



# Creating Bustling Spaces, Not Ghost Towns

CS 278 | Stanford University | Michael Bernstein

# Every social system is designed

...and so is this one.

At points in this class, I will be asking you all to make collective decisions about how you will be interacting with each other, with the course, and with me.

We have two decisions to make today.

# Every social system is designed

First decision: what's our decision rule?

Majority vote? Supermajority? Elect a cabinet? Random selection?  
Unilateral decisions by staff?

Second decision: what do we expect of ourselves in terms of what we allow during lecture?

Cell phones during lecture? Laptops during lecture?

With those  
preliminaries set,  
let's begin.

# Last time: going viral

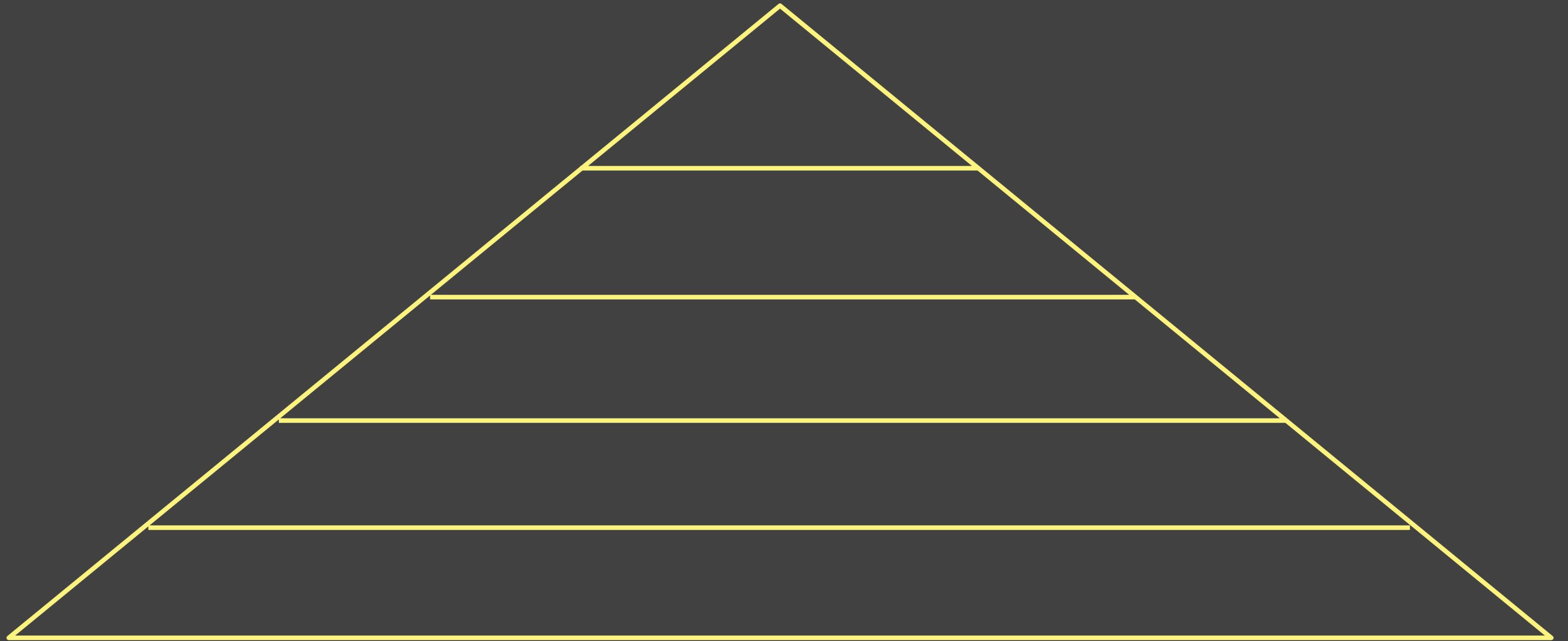
Virality and where cultural innovation comes from

Determinism vs. social influences in viral phenomena

Social proof

Truth spreads more weakly than fiction :(

**Today we will build up to this.**



# 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 neighborhoods. She saw incredible value in her home, Greenwich Village.

