrusted to ever more complex technology. And the cryptographic robustness of this technology will ultimately keep us alive! ...

“It is time that we ... fully accept our responsibilities and carry the world on our broad shoulders”  
*S. Micali, Aug 2020*

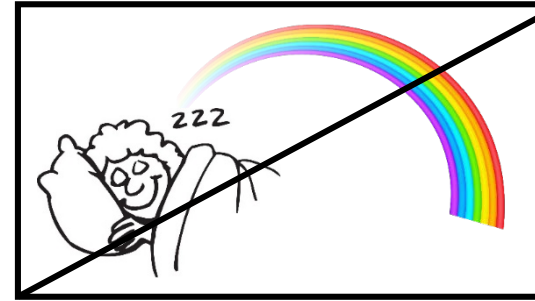


## A reply to the technological optimists

**Excessive optimism — not pessimism or realism — undermines change.**

- A belief that things are going great obviates
  - the need for broad thinking
  - the basis for social-change movements
  - the utility of social responsibility

It de-politicizes and de-moralizes our crisis





“I don’t want your hope. I don’t want you to be hopeful. I want you to panic ... and act as if the house was on fire. ”

Greta Thunberg  
Environmental Activist



**Scientists are loathe to behave as though there's an emergency—we barely engage at all.**

**Modest open letter I sent to colleagues. Only half would sign.**



## **An Open Letter from US Researchers in Cryptography and Information Security**

**January 24, 2014**

Media reports since last June have revealed that the US government conducts domestic and international surveillance on a massive scale, that it engages in deliberate and covert weakening of Internet security standards, and that it pressures US technology companies to deploy backdoors and other data-collection features. As leading members of the US cryptography and information-security research communities, we deplore these practices and urge that they be changed.

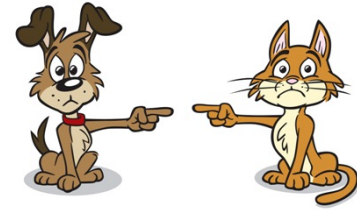
Indiscriminate collection, storage, and processing of unprecedented amounts of personal information chill free speech and invite many types of abuse, ranging from mission creep to identity theft. These are not hypothetical problems; they have occurred many times in the past. Inserting backdoors, sabotaging standards, and tapping commercial data-center links provide bad actors, foreign and domestic, opportunities to exploit the resulting vulnerabilities.

The value of society-wide surveillance in preventing terrorism is unclear, but the threat that such surveillance poses to privacy, democracy, and the US technology sector is readily apparent. Because transparency and public consent are at the core of our democracy, we call upon the US government to subject all mass-surveillance activities to public scrutiny and to resist the deployment of mass-surveillance programs in advance of sound technical and social controls. In finding a way forward, the five principles promulgated at <http://reformgovernmentsurveillance.com/> provide a good starting point.

The choice is not whether to allow the NSA to spy. The choice is between a communications infrastructure that is vulnerable to attack at its core and one that, by default, is intrinsically secure for its users. Every country, including our own, must give intelligence and law-enforcement authorities the means to pursue terrorists and criminals, but we can do so without fundamentally undermining the security that enables commerce, entertainment, personal communication, and other aspects of 21<sup>st</sup>-century life. We urge the US government to reject society-wide surveillance and the subversion of security technology, to adopt state-of-the-art, privacy-preserving technology, and to ensure that new policies, guided by enunciated principles, support human rights, trustworthy commerce, and technical innovation.

Martín Abadi · Hal Abelson · Alessandro Acquisti · Boaz Barak · Mihir Bellare · Steven Bellovin · Matt Blaze · L. Jean Camp · Ran Canetti · Cynthia Dwork · Joan Feigenbaum · Edward Felten · Niels Ferguson · Michael Fischer · Bryan Ford · Matthew Franklin · Juan Garay · Matthew Green · Shai Halevi · Somesh Jha · Ari Juels · M. Frans Kaashoek · Hugo Krawczyk · Susan Landau · Wenke Lee · Anna Lysyanskaya · Tal Malkin · David Mazières · Kevin McCurley · Patrick McDaniel · Daniele Micciancio · Andrew Myers · Rafael Pass · Vern Paxson · Thomas Ristenpart · Ronald Rivest · Phillip Rogaway · Greg Rose · Amit Sahai · Bruce Schneier · Hovav Shacham · Abhi Shelat · Thomas Shrimpton · Avi Silberschatz · Adam Smith · Dawn Song · Gene Tsudik · Salil Vadhan · Rebecca Wright · Moti Yung · Nikolai Zeldovich

