Losing the Forest for the Trees

How we Measure and Lose Track of Things

Ali Alkhatib

May 13, 2020

UNIVERSITY OF SAN FRANCISCO

Seeing Like a State

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Governments make sense of the world by operationalizing it in ways that allow them to make comparisons and decisions.

- family names
- standardized measures
- surveys and censuses
- organization of transportation

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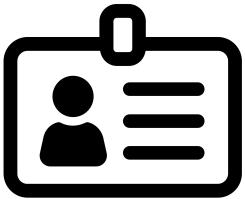

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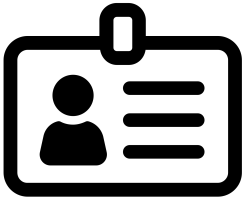

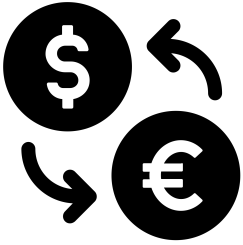

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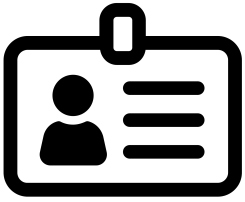

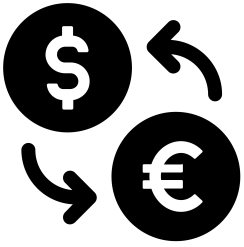

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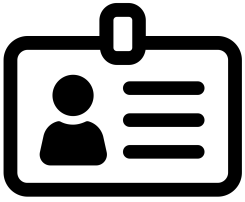

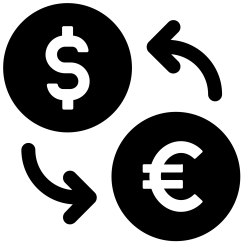

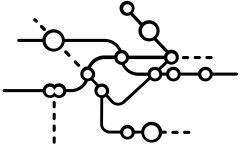

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We interpret the world in constrained ways

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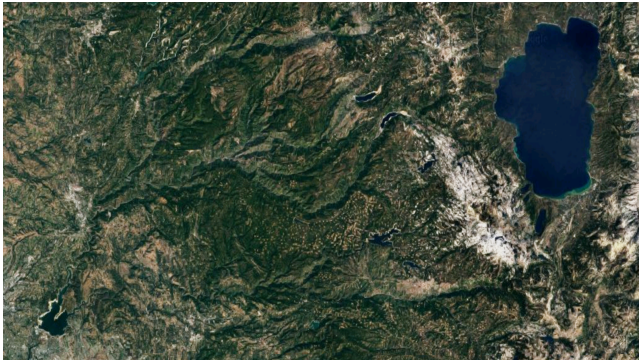
It's how we cope with too much information

INTERPRETATION TO IMPOSITION



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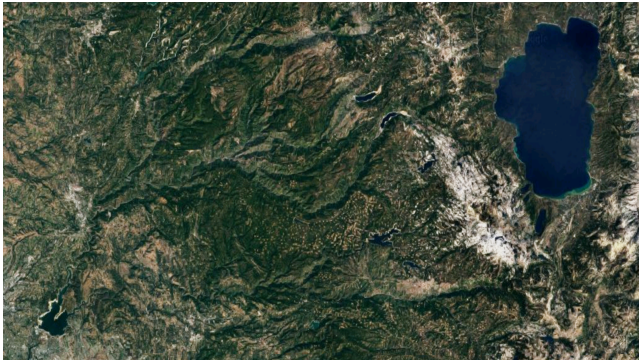

INTERPRETATION TO IMPOSITION

DELAYED DISASTERS

- Things were fine for a while

DELAYED DISASTERS

- Things were fine for a while
- Then they weren’t

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- Things were fine for a while
- Then they weren't
  - Pests
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Waldsterben

Forest death

The forest was more than just the trees

ECOLOGICAL DIVERSITY

The forest was more than just the trees

It was everything that lived in and passed through

SO WHAT?

NARRATIVES MATTER

WHERE WE'VE BEEN, WHERE WE ARE, WHERE WE'RE GOING

1. We turn our messy world into data to reason about it and to inform actions
2. That's becoming a growing problem as we build systems directly out of that data
3. People respond to that; we perform for the algorithms that dictate our lives

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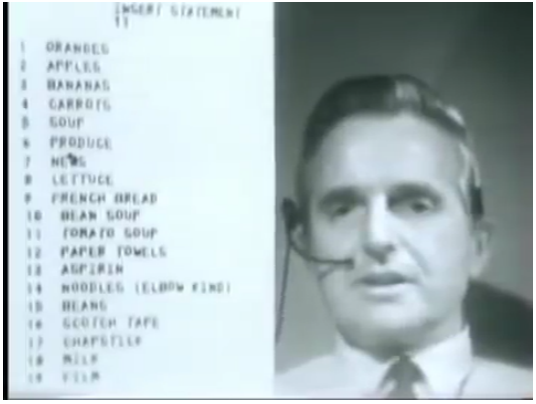
Where we've been