Jacobs's argument: bustling city neighborhoods keep themselves interesting and safe

## THE DEATH AND LIFE OF GREAT AMERICAN CITIES

JANE JACOBS

“Perhaps the most influential single work in the history of town planning... a work of literature.”

—*The New York Times Book Review*

# 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. [...] They cannot turn their backs or blank sides on it and leave it blind.”

“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.”

## THE DEATH AND LIFE OF GREAT AMERICAN CITIES

JANE JACOBS

“Perhaps the most influential single work in the history of town planning... a work of literature.”

—*The New York Times Book Review*

# 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]



the loneliest number



the loneliest number =

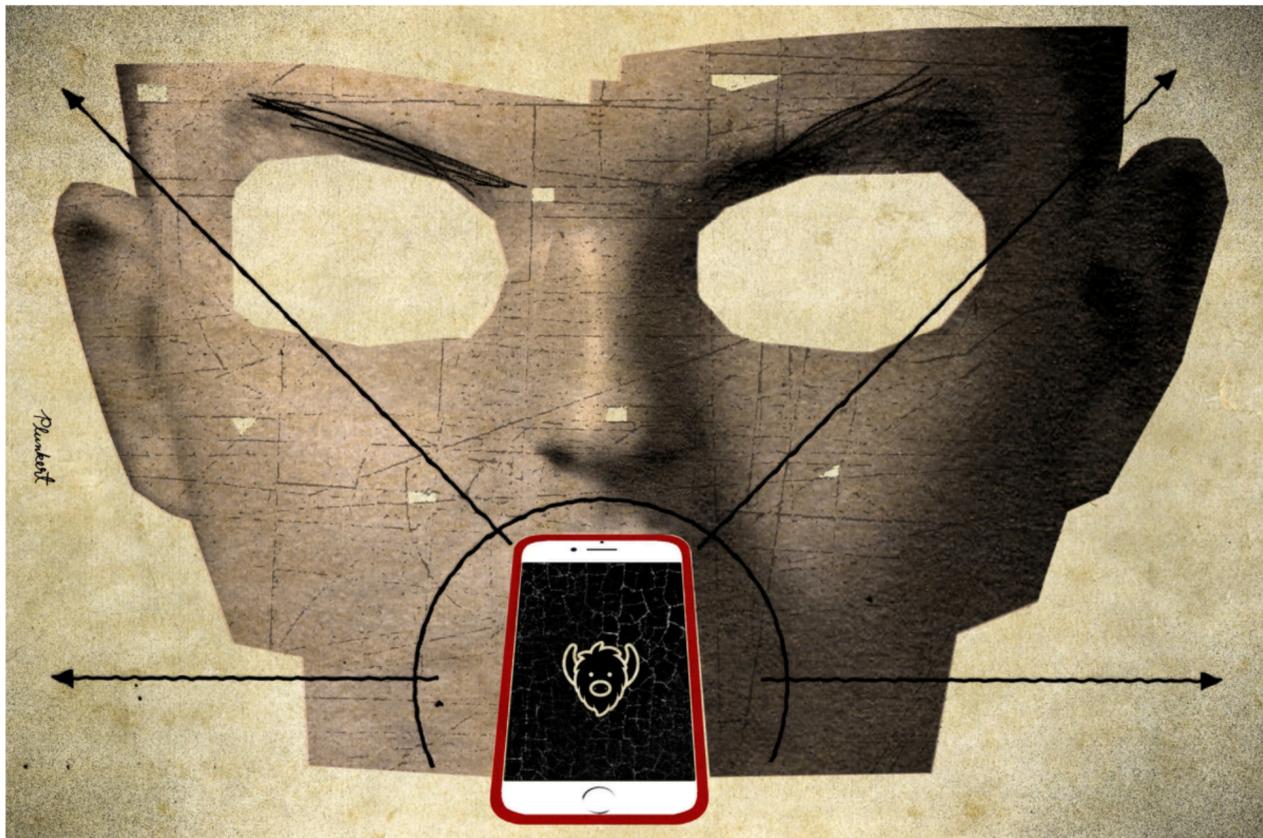
1

# Ghost towns

☰ The New York Times ⓘ

PLAY THE CROSSWORD

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



David Plunkert

☰ engadget 🔍

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

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

**BBC** 🔔 Home News Sport Weather Shop More 🔍

# NEWS

 ☰

## Technology

### 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

The Distributed Encyclopedia Project

h2g2

The Info Network (TheInfo)

