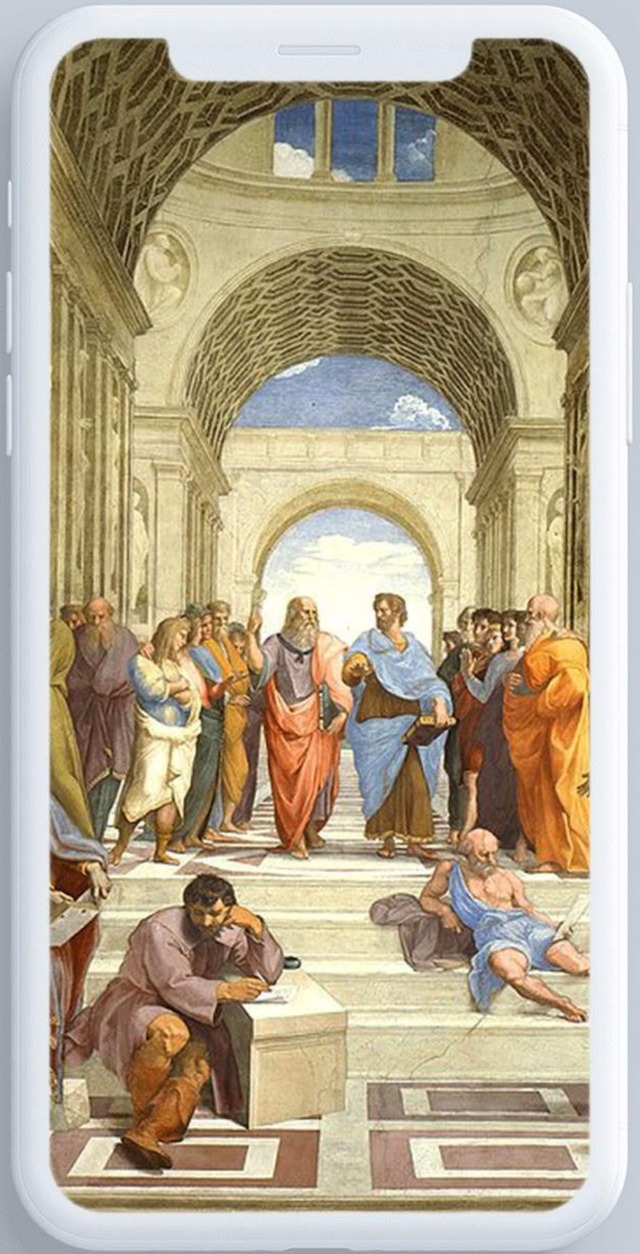
The Price of Anarchy and Power of Suggestion



Design Parameters of the Modern Agora

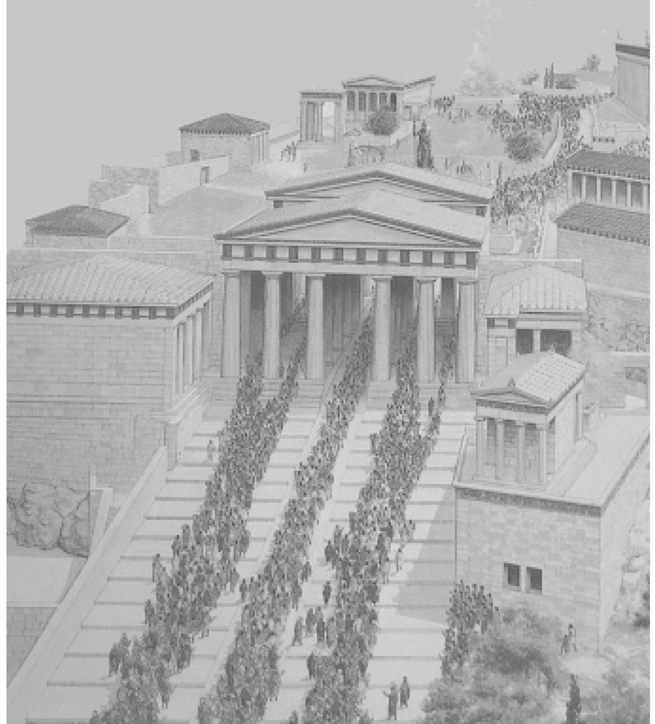
Ag·o·ra

ˈægərə/

noun

Ancient Greek: ἀγορά *agorá*

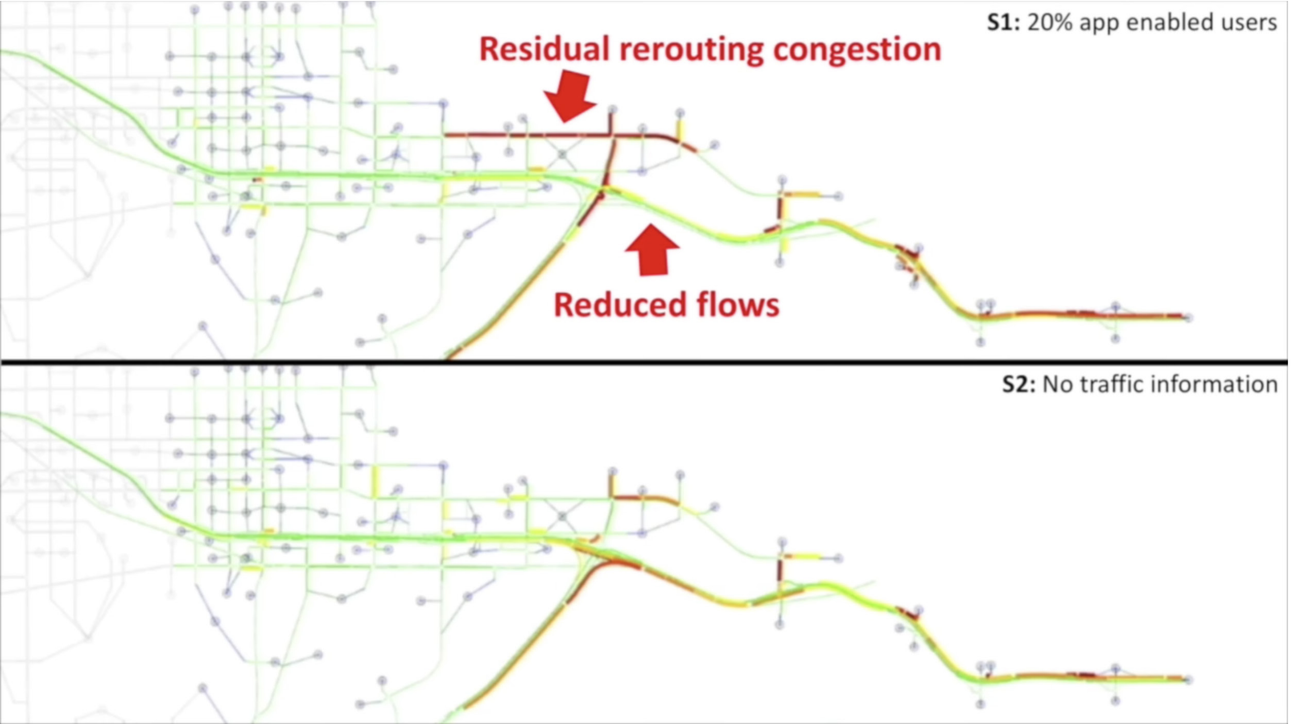
1. A public space; the **center of the athletic, artistic, spiritual and political life of the city.**[1]



The Modern Agora

The agora is defined as the metaphysical center of a city, but when was the last time you went to a neighborhood or any physical site to discover something to do, either with your evening, or with your life, without that choice being mediated by some form of digital search?

Do you have a physical agora? Or is yours, like mine, a distributed one that is only ever partially revealed through the suggestions provided by this oracle we keep in our pockets.

