Social Media

CS 347
Michael Bernstein

Announcements

The flu sucks.

Quiz 2 at the end of the next lecture

Last time

Schön's reflective practitioner: designers think in cycles; action then reflection

So, to make the designer better, enable more and better reflection

Design tools aid by accelerating components of reflection-in-action:

Early stage design: translation of an idea from the designer's head out into a sketch, the **most rapid externalized representation possible**

Implementation: if we can **realize our sketch into a prototype faster**, then we can **get to a reflection stage faster**

Evaluation: provide **better or more rapid feedback** to support iteration

Design

Unit 2

design cognition
design process
design tools

Social Computing

Unit 3

social media
collaboration
design + society

Today

Beyond Being There

Grudin's Paradox

Social Media's Impact on Us

Old readings, new phenomena: this week's readings are from over twenty years ago. Yet, like Weiser, they still frame how we think of these issues today. The lectures will connect them to the modern social web.

What is social computing?

Social computing describes **computational systems that mediate our interactions with each other**

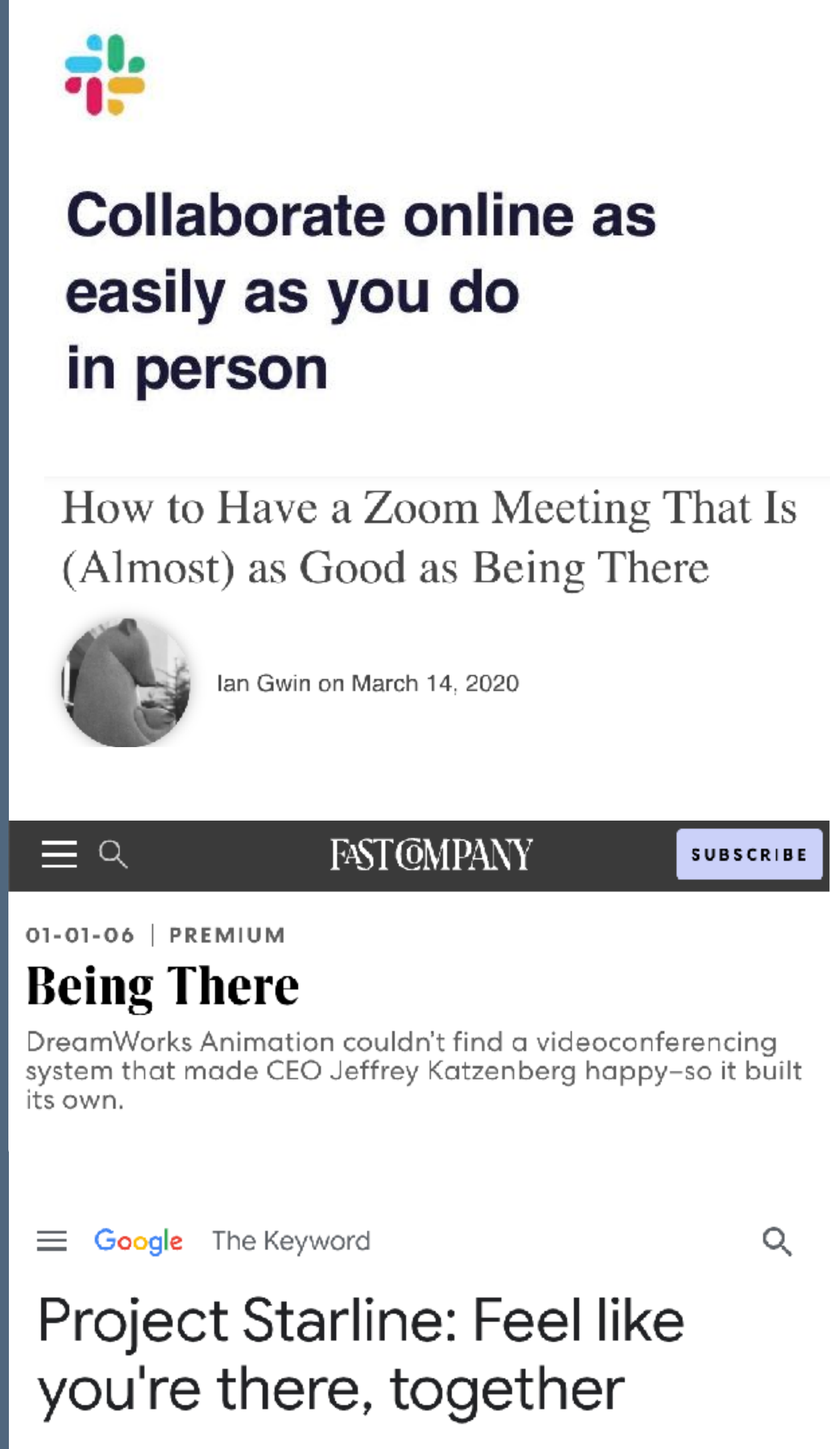
- Social media
- Collaboration tools
- Messaging apps
- Tools used in, by, or on societies and institutions

Beyond Being There

“It’s like being there!”

A major design goal of social computing has been increase fidelity: increasing the richness of online social interactions to make them more and more like in-person interaction. [Daft and Lengel 1986]

> “Let’s make Zoom have less lag and higher resolution.”
>
> “Let’s make Facebook the new metaverse, where it will feel like you’re really there with your friends.”



Beyond being there

[Hollan and Stornetta 1993]

"Being there" is the wrong goal.