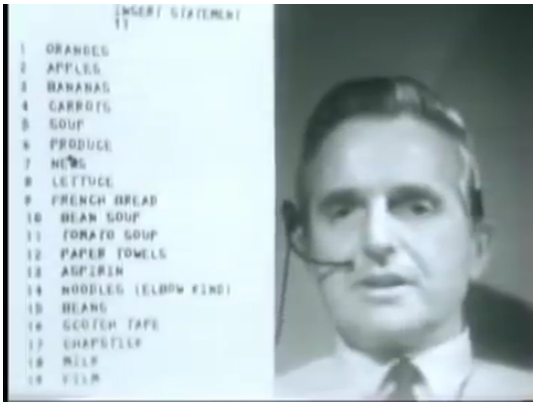
“Mother of all demos”

(1968)



“Mother of all demos” (1968)

The beginning of user interface paradigms

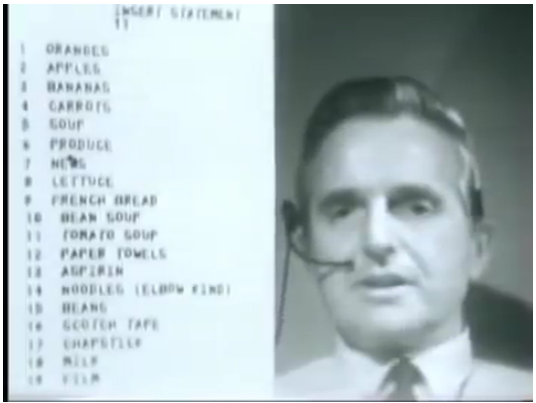


“Mother of all demos” (1968)

The beginning of user interface paradigms

or

The conclusion of a decade of military research



WHY DOES THIS MATTER?

A Declaration of the Independence of Cyberspace

We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks. I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear.

Governments derive their just powers from the consent of the governed. You have neither solicited nor received ours. We did not invite you. You do not know us, nor do you know our world. Cyberspace does not lie within your borders. Do not think that you can build it, as though it were a public construction project. You cannot. It is an act of nature and it grows itself through

WHERE WE ARE

Introducing The Stanford Institute for Human-Centered Artificial Intelligence

Artificial Intelligence has the potential to help us realize our shared dream of a better future for all of humanity, but it will bring with it challenges and opportunities we can't yet foresee.

At Stanford HAI, our vision for the future is led by our commitment to studying, guiding and developing human-centered AI technologies and applications. We believe AI should be collaborative, augmentative, and enhancing to human productivity and quality of life.

Our Mission: To advance AI research, education, policy, and practice to improve the human condition.

Stanford HAI leverages the university's strength across all disciplines, including: business, economics, education, genomics, law, literature,

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Anthropological/Artificial Intelligence & the HAI

26 MARCH 2019

Last week Stanford launched the institute for human-centered artificial intelligence, and to kick things off James Landay posted about the roles AI could play in society, and the importance of exploring smart interfaces.

I've followed the HAI's development in passing, and I watched the inaugural event in the background on Monday last week while I was doing other work. I study algorithmic systems that make important decisions about us - which I call "street-level algorithms" in reference to Michael Lipsky's street-level bureaucracies - and some of the work I've done in the past has taken a more careful look at historical parallels between things we see today (like quantified self and piecework) to see if we can learn anything useful either for making sense of phenomena from a sociological perspective, and sometimes for informing the design of systems from an engineering perspective. James is a professor in the Human-Computer Interaction group at Stanford, and I'm a PhD student in that group.

So I was worried to find James leave details out from a series of anecdotes - details that would seriously undermine the point James seemed to be trying to make in his post. I started writing notes to call out how a more cynical perspective might describe the future or remember the past

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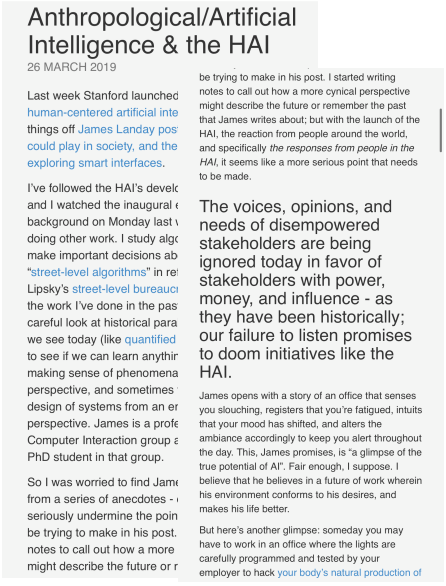

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be trying to make in his post. I started writing notes to call out how a more cynical perspective might describe the future or remember the past that James writes about; but with the launch of the HAI, the reaction from people around the world, and specifically *the responses from people in the HAI*, it seems like a more serious point that needs to be made.