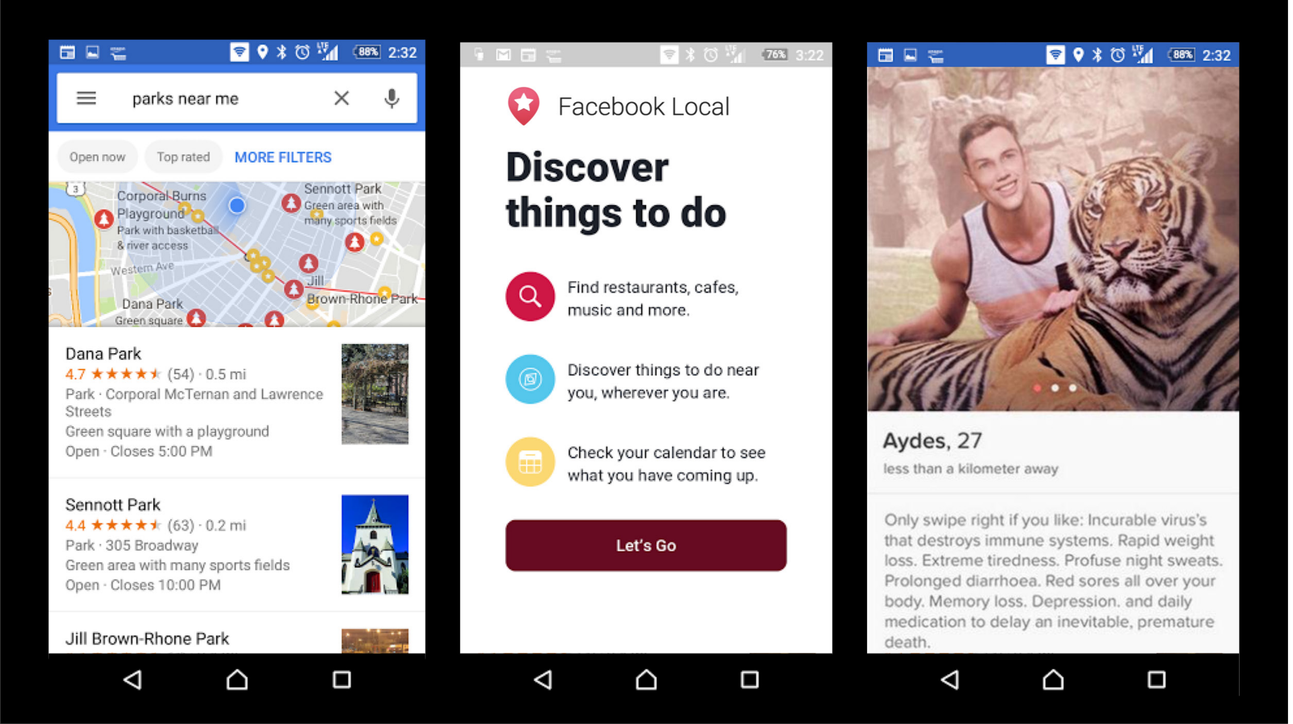


The Price of Anarchy

The Price of Anarchy refers to a general game theory concept that measures how the efficiency of a system degrades due to selfish behavior of its agents. It has recently become a term of art for transportation planners, who frequently use it to describe the effects of mapping apps.

Here we see a simulation from Berkeley ITS that demonstrates how the use of wayfinding apps often decreases the efficiency of road networks as users externalize the costs of their decisions onto one another.

This kind of centrally-planned and algorithmically-directed behavior appears at first glance to be the dream of the mid-century cybernetician. However, few foresaw that this kind hyper-planning would be designed and executed without regard for systemic optimization. Even fewer foresaw that the design of these algorithms would take place with the participation of neither planners nor individual citizens themselves.



The Power of Suggestion

The home you live in, the job you just applied for, the date you went on last night are increasingly surfaced for you out of the vastness of possibility not by spatial or social mediation, as has been the case since the dawn of civilization, but by artificial selection machines of staggering complexity. Even direct suggestions from friends do battle for your attention via the algorithms of facebook, twitter, gmail's priority inbox.

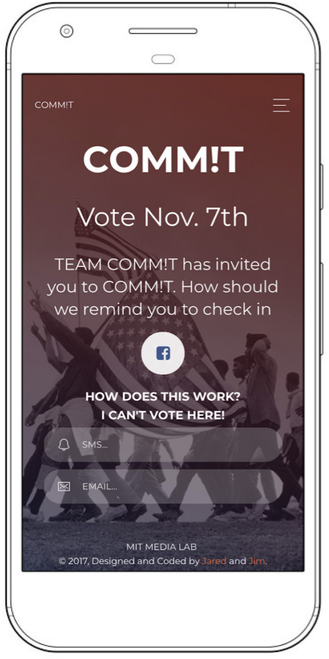
Popular framing often pitches the battle for the soul of smart cities as a contest between top-down, cybernetically-augmented master planners, and bottom-up participatory guerilla urbanists. I believe this omits a critical third actor that shapes modern experience at the urban scale and does so with almost no vested interest in the urban fabric itself.

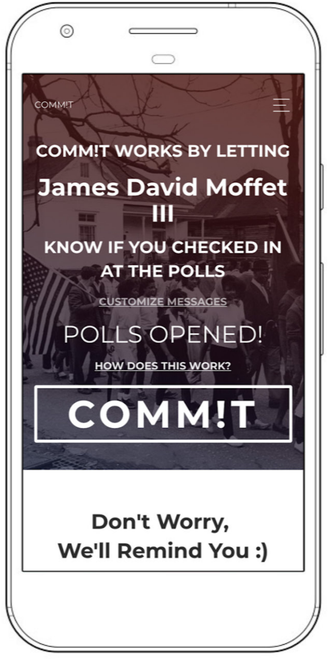
This third actor designs the interface between citizens and the information that shapes our use the city and our relation to one another. When this third actor is addressed, it is often imprecisely considered in terms of the designers of the personal devices that connect us to the network (the Apples and Samsungs of the world), but I would argue that this role is more precisely embodied by the authors of those device's resident suggestion algorithms (the Googles, Facebooks, and Baidus of the world).

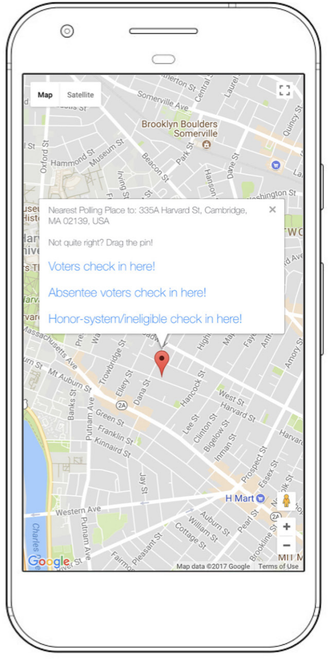
"**The individual networked in this way is no longer the autonomous subject enshrined in liberal theory, not precisely** ... Our very selfhood is smeared out across a global network of messy nodes and links; all of the aspects of our personality we think of as constituting who we are— our tastes, preferences, capabilities and desires— we owe to the fact of our connection to that mesh."

Adam Greenfield, Radical Technologies

RECENT WORK

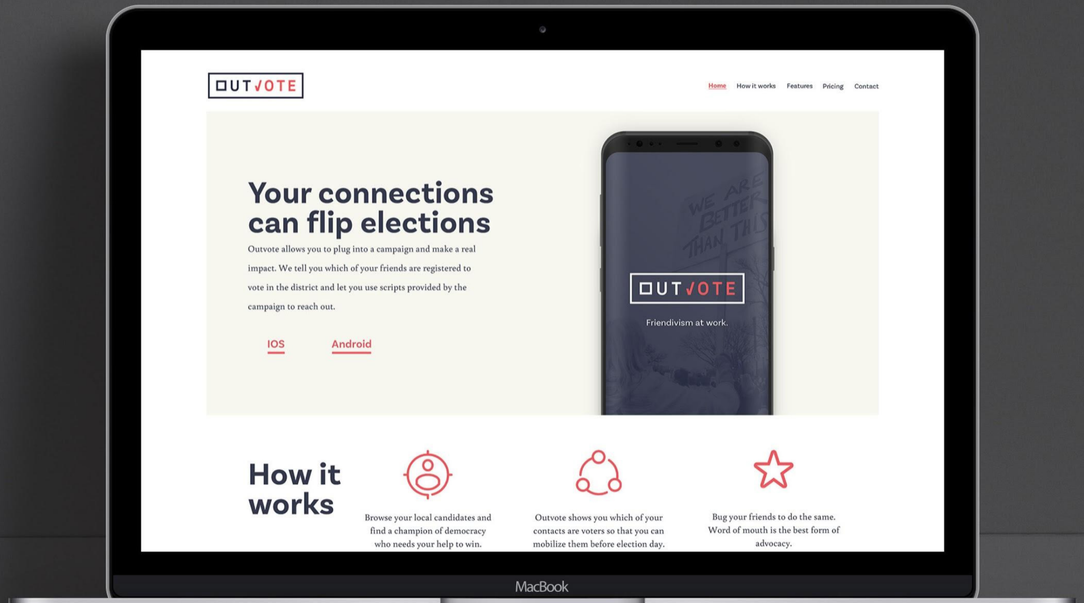






COMM!T Web App

The COMM!T web app keeps people accountable to their friends by publishing to a select group whether or not they checked in at the polls via GPS. The app sends voters reminders with a check-in link that uses Google's Civic Data API to identify the appropriate polling place. Once a user commits, their group will be notified on election—whether they check in or not—and commitments cannot be revoked, though we provide a few backup options at check-in time to give users and their friends an opportunity to hash things out socially.