We will never fully recreate the face-to-face experience. There are too many subtle cues for us to fully model or recreate them, even with hypothetical future technology.

> Network lag, immersion and comfort issues, lack of shared physical context, …
>
> **So, stop trying.**

YOU READ THIS

YOU READ THIS

Beyond being there

[Hollan and Stornetta 1993]

Instead of tilting at windmills to design experiences that are as good as being there, design for **beyond being there—experiences that could never have been created face-to-face**.

> How could social media bring you closer in ways that face-to-face hangouts cannot?
>
> How could online coordination tools help us be more effective collaborators than we ever could in person?

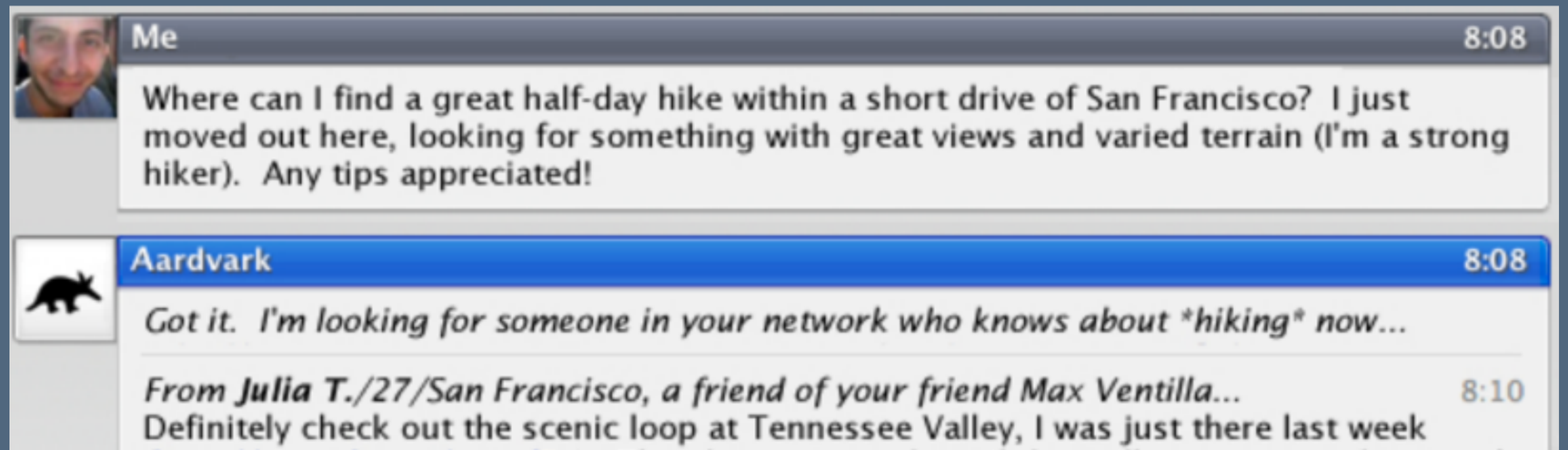
Examples

Ask a question! It's routed to the right person, anywhere

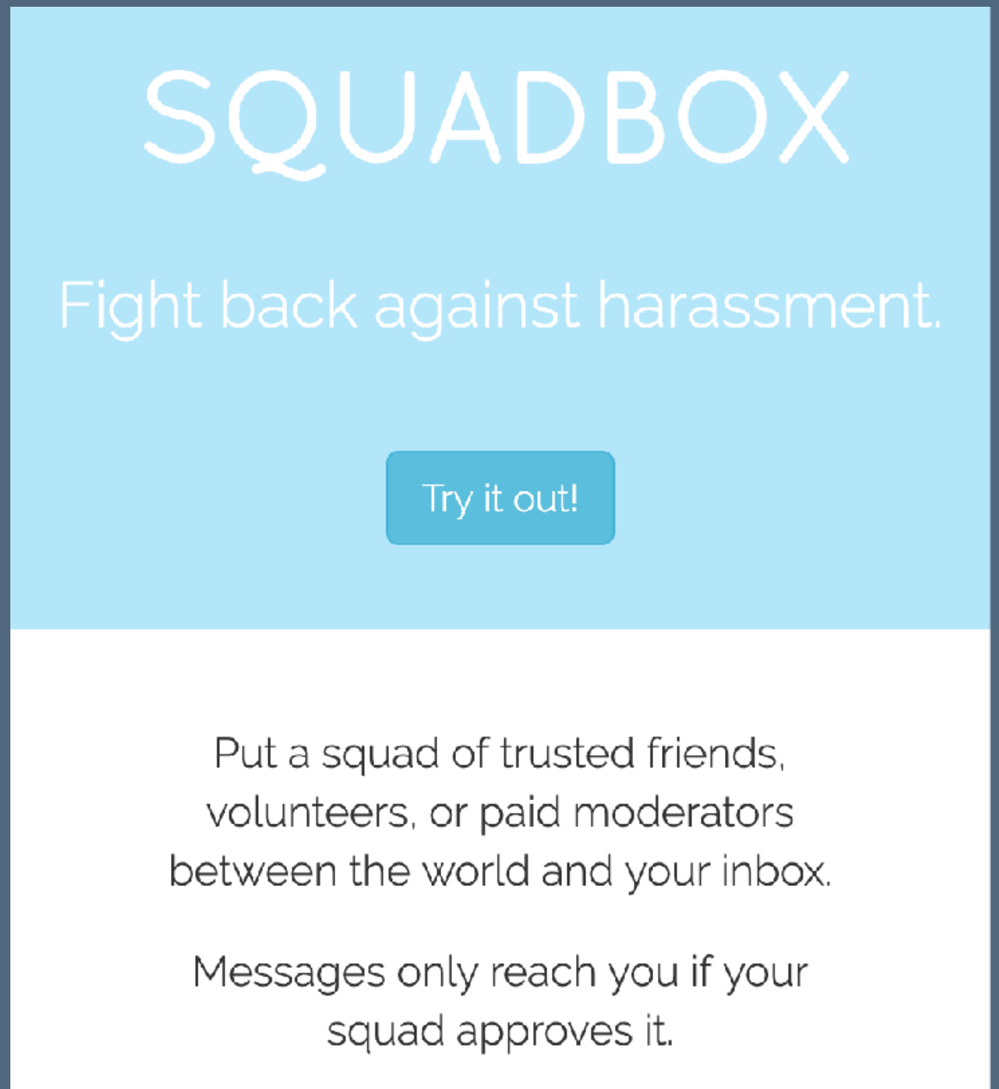
Beyond Being There framing: connect with experts anywhere