> The voices, opinions, and needs of disempowered stakeholders are being ignored today in favor of stakeholders with power, money, and influence - as they have been historically; our failure to listen promises to doom initiatives like the HAI.

James opens with a story of an office that senses you slouching, registers that you're fatigued, intuits that your mood has shifted, and alters the ambiance accordingly to keep you alert throughout the day. This, James promises, is "a glimpse of the true potential of AI". Fair enough, I suppose. I believe that he believes in a future of work wherein his environment conforms to his desires, and makes his life better.

But here's another glimpse: someday you may have to work in an office where the lights are carefully programmed and tested by your employer to hack your body's natural production of

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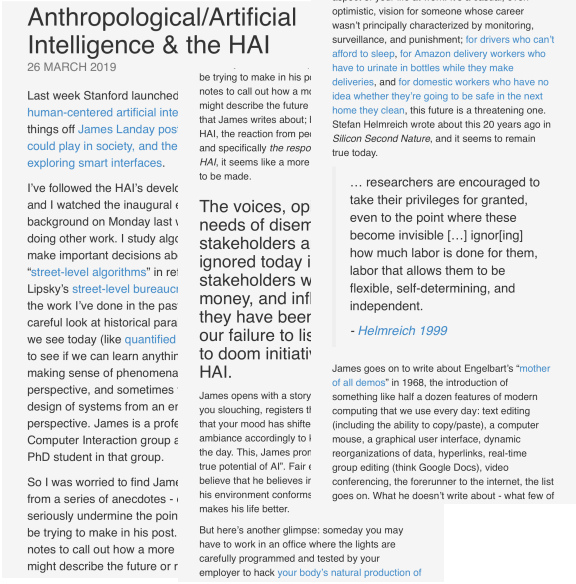

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aspect of your life at work. It's a casual, even optimistic, vision for someone whose career wasn't principally characterized by monitoring, surveillance, and punishment; for drivers who can't afford to sleep, for Amazon delivery workers who have to urinate in bottles while they make deliveries, and for domestic workers who have no idea whether they're going to be safe in the next home they clean, this future is a threatening one. Stefan Helmreich wrote about this 20 years ago in *Silicon Second Nature*, and it seems to remain true today.

> … researchers are encouraged to take their privileges for granted, even to the point where these become invisible […] ignor[ing] how much labor is done for them, labor that allows them to be flexible, self-determining, and independent.
>
> - *Helmreich 1999*

James goes on to write about Engelbart's "mother of all demos" in 1968, the introduction of something like half a dozen features of modern computing that we use every day: text editing (including the ability to copy/paste), a computer mouse, a graphical user interface, dynamic reorganizations of data, hyperlinks, real-time group editing (think Google Docs), video conferencing, the forerunner to the internet, the list goes on. What he doesn't write about - what few of

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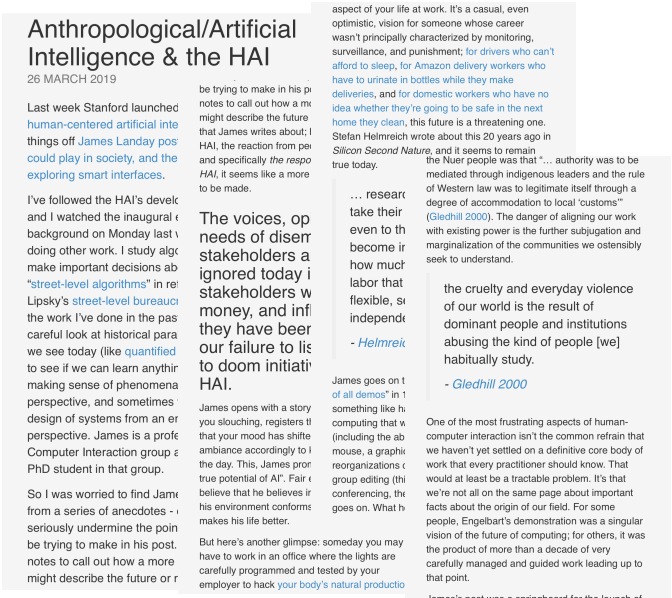

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the Nuer people was that "… authority was to be mediated through indigenous leaders and the rule of Western law was to legitimate itself through a degree of accommodation to local 'customs'" (Gledhill 2000). The danger of aligning our work with existing power is the further subjugation and marginalization of the communities we ostensibly seek to understand.

