Bustling Streets and Ghost Towns

CS 278 | Stanford University | Michael Bernstein
Discussion section signups

Sign up by Tuesday at 11:59 PT via the link at cs278.stanford.edu.

Sign up together with a project group if you have one, or solo if you're looking for partners.

There will be multiple sections during the same time slot.

If you miss this deadline, you’ll be on the waitlist if the section you want is full.

We’ll also have a waitlist for section swaps.

Your project will be with folks in your section.
Coming up

Assignment 1 (Going Viral) is due next Tuesday 11:59pm

First reading for section will be due next Wednesday 11:59pm

The file will be posted on Canvas
Extra credit for examples

At the staff’s discretion, we’ll give out 0.5% extra credit to students who suggest real-world examples of class concepts.

Criterion: The staff deem it high-enough quality that we will try and integrate it into a future year’s version of the lecture.

Up to 0.5% per example; max 2.5% per student per quarter.

To submit, post on the Ed forum under the “Lectures” category.
Something From Nothing

Unit 1
Last time: going viral

Virality and the sources of cultural innovation
Determinism vs. social influences in viral phenomena
Social proof
Today, we will build up to this.
Eyes on the Street

[Jane Jacobs 1961]

At a time when cities were considered nests of filth and trouble, Jane Jacobs unleashed a fierce defense of urban neighborhoods. She saw incredible value in her home, Greenwich Village in NYC.

Jacobs’s argument: bustling urban 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.”
It can look different online.

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.

Google shuts failed social network Google+

By Chris Fox
Technology reporter
## Almost Wikipedia

[Hill 2013]

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpedia</td>
<td>dead</td>
</tr>
<tr>
<td>Distributed Encyclopedia Project</td>
<td>gone</td>
</tr>
<tr>
<td>h2g2</td>
<td>quiet</td>
</tr>
<tr>
<td>The Info Network (ThelInfo)</td>
<td>bye (but hi reddit)</td>
</tr>
<tr>
<td>Nupedia</td>
<td>pre-kipedia</td>
</tr>
<tr>
<td>Everything2</td>
<td>slow times</td>
</tr>
<tr>
<td>GNE</td>
<td>shut down</td>
</tr>
</tbody>
</table>

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]
But even amongst success...

More than 98% of Reddit users are lurkers who don’t post or comment

<table>
<thead>
<tr>
<th>Rank</th>
<th>SubReddit</th>
<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>/r/gaming</td>
<td>Cycie</td>
</tr>
<tr>
<td>5</td>
<td>/r/pics</td>
<td>Cycie</td>
</tr>
<tr>
<td>10</td>
<td>/r/movies</td>
<td>Cycie</td>
</tr>
<tr>
<td>14</td>
<td>/r/AMA</td>
<td>Cycie</td>
</tr>
<tr>
<td>17</td>
<td>/r/EarlyPorn</td>
<td>Cycie</td>
</tr>
<tr>
<td>24</td>
<td>/r/lifeProTips</td>
<td>Meran01, Awkwardtheturtle, Cycie</td>
</tr>
<tr>
<td>25</td>
<td>/r/Act</td>
<td>Awkwardtheturtle</td>
</tr>
<tr>
<td>38</td>
<td>/r/ffity</td>
<td>Gallowboob, Meran01</td>
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<td>49</td>
<td>/r/TwoXChromosomes</td>
<td>Awkwardtheturtle</td>
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<tr>
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</tr>
<tr>
<td>54</td>
<td>/r/wholesomememes</td>
<td>Awkwardtheturtle, Cycie</td>
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<td>60</td>
<td>/r/oddsyalseying</td>
<td>Gallowboob, Cycie</td>
</tr>
<tr>
<td>64</td>
<td>/r/deepphilosophy</td>
<td>Gallowboob, Meran01, Cycie</td>
</tr>
</tbody>
</table>

Created by TrueBirch. Reddit claims it has 330 million active monthly users. Monthly datasets from pushshift.io contain posts and comments from 64 million different users, suggesting that 98% of Reddit users are lurkers.

Four people moderate 25% of the most popular subreddits on Reddit

[@emollock] [http://redd.it/b5f9wi; Nonnecke and Preece 2000]

Twitter is rolling out View Count, so you can see how many times a tweet has been seen! This is normal for video.

Shows how much more alive Twitter is than it may seem, as over 90% of Twitter users read, but don’t tweet, reply or like, as those are public actions.

[http://redd.it/b5f9wi; Nonnecke and Preece 2000]
Active users are not typical

The Behaviors and Attitudes of U.S. Adults on Twitter

A minority of Twitter users produce a majority of tweets from U.S. adults, and the most active tweeters are less likely to view the tone or civility of discussions as a major problem on the site.