Nupedia

Everything2

GNE

dead

gone

quiet

bye (but hi reddit)

prekipedia

slow times

shut down

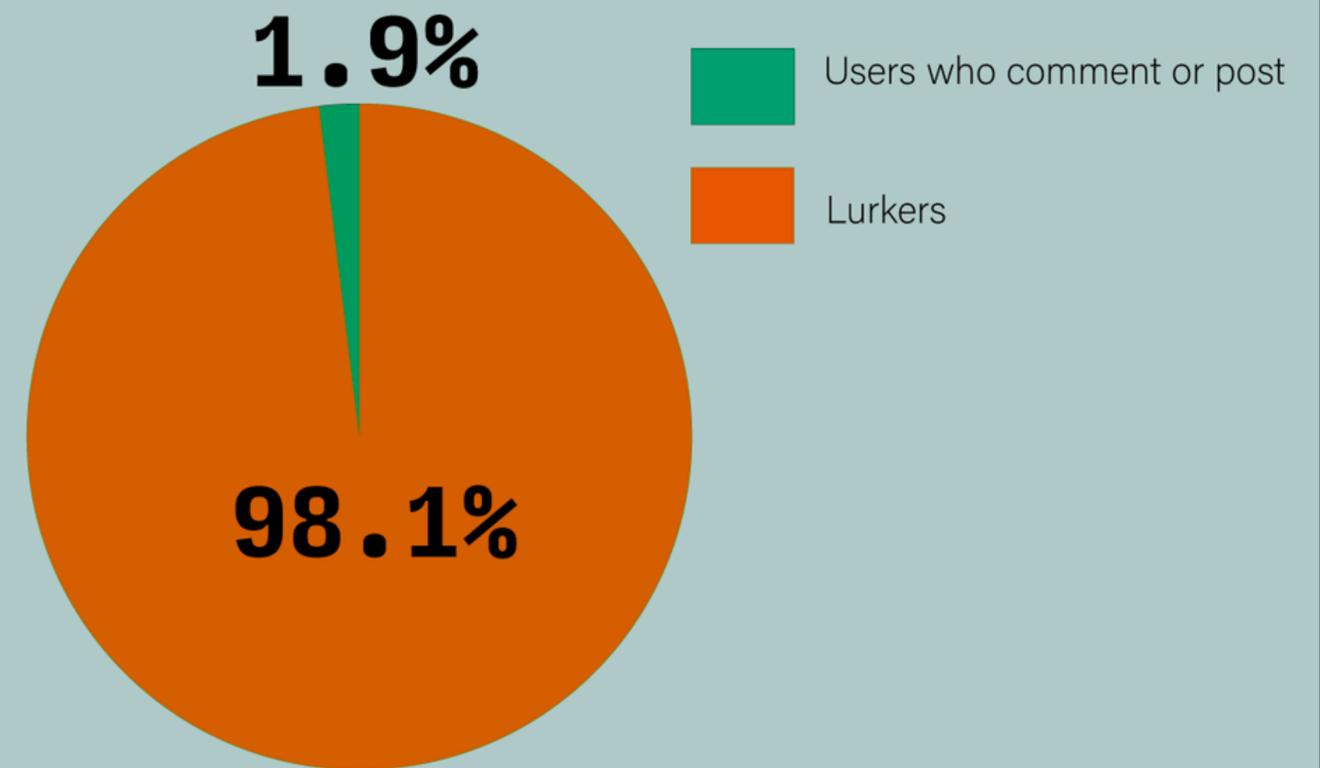
Why did these become ghost towns, and Wikipedia grew immense? 11

# But even amongst success...

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

[[https://strategy.wikimedia.org/wiki/Wikimedia\\_users](https://strategy.wikimedia.org/wiki/Wikimedia_users)]

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



Created by TrueBirch. Reddit claims it has 330 million active monthly users. Monthly datasets from pushshift.io contain posts and comments from 6.4 million different users, suggesting that 98.1% of Reddit users are lurkers.

