

Social media is doomed to die

After seven years at Snapchat, I finally learned the truth about why our most important apps seem destined to disappoint us.

By ELLIS HAMBURGER

Illustrations by Hugo Herrera for The Verge

Apr 18, 2023, 2:00 PM GMT+1

94 Comments / 94 New

Menu +



Example by Lyndsea W:

What happens when growth becomes your only goal?
What tradeoffs do you make in order to sustain growth?
And do those tradeoffs ultimately hollow out the community?

Attendance

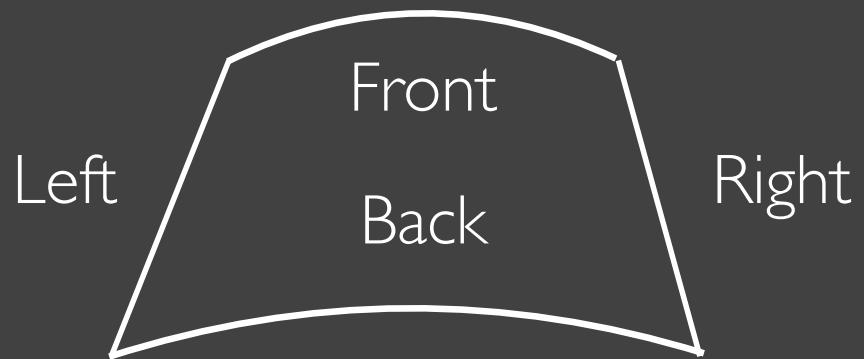
Before you scan the QR code: look for button to “Authenticate a different way” to Duo Push

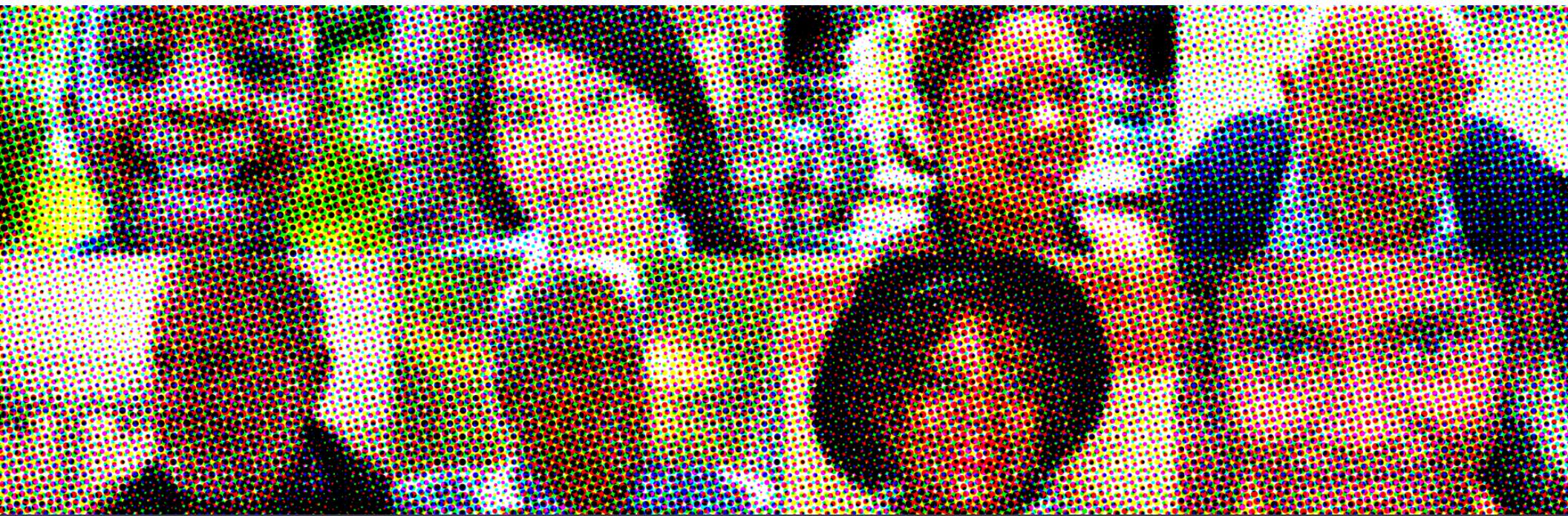
To find your match: stay seated — you may be in queue for a bit.