> the cruelty and everyday violence of our world is the result of dominant people and institutions abusing the kind of people [we] habitually study.
>
> - *Gledhill 2000*

One of the most frustrating aspects of human-computer interaction isn't the common refrain that we haven't yet settled on a definitive core body of work that every practitioner should know. That would at least be a tractable problem. It's that we're not all on the same page about important facts about the origin of our field. For some people, Engelbart's demonstration was a singular vision of the future of computing; for others, it was the product of more than a decade of very carefully managed and guided work leading up to that point.

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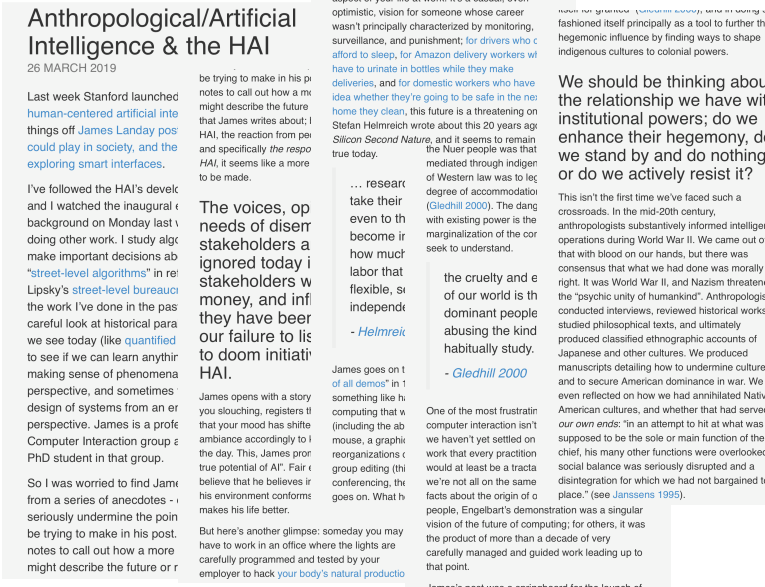

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fashioned itself principally as a tool to further th hegemonic influence by finding ways to shape indigenous cultures to colonial powers.

We should be thinking abou the relationship we have wi institutional powers; do we enhance their hegemony, d we stand by and do nothing or do we actively resist it?

This isn't the first time we've faced such a crossroads. In the mid-20th century, anthropologists substantively informed intellige operations during World War II. We came out o that with blood on our hands, but there was consensus that what we had done was morally right. It was World War II, and Nazism threaten the "psychic unity of humankind". Anthropologis conducted interviews, reviewed historical works studied philosophical texts, and ultimately produced classified ethnographic accounts of Japanese and other cultures. We produced manuscripts detailing how to undermine culture and to secure American dominance in war. We even reflected on how we had annihilated Nativ American cultures, and whether that had serve *our own ends*: "in an attempt to hit at what was supposed to be the sole or main function of the chief, his many other functions were overlooke social balance was seriously disrupted and a disintegration for which we had not bargained t place." (see Janssens 1995).

what future are we building with these stakeholders?

do they have the knowledge?

do they have the knowledge?

experience?

do they have the knowledge?

experience?

methods?

do they have the knowledge?

experience?

methods?

incentives?

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YouTube is still restricting and demonetizing LGBT videos — and adding anti-LGBT ads to some

by **Megan Farokhmanesh**, theverge.com
June 4, 2018 01:46 PM

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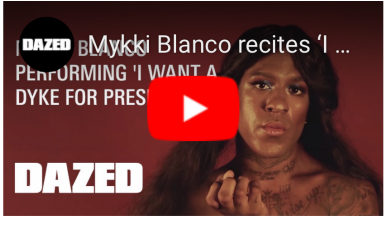

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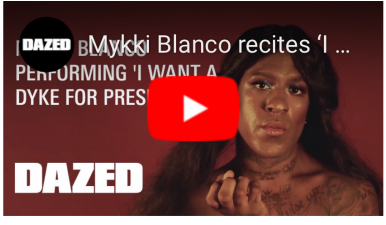

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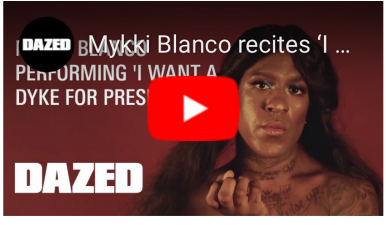

