How can we design the social systems that we inhabit?
What is social computing?

Social computing systems are computational systems that mediate social interactions.

*bitmoji, clubhouse, discord, ebay, email, facebook, github, imdb, instagram, line, lyft, mechanical turk, messenger, ohyay, pinterest, reddit, slack, snapchat, spotify, skype, stackoverflow, tiktok, tumblr, twitch, twitter, venmo, viber, weibo, whatsapp, wikipedia, youtube, zoom*

Sometimes they help us get things done;
Sometimes they make our lives more fun;
Sometimes they are critical to governance and decision making.
What is social computing design?

Increasingly, we are fashioning social environments online.

Social computing design asks how to fashion those environments to support the participants in achieving their goals.

How do we cross the chasm between the social interactions that the group wants to support, and the computer interactions that we have at our disposal or could invent? [Ackerman 2000]
Every social system is designed

How should students interact with each other in this class? How should students interact with me?

If you don’t design, you default. And often the default is far worse.

What happens if you don’t set norms with your project, research, or business partner? With your dormmates?

What kinds of biases or silencing of minority views arises if we don’t critically design the system to prevent them?
I designed a theme park for people to come together!

Gentle parkgoers, this is a space for family fun. Please cut out the behavior, or be removed.

Also, let’s redesign this area to make it a photo op rather than a space where fights are likely to break out.

Yikes! Fix your theme park, quickly!
No: we are not a theme park company, we are a technology company. We build products for people to come together.

Theme parks are responsible for both the design and the behaviors inside their walls. Do better.

I designed a theme park for people to come together!

Yikes! Fix your theme park, quickly!
Let’s discuss how to end systemic racism. I will moderate.
Let’s discuss how to end systemic racism. EVERYBODY HAS MICS. GO.

WELL ACTUALLY–
There are right and wrong ways to design social spaces

We cannot force good behavior or exclude the possibility of bad behavior:

But our design—the way our system empowers people to establish norms and enforce them—holds substantial responsibility for the social outcome.
Why is social computing design hard?
Why is social computing design hard?
Why is social computing design hard?

ghost towns.
Why is social computing design hard?

Never just paste social bits into another application. It’s not about whether you have points, or friend/follow models, or real names or pseudonyms. At least not directly.

It’s like saying your bridge will work if you have strong ropes. The local materials matter, but if the global design stinks, even the best materials won’t save you.
Why is social computing design hard?

How do you design a social computing system that helps promote the behaviors that the group wants to see in the system?

What about a design makes people…

Feel safe?
Post funny memes?
Engage in thoughtful discussion?
Why is social computing design hard?

How do I encourage specific norms on the system?

How do I prototype my idea?

What changes as my social computing system grows?

How do we govern these systems?

How do I manage antisocial behavior, trolls, and ghosting?

How do I get the world to collaborate with me on something?

Do AIs impact social environments?

How do I manage ethical design tradeoffs between groups of people?

Can I design for groups unlike me?

How do I support groups in acting intelligently and not like mobs?
Why is social computing design a serious responsibility?

These systems have the opportunity to help us create a more thoughtful, deliberative, fun, emotionally connected, empathic, just society. However, they can also have the opposite effect.

What power do you have as a creator, and what responsibility do you have when creating? How do we draw on positive opportunities without unleashing Pandora’s Box?
This class will teach...

1. How we design effective social computing systems
2. The fundamental behavioral principles by which these systems operate
3. The challenges we face in designing these systems ethically, and some strategies for addressing those challenges
This class will not teach...

Engineering principles for web applications
  Take CS 142: Web Applications

Algorithms and mathematical models for the social web
  Take CS 224W: Analysis of Networks

The process of human-centered design
  Take CS 147: Introduction to Human-Computer Interaction
OhYay etiquette

Use emoji to share your reactions if you’d like to ask a question or respond to a question on video. The TA staff will promote you into the lecture room when ready.

CS 278 special: you pick a row to sit in. You can chat text or with audio with your row, and it will stay private to the row.

Use the class-wide chat to submit written questions and comments, which the TAs will promote on-screen.
Expectations

The Social Computing Fundamental Standard

In our social computing designs for assignments, use reasonable judgment to (1) create joy and meaning in peoples' lives, and (2) mitigate risks and harms.

Code of Conduct

Create an engaged and positive course environment. See the Community Covenant for specific guidelines.

Assume good intentions of your classmates and staff.

We remove folks from the class social environments if they violate.
Prerequisites

This is not like other Computer Science classes. So, the prerequisites are different as well.

I expect at least basic programming familiarity (CS 106A), as it informs an understanding of what these systems can and cannot do.

Assignments and the final project will benefit from groups that have a mix of CS backgrounds and social/behavioral backgrounds.
A Class in Two Acts

Act I: We’ve got this!
- Going viral
- Bustling spaces and ghost towns
- Designing norms
- Prototyping social systems
- Growing pains
- Designing for strong and weak ties
- Group collaboration
- Wisdom of the crowd
- Crowdsourcing and peer production

Act II: Not so much.
- Antisocial computing: mobs and trolls
- Disinformation
- Moderation
- Decision-making and governance
- AIs in social environments
- Future of work
- Unintended consequences
Three or four units?

If you want a deeper treatment of the topics in this course, enroll in the four-unit version.