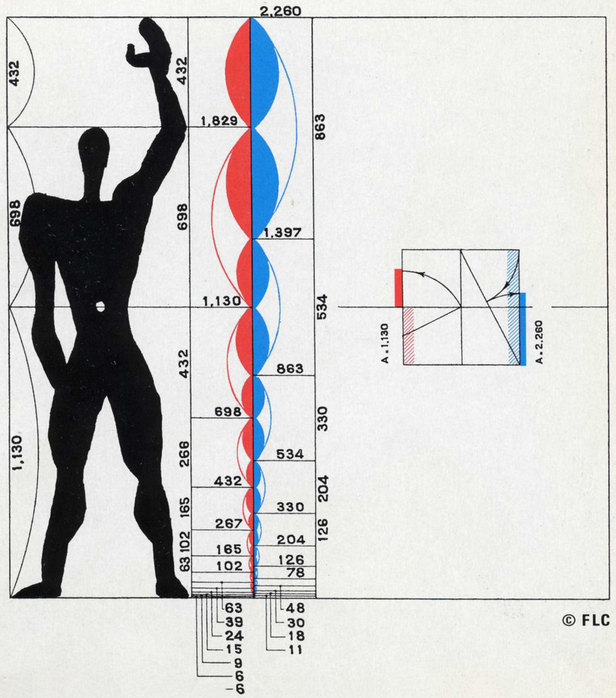


Outvote Mobile App

Outvote is a friend-to-friend SMS tool for political and issue-based campaigns that strives to shift some of the billions of dollars spent each year on low-ROI political messaging that everyone hates, toward more authentic communication that has a statistically significant impact. In our November 2017 pilot, we found that 200 campaign volunteers have first degree connections to 50% the voters in a city of one hundred thousand people. The intensity of our inter-connection to the mesh makes it possible to conduct large-scale political campaigns on a digital, person to person basis. Peer-based digital networks may provide an opportunity to return to de Tocqueville's "streetcorner" democratic ideal after a long period of one-to-many broadcast politics. Outvote is currently live in both app stores.

Parallax Project

Parallax is a street-scale project that adds naturalistic spatial effects to video-conferencing in a way that exploits our digital connection, while centering identities tied to place. The much-ballyhooed "death of distance" never quite arrived. Even with unlimited bandwidth, telepresence is a diminished form of presence in several important ways. Parallax adds critical elements of actual presence back to telepresence, such as the parallax effect (foreground objects moving independently of background), the ability to meet another person's gaze and the ability of a screen to show you additional field of view as you peer around its edge. In addition to personal communication, Parallax is intended to be deployed via public projection to create a live connection between neighborhoods, cities, and countries.

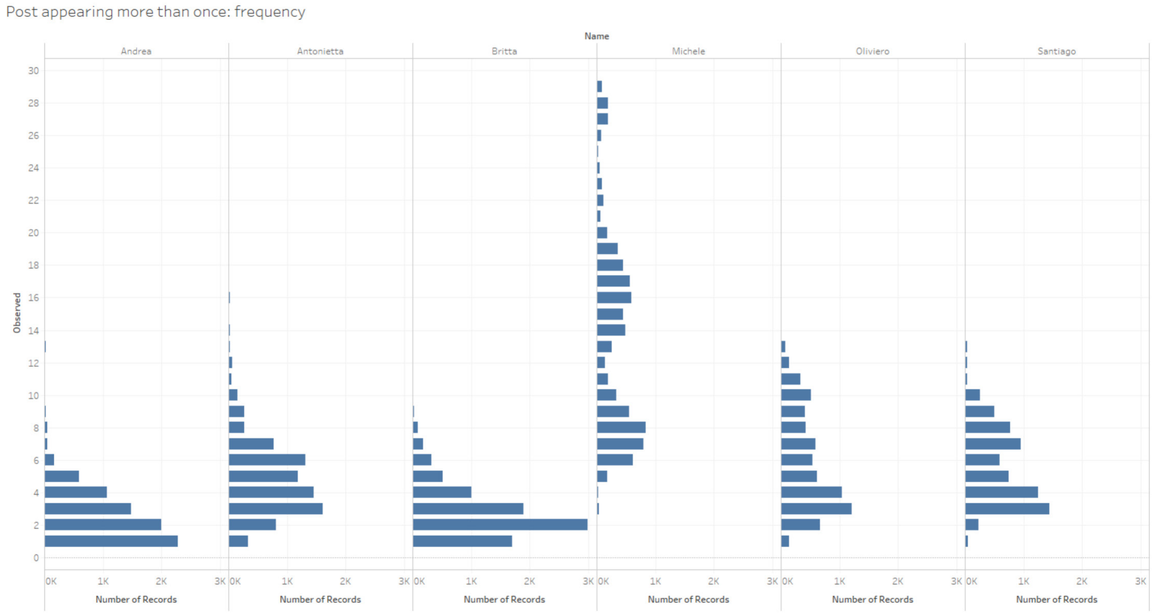


The Scale of the Individual

Observation:
The nature of algorithmically- personalized content divides us into tribes with increasingly minimal co-presence in both the physical and intellectual public spheres.

Design Prompt:
How might we subvert suggestion algorithms at the individual scale to regain some control over what we see and how we coordinate?

Prototype:
A piece of software that changes how you appear to personalization algorithms. Instead of appearing as your flawed self —based on actual behavior— you are presented as the user you wish to be, causing the algorithms to create larger clusters based on shared values, despite the fact that we do not behave according to them.



The Iron Bubble

In this experiment conducted by Italian journalists 6 new Facebook profiles each follow a different italian party up for election last year and then interact with their feed in the same manner thereafter.

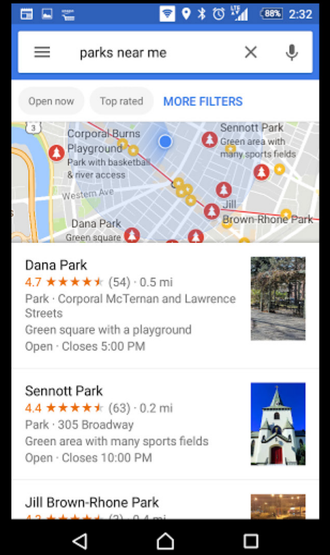
This chart represents the number of times each profile saw a given post. The bottom blue line represents the number of posts seen just once, while the top blue in the center represents the number of posts seen roughly thirty times by that particular profile. All profiles saw the same total number of posts, however one profile sees a dramatically poorer diversity of content.

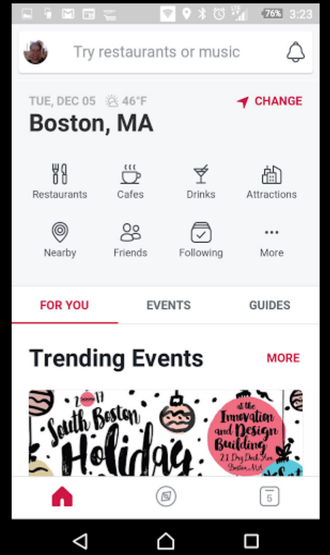
That profile, "Michelle", is the one that had followed the Fascist party.

The journalists were alarmed to find that this profile was largely shielded from the non-fascist elements of its network. This type of segregation can't be mitigated by filtering what we're served by suggestion algorithms, rather we actually need to change how the algorithm sees us and what it thinks will engage us.
Our connection to Greenfield's messy network of nodes and edges is increasingly mediated by suggestion algorithms that constrain our field of view according to the things they predict will "engage" us. However, the things we are statistically likely to 'like', that we will most predictably engage with, are by definition the things we least need to see if we desire to better ourselves, or to better understand those who are unlike us.

Nearest Neighbors

It is essential here to understand a basic mathematical relationship that pervades modern suggestion algorithms. As you build tighter and tighter clusters, the center of each cluster moves further and further apart. When these dots are people and the resulting clusters have drastically different access to information, the result is what Eli Pariser famously called filter bubbles and what Ethan Zuckerman calls a “Pointillist Public Sphere.”