Why won't scientists engage politically?  
Why won't STEM students engage politically?  
What they say:



**1. It's not my area**

Social responsibility is not an area, but an obligation incumbent on us regardless of area

**2. I'm a tiny pieces of this enterprise**

Atomization of work not just an adjunct of complex labor—also a *tactic*. It hides work's *consequences* and *beneficiaries* and minimizes feelings of *agency*.

**3. If I don't do it, someone else will**

You are responsible for your *own* actions. *Variant-1*: if I don't do it, someone else will do it *worse*. *Variant-2*: I need to do it to change the system from within. (Rudi Dutschke: *The Long March Through the Institutions*.)

**4. I'm not doing anything worse than my peers**

Behaving well is not a competition.

**5. Technology is just a tool**

The one thing that all STS scholars agree on is that technologies are *not* value-neutral tools. Produced by a community for particular ends, these ends get embedded in the technology. Esp. important: what *doesn't* get worked on—paths *not* taken

## Better explanations:

### 1. Self-interest

CS students who question the social value of technical work will be less employable than those who don't. Faculty who question the social value of technical work will have a harder time finding problems; will write fewer papers; will get less funding. "It is difficult to get a man to understanding something when his salary depends on his not understanding it." — Upton Sinclair

### 2. Cognitive biases

Plan-continuation bias (sunken-cost fallacy): *All those years training have been wasted? No!* Optimism bias: overestimate  $P(\text{good-outcome})$ , underestimate  $P(\text{bad-outcome})$

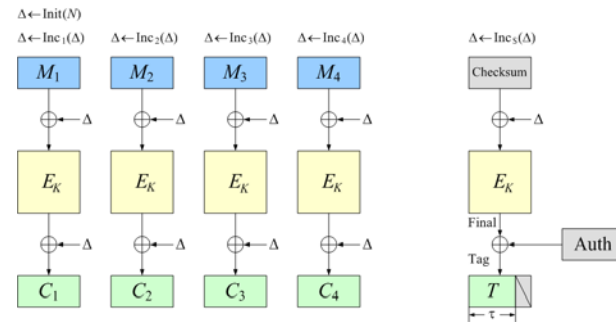
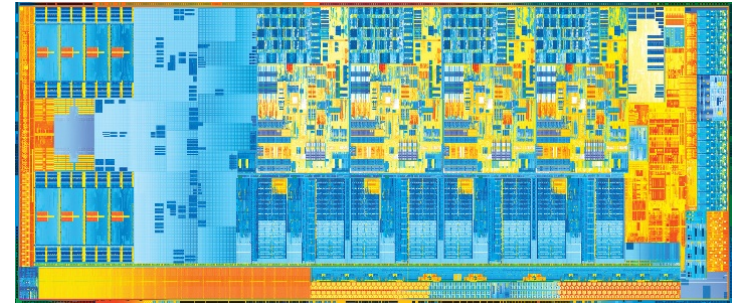
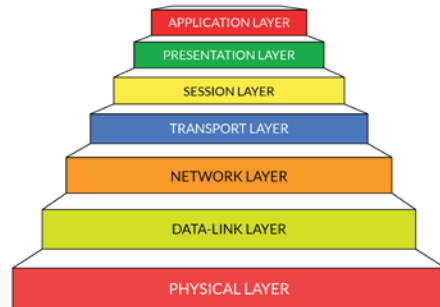
### 3. Professional training

Abstract problems and ignore what is outside the abstraction. Educational process fractures and isolates students and communities. Homogeneous community culture – lack of diversity. C. P. Snow's *The Two Cultures* (1956)

### 4. Fear

Losing job, medical care benefits, ability to pay crazy rents, ability to pay back student loans. Much of the fear is structural, basically intentional.

# The hidden curriculum behind CS: To teach the value of **abstraction**.



Just what is **lost** when these skills are **gained**?