Three units:
- Lecture
- Assignments
- Project
- Exam

Four units:
- Three unit requirements, plus...
  - Readings
  - Discussion section

Sociology students:
- BA students: enroll in 174 for three units or 274 for four units
- MA students: enroll in 274, must be four units
Class structure

Mondays+Wednesdays: Lecture on OhYay

Four assignments

Exam in Week 8

Final group project

4-unit enrollees: Discussion section
Grading

Assignments: 33%
  Assignment 1: 6%
  Assignment 2: 9%
  Assignment 3: 9%
  Assignment 4: 9%

Exam: 33%

Project: 34%
  Proposal+bricolage: 5%
  Wireflow milestone: 3%
  Launch milestone: 3%
  Viral milestone: 3%
  Final paper: 20%

Four-unit enrollees: same proportions, but additional requirements

Assignments: 28%
Exam: 28%
Project: 28%
+ 8% take-home essay questions on the exam
+ 8% reading and discussion
Final project

Groups of four: we will help facilitate group formation

Your goal: design, build, launch, and manage a social computing system

Your final submission will be expected to report on your design and how people used the system, with ties to the theories and results taught in the course

Spread out across multiple milestones. The first milestone, group project proposal and prototype, is due Monday of week 3.
This will not be a standard genre class for Stanford or Computer Science.

I appreciate your enthusiasm for trying new things, your patience for bearing with things that don’t quite work, and your sharing with me your opinions on what we should keep and change.
This class will not be offered next year.

(Michael will be on sabbatical.)
http://cs278.stanford.edu
Questions so far?

Click Q&A LINE for live video or type into Class Chat.
Going Viral

Starting the class in microcosm
Viral content

What makes something go viral? [3min]  Click DISCUSSION
Surface features of a meme

Sharable URL
Simple message
Low friction to share
#catchyhashtag

…but these characteristics are themselves insufficient, and relying on them means you’re not really trying.

[30 Rock]
Backing up: where does cultural innovation come from?

Often, we discuss cultural innovation from the perspective of the structure of the communities that produce it, referred to as core and periphery [Bynum et al. 1999]

Core: mainstream
Periphery: marginal communities

Cultural innovation is often greatest amongst those occupying an intermediate, bridging position between core and periphery [Cattani and Ferriani 2008; Dahlander and Frederiksen 2012].
Probability of doubling in size

Friends weren’t interested

Broad appeal

Only your friends were interested

Initial structure

[Cheng et al. 2014]
So it’s deterministic?

[Salganik, Dodds, and Watts 2006]

Experiment: gather 48 songs of unknown songs from indie bands. Create a Spotify clone for online music listening.

Recruit ~14,000 participants from an online teen forum.

Randomize participants into an independent condition or a social influence condition.

Social influence: can see the number of previous downloads for the song.

Independent: no information about the number of previous downloads.
So it’s deterministic?

[Salganik, Dodds, and Watts 2006]

Further randomize each participant into one of eight possible parallel “worlds” where the download counts all start at 0.
So it’s deterministic?

[Salganik, Dodds, and Watts 2006]

Result One: social influence increased both inequality and unpredictability of success.

Result Two: The best songs rarely did poorly, and the worst rarely did well, but any other result was possible.

Further evidence from a social content aggregator: randomly bumping up initial scores inflated final scores; randomly penalizing initial scores had few long-term effects [Muchnik, Aral, and Taylor 2013]
Social proof: when people copy each others’ behavior

In social situations when people are unable to determine the appropriate behavior, they look to what others are doing.

The assumption is that others know what they are doing, so their behavior becomes a kind of proof.

[Cialdini 1984]

Looking up at a building

[Milgram, Bickman, and Berkowitz 1968]
Why? Social proof.

[Cialdini 1984]

Social proof: when people copy each others’ behavior

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Looking up at a building

[Milgram, Bickman, and Berkowitz 1968]
Discuss: How would you make a correction, truth, or debate go viral? [3min]

See also: Reddit and the Boston Bomber incident
Viral truth: IT’S HARD

[Vosoughi, Roy, and Aral 2018]

Investigation of rumors spread on Twitter over eleven years...

The top 1% of false news cascades diffused to between 1000 and 100,000 people, whereas the truth rarely diffused to more than 1000 people.

Falsehood diffused faster than the truth.
Viral truth: IT’S HARD
[Vosoughi, Roy, and Aral 2018]

False news was more novel: maybe people spread it because it’s novel?

Bots accelerated true and false news at the same rate, so false news is spreading more virally than truth because humans, not bots, are spreading it.
So now what? What makes a meme?

Michael’s synthesis:

1) Capture an unspoken, unacknowledged, or unarticulated zeitgeist.

2) Focus on one simple message, conveyed in a creative way.

3) Know that you may need to take multiple cuts at it before the randomness falls in your favor.

4) Acknowledge that false, negative and aggressive content spreads faster, but don’t give in. Focus on doing good in the world.
Assignment 1: Going Viral

Recognize how hard it is to do this well, and build intuitions for the challenges and opportunities in social computing design.

Goal: create a piece of content that goes viral.

You must create it. You may remix others’ content. Make multiple attempts and iterate! No negativity; create joy, not pain.

Due next Monday at 11:59pm: submit meme to our class server, and submit reflections to Gradescope.

Class voting to come.

Details at cs278.stanford.edu
Social Computing

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