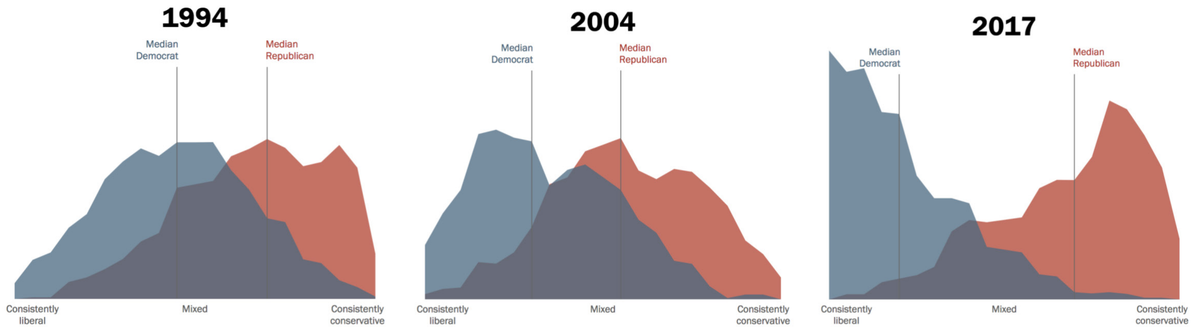


Spatial Segregation

You and I don't get the same Google results, even if we're in the same room and speak the same language.

We might be immediate neighbors, but we are directed to lounge in different parks, eat at different restaurants, attend different events at different venues. These suggestions are based on who the platform thinks we are and what it thinks we like based on the past behavior of similar individuals.

The overwhelming majority of users do not scroll beyond the first handful of results, so ranking here is critical. Importantly, there is no incentive for the platform to contribute to the maintenance of a shared, local identity or to do anything beside sort us into progressively tighter and more predictable clusters.

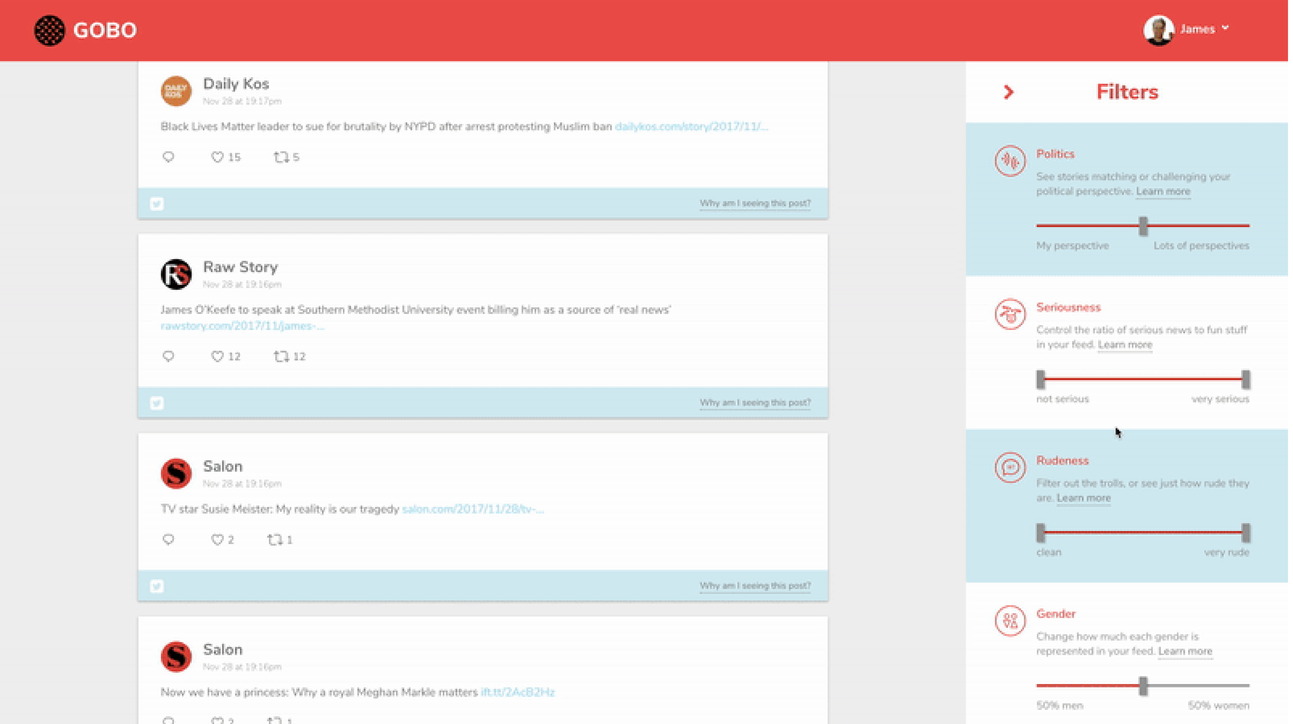


Intellectual Segregation

Here we see the progression of political polarization, measured by Pew Research Center, during the internet era. This chart was stable enough from 1950 through 1994, through wars, recessions, etc... such that the change between 1994 to 2004 was considered quite dramatic at the time.

We won't discuss here the effects of algorithmically-tuned propaganda, bots, or the tremendous overlap between youtube's up next algorithm and what would constitute an ideal radicalization engine.

However, it is important to note that none of these things are inherent consequences of the fact of our connection, rather they are the consequence of a specific business model that provides "free" personalized content subsidized by targeted ads.



Recent Precedents

This is a precedent from a few months ago created by the Civic Media Lab over at MIT. GOBO is a sort of aggregator of your feeds that filters what you see according to your aspirations and explicit preferences about things like seriousness, rudeness, variety of voices you'd like to hear from, etc...

Unfortunately, as an aggregator, it's quite limited by various social APIs (basically can only serve paid content).

The filters here tend to lean harder on aesthetic preferences, say for seriousness, than on values, say for seeing content from a diversity of authors.

Grand Promises

This is the story of a friendship, developed via the gaming app Words with Friends, between a brooklyn rapper and Floridian retiree.

This represents the fulfillment of some of the grand social promises of the early internet. Unfortunately, by 2010 or so, the industry standard has been to design platforms that intentionally optimize against this outcome.

This story happened because a platform consciously chose not to filter its users' experiences by similarity to other users.

Which brings us to Scales, the first intervention I've designed for this space.

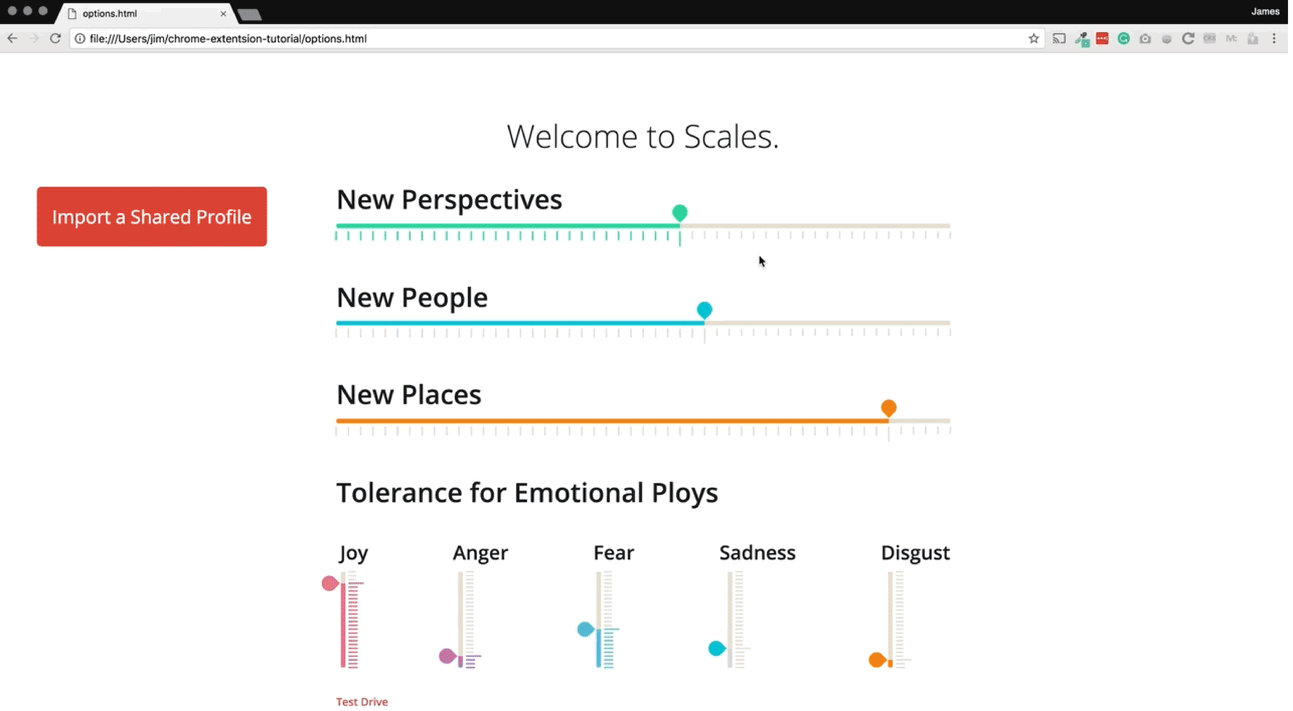
SCALES

Second skin for networked humans

Project: SCALES Software

Scales does two things, it changes how suggestion algorithms present information to you and changes how you present information to suggestion algorithms. The implication of changing what *you* see is fairly obvious, but the implication of presenting your aspirational self (as opposed to your actual self) to suggestion algorithms is less clear.