The screen will tell you where to look

To log your attendance: silently point to the same corner of the classroom and then click the same button as your partner

If you have an issue: come to TA corner for quick questions; paper form will be at front of class at the end of lecture





Strong and Weak

CS 278 | Stanford University | Michael Bernstein



Last time: feed algorithms

One common strategy for managing growth is to decide on a subset of content to show users, through an algorithmic feed

- Global rankings aggregate up/downvotes, then trail off over time

- Personalized rankings predict on-platform behaviors, then assign weights to each predicted behavior to determine a score

Concerns abound about feeds creating filter bubbles and echo chambers. While there are clearly negative outcomes, the science is now catching up to what turns out to be a complicated story

Oh #@&%, It Got
Popular



Unit 2

Different Strokes for Different Folks

Unit 3

Announcements

Assignment 2 due Monday

Assignment 3 is moving back one week while you work on the project milestone, and will happen in multiple stages starting in 2wk

Project milestone will be due the Monday of Week 7

Zone 1: either the front-end or the back-end is functional

Zone 2: no-code components of the project should be complete; code components may still be in progress

Zone 3: launch! no-code components are complete, so take the system live and start recruiting

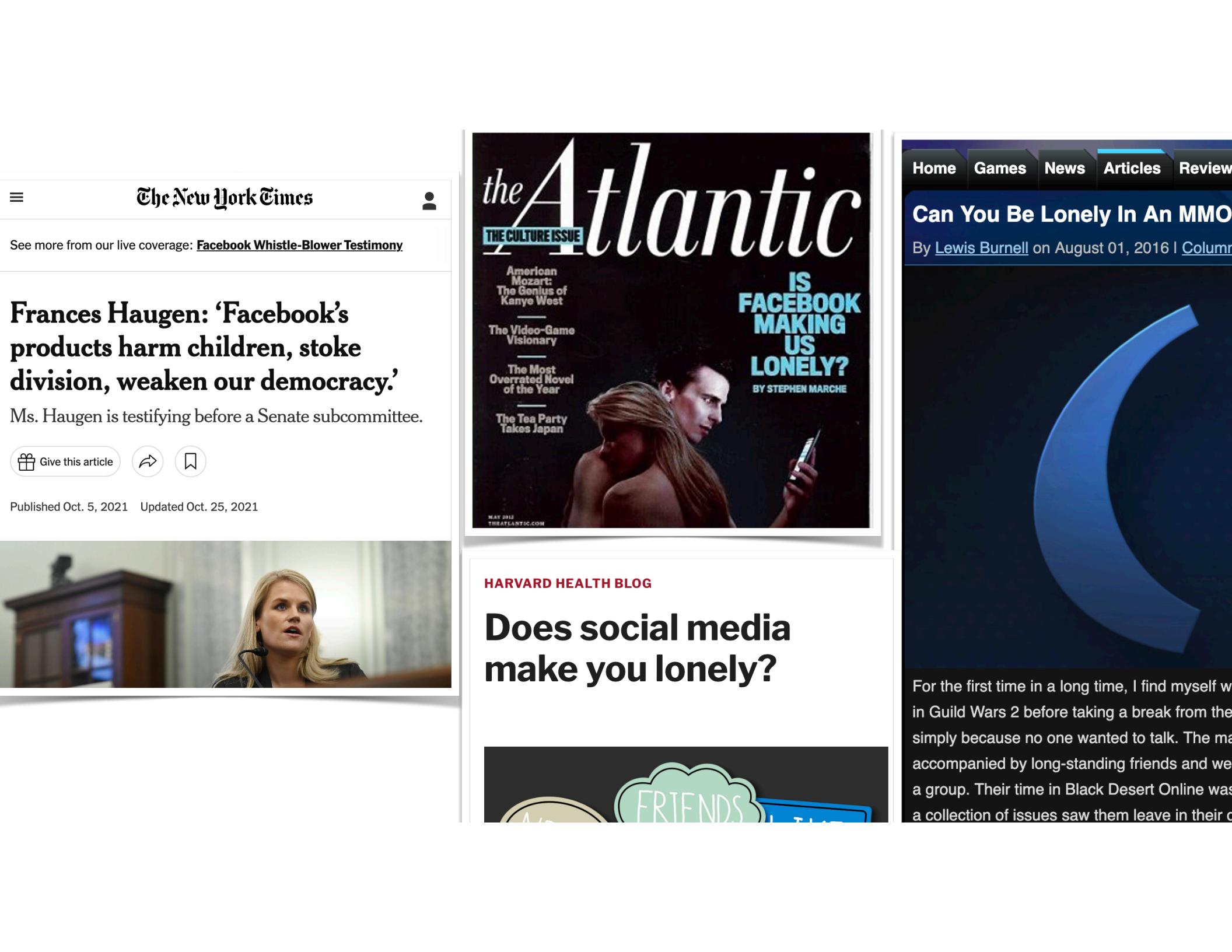
Next Tuesday's visitors



Mike Krieger
Co-founder and CTO, Instagram



Parag Agarwal
Former CEO, Twitter



Do social computing systems make us lonely?

Internet Paradox

*A Social Technology That Reduces Social Involvement
and Psychological Well-Being?*

Robert Kraut, Michael Patterson, Vicki Lundmark, Sara Kiesler, Tridas Mukopadhyay, and William Scherlis
Carnegie Mellon University

Do social computing systems make us lonely?

No.

Well, yes.

Sort of. It depends on how and when you use it.

WhatsApp group chat



To answer,
we need to
dive into:
why do
these feel
different?