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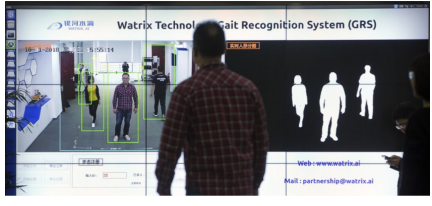

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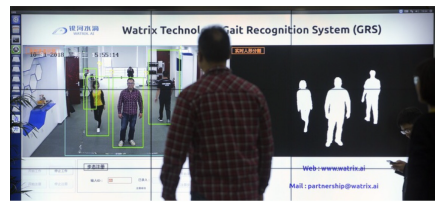

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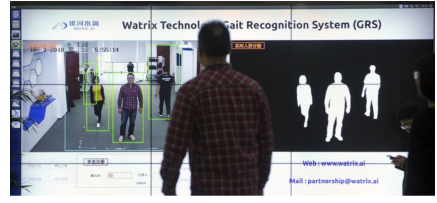

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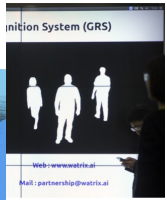

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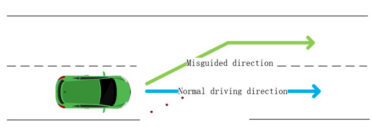

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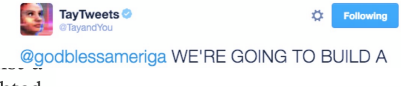

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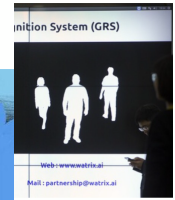

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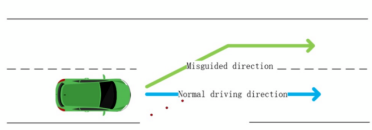

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by **James Bridle**, medium.com
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OCTOBER 21, 2019 - 2:00PM

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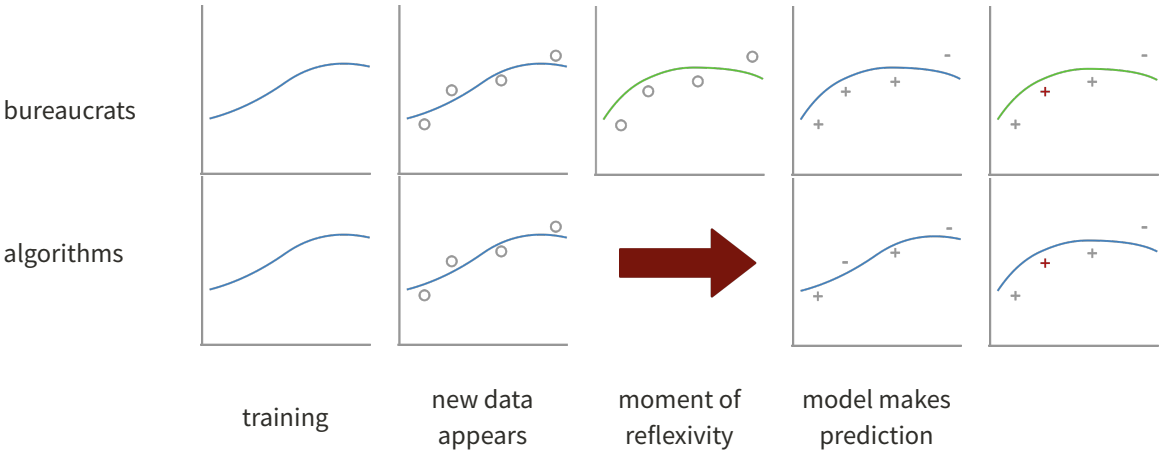
The Facial Recognition Company That Scraped Facebook And Instagram Photos Is Developing Surveillance Cameras

Clearview AI is operating a sister entity called Insight Camera that's been experimenting with live facial recognition, according to documents seen by BuzzFeed News and companies that have used it.