Scales is currently a browser plug in, with a version for mobile in the works.



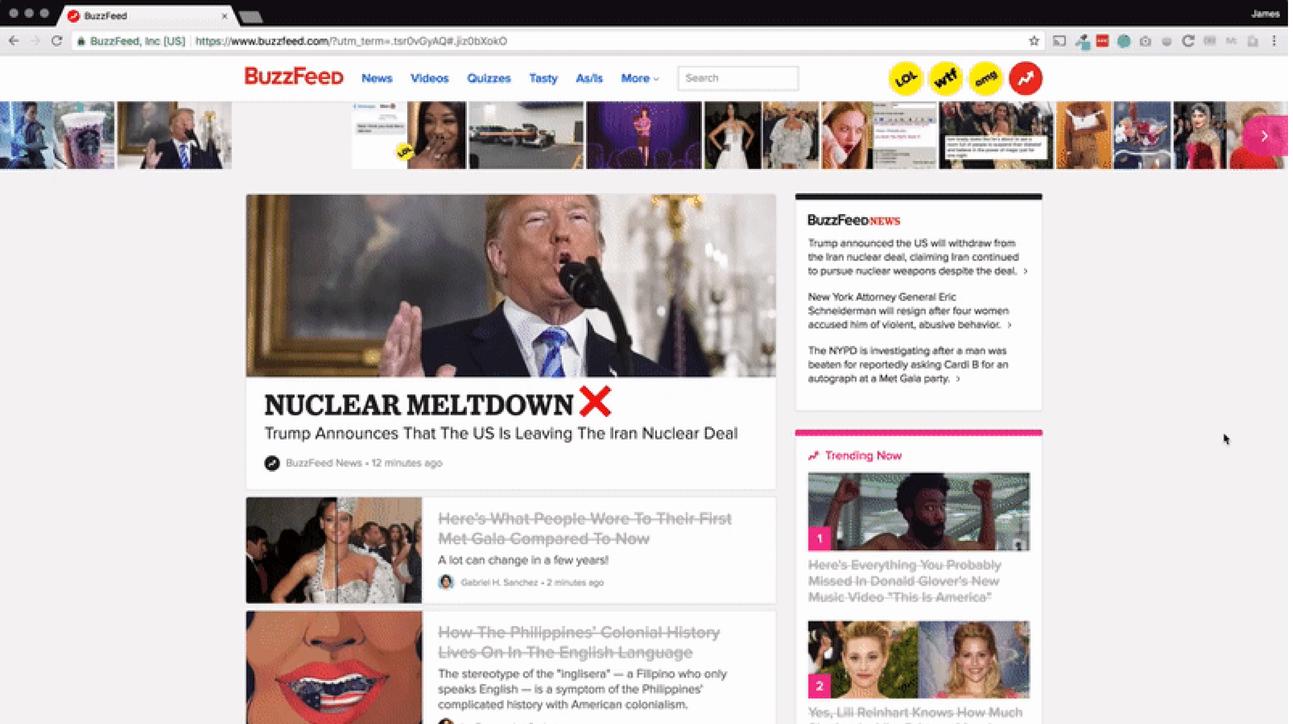
Second Skin

Think of Scales as a filter, but also as a one-bot army that you employ, in the background, to transmit an image of you as the information consumer that you could never be, in order to change the content you're served the next time you show up.

In this way, we can create a positive feedback loop between aspiration and behavior.

We naturally treat the people we care about as a mixture of their actual and aspirational selves, and in doing so, we help them become the people they desire to be. I submit to you that we should hold machine intelligences to the same standard. By subterfuge where necessary, but by design hopefully as soon as possible.

Scales offers a few tools that can be used across the web, as well as a few specific interventions for high-leverage websites. Scales allows you to create profiles that define values and aspirations for your "informational diet" as it were. It also allows users to share profiles amongst one another.



Junknews

When text content reaches a certain threshhold of clickbait-ish-ness, Scales can provide some (admittedly pedantic) informational "nutrition facts" that show up just before you click on something. You can also set thresholds for graying out content or erasing it entirely.

I rolled my own naive bayes classifier for the clickbait score, but the tone scores (Joy Anger Fear, etc...) are provided by an off-the-shelf API, in this case IBM's Watson product.

SHARE

REPORT

The spread of true and false news online

Soroush Vosoughi[1], Deb Roy[1], Sinan Aral[2,*]
+ See all authors and affiliations

Lies spread faster than the truth

There is worldwide concern over false news and the possibility that it can influence political, economic, and social well-being. To understand how false news spreads, Vosoughi *et al.* used a data set of rumor cascades on Twitter from 2006 to 2017. About 126,000 rumors were spread by ~3 million people. False news reached more people than the truth; 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 also diffused faster than the truth. The degree of novelty and the emotional reactions of recipients may be responsible for the differences observed.

Science, this issue p. 1146

Abstract

We investigated the differential diffusion of all of the verified true and false news stories distributed on Twitter from 2006 to 2017. The data comprise ~126,000 stories tweeted by ~3 million people more than 4.5 million times. We classified news as true or false using information from six independent fact-checking organizations that exhibited 95 to 98% agreement on the classifications. Falsehood diffused significantly farther, faster, deeper, and more broadly than the truth in all categories of information, and the effects were more pronounced for false political news than for false news about terrorism, natural disasters, science, urban legends, or financial information. We found that false news was more novel than true news, which suggests that people were more likely to share novel information. Whereas false stories inspired fear, disgust, and surprise in replies, true stories inspired anticipation, sadness, joy, and trust. Contrary to conventional wisdom, robots accelerated the spread of true and false news at the same rate, implying that false news spreads more than the truth because humans, not robots, are more likely to spread it.

Science
Vol 359, Issue 6380
09 March 2018

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CITED BY...

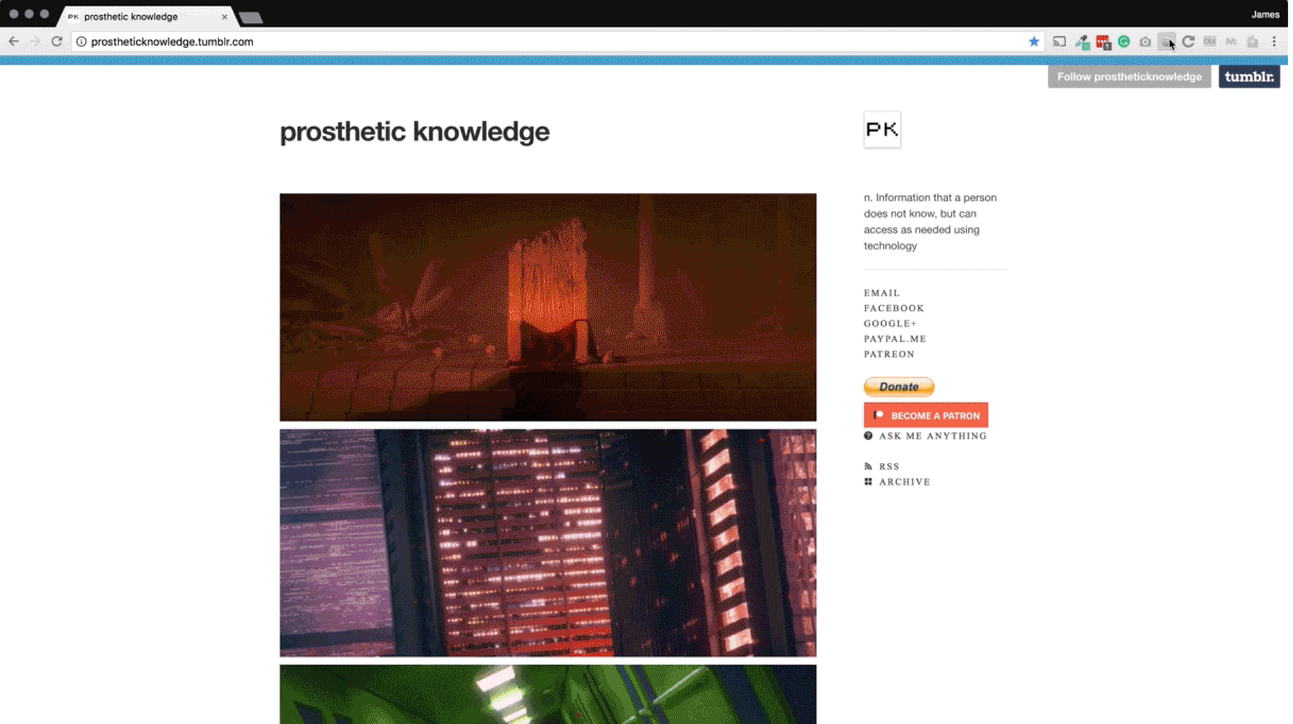
CITING ARTICLES IN:
- Web of Science (1)