Dorm email list

- [kimball2005-chat] FS: Laptop power adaptor-- autos an
- [kimball2005-chat] Cake outside door - Rm. 111 =) Victo
- [kimball2005-chat] FS: External DVD burner \$90 - Come
- [kimball2005-chat] dolly? - Anyone have one that I can
- [kimball2005-chat] WTB: Dell Battery Pack - Hey guys, A
- [kimball2005-chat] packaging tape - Can I have somebo
- [kimball2005-chat] anyone have bubble wrap? - Does an
- [kimball2005-chat] Packing Peanuts!!! FREE - Need som
- [kimball2005-chat] 4 commencement tix available - Roc
- [kimball2005-chat] fridge for sale - Haier fridge http://w
- [kimball2005-chat] commencement ticket taken
- (Michael's actual senior year dorm list)

Tie Strength

[Granovetter 1973]

Not all of our relationships are the same.

Some are **strong ties**: trusted friends and family.

Others are **weak ties**: rough acquaintances.

Today's claim: social computing systems must design for each of these groups differently.

Today



Strong ties



What are we designing for when we design for strong ties?

Think:

Your BFF

Your roommate

Your mom

Strong ties typically have thick offline context. This means that the social computing system will never see everything about the relationship.

Who are our strong ties?

Strong ties are typically in the social networks that we are already deeply embedded in. [Granovetter 1973]

Strong ties provide social and emotional support that improve mental health. [Thoits 2011]

Strong ties communicate with us through multiple channels, rather than through a single widely-available channel (e.g., email).
[Haythornthwaite and Wellman 1998]

Designs for strong ties

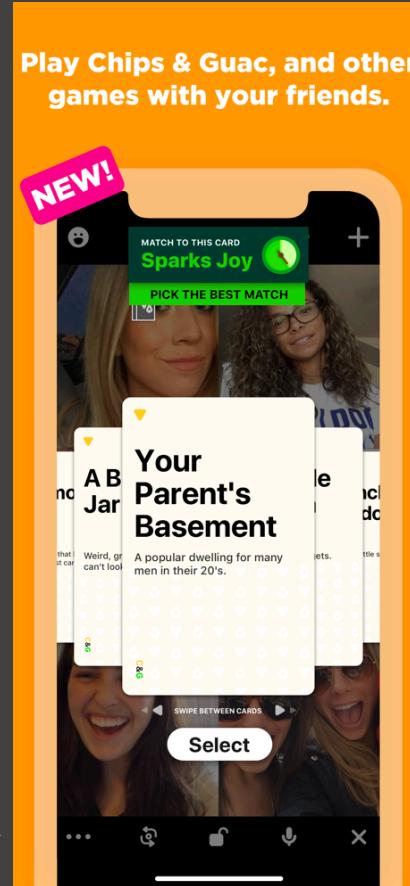


Often, the design goal is to maintain or deepen the strong tie relationship.

Designs for strong ties



Friend meetups on
Animal Crossing,
Nintendo



House Party

Other examples?

Why does this work?

Why do designs for strong ties succeed at their goal?

Why don't other social computing systems (e.g., Instagram) seem quite so good at it?

What's the secret?

[2min]

Honest Signals

[Donath 2007; Pentland 2010; Smith and Harper 2003]

In social situations, it's easy and quick to throw out perfunctory signals that you care about someone.

“We should grab coffee!” [Your Flaky Friend 2023]

However, other signals are much more **costly** to produce, and so they are more **honest**.

In nature: peacocks have amazing plumage because there is no way to fake having the nutritional resources to waste on them.

In social life: spending time on something for someone matters.

Strong tie designs as honest signals

What makes designs effective at maintaining and deepening strong ties is that they operate as honest signals: that I cannot fake the attention and effort I am putting into our interactions.

I respond to the text...or I don't.

I FaceTime you...or I don't.

I send you silly emails...or I don't.

Weak ties



What are we designing for when we design for weak ties?

Think:

That person you kind of remember from your freshman dorm

Someone on the team that you interned with last summer but haven't kept in close touch with

Acquaintances you see occasionally

Weak ties typically have thin context because they interact more sparsely. It's much more likely that WYSIWYG for the system.

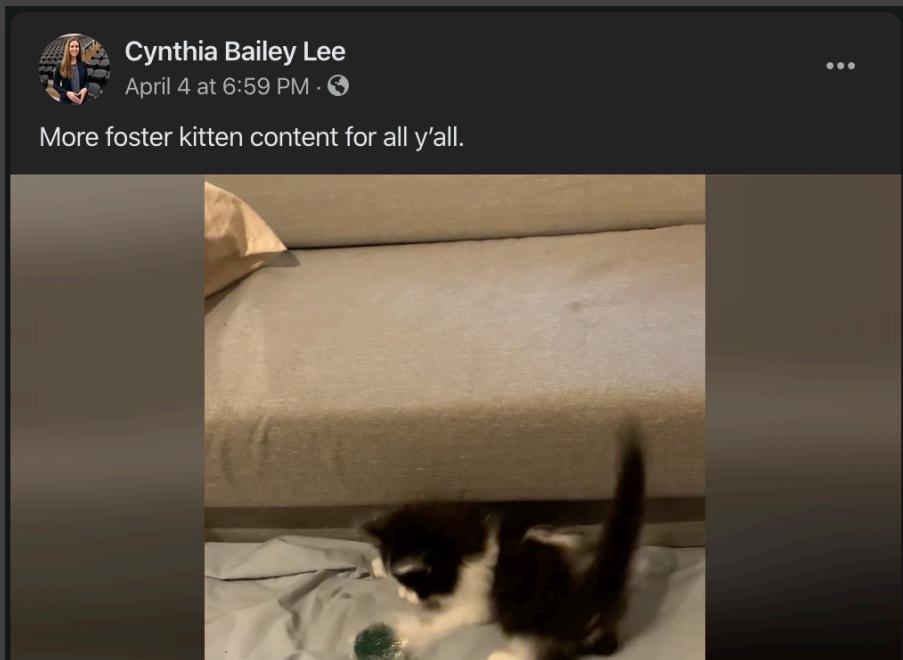
Who are our weak ties?