BY COLLEEN MCCLAIN, REGINA WIDJAYA, GONZALO RIVERO AND AARON SMITH

% of U.S. adult Twitter users who say they ____ on the platform, by tweet volume

<table>
<thead>
<tr>
<th>Think ____ is a major problem</th>
<th>Tone or civility of discussions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-volume</td>
<td>27</td>
</tr>
<tr>
<td>High-volume</td>
<td>42</td>
</tr>
</tbody>
</table>

DIFF: -15
Active users skew AI

Feed algorithms often rely on observable behavioral signals. So who is providing those signals?

Facebook Has a Superuser-Supremacy Problem

Most public activity on the platform comes from a tiny, hyperactive group of abusive users. Facebook relies on them to decide what everyone sees.

By Matthew Hindman, Nathaniel Lubin, and Trevor Davis
Need I go on?

62% of members of an online health support forum never log in again after their first day or participation [Yao et al. 2021]

19% of online groups have no activity after the day of their creation [Kraut and Fiore 2014]

40% of WeChat groups cease interaction within a week [Qui et al. 2016]

Two thirds of new Facebook members never post in their first two weeks on the platform [Burke, Marlow, and Lento 2009]

68% of newcomers to Usenet are never seen again after their first post [Kraut, Burke, and Riedl 2012]

46% of MMORPG guild members leave within a month [Kraut, Burke, and Riedl 2012]

40% of posts on 4chan get no replies [Bernstein et al. 2010]
So it’s not surprising when:

**Bichael Mernstein**  5:29pm

@channel Check out this site I made called LetsHang! It’s a site where you post interest in going out and doing something, and people can sign up. [http://lets-hang.ai](http://lets-hang.ai)

[deafening silence and no activity]
Today’s question

How do we 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
social factors
  social loafing
  reciprocity
contribution pyramid

(For more, take social psych)
Individual factors
Motivation: why are you here?

Why do people contribute to...
   Ed forums?
   Instagram?
   Dorm Slacks?
   Fizz?

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
Sharing memes with your friends
Streaming a session for a successful Twitch streamer
This is why gamification can feel fake.

Application of weak extrinsic motivators while you have no intrinsic motivation
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: the extrinsic motivators aren’t actually the active ingredient; it’s the bite-sized lessons feeding an intrinsic motivation of mastery.
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
Don’t design around an assumption that new users will come and put significant time into creating content from the start.
Commitment Loops

Adapted from Will Wright, creator of The Sims [Wright 2003]

First loop: you have 60 seconds to communicate what this is, what they should do, and make them feel like they achieved something or benefited — intrinsic motivation
Commitment Loops
Adapted from Will Wright, creator of The Sims [Wright 2003]

First loop: you have 60 seconds
Second loop: you have 5 minutes to experience or achieve something even more compelling — again intrinsic motivation
Commitment Loops

Adapted from Will Wright, creator of The Sims [Wright 2003]

First loop: you have 60 seconds
Second loop: you have 5 minutes
Third loop: you have 20 minutes
Fourth loop: you have one hour
&etc.

Only after people are committed should extrinsic motivator loops kick in.
But: motivation crowding

Mixing motivators is dangerous: taking an intrinsically motivated goal and adding extrinsic motivators to it may actually reduce the intrinsic 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]
Risks of motivation crowding

Begin with intrinsic motivation:
Love of the game

Gain extrinsic motivation:
Followers or subscribers

Motivation crowding:
Lessen intrinsic motivation
Social factors
Social proof

Remember this?

- 42% looked
- ~60%
- ~80%
- 86%

Using log data from 140k Facebook newcomers who lurk, what best predicts long-term sharing?

Seeing friends actively contribute. [Burke, Marlow, and Lento 2009]

Survey: what percent of your Instagram friends do you think check Instagram daily?

<table>
<thead>
<tr>
<th></th>
<th>Several times a day</th>
<th>About once a day</th>
<th>Less frequently</th>
<th>NET Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>49</td>
<td>22</td>
<td>29</td>
<td>70</td>
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<td>Snapchat</td>
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<tr>
<td>Instagram</td>
<td>38</td>
<td>21</td>
<td>41</td>
<td>59</td>
</tr>
</tbody>
</table>

Why do we underestimate? The design signals make it feel empty.
Social proof in practice

Retaining a form of social proof while reducing anxiety by removing like counts
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]

Social computing

Social computing is an area of computer science that is concerned with computational systems. It is based on creating or recreating social conversations of software and technology. Thus, blogs, email, instant messaging, social bookmarking and other instances of what is often called social software i

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

@channel Check out this site I made called LetsHang! It’s a site where you post interest in going out and doing something, and people can sign up. http://lets-hang.ai

= “We’re going to have 100 people contributing hangouts!”
= “We need 100 users!”
A common mistake

Elon Musk (@elonmusk)

I meet so many people who read twitter every day, but almost never tweet.

If I may beg your indulgence, please add your voice to the public dialogue!
MSB’s hierarchy of contributions

Imagine a 5-10x 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.
Attendance
References


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