Bustling Streets and Ghost Towns

CS 278 | Stanford University | Michael Bernstein
Sorry, but I need some space.

We may be moving into a larger room starting with next Tuesday’s lecture. Stay tuned.
Discussion section signups

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

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 Monday 11:59pm
Attendance sheet

It’s circulating — grab a TA if it doesn’t make its way to you
Extra credit for examples

At my discretion, I’ll give out 1% extra credit to students who suggest real-world examples of class concepts

Criterion: I deem it high-enough quality that I want to try and integrate it into a future year’s version of the lecture

1% per example; max 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 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.”
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:

- Interpedia
dead
- Distributed Encyclopedia Project
gone
- h2g2
quiet
- The Info Network (TheInfo)
bye (but hi reddit)
- Nupedia
pre-kipedia
- Everything2
slow times
- GNE
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]
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/memes</td>
<td>Cycie</td>
</tr>
<tr>
<td>14</td>
<td>/r/AnnA</td>
<td>Cycie</td>
</tr>
<tr>
<td>17</td>
<td>/r/EarthPorn</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/Art</td>
<td>Awkwardtheturtle</td>
</tr>
<tr>
<td>38</td>
<td>/r/tryit</td>
<td>Gallowboob, Meran01</td>
</tr>
<tr>
<td>49</td>
<td>/r/TwoXChromosomes</td>
<td>Awkwardtheturtle</td>
</tr>
<tr>
<td>50</td>
<td>/r/memes</td>
<td>Awkwardtheturtle</td>
</tr>
<tr>
<td>54</td>
<td>/r/wholesomememes</td>
<td>Awkwardtheturtle, Cycie</td>
</tr>
<tr>
<td>60</td>
<td>/r/oddly satisfying</td>
<td>Gallowboob, Cycie</td>
</tr>
<tr>
<td>64</td>
<td>/r/facepalm</td>
<td>Gallowboob, Meran01, Cycie</td>
</tr>
<tr>
<td>66</td>
<td>/r/dankmemes</td>
<td>Siouxsie_sious27, Cycie</td>
</tr>
<tr>
<td>71</td>
<td>/r/Whatcouldgowrong</td>
<td>Gallowboob, Cycie</td>
</tr>
</tbody>
</table>

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

[@emollock]

In the early years of Reddit, 91% of subreddits never reached 25 active users [Jordan Troutman]

[http://redd.it/b5f9wi; Nonnecke and Preece 2000]
But even amongst success…

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

Think ____ is a major problem

<table>
<thead>
<tr>
<th>Tone or civility of discussions</th>
<th>Low-volume</th>
<th>High-volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>42</td>
<td>-15</td>
</tr>
</tbody>
</table>

produce the vast majority of content. An analysis of tweets by this representative sample of U.S. adult Twitter users from June 12 to Sept. 12, 2021, finds that the most active 25% of U.S. adults on Twitter by tweet volume produced 97% of all tweets from these users.
But even amongst success...

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

Feed algorithms often rely on observable behavioral signals. So who is providing those signals?
Hey everyone,
Check out this site I made called Ways of WAYSing! It’s for reviewing and recommending WAYS-fulfilling courses 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

Technical infrastructure defines the system

Social interactions define 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

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

Why do people contribute to...
   Ed forums?
   Instagram?
   Dorm email lists?
   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
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.

937 more to become Pro!

Help this person solve their problem!

You’ve unlocked a new Solve skill!

Unwise application of extrinsic motivators.

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

+10 Helper Points
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
Commitment Loops

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

Don’t design around an assumption that new users will come and put significant time into creating content
Commitment Loops

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

First loop: 60 seconds to communicate what this is, what they should do, and make them feel like they achieved something or benefited
Commitment Loops

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

- First loop: 60 seconds
- Second loop: 5 minutes to achieve something more compelling
- Third loop: 30 minutes
- Fourth loop: 60 minutes & etc.
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. [Leventhal 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 proof

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 Facebook friends do you think actively check Facebook?

<table>
<thead>
<tr>
<th>Icon</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>42%</td>
<td>looked</td>
</tr>
<tr>
<td>~60%</td>
<td></td>
</tr>
<tr>
<td>~80%</td>
<td></td>
</tr>
<tr>
<td>86%</td>
<td></td>
</tr>
</tbody>
</table>

Why do we underestimate?
The design signals make it feel empty.

---

2. Among U.S. adults who use Facebook, seven-in-ten say they visit the site daily, including around half (49%) who do so several times a day. By comparison, 59% of both Snapchat and Instagram users say they visit these platforms at least daily, as do 54% of YouTube users and 46% of Twitter users.
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

From: thatonefriend@stanford.edu
To: dormlist@lists.stanford.edu

Hey everyone,
Check out this site I made called Ways of WAYSing! It’s for reviewing and recommending WAYS-fulfilling courses 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 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.
References


References


Creative Commons images thanks to Kamau Akabueze, Eric Parker, Chris Goldberg, Dick Vos, Wikimedia, MaxPixel.net, Mescon, and Andrew Taylor.

Slide content shareable under a Creative Commons Attribution-NonCommercial 4.0 International License.