Weak ties often represent connections to parts of the social network that we do not inhabit. [Granovetter 1973]

People with weak ties to other organizational units in a company tend to have higher performance reviews and generate more creative ideas. [Burt 2004]

Weak ties often communicate through a single commonly-available channel (e.g., email, Facebook), rather than a multiplicity of channels. [Haythornthwaite and Wellman 1998]

Designs for weak ties



Design goals with weak ties are often: Keeping tabs. Celebration. Social movements. Broadcast.

A screenshot of a LinkedIn profile for Michael Bernstein. The profile features a blue header with a network graph, a circular profile picture of a man, and the name "Michael Bernstein". Below the profile is a "Start a post" button and a "Write an article" link.

Designs for weak ties

5:11 ▶
◀ Search

Search +
+Q +

Monica Yeung Arima, Professorville
Roses at bloom on Bryant and Lincoln
Just want to share the beauty of the blooming of my roses... It's 1052 Bryant Street, Palo Alto,... See more

New 2 days ago
Thank Comment 126 59

Kate Wilson, Professorville
Do we really need those annoying jarring Emergency alert!
For my phone to startle me with the loud screech to tell me to shelter in place and wash my hands is

Nextdoor

[kimball2005-chat] FS: Laptop power
[kimball2005-chat] Cake outside doc
[kimball2005-chat] FS: External DVD
[kimball2005-chat] dolly? - Anyone
[kimball2005-chat] WTB: Dell Battery
[kimball2005-chat] packaging tape -
[kimball2005-chat] anyone have bub
[kimball2005-chat] Packing Peanuts
[kimball2005-chat] 4 commencement

Michael's actual dorm email list

Other examples?

(Email is trying to do both strong and weak tie communication. It's one reason why email can stink.)

The strength of weak ties

[Granovetter 1973]

Because they are connected to parts of the network that we cannot access, weak ties are valuable sources of new perspectives and professional opportunities: people find jobs through weak ties.

Investigating Facebook log data: while most people are helped through one of numerous weak ties, a single strong tie is still much more valuable at the margin [Gee et al. 2017]

Investigating LinkedIn's "People You May Know" algorithm: the relationship is an inverted U: medium tie strength is "best" [Rajkumar et al. 2022]



Weak tie designs as bustling spaces

(except perhaps
LinkedIn)

Yes, we all leverage weak ties occasionally for favors. But FOMO is not enough of a design lever for most systems to stay active.

So, many weak tie designs instead lean on creating bustling spaces

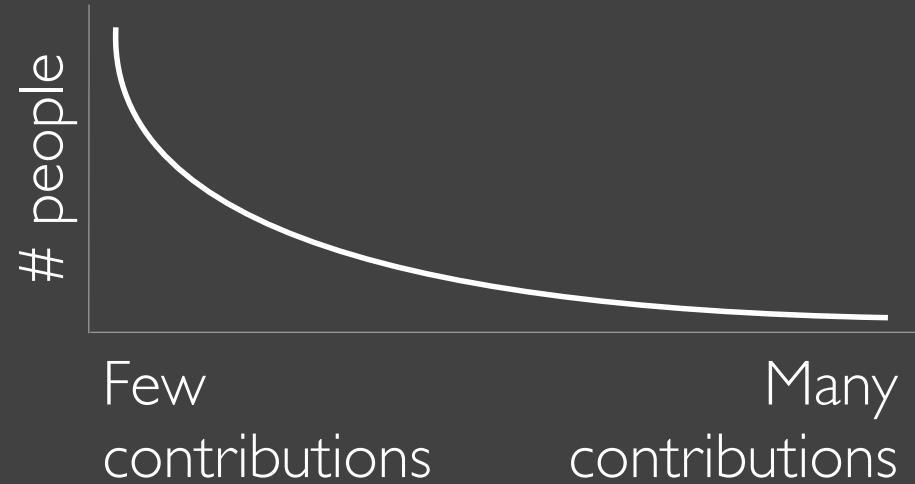
Facebook, Instagram, Twitter, Mastodon: newsfeed

...and weak tie systems die if they're perceived to be ghost towns

The Weak Shall Inherit

In nearly every social system, there will be extreme inequality (\approx power law distribution) in contribution volume.