[<http://redd.it/b5f9wi>]

# So it's not surprising when:



From: [thatonefriend@stanford.edu](mailto:thatonefriend@stanford.edu)

To: [dormlist@lists.stanford.edu](mailto:dormlist@lists.stanford.edu)

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!

# 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!



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

+10 Helper Points

Unwise application of extrinsic motivators.

# Some do this better



You've conquered the French skill tree!

First of all, you're awesome! You've completed the French skill tree! Second of all, we'd like to take this time to thank you sincerely for your lengthy participation on Duolingo. So in honor of you, here is a very special trophy in which to show our gratitude.

But don't stop now, maintain your knowledge and keep your **word strength full** by continuing to practice.



If you'd like a bit more of a challenge, try translating our [real world articles](#) to put all your hard work to good use!

Sincerely,  
*Duolingo Team*

[Tweet](#) [Share](#)

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

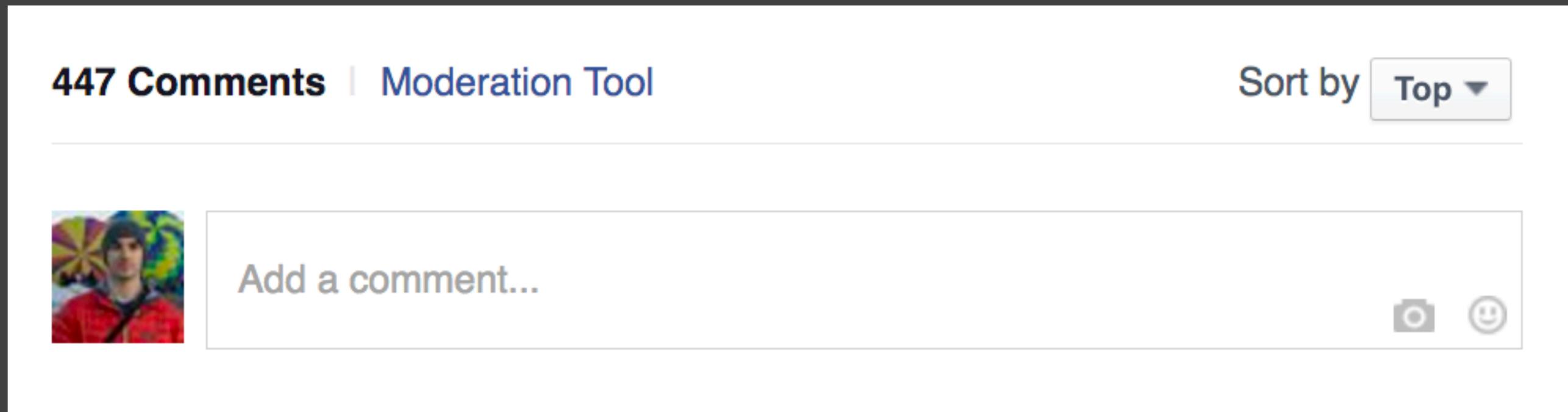
We are, in general, extremely reactive to small changes in the amount of effort required to contribute.

**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]



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The Free Encyclopedia

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## Social computing

From Wikipedia, the free encyclopedia

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

- [1 History](#)
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- [4 Social Software](#)
  - [4.1 Social media](#)
  - [4.2 Social networks](#)
  - [4.3 Wiki pages](#)
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  - [4.5 Online games](#)
  - [4.6 Online dating](#)
- [5 Socially Intelligent Computing](#)
  - [5.1 Crowdsourcing](#)
  - [5.2 Dark social media](#)
- [6 Social Science Theories](#)
  - [6.1 Collective intelligence](#)

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.

## Notifications



Paul W. Swansen commented on your status.