CITING ARTICLES IN:
- Web of Science (1)

Informational Ingredients

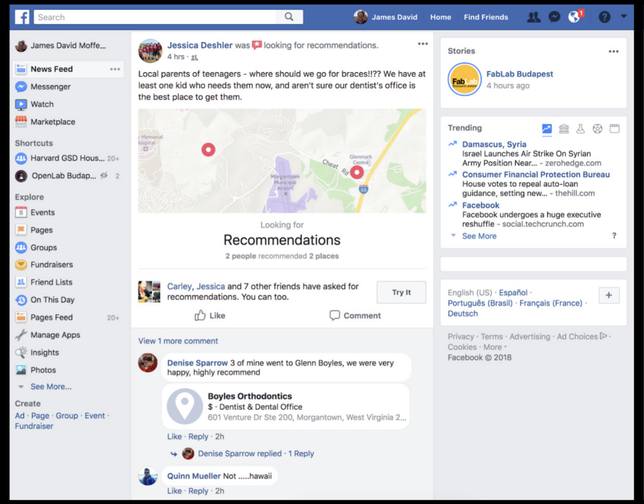
Interestingly, a friend over at the Media Lab recently discovered messages evincing fear, disgust, sadness and joy, scored using the same methodology that IBM uses, are strongly correlated to eventual verification of unverified stories.

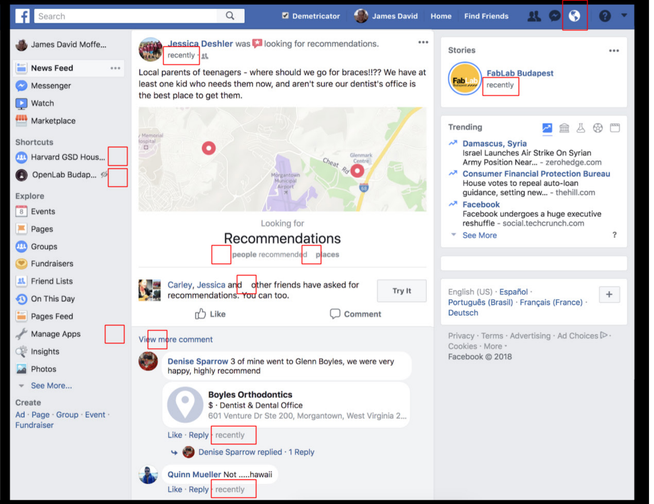
It turns out that fear and disgust are more likely to be ingredients of false rumors, while sadness and joy are more strongly associated with rumors that turn out to be true.



Saturation

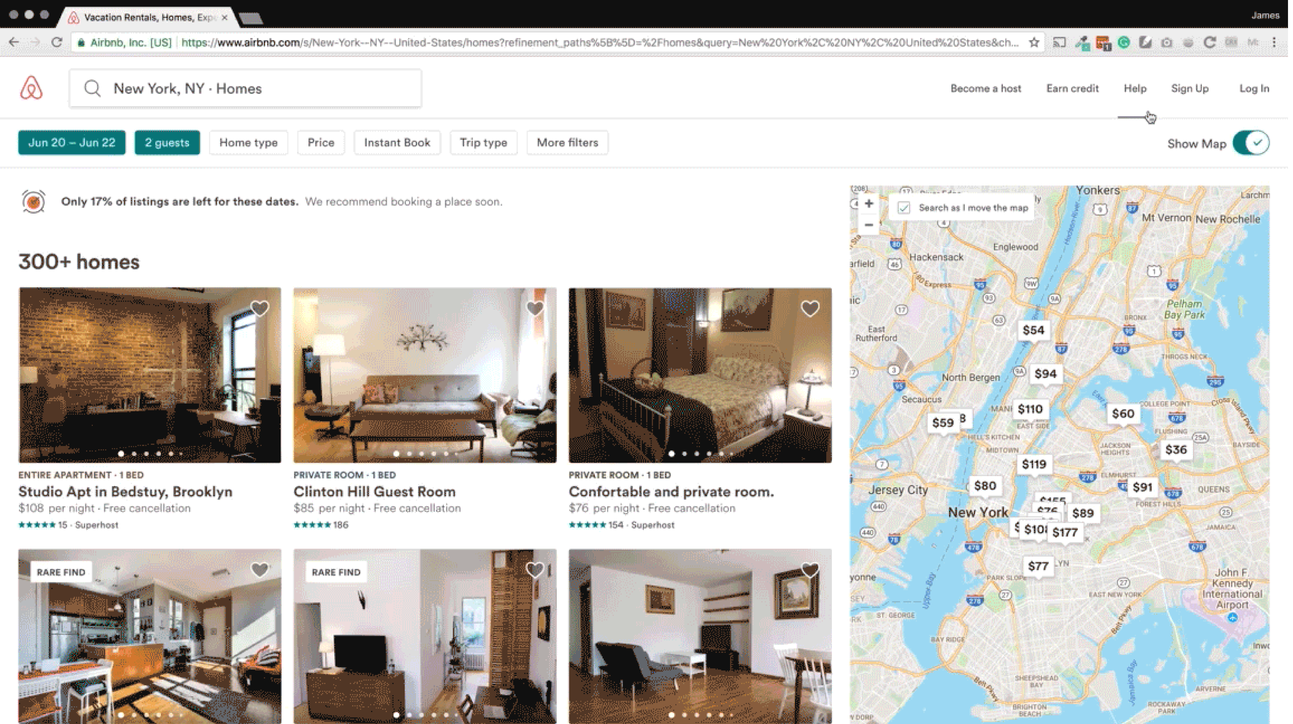
Scales also provides a few interface goodies for use across the web. In testing with a few intrepid beta-testers, we found that the grayscale feature dramatically reduced the number of sessions longer than 5 minutes on certain types of websites.





Signals of Urgency

Scales also offers a "demetricator" to remove audience metrics and other quantitative signals of urgency. I'm working on getting a generic version of this going, but for now we're testing the results of removing metrics from facebook.



Assisted Serendipity

Scales shows the controls that are currently operating on individual pages when you click on the extension. Here I've included a little debugging UI so we can see what's going on. According to the new people preference we upranked hosts who profile page is most dissimilar from the user's.

The idea here is that this is a preference you set once and forget about for a long while. Perhaps over the course of a few years, you'll have had a handful experiences you otherwise wouldn't have had.

I'm also exploring this for websites that generate more sustained face-to-face interactions, like Task Rabbit, a website that connects people around odd jobs and handywork.