Who should we pick? [Horowitz and Kamvar 2010]

Who is more likely to respond? A friend of a friend, or someone more socially distant, who is the world's expert on SF-area hikes?



Friendsourced moderation



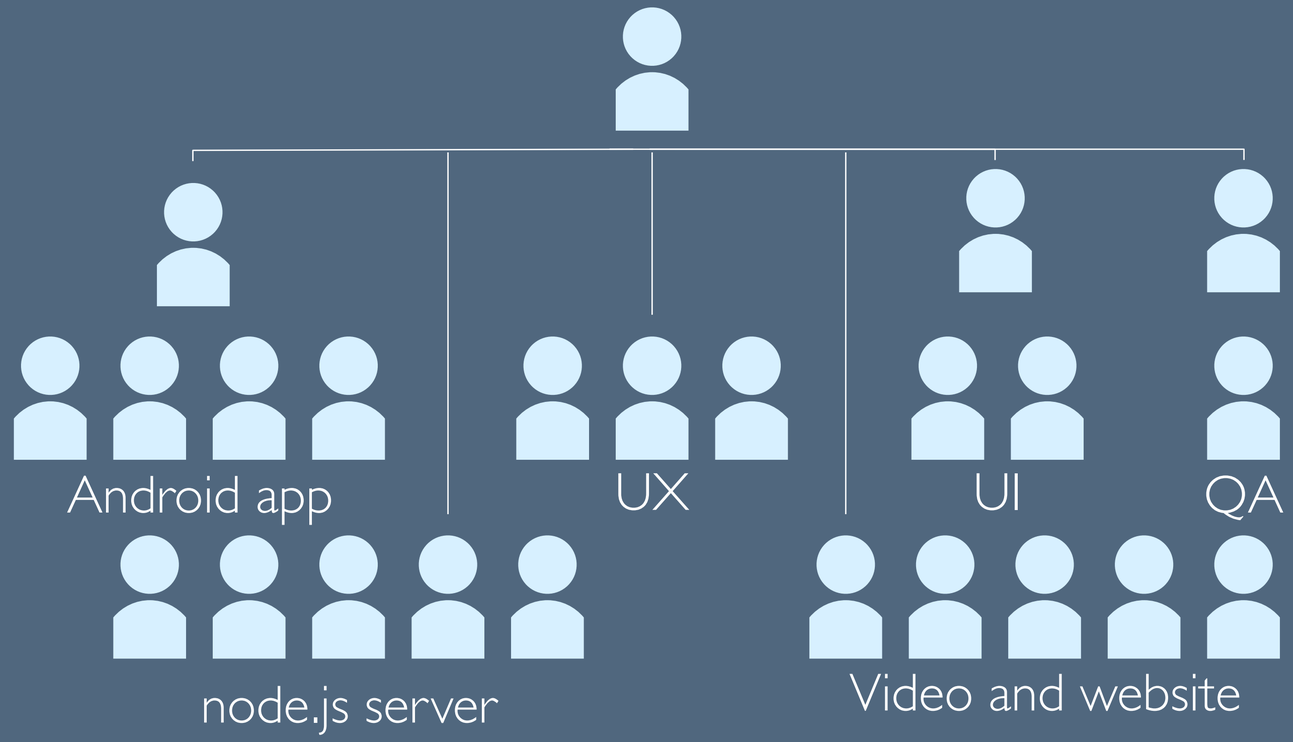
Offline: if someone throws hate your way, there's not much you can do

Beyond Being There framing: friends can receive valet keys to your account so they can intercept harassing messages before they appear to you [Mahar, Karger and Zhang 2018]

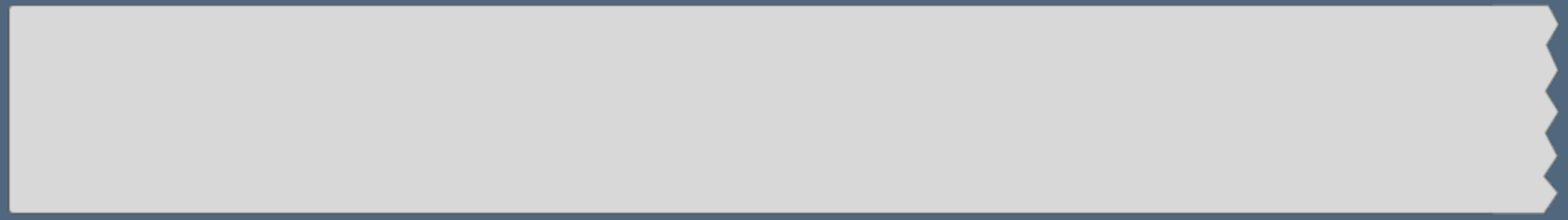
Flash Organizations

[Valentine et al., CHI '17]

Beyond Being There insight: what if we could create instant, on-demand organizations by drawing on online marketplaces?