I applaud attempts to attend to social issues in CS.  
Yet many can feel a little ... lame.



The image is a screenshot of a video presentation slide. At the top, a dark blue banner contains the text "Responsible Data Summit" in white. Below the banner, on the left, is a small video inset showing a woman with dark hair wearing a blue top. The main slide area has a white background with a blue vertical bar on the left side. The text on the slide reads: "We Must Create a New Ethos of Responsible Data for the Future of the Internet". Below this text is a colorful logo consisting of several interlocking human figures in various colors (red, orange, yellow, green, blue, purple) arranged in a circular pattern. At the bottom of the slide, the text "Demand & Enable Responsible Data" is written in red, followed by the email address "dawnsong@responsibledata.ai" in blue. A small shield icon is visible in the bottom left corner of the blue vertical bar.

Don't you **hate** all that irresponsible data? If we could just make it more responsible ...

## Myopic language, cont.



**So I guess it's ok if AI/ML screws *all* of us over as long as it does so in a *fair, accountable, and transparent* way?**

The first question in building a system is deciding  
**SHOULD WE BUILD IT?**

By emphasizing fairness, accountability, and transparency we frame matters so as to SKIP the do-we-build-it question and get to a lower-level ones.

This approach is UNTHREATENING to power – AND to your career, if you're in the area.

**We don't want**



more effective drone strikes  
simpler, less expensive, or more versatile nuclear weapons  
more complete human surveillance  
[more accurate behavioral prediction]

...

Ruha Benjamin (2020)



# Instilling better characteristics in rotten enterprises won't make them good

**“21st century liberalism is ensuring a panel at a defense industry conference called *Building a Deadlier Drone* has adequate gender diversity.” Fredrik deBoer**

**dronelife** 8 May 2019

News Products Industries Enthusiasts Regulations

### DRONELIFE Exclusive: Why Women are Important to the Drone Industry - Voices From the Field

Posted By: Miriam McNabb on: March 08, 2019

DRONELIFE honors talented people and innovative companies of all types - and we try to do our part to promote diversity in the industry. March 8, 2019 is International Women's Day, so we reached out to women and men in all areas of the industry to get their thoughts on the challenges of building a balanced workforce - and the successes that women are finding in the industry.

It's no secret that the numbers of women in the drone industry - and the aerospace industry as a whole - are surprisingly low. In 2017 we published an article that estimated the percentage of women drone pilots at 4%; in October 2018, The Verge published an article which upped the percentage to a meager 5%. These numbers are so low as to be shocking, except for the fact that they are only a bit lower than the percentage of women in the aviation and aerospace industries in general. (Women represent only 6% of licensed airplane pilots, for example, Women in Aviation International reports.)

**DAILY BEAST** 18 Oct 2015

### She Kills People From 7,850 Miles Away

**DOWN RANGE**

Her name is "Sparkle." She operates a drone. She is sick of whiny boys. And she is perfectly OK with dealing out death.

Kevin Maurer Updated May 18, 2020 11:48AM ET / Published Oct. 18, 2015 7:50AM ET

**BEAST INSIDE**

## Ethics washing? Workshops associated to a recent AI conference

CLR2020

### AI for Affordable Healthcare

*Highlight recent advances in AI for enabling, democratising, and upholding high standards of healthcare worldwide.*

### Tackling Climate Change with ML

*Show that ML can be an invaluable tool both in reducing greenhouse gas emissions and in helping society adapt to the effects of climate change.*

### Practical ML for Developing Countries: learning under limited/low resource scenarios

*Bring together researchers, experts, policy makers, and related stakeholders under the umbrella of practical ML for developing countries.*

Do people honestly believe that the climate crisis is going to be changed by AI? That health care will improve? The developing countries will benefit?

The **primary** function of AI/ML within our current technological and economic system is to advance **human prediction** and **manipulation**.

The rest is marginal ... or maybe a magician's misdirection.

## Suggestion #2:

### **Stop touting technical solutions to social problems.**

Especially those created or exacerbated by technology ... and especially without understanding the problem broadly



## Suggestion #3:

### **Stop treating innovation as an end.**

“Innovation is not a goal; it is a means for societal progress” (M. Vardi)

## Suggestion #4:

### **Own up to what actually motivates work in different areas**

Which can largely be done by following the money.