This means that most of the content you see on Facebook/Twitter/dorm lists is from a small proportion of the people who are on it.

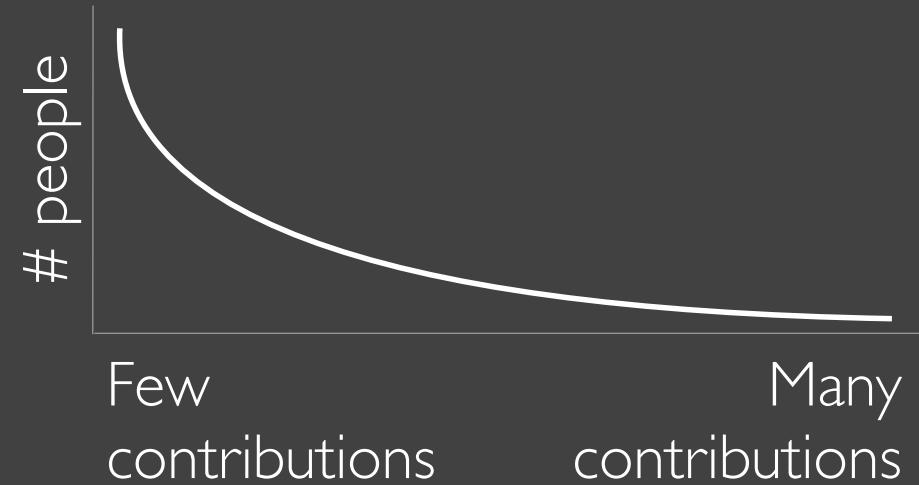


The Weak Shall Inherit

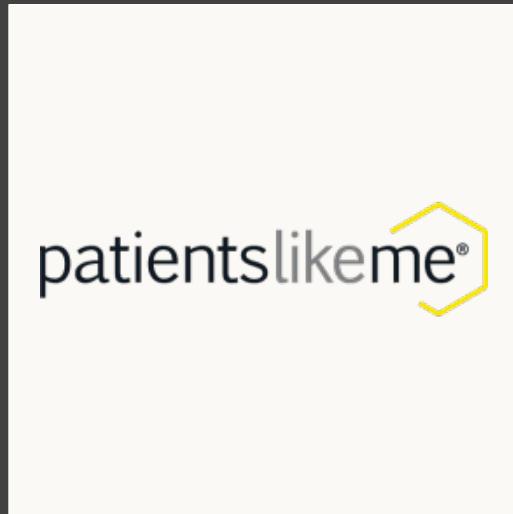
So, chances are, most of the content you see on social computing platforms is from your weak ties.

Design challenge: how do you make content from people you barely know worthwhile?

If you are an RA, how do you make the dorm community feel connected even if only a small percentage are actively contributing?



What about no ties?



At least initially, the members of these systems may not know each other at all. Is the goal of the system to build tie strength? Or something else? [1 min]

Bond- vs. identity-based groups

[Ren, Kraut, and Kiesler 2007]

Many social computing systems are formed around people who (initially) share no ties at all. These groups are often bound together by a shared identity, for example Women in CS, or Warriors fans.

In contrast, Facebook is more oriented around bonds, or ties.

Design the social computing system as relevant for the kind of group you are drawing together.

More identity-based groups

Facebook Groups



Mothers with academic careers

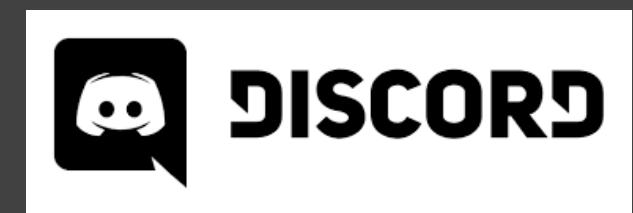
Private group · 961 members

This group is for women who are trying
3 posts a week

Club Penguin
Rewritten



Discord (also used
with strong ties)



Designing for identity-based groups

Highlighting the group's unique identity increases commitment
[Ren, Kraut, and Kiesler 2012]

How can you let people express that shared identity?

Sharing content, stories, etc.

Examples: subreddits, mailing lists, forums

Other categories exist

Example: influencer-based groups, which are driven by content from a small number of highly influential individuals

TikTok

YouTube

Such platforms are much more likely to be designed around discovery and parasocial relationships, where there's zero formal tie strength but one side expends significant emotional energy

Tie strength in action

How tie strength plays out dynamically in social computing systems

Tie strength changes

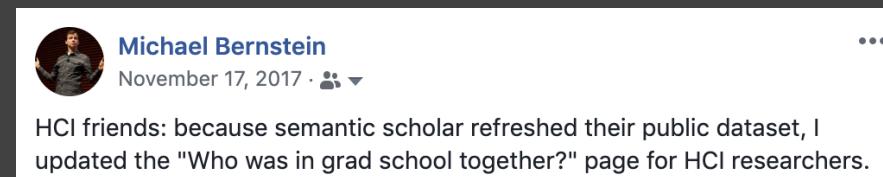
[Burke and Kraut 2014]

Tie strength isn't static over time, and social media use changes it.