Example flash organization



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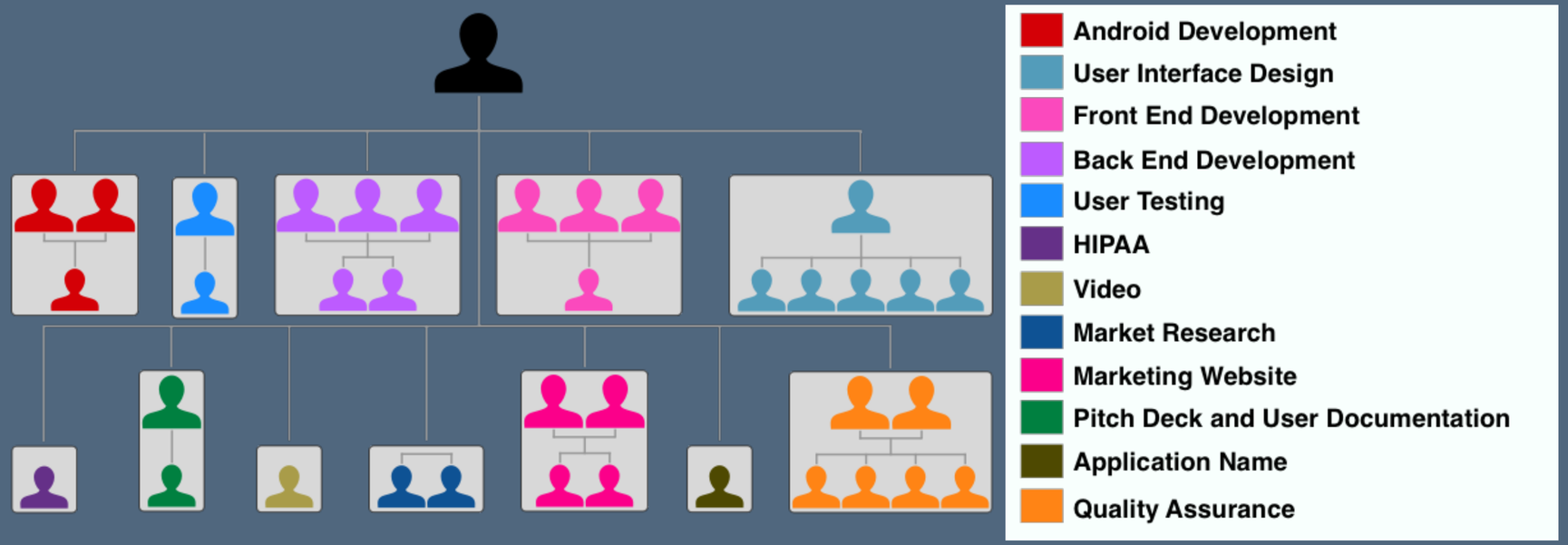
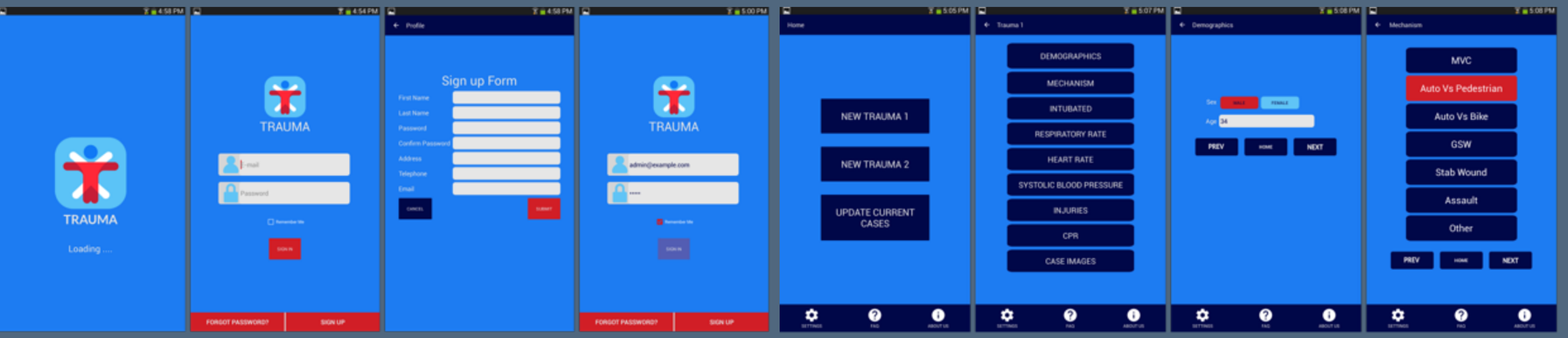
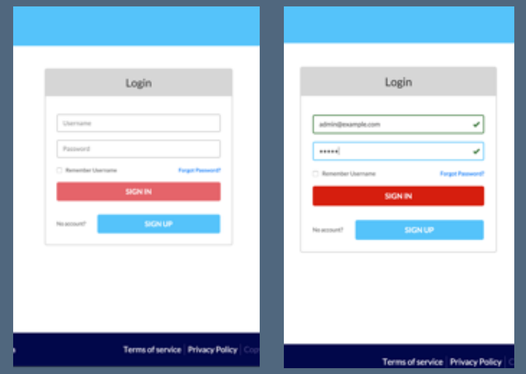
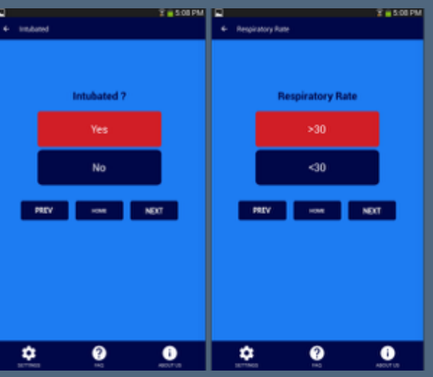