10 minutes ago



Paul W. Swansen tagged a photo of you.



11 minutes ago



Marty Kind commented on his link.



16 hours ago

When done well, positive social reciprocity loops can be natural and unforced.

62 friends posted on Brian's timeline for his birthday.



**Brian**

Birthday: Yesterday

You wrote on Brian's timeline.



**Sanjay** ▶ **Brian**

9 hrs ·

Happy bday Brian!!

[Like](#) · [Comment](#)



Brian

likes this.



Write a comment...



# Contribution pyramid

# A common mistake



From: [thatonefriend@stanford.edu](mailto:thatonefriend@stanford.edu)

To: [dormlist@lists.stanford.edu](mailto:dormlist@lists.stanford.edu)

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

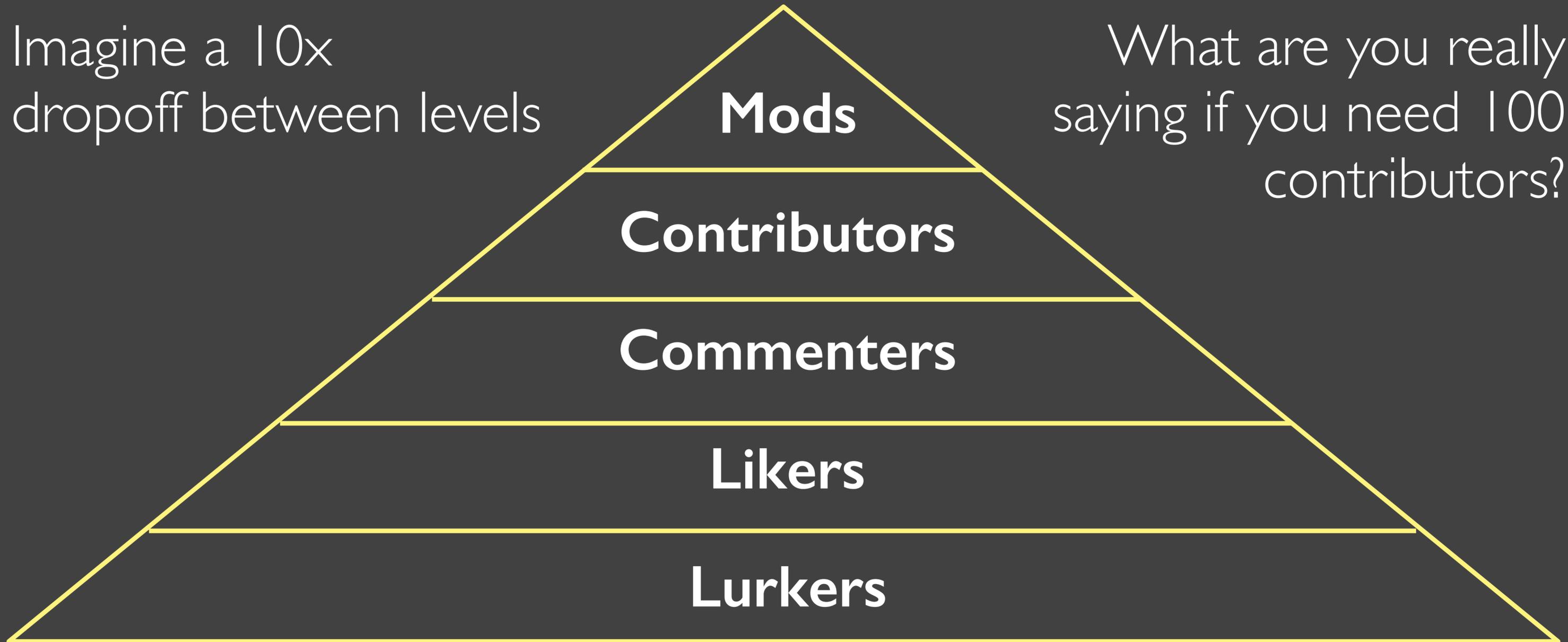
= "We're going to have 100 people contributing reviews of offices!"

= "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. [Chat with neighbor]

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

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