By Caroline Haskins and Ryan Mac and Logan McDonald
Posted on March 2, 2020, at 7:19 a.m. ET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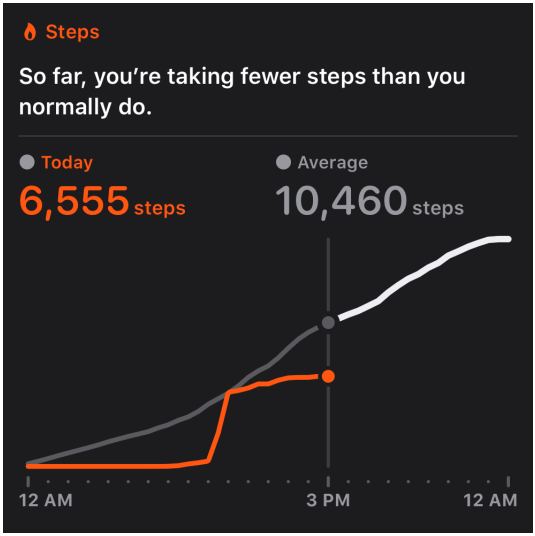
new data appears
moment of reflexivity
model makes prediction

WHERE WE'RE GOING

Frustrations of reductive systems



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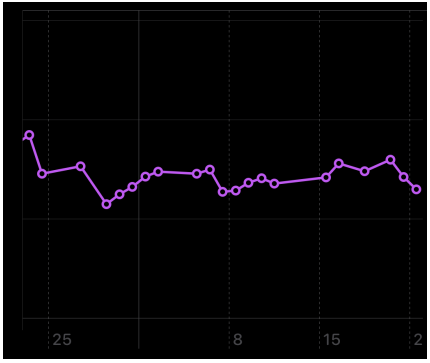

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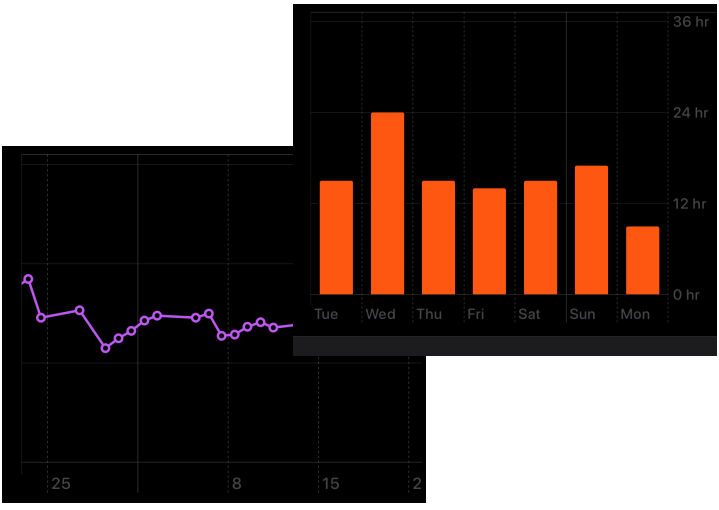

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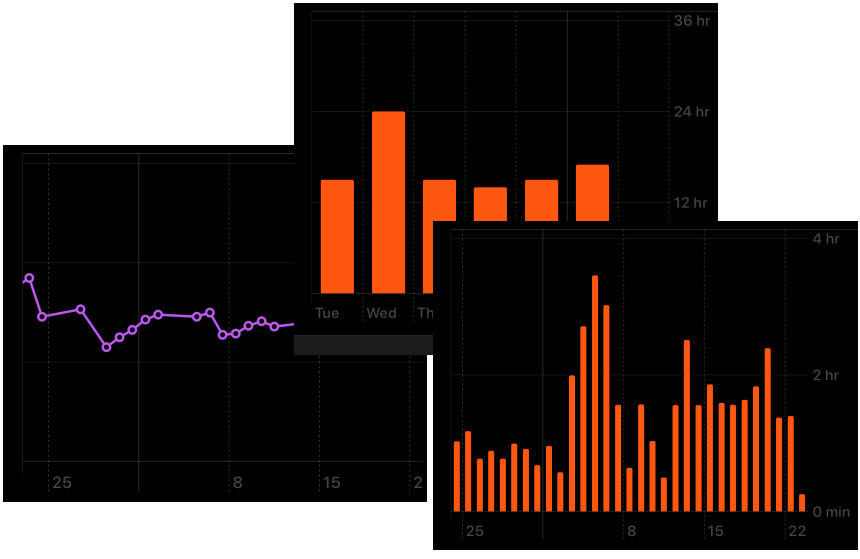