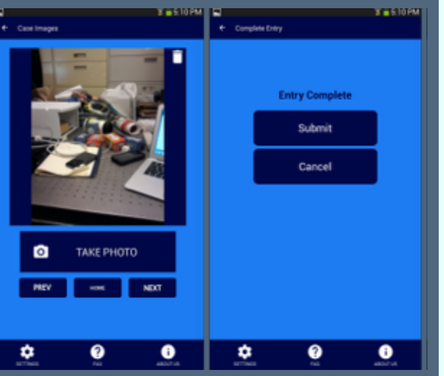
- Android Development
- User Interface Design
- Front End Development
- Back End Development
- User Testing
- HIPAA
- Video
- Market Research
- Marketing Website
- Pitch Deck and User Documentation
- Application Name
- Quality Assurance

Example flash organization

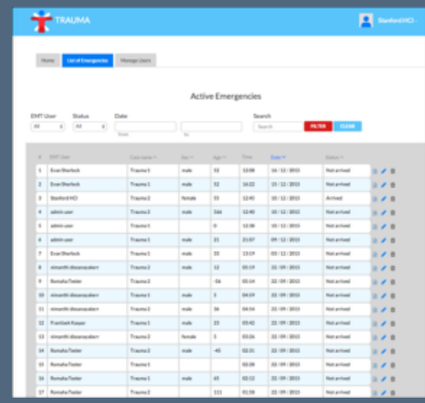








EMS TRAUMA REPORT



2014: The Prompt Camera [Pierce and Paulos]

"This is the Prompt Camera. You cannot take pictures whenever you want with it. You can only take pictures when it lights up, prompting you to take a picture…"

Today

[Saturday Night Live]

Collaborative filtering

The main technique determining how platforms (e.g., TikTok) know what to show you: learning from many, many other people like you

Beyond Being There framing: learning these embeddings is not possible in offline scenarios: a consequence of online platforms

The New York Times

THE MEDIA EQUATION

How TikTok Reads Your Mind

It's the most successful video app in the world. Our columnist has obtained an internal company document that offers a new level of detail about how the algorithm works.

Collaborative filtering

Learning from one user's behavior to predict another user's behavior

GroupLens, aimed at personalizing and filtering usenet [Resnick et al. 1994]

One of the highest cited HCI papers of all time! It is the foundation of every modern recommender system (e.g., Netflix, online shopping, …)

