What’s the most eerily empty place you’ve been to during this pandemic?
Discussion section signups

Sign up by Saturday at noon PT via the link at cs278.stanford.edu

Indicate when you can join a weekly discussion section

This will be the “social” part of social computing!

Sections will run Th+Fr, spread out from 9am-9pm PT to cover as many timezones as possible

Indicate special circumstances that might preclude your participation, and we’ll set up alternative arrangements
Last time: going viral

Virality and where cultural innovation comes from

Determinism vs. social influences in viral phenomena

Social proof

Truth spreads more weakly than fiction :(
Today, we will build up to this.
At a time when cities were considered nests of filth and trouble, Jane Jacobs unleashed a fierce defense of neighborhoods. She saw incredible value in her home, Greenwich Village in NYC.

Jacobs’s argument: bustling city neighborhoods keep themselves interesting and safe
Eyes on the Street

Jane Jacobs 1961

“There must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street.”

“Nobody enjoys sitting on a stoop or looking out a window at an empty street. Almost nobody does such a thing. Large numbers of people entertain themselves, off and on, by watching street activity.”
In contrast...

Among open source projects that have produced successful and sustainable software, the median number of code contributors is 1. [Schweik and English 2012]
Ghost towns

The Rise and Fall of Yik Yak, the Anonymous Messaging App

George R.R. Martin, the last great LiveJournal user, leaves the platform

Don't worry, he migrated his blog to his own site.

Technology

Google shuts failed social network Google+
Almost Wikipedia

[Hill 2013]

At the time that Wikipedia was launched, there were seven other collaboratively edited online encyclopedias:

- Interpedia
- The Distributed Encyclopedia Project
- h2g2
- The Info Network (TheInfo)
- Nupedia
- Everything2
- GNE

dead
gone
quiet
bye (but hi reddit)
pre-kipedia
slow times
shut down

Why did these become ghost towns, and Wikipedia grew immense?
But even amongst success...

Active contributors make up only 0.02%–0.03% of all Wikipedia users

[https://strategy.wikimedia.org/wiki/Wikimedia_users]

![More than 98% of Reddit users are lurkers who don’t post or comment](http://redd.it/b5f9wi)
Hey everyone,
Check out this site I made called treeliberate! It’s for reviewing labor practices of administrative offices on campus.
- A person you know

[deafening silence and no activity]
Today’s question

How do I design environments that are bustling — promoting eyes on the street — and not ghost towns? And do so in a responsible way?

To answer this, let’s get concrete with a definition.
Sociotechnical system

Social interactions define the system

Technical infrastructure defines the system

The two components are interrelated and both responsible
Sociotechnical system

Why we use this term: it captures that the technical elements of the system are not enough to determine its behavior or outcomes.

- Wikis don’t imply Wikipedia as the outcome
- Short text messages don’t imply Twitter as the outcome

“Sociotechnical systems” emphasizes that it’s the interplay of the tech and the people in the system that make it tick.
That said, now an outline of an answer to the question

individual factors
- intrinsic and extrinsic motivation
  channel factors
social factors
- social loafing
  reciprocity
contribution pyramid
Individual factors
Motivation: why are you here?

Why do people contribute to...

Piazza?
Instagram?
Dorm email lists?
Lyft?

People have lots of pressing things to do with their time. So we need to ask critically: why are they spending time in this socio-technical system?
Intrinsic and extrinsic motivation

The distinction between intrinsic and extrinsic motivators helps clarify who is here, why, and what it implies for design.

**Intrinsic motivation**: derive from my own desires to complete a goal
- Examples: pleasure, hobby, developing a skill, demonstrating a skill

**Extrinsic motivation**: don't derive from my relationship with the goal
- Examples: money, graduation, points, badges
Intrinsic / Extrinsic

Which motivation is each of these most likely to tap into? [2min]

- Posting your music to Soundcloud as a new artist
- Answering someone’s question on Stack Overflow
- Creating memes for the Stanford memes Facebook group
- Streaming a session for a successful Twitch streamer
Motivation crowding

Mixing motivators is dangerous: taking an intrinsically motivated goal and adding extrinsic motivators to it may actually reduce the overall motivation level.