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        },
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    },
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      "text": "By the way, she likes cheese with pasta, not pasta with cheese!",
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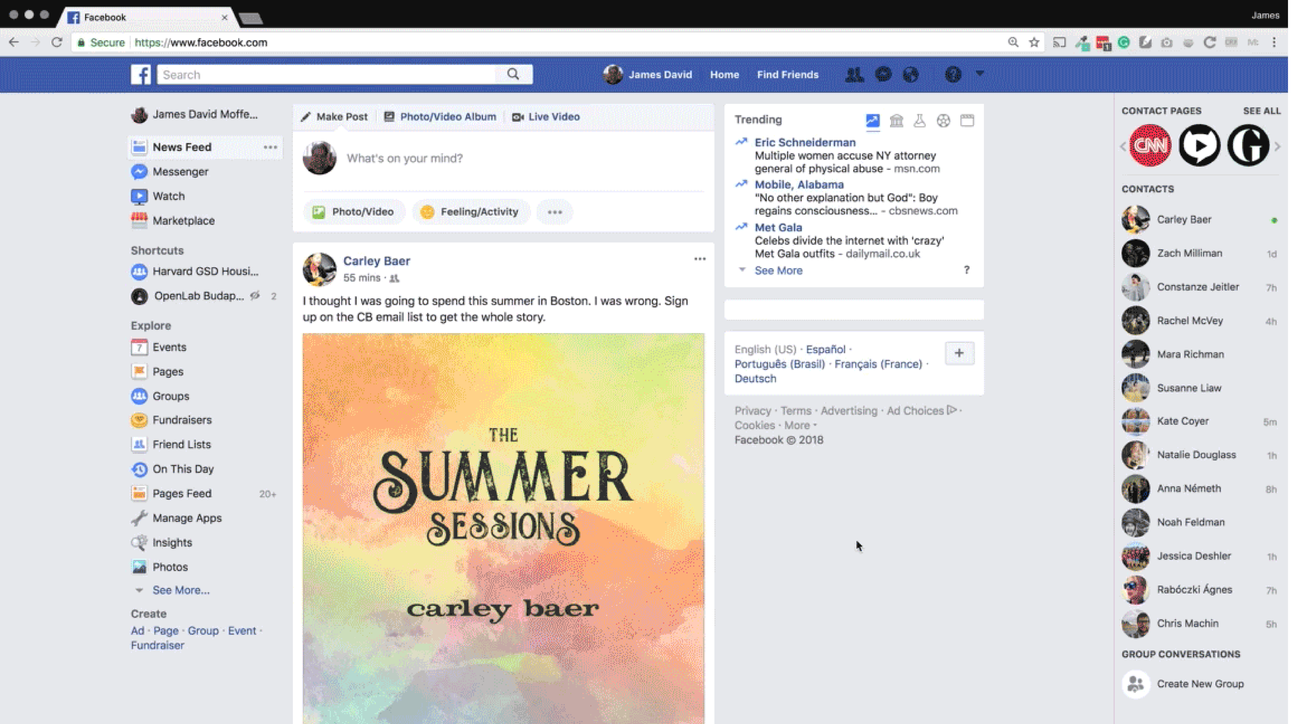
        {
```


Who's New?

By using a host's name, combined with the home's location, public voter files and census data, we can quickly calculate the likelihood of any two names passing each other on the street in a given neighborhood.

The blurb hosts write about themselves can also be analyzed, but the off-the-shelf, text-based, personality analysis tools are still a bit horoscopy. In addition the OCEAN scores, IBM's Tone Analyzer API provides scores things like whether an author is Analytical, Neurotic, 50% Polite, etc...



Personality and Perspective

So, analyzing personality itself based on the "Big 5" personality traits and subtraits feels a bit weak.

However, encouraging a diversity of voices is relatively straightforward given the access that most networks, including facebook, provide to the demographics of their content authors. There are also off-the-shelf APIs for classifying political lean and other straightforward semantic content.

The key point here is that by "engaging" with certain content in the background according to the value preferences set by the user, Scales can change what the content platform predicts will be likely to engage the user.

Going Random

Obfuscation is a simple strategy for increasing cluster size.

Interestingly, spoofing phone browser obfuscates income determination

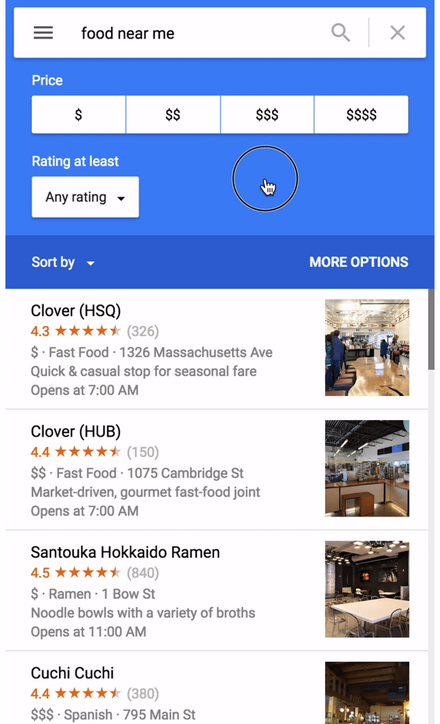
Psychological Camouflage

Obfuscation is a more basic strategy that protects users from psychological targeting and leads to more generic clusters. Here we react randomly to all posts from people who more than a certain social distance from us.

Another interesting method of obfuscation is to randomly spoof different smartphone models, as these are widely used as proxies for a user's income.

Beyond Random

Dissimilar users with similar aspirations can be clustered intentionally via strategic automation.



Convergence

With enough users, Scales can modify its obfuscation patterns until content begins to converge for users with similar values, but dissimilar demographics.

The overarching goal of Scales is to "set it and forget it." At least for a while. And let it passively work for you.

Next steps include factoring image analysis into the nutrition facts, and deploying some additional machine learning models at interface design as opposed to merely content, in order to counter so-called "dark patterns" in UI, often borrowed from casino game designers, that are known to keep players engaged for much longer than their stated preferences.

The Scale of Infrastructure

Observation:
The business model of the attention economy is the principle force shaping the algorithms that mediate our relationships with one another and the urban environment.

Design Prompt:
How might we design a technological infrastructure that supports a market where digital content that is paid for with money, instead of attention and intimate data, irrecoverable pieces of ourselves?

Concept:
A protocol for an open social graph and a public ledger marketplace for attention and personal data

The part of America's economy that is ad-centric has become systemically important, with a **market value that is larger than the banking industry.**

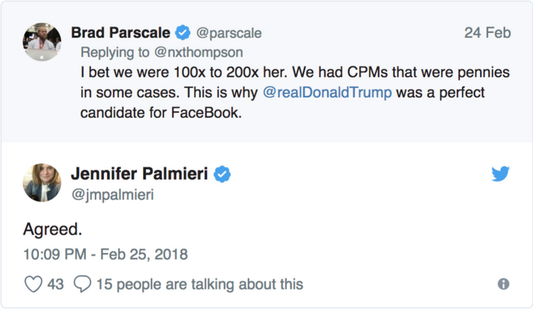
-The Economist, January 2018

New Attention Economy

Five out of the five largest companies in the world are US tech companies and their fortunes are all dependent in one way or another on providing infrastructure for digital ads.

That infrastructure is designed in a very foundational way to collect psychological data on consumers to predict what will maximize their attention.

Given the scale and structure, it seems prudent to ask about externalized costs.



Subsidized Rage

To that end, I present to you a twitter exchange between the Communications directors of the Clinton and Trump campaigns. The exchange is a bit cryptic, so I'll translate...

First of all, a CPM is the cost per thousand ad impressions. When facebook auctions an ad at a user, it doesn't just go to the highest bidder, facebook multiplies the bid by how likely it thinks the ad is to get an engagement whether positive or negative.

The result is that people who sponsor ads that are shocking or enraging, and thus prompt the most shares, comments, etc... can pay tens or or even thousands of times less for the same placement than people whose content might be edifying but doesn't prompt readers to scream into the void.

Harvard Business Review

HEALTH

A New, More Rigorous Study Confirms: The More You Use Facebook, the Worse You Feel

by Holly B. Shakya and Nicholas A. Christakis

APRIL 10, 2017

SUMMARY SAVE SHARE 20 COMMENT TEXT SIZE PRINT $8.95 BUY COPIES

The average Facebook user spends almost an hour on the site every day, according to data provided by the

WHAT TO READ NEXT

Engagement v. Satisfaction

The finding you see here was recently replicated by facebook itself in it's own user testing.

The way facebook puts it is that users feel good when they use facebook to communicate with friends and family and feel bad when they use it to passively consume content.

The fact that facebook does not actually make money on the former is not discussed, but is, in fact, central to the question of the sustainability of the attention economy.