Tie strength does go up on Facebook by reading and reacting to broadcast content:



Looking at photos



Reading status updates



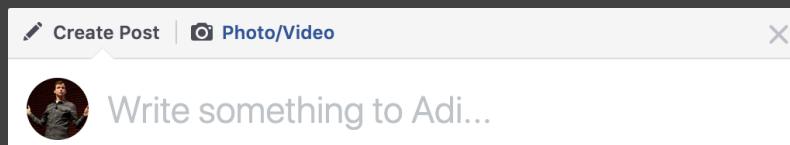
Performing one-click actions

Tie strength changes

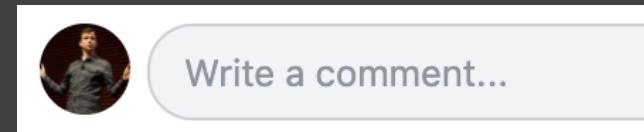
[Burke and Kraut 2014]

Tie strength isn't static over time, and social media use changes it.

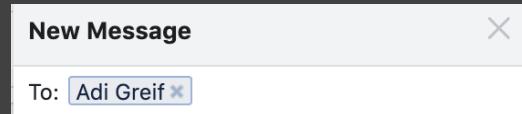
However, tie strength goes up much more with one-to-one communication:



Authoring posts to them



Commenting on their posts



Messaging them one-on-one

Tie strength can be predicted

[Gilbert and Karahalios 2009]

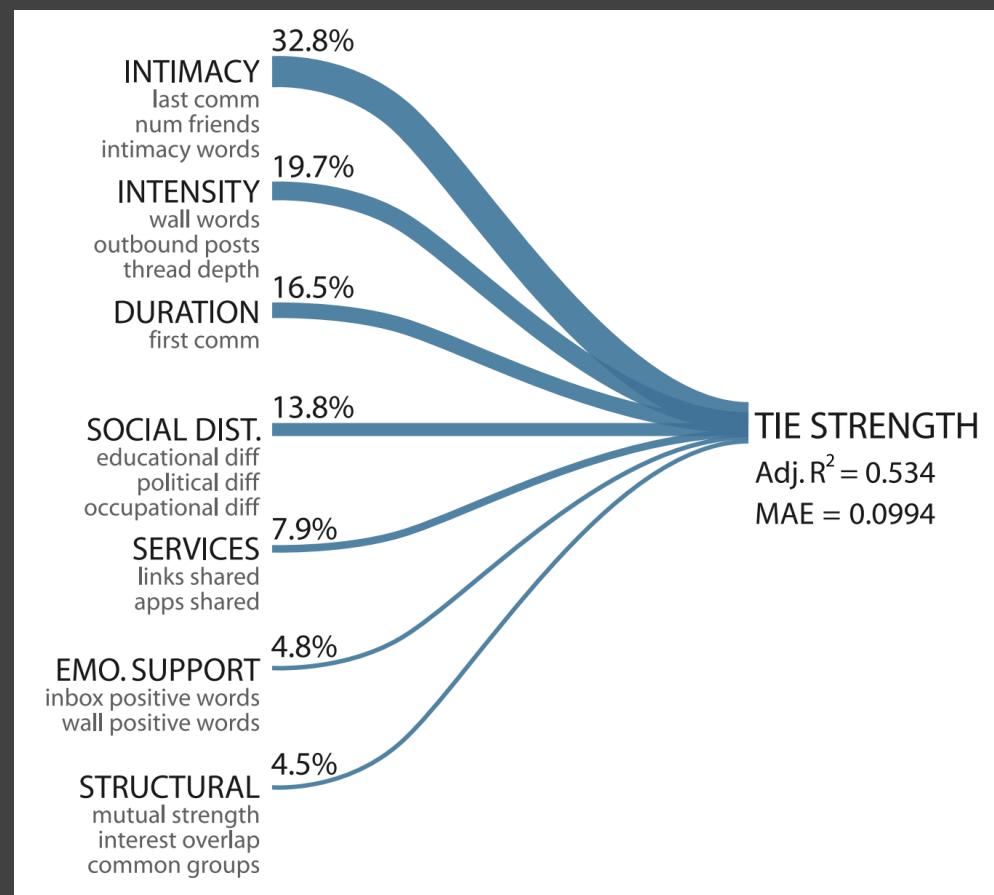
It is feasible to use observable behaviors in social networks to classify the tie strength between two people in the network.

Highly predictive features:

How recently have you messaged?

How long ago did you first message?

Do you talk a lot to each other?