1. Late parents are shamed
2. A fine is instituted. Lateness increases!
3. The fine is removed. Lateness remains!

[Gneezy and Rustichini 2000]
This is the (a?) problem with gamification.

Help this person solve their problem!

You’ve unlocked a new Solve skill!

HIT A STREAK OF 4 ANSWERS TO UNLOCK WHAT THEY REALLY THINK OF YOU

+10 Helper Points

937 more to become Pro!

Unwise application of extrinsic motivators.
Some do this better

Why does Duolingo’s use of gamification, badges, streaks, etc., not feel like it’s crowding out the intrinsic learning motivation?

Michael’s opinion:

1. Language learning is, for most, a weak intrinsic motivation
2. Autonomy: I signed up for this
Transition points

Michael’s recommendation: start by letting people exercise intrinsic motivation. As they become invested, allow them to go after extrinsic motivators.

Step 1: Ask, answer, and edit! Go help people!
Step 2: Get badges to hit milestones; measure and grow your impact
Effort: channel factors

We are, in general, extremely reactive to small changes in the amount of effort required to contribute.

Channel factors: minor features upstream in a decision process that can produce large changes in behavior downstream [Ross and Nisbett 1991]. They are behavioral catalysts.

Students asked to get a tetanus shot were more likely to do it if they got a map to point out where the health center was, and a written list of its hours of operation. They already knew both of these facts. [Howard et al. 1965]
Effort: channel factors

Massive impact on the social web of changing this:

Into this:

(But also important costs! Let’s talk about honest signals later.)
Social factors
Social Loafing

Many hands make... work... light?

When there are others contributing, we contribute less.

Experiment: blindfold a participant and get them to play team tug-of-war. [Ingham 1974]

Except... there is actually nobody else on their team, they just think so. (Remember, they’re blindfolded.)

People pulled 18% harder when they thought they were the only one on their team than when they thought there were 2–5 others.
When was the last time you edited Wikipedia?

As a social computing system shows more activity, do we paradoxically get fewer eyes on the street?

Don’t shame or nudge people as your solution to social loafing;(

Instead, call out the person’s uniqueness, and help them set goals. [Kraut and Resnick 2012]

We need people who took a social computing class to fill in this section on motivation!
Reciprocity

You are more willing to give back when someone does a favor for you. Even if you didn’t ask for the favor!

Experiment [Regan 1971]: in the context of another task, your partner goes out for a bathroom break. They either come back as normal, or bring a soda back for you.

Participants in the unasked-for soda condition later bought more raffle tickets for their partners.
When done well, positive social reciprocity loops can be natural and unforced.
Contribution pyramid
A common mistake

Hey everyone,
Check out this site I made called treeliberate! It’s for reviewing labor practices of administrative offices on campus.
- A person you know

= “We’re going to have 100 people contributing reviews of offices!”
= “We need 100 users!”
MSB’s hierarchy of contributions

Imagine a 10x dropoff between levels

What are you really saying if you need 100 contributors?
Motivation vs. Manipulation

How do we do this responsibly? We don’t want to be just engagement hacking. [2min]

Michael’s answer: autonomy

Ask yourself: do they have autonomy in this design? Do they know what’s happening, and have the ability to control it?

Think about the difference between agreeing to enroll in a tough self-improvement regimen, vs. being nudged and manipulated to do so without your awareness or consent.
Summary

How do I design environments that are bustling, not ghost towns?

- Support the intrinsic or extrinsic motivations we bring to the system
- Identify channel factors that impact behavior and manage them carefully
- Combat social loafing and encourage positive reciprocal relationships
- Support autonomy and user/community control in whatever you design

OK but seriously Michael, why is my system full of lurkers?

- Actually, that’s natural. Contributions are generally unequal. Recognize it and design around that assumption.
Social Computing

CS 278 | Stanford University | Michael Bernstein

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