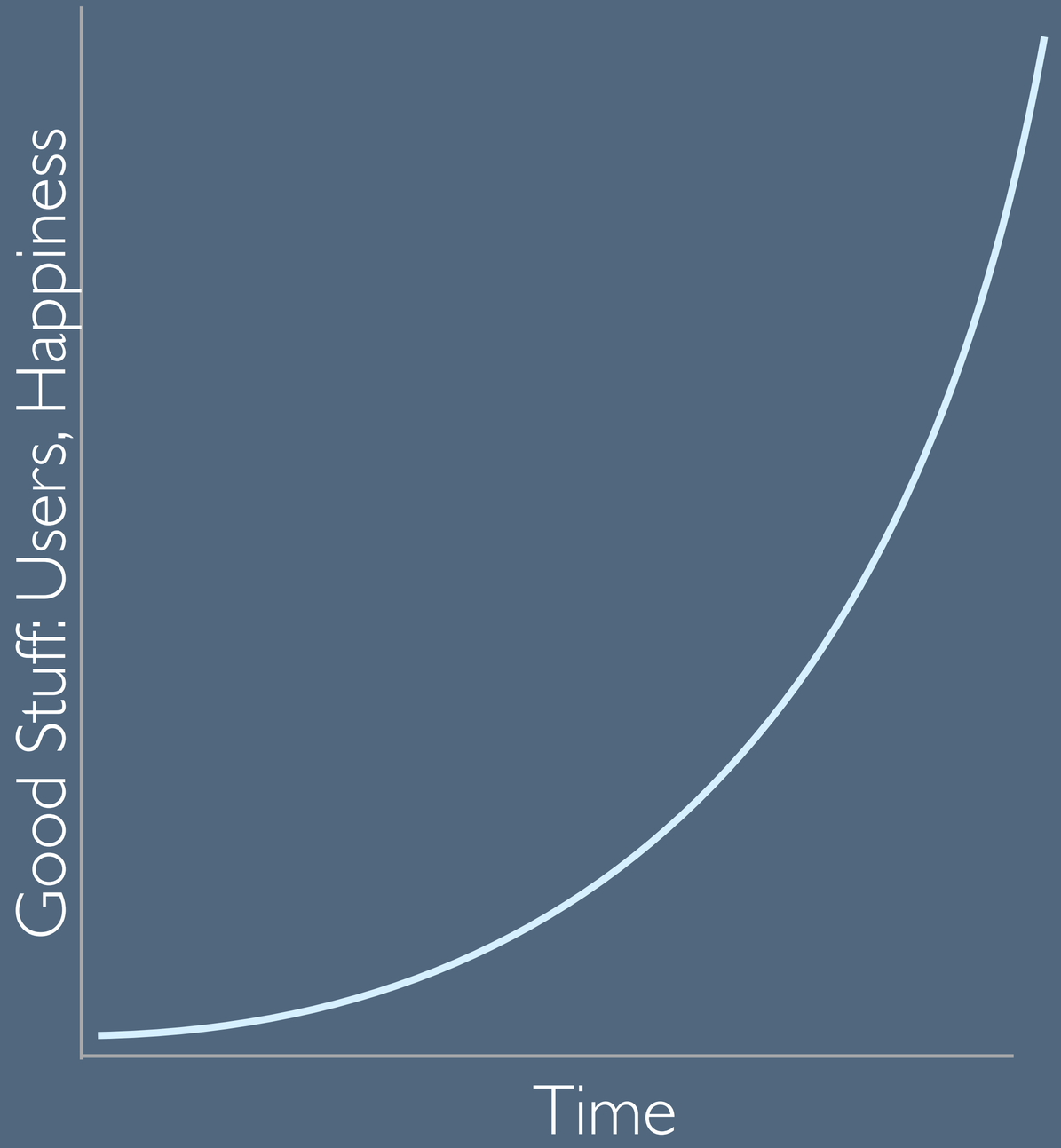
Collaborative filtering

General idea: identify similar people to you, and similar classes to the one you're trying to predict for, and extrapolate. We now call this "**creating an embedding**".

	James	Maneesh	Michael
CS 147	+	+	–
CS 247	+	+	–
CS 448B	+	+	+
CS 347	?	+	+
CS 278	–	+	+

Grudin's Paradox, or Why Online Communities Fail And What To Do About It

The Vision



The Reality

YOU READ THIS

Why do social media fail?

[Grudin 1994]

Many platforms—social media, documentation wikis at work, uneven usage of messaging software—never get over the adoption hump.

Why? Grudin offers several trenchant answers. **Two that stuck.**

Disparity between who puts in the work and who benefits

e.g., API documentation: manager benefits, employees contribute

Grudin's "paradox"

Failure to reach critical mass: "cold start"

Tragedy of the commons: it's rarely in a single user's best interest to use a new social computing system

Well, how do we not fail?

This question touches on fundamental unknowns in the social and behavioral sciences.

Consequently, social computing often **draws on theory and methods from the social and behavioral sciences** in its answers.

In what ways do online interactions allow us to observe social behavior in new ways, allowing us to extend or complement offline theories?

In what ways do online interactions create new forms of social behavior that require new theory?

Examples

Encouraging contributions

[Beenen et al. 2004]

Social loafing: why should I contribute if many others could as well?

Hypothesis: calling out uniqueness will increase participation

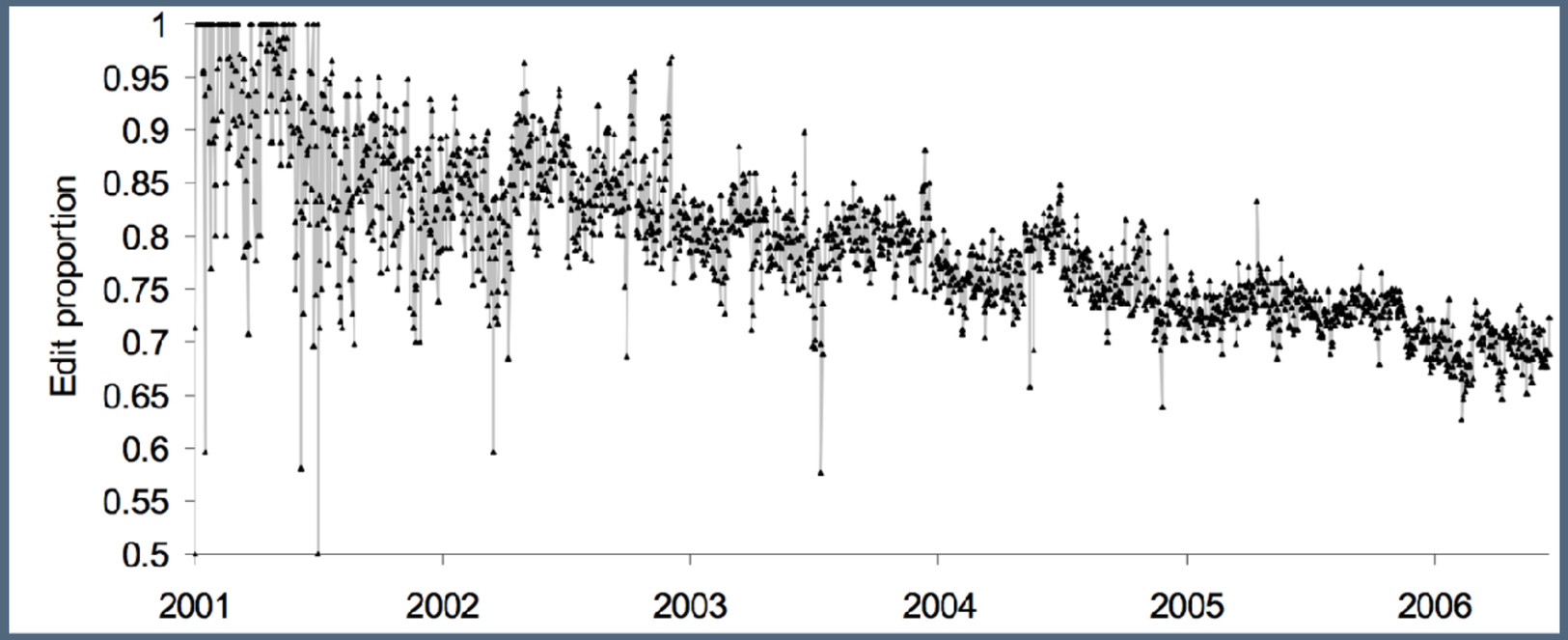
Method: rating campaign on MovieLens (think: IMDB ratings)