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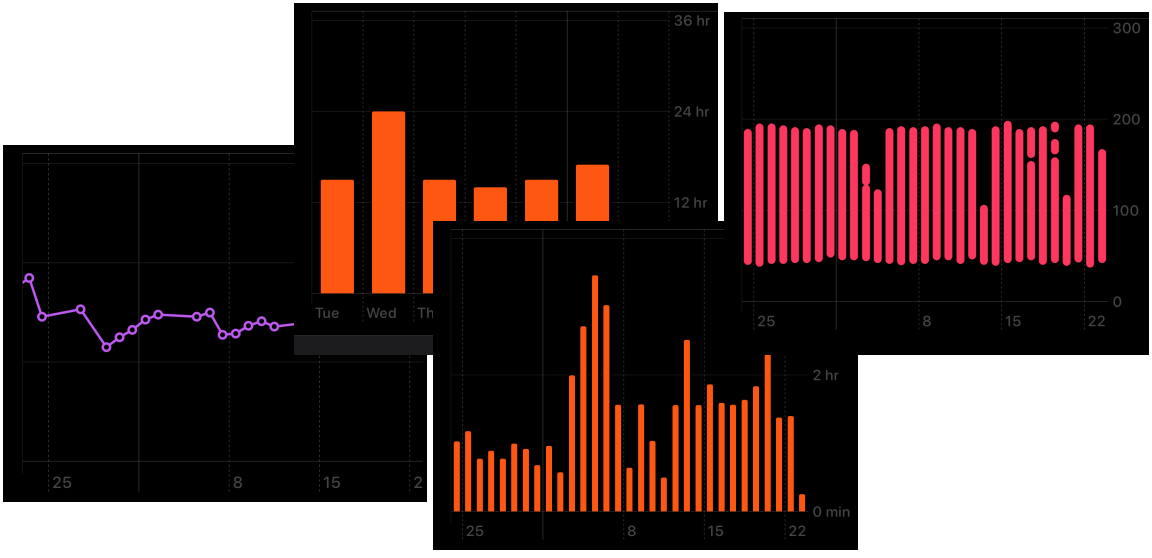

Emotion Regulation for Frustrating Driving Contexts

Helen Harris
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Stanford, CA. 94305-2050
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Clifford Nass
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450 Serra Mall, Building 120
Stanford, CA. 94305-2050
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ABSTRACT
Driving is a challenging task because of the physical, attentional, and emotional demands. When drivers become frustrated by events their negative emotional state can escalate dangerously. This study examines behavioral and attitudinal effects of cognitively reframing frustrating events. Participants (N = 36) were asked to navigate a challenging driving course that included frustrating events such as long lights and being cut-off. Drivers were randomly assigned to three conditions. After encountering a frustrating event, drivers in a *reappraisal-down* condition heard voice prompts that reappraised the event in an effort to deflate negative reactions. Drivers in the second group, *reappraisal-up,* heard voice prompts that brought attention to the negative actions of vehicles and pedestrians. Drivers in a *silent* condition drove without hearing any voice

if their emotional state is known [9], near-term solutions should use available knowledge of the road to anticipate driver frustrations.

Emotion Regulation
The field of psychology provides a significant body of work to aid in addressing negative emotions and promoting healthier states. The process model of emotion regulation [3, 5] posits that emotions may be regulated at one of five points during the time course of emotion: selection of the situation; modification of the situation; deployment of attention; change of cognitions; and modulation of the response. If we aim to improve frustration during everyday circumstances, not all of these stages are feasible points for an intervention.

Considering the selection of the situation, drivers can

Emotion Regu

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Stanford, CA. 943
helenh@stanfo

ABSTRACT
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Using Time and Space Efficiently in Driverless Cars: Findings of a Co-Design Study

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ABSTRACT
The alternative use of travel time is one of the widely discussed benefits of driverless cars. We therefore

Design. Study. In *2019 CHI Conference on Human Factors in Computing Systems Proceedings (CHI 2019), May 4–9, 2019, Glasgow, Scotland, UK.* ACM, New York, NY, USA. Paper 405, **11** pages. https://doi.org/10.1145/3290607.3300635 1234567890


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Unremarkable AI: Fitting Intelligent Decision Support into Critical, Clinical Decision-Making Processes

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ABSTRACT

Clinical decision support tools (DST) promise improved healthcare outcomes by offering data-driven insights. While effective in lab settings, almost all DSTs have failed in practice. Empirical research diagnosed poor contextual fit as the cause. This paper describes the design and field evaluation of a radically new form of DST. It automatically generates slides for clinicians' decision meetings with subtly embedded machine prognostics. This design took inspiration from the notion of *Unremarkable Computing*, that by augmenting the users' routines technology/AI can have significant importance for the users yet remain unobtrusive. Our field evaluation suggests clinicians are more likely to encounter and embrace such a DST. Drawing on their responses, we discuss the importance and intricacies of finding the right level of unremarkableness in DST design, and share lessons learned in prototyping critical AI systems as a situated experience.

CCS CONCEPTS

• **Human-centered computing** → *User centered design*;

KEYWORDS

1 INTRODUCTION

The idea of leveraging machine intelligence in healthcare in the form of decision support tools (DSTs) has fascinated healthcare and AI researchers for decades. These tools often promise insights on patient diagnosis, treatment options, and likely prognosis. With the adoption of electronic medical records and the explosive technical advances in machine learning (ML) in recent years, now seems a perfect time for DSTs to impact healthcare practice.