Resulting designs

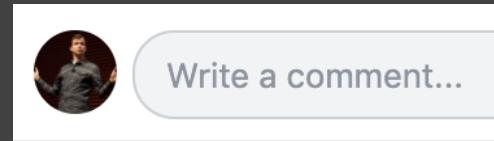
News feed ranking: not just a feature of the content, but also of your predicted tie strength with the other person

People you may know: friend suggestions

Dynamically choosing whether to show comment boxes or quick feedback buttons based on the content and your tie strength with the person



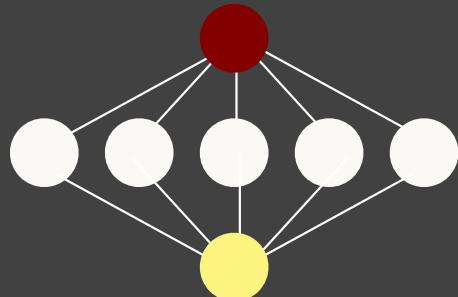
vs.



A note of caution

[boyd 2004; boyd 2023]

On Friendster, the system would look for people who share a number of strong ties, but are not connected to each other:



Friendster: and should totally date!
Let's recommend that they connect!

Reality: and are actually exes.

Back to the original question:

**Do social computing
systems make us lonely?**

It depends on how you use it.

[Burke and Kraut 2016]

An opt-in study of ~2000 Facebook users, connected to their internal log data, revealed:

Viewing strong or weak ties' status broadcasts, receiving 1-on-1 messages from weak ties, or receiving one-click feedback from strong or weak ties...

Receiving one-on-one communications from strong ties...

→ No improvements in psychological well-being.

↗ Improvements in psychological well-being.

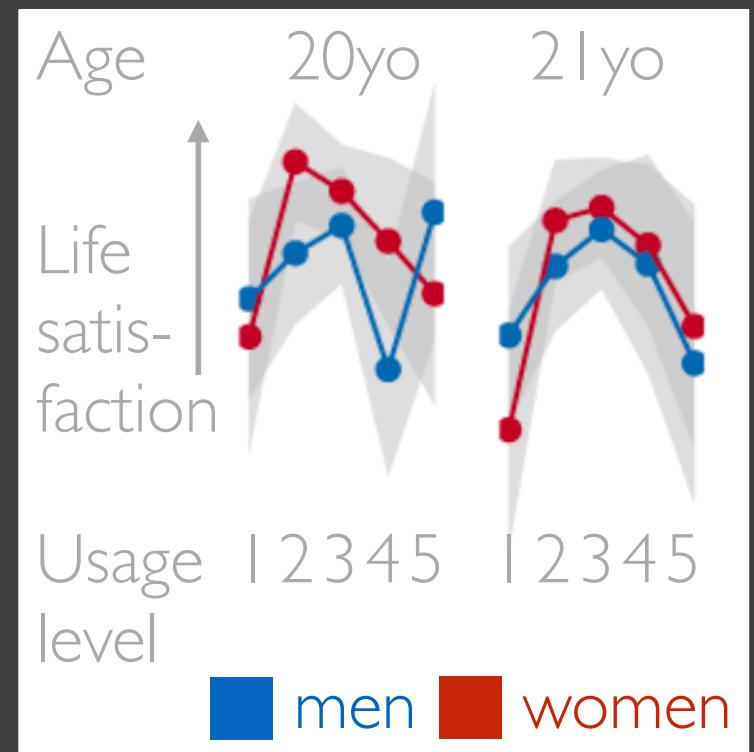
It depends on when you use it.

[Orben et al. 2022]

Data source: longitudinal surveys of UK citizens comparing life satisfaction to social media use