> "As someone with fairly unusual tastes, you have been an especially valuable user of MovieLens [...] You have rated movies that few others have rated: [...]"

Result**:** participants in the uniqueness condition rated **18% more** movies

Growth = conflict

What happens to collaboration costs as Wikipedia grows?
[Kittur, Suh, Pendleton, and Chi 2007]

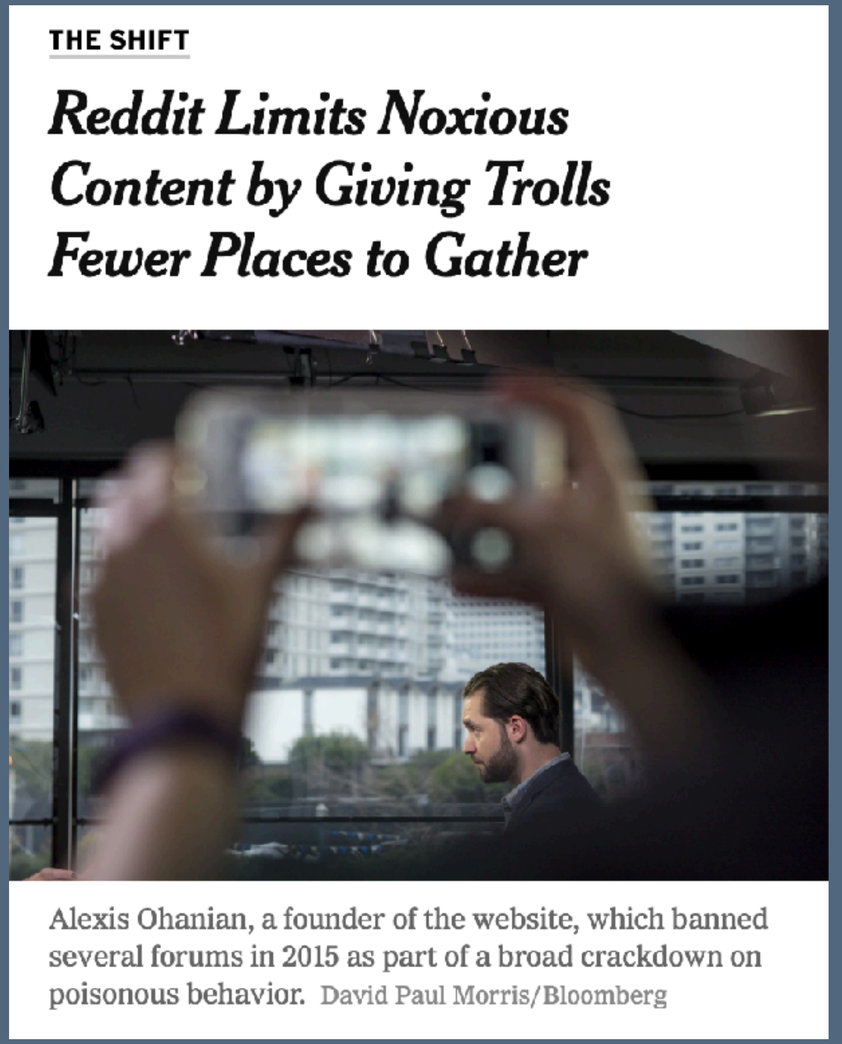


Amount of direct work on articles goes down, and activity on coordination pages goes up

Moderation and deplatforming

Moderating content or banning substantially decreases negative behaviors in the short term in streaming channels [Seering et al. 2017]

Reddit's ban of subreddits due to violations of anti-harassment policy succeeded. Accounts either left entirely, or migrated to other subreddits and drastically reduced their hate speech [Chandrasekharan et al. 2017]



THE SHIFT

Reddit Limits Noxious Content by Giving Trolls Fewer Places to Gather

Alexis Ohanian, a founder of the website, which banned several forums in 2015 as part of a broad crackdown on poisonous behavior. David Paul Morris/Bloomberg

Social media's impact on us

the facebook files

Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show

Its own in-depth research shows a significant teen mental-health issue that Facebook plays down in public

TikTok self-harm study results 'every parent's nightmare'

Research suggests algorithm promotes self-harm and eating disorder content within minutes of interest being shown

A Former Facebook VP Says Social Media Is Destroying Society. And He's Right.