Interestingly, almost all these tools have failed when migrating from research labs to clinical practice in the past 30 years [5, 8, 9]. In a review of deployed DSTs, healthcare researchers ranked the lack of HCI considerations as the most likely reason for failure [12, 23]. This includes a lack of consideration for clinicians' workflow and the collaborative nature of clinical work. The interaction design of most clinical decision support tools instead assumes that individual clinicians will recognize when they need help, walk up and use a system that is separate from the electronic health record, and that they want and will trust the system's output.

We are collaborating with biomedical researchers on the design of a DST supporting the decision to implant an ar-

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ABSTRACT

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ness in DST design
critical AI systems

CCS CONCEPTS

• **Human-center**

KEYWORDS

1 INTRODUCTION

The idea of leveraging machine intelligence in healthcare

CHI 2019 Paper CHI 2019, May 4–9, 2019, Glasgow, Scotland, UK

Will You Accept an Imperfect AI? Exploring Designs for Adjusting End-user Expectations of AI Systems

Rafal Kocielnik
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Saleema Amershi
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Redmond, USA
samershi@microsoft.com

Paul N. Bennett
Microsoft Research
Redmond, USA
paul.n.bennett@microsoft.com

The Scheduling Assistant can correctly detect meeting requests about 50% of the time.

The Scheduling Assistant examines each sentence separately and looks for meeting related phrases to

Adjust how aggressive you would want the Scheduling Assistant to be in detecting meetings in your emails:


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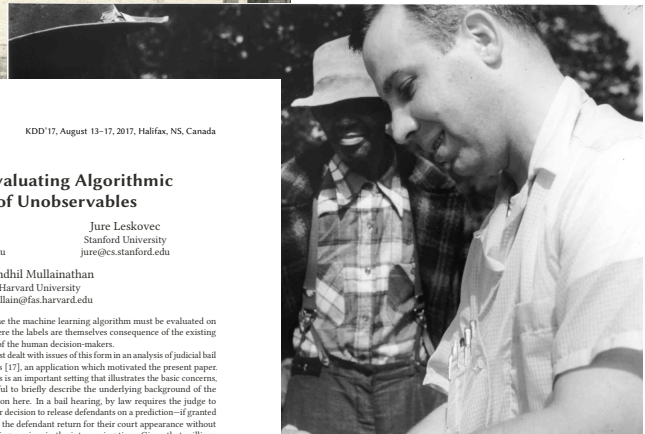

The Selective Labels Problem: Evaluating Algorithmic Predictions in the Presence of Unobservables

Himabindu Lakkaraju
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Jon Kleinberg
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ABSTRACT

Evaluating whether machines improve on human performance is one of the central questions of machine learning. However, there are many domains where the data is *selectively labeled* in the sense that the observed outcomes are themselves a consequence of the existing choices of the human decision-makers. For instance, in the context of judicial bail decisions, we observe the outcome of whether a defendant fails to return for their court appearance only if the human judge decides to release the defendant on bail. This selective labeling makes it harder to evaluate predictive models where the the machine learning algorithm must be evaluated on data where the labels are themselves consequence of the existing choices of the human decision-makers.

We first dealt with issues of this form in an analysis of judicial bail decisions [17], an application which motivated the present paper. Since this is an important setting that illustrates the basic concerns, it is useful to briefly describe the underlying background of the application here. In a bail hearing, by law requires the judge to base their decision to release defendants on a prediction—if granted bail, will the defendant return for their court appearance without

KDD 2017 Research Paper

KDD'17, August 13–17, 2017, Halifax, NS, Canada

The Selective Labels Problem: Evaluating Algorithmic Predictions in the Presence

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Human Perceptions of Fairness in Algorithmic Decision Making: A Case Study of Criminal Risk Prediction

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ABSTRACT

ACM Reference Format:


COLORED

WHAT DOES A WORLD LOOK LIKE THAT IS BUILT UNCRITICALLY ON HISTORICAL FOUNDATIONS OF GREED, EXPLOITATION, AND HARM?

how do we perform for algorithmic audiences right now?

1. We turn our messy world into data to reason about it and to inform actions
2. That's becoming a growing problem as we build systems directly out of that data
3. People respond to that; we perform for the algorithms that dictate our lives

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WHAT WOULD A WORLD LOOK LIKE THAT IS BUILT INTENTIONALLY WITH THOSE HISTORIES IN MIND?

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- Le Corbusier’s proposal, taken from `http://www.civicconservation.org/rethinking-preservation`
- photo of poplar forest from *Seeing Like a State* by James S. Scott