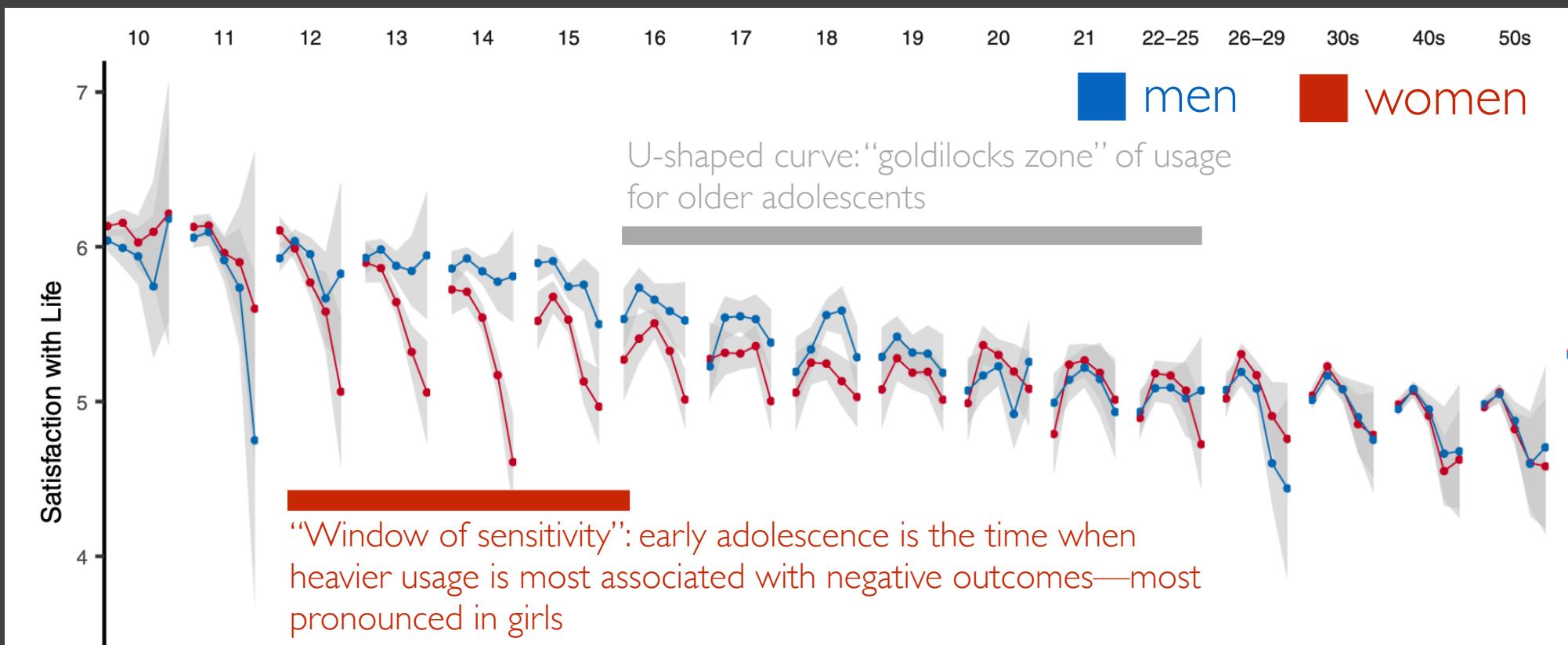
The graph that I will show compares satisfaction across age groups, split by level of self-reported social media usage:

Example:



It depends on when you use it.

[Orben et al. 2022]



Summary

We should not design social computing systems to treat our relationships as all the same.

Strong ties: a small number of people we know well — design for honest signals, and don't assume all communication happens through the system.

Weak ties: a large number of acquaintances — design to support feelings of connectedness, but remember that many social systems will be dominated in volume by weak ties.

The impacts of social media use on our wellbeing are most negative for those passively consuming content (esp. from weak ties), and for heavy usage among early adolescent girls

References

- boyd, danah. "Friendster and publicly articulated social networking." CHI'04 extended abstracts on Human factors in computing systems. 2004.
- boyd, danah. Personal communication. 2023.
- Burke, Moira, and Robert E. Kraut. "Growing closer on Facebook: Changes in tie strength through social network site use." Proceedings of the SIGCHI conference on human factors in computing systems. 2014.
- Burke, Moira, and Robert E. Kraut. "The relationship between Facebook use and well-being depends on communication type and tie strength." Journal of computer-mediated communication 21.4 (2016): 265-281.
- Burt, Ronald S. "Structural holes and good ideas." American journal of sociology 110.2 (2004): 349-399.
- Donath, Judith. "Signals in social supernets." Journal of computer-mediated communication 13.1 (2007): 231-251.
- Friend, Your Flaky. Personal Communication.
- Gee, Laura K., Jason Jones, and Moira Burke. "Social networks and labor markets: How strong ties relate to job finding on Facebook's social network." Journal of Labor Economics 35.2 (2017): 485-518.
- Gilbert, Eric, and Karrie Karahalios. "Predicting tie strength with social media." Proceedings of the SIGCHI conference on human factors in computing systems. 2009.
- Granovetter, Mark S. "The strength of weak ties." American journal of sociology 78.6 (1973): 1360-1380.

References

- Haythornthwaite, Caroline, and Barry Wellman. "Work, friendship, and media use for information exchange in a networked organization." *Journal of the American society for information science* 49.12 (1998): 1101-1114.
- Kraut, Robert, et al. "Internet paradox: A social technology that reduces social involvement and psychological well-being?." *American psychologist* 53.9 (1998): 1017.
- Orben, A., Przybylski, A.K., Blakemore, S.J. et al. Windows of developmental sensitivity to social media. *Nat Commun* 13, 1649 (2022). <https://doi.org/10.1038/s41467-022-29296-3>
- Pentland, Alex. *Honest signals: how they shape our world*. MIT press, 2010.
- Rajkumar, Karthik, et al. "A causal test of the strength of weak ties." *Science* 377.6612 (2022): 1304-1310.
- Ren, Yuqing, Robert Kraut, and Sara Kiesler. "Applying common identity and bond theory to design of online communities." *Organization studies* 28.3 (2007): 377-408.
- Smith, John Maynard, and David Harper. *Animal signals*. Oxford University Press, 2003.
- Thoits, Peggy A. "Mechanisms linking social ties and support to physical and mental health." *Journal of health and social behavior* 52.2 (2011): 145-161.

Social Computing

CS 278 | Stanford University | Michael Bernstein

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

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