Fizz app bubbles with controversy amid popularity

Early worrying evidence

Internet Paradox

A Social Technology That Reduces Social Involvement and Psychological Well-Being?

Robert Kraut, Michael Patterson, Vicki Lundmark, Sara Kiesler, Tridas Mukopadhyay, and William Scherlis
Carnegie Mellon University

The Internet could change the lives of average citizens as much as did the telephone in the early part of the 20th century and television in the 1950s and 1960s. Researchers and social critics are debating whether the Internet is improving or harming participation in community life and social relationships. This research examined the social and psychological impact of the Internet on 169 people in 73 households during their first 1 to 2 years on-line. We used longitudinal data to examine the effects of the Internet on social involvement and psychological well-being. In this sample, the Internet was used extensively for communication. Nonetheless, greater use of the Internet was associated with declines in participants' communication with family members in the household, declines in the size of their social circle, and increases in their depression and loneliness. These findings have implications for research, for public policy, and for the design of technology.

computers and the Internet in many different ways and for many purposes, including entertainment, education, information retrieval, and communication. If people use the Internet mainly for communication with others through email, distribution lists, multiuser dungeons (MUDs), chats, and other such applications, they might do so to augment traditional technologies for social contact, expanding their number of friends and reducing the difficulty of coordinating interaction with them. On the other hand, these applications disproportionately reduce the costs of communication with geographically distant acquaintances and strangers; as a result, a smaller proportion of people's total social contacts might be with family and close friends. Other applications on the Internet, particularly the World Wide Web, provide asocial entertainment that could compete with social contact as a way for people to spend their time.

Whether the Internet is increasing or decreasing social involvement could have enormous consequences for society and for people's personal well-being. In an influ-

How does social media impact…

Our well-being?

> "Receiving **targeted, composed communication from strong ties** was associated with **improvements in well-being** while viewing friends' wide-audience broadcasts and receiving one-click feedback (likes) were not." [Burke and Kraut 2016]

Our job hunts?

> "Most people are helped through one of their numerous weak ties but **a single stronger tie is significantly more valuable at the margin**" [Gee, Jones and Burke 2017]

How does social media impact…

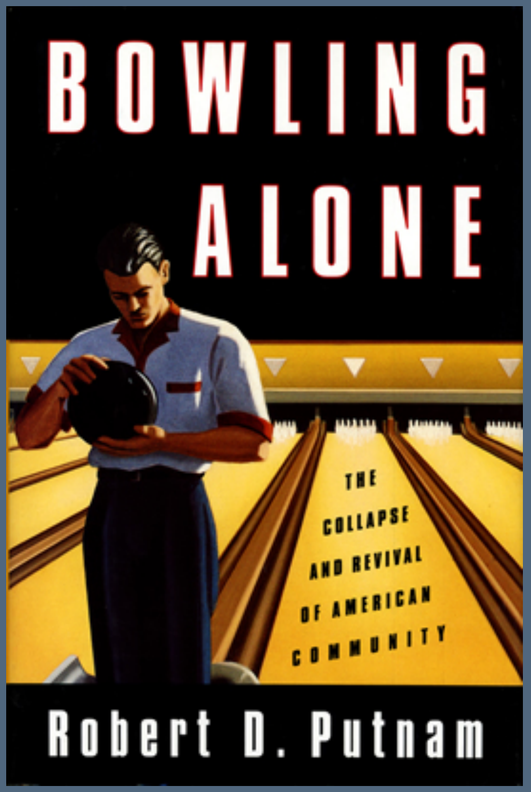
Our communities? [Ellison, Steinfeld and Lampe 2007]

Measure Facebook use and **social capital**, our sense of whether we are there for others and they are there for us

Bridging social capital: social capital built up with a community or across groups (e.g., toward another Stanford student you meet at the airport)

Bonding social capital: social capital built up between close friends and family (e.g., toward your BFFs at Stanford)

Result: **Facebook use increases social capital, especially bridging social capital**



How does social media impact…

Exposure to diverse political news?

> "We find strong evidence that **[social media] foster more varied online news diets**. The results call into question fears about the vanishing potential for incidental news exposure in digital media environments." [Scharkow et al. 2020]

> "We […] quantified the extent to which individuals encounter comparatively more or less diverse content while interacting via Facebook's algorithmically ranked News Feed and further studied users' choices to click through to ideologically discordant content. **Compared with algorithmic ranking, individuals' choices played a stronger role in limiting exposure to cross-cutting content**." [Bakshy, Messing, and Adamic 2015]

How does social media impact…

Democracy?

> "Some associations, such as **increasing political participation and information consumption**, are likely to be beneficial for democracy and were **often observed in autocracies** and emerging democracies. Other associations, such as **declining political trust, increasing populism and growing polarization**, are likely to be detrimental to democracy and were **more pronounced in established democracies**." [Lorenz-Spreen et al. 2022]

Summary

The default inclination is to replicate a social interaction that arose offline; instead we ought to aim to go to **"Beyond Being There"** and create social spaces that could only thrive online

We struggle with **Grudin's Paradox**, where the people needed are those with the least incentive to contribute, and we struggle with cold start

Social media's effect on us depends on use:

- Directed interactions increase friendships and wellbeing, but liking does not
- Social media use does increase social capital in our communities
- We take in a broader news diet, but democracies struggle with polarization under social media

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