## Root problem #1

**Our technology has advanced at a rate radically faster than our wisdom.**

[T]echnological power has turned what used and ought to be tentative ... plays of speculative reason into competing blueprints for projects, and in choosing between them we have to choose between extremes of remote effects. The one thing we can really know of them is their extremism as such—that they concern the total condition of nature on our globe and the very kind of creatures that shall, or shall not, populate it. In consequence of the inevitably “utopian” scale of modern technology, the salutary gap between everyday and ultimate issues ... is steadily closing. Living now constantly in the shadow of unwanted, built-in, automatic utopianism, we are constantly confronted with issues whose positive choice requires supreme wisdom—an impossible situation for man in general, because he does not possess that wisdom, and in particular for contemporary man, because he denies the very existence of its object, namely, objective value and truth. We need wisdom most when we believe in it least.

Hans Jonas, *The Imperative of Responsibility*, 1979/1984

## Root problem #2

Technological advance has been embedded within a system, growth-oriented corporate capitalism, that radically devalues social and environmental harms.



### Move fast and break things

What breaks is us – the ecosystem and the social fabric that once knit us together

Individual ethics outside the workplace can't compensate for negative social contribution in the workplace

## Root problem #3

Unable to deal with uncertainty, our institutions and politics reject the precautionary principle.



if some course of action, or inaction, carries a risk of *catastrophic* results (ecosystem collapse, civilizational collapse, human extinction), then you have **no right** to that course of action (or inaction), no matter *what* the alleged benefits may be.

## Suggestion #5: Watch the doublespeak

*Language designed to deceive or distort its actual meaning, normally for the benefit of those in power*



**Algorithm** (a) A program to compute some unknown function. (b) An opinion rendered in code

**Artificial Intelligence** Systems that are neither artificial nor intelligent designed to approximate good decisions without designers having to interrogate what is “good”

**Bitcoin** (a) A method to turn natural resources into solutions of breathtakingly insignificant puzzles. (b) A Ponzi scheme wrapped in technobabble (P. Klugerman, 5/21/2020)

**Deep Learning** Learning devoid of depth due to an absence of both foundations and sociopolitical thinking

**Differential Privacy** Mathematical approaches to minimize privacy by expanding data collection, proliferating definitions, and advancing scientific careers

**Smart phone** A phone that exhibits not smart and that pushes its users to be just as dumb. Also, the device should work poorly as a phone

**Social media** Systems designed to sunder social interactions

## Suggestion #6: End the pretense of disinterested scholarship



[T]he call to disinterested scholarship is one of the great deceptions of our time, because scholarship may be disinterested, but no one else around us is disinterested. And when you have a disinterested academy operating in a very interested world, you have disaster. ...

*Howard Zinn, 1969*



## Suggestion #7:

### 1. Rebel

**Get arrested. Make trouble. Make the status quo untenable. Don't be afraid of radicalism..**



### 2. Or withdraw

**Go to the mountains. Minimize consumption. Don't eat animals. Find peace. Be present.**

*The game is not about becoming somebody; it's about becoming nobody (Ram Das)*

### 3. Or both

**Can computer science help?**

**Can crypto area help?**

**Can technology help?**

**We want to say YES!**

**I don't know how much more of our "help"  
our world can withstand.**

## Recap: Suggestions

1. Stop pretending that things are *not* fucked up.
2. Stop touting technical solutions to social problems.
3. Stop treating innovation as an end.
4. Own up to what actually motivates work in different areas.
5. Watch the doublespeak.
6. End the pretense of disinterested scholarship.
7. Rebel. Or withdraw. Or both.

## References

- Dougald Hine & Paul Kingsnorth: ***Uncivilization: The Dark Mountain Manifesto*** (2009)
- Dahr Jamail, ***The End of Ice*** (2019)
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- Daniel Quinn, ***Ishmael*** (1992) (+ two successors)
- Rupert Read and Samuel Alexander, ***This Civilisation is Finished*** (2019)
- Nevel Shute, ***On the Beach*** (1957)
- Shoshana Zuboff, ***The Age of Surveillance Capitalism*** (2019)