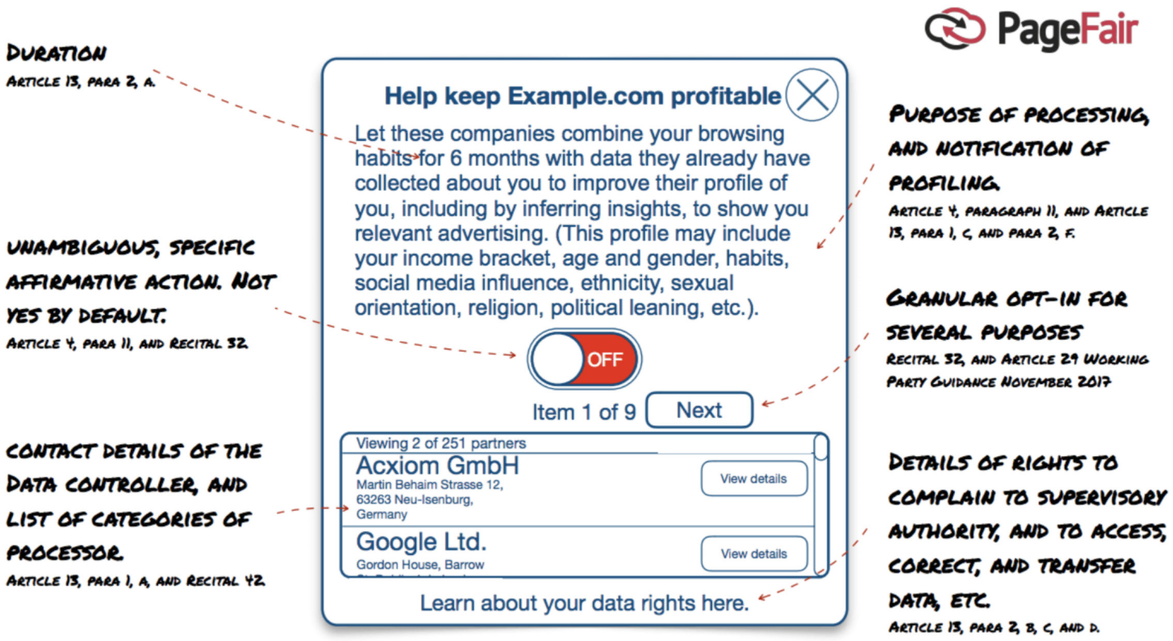
Under the GDPR, **consent is the only possible basis for targeted ads but it's unworkable.**

Johnny Ryan, VP Pagefair, an anti-adblock services company

Informed Consent

In 20 days or so, the General Data Protection Regulation (or GDPR) will go into effect in the EU, requiring granular, so-called informed consent for all data acquired from EU citizens, anywhere on the internet.

According to the research of PageFair, a company that helps advertisers get around ad-blockers, the willingness of users to consent to data transfers for the targeting of ads is very low, with a median of around 3 to 5 percent in user testing.



Engagement v. Satisfaction

Why might consent be unworkable?

Pagefair made some very ambitious wireframes trying to cram the required permissions into into a neat a package as possible, but it still requires 9 screens like this for average commercial website to conduct business as usual.

Crucially, publishers are not allowed to block access if users choose not to share their data. The GDPR is a direct attack on the pool of data that fuels suggestion algorithms, but it is also a direct attack on the business model of nearly all published content on the internet.

This regulation is a direct result of the european public growing weary of invisible, non-consensual data transfer.

viewpoints

DOI:10.1145/2818992

Manuel Cebrian, Iyad Rahwan, and Alex "Sandy" Pentland

Viewpoint
Beyond Viral

The proliferation of social media usage has not resulted in significant social change.

THE GOLDEN AGE of social media coincides with a worldwide leadership crisis, manifested by our seeming inability to address any major global issue in recent years.[32] These days, no one—be they a charismatic leader or a nameless crowd—seems to be able to make issues popular for long enough to mobilize society into action. As a result of this leadership vacuum, social progress of all sorts seems to have become stymied and frozen. How can this happen precisely in a time when social media, praised as the ultimate tool to raise collective aware-

Adam Smith

4 hrs ·

"Whatever praise or blame can be due to any action, must belong either, first, to the intention or affection of the heart, from which it proceeds."
—Adam Smith,
The Theory of Moral Sentiments

Proceeding from the Heart

However, informed consent isn't the end all either.

The Harvard Berkman Klein faculty associate Zeynep Tufecki tells a cautionary tale in which an ad-targeting model might learn to use Instagram posts to determine when a bipolar individual is entering a manic phase and then use the symptoms that present in that phase, such as compulsive spending and gambling, to target that individual with advertisements for weekend trips to las vegas.

If people in the manic phase are in fact more susceptible to certain ads and that susceptibility can in fact be determined from text and image modeling, then the chances are that Facebook Audience Network or Google adSense are already doing this.

Causation isn't considered by the algorithm. If there is a statistically-significant correlation between features available to the algorithm, in this case, the text and images you post, and the signal it's optimizing for, in this case, your likelihood to click on certain ads, that correlation is baked into the algorithm by default.

By simply employing a **pure text model** (without any social media features), the classifier can achieve **more than 91% precision.**

"Detection of the Prodromal Phase of Bipolar Disorder from Psychological and Phonological Aspects in Social Media", Huang et. al. Arxiv, December 2017

Pure Text Model

It actually turns out that you don't need images, or any of the rich metadata social media provides. Learning models can match human doctors 9 times out of 10 based on text alone when it comes to diagnosing the manic phase of bipolar disorder.

The business model of the attention-economy relies on technology that exploits human weakness in ways that, once properly understood, are extremely difficult to condone.

Which brings us to Clear.

Clear is an open web protocol

You get a message+wallet address

Public ledger for buying and selling data

Share or sell only the data you choose

Clear API is open, anyone can make apps

Algorithmic feeds and filters for your Clear messages are products that compete on quality, privacy and customization without locking you in

Project: CLEAR Protocol

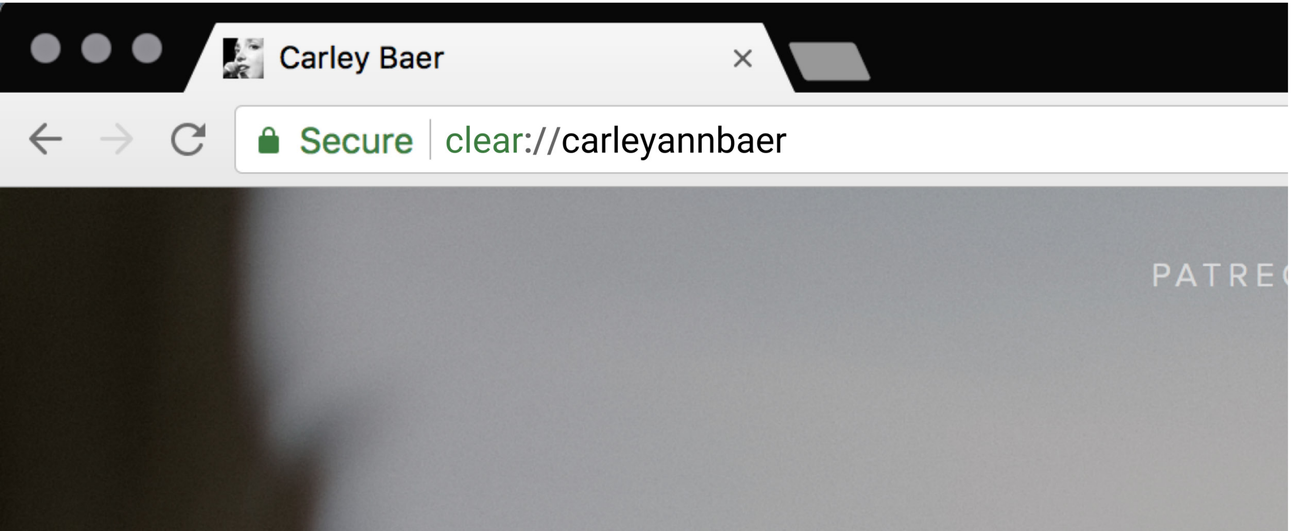
Clear is a peer-to-peer social networking infrastructure that makes it easy to share content and to use micro-payments as a replacement for invisible data collection.

Clear is a concept developed by myself and Nadeem Mazen, along with a growing team of phds and post-docs, mainly from csail at MIT. Our whitepaper will be published in July. Clear is an attempt to build the missing "people layer" if the internet.

People find it hard to quit Facebook because if you go anywhere else you can only communicate with the part of your network that has already joined that service. So there's a nasty catch 22, where a competing product can't provide the same level of value until after people have already switched to it.

Clear provides an open social messaging protocol that companies can build on top of, the way companies are built on top of the internet, so that we can actually have competition for these critical social resources.

A personal address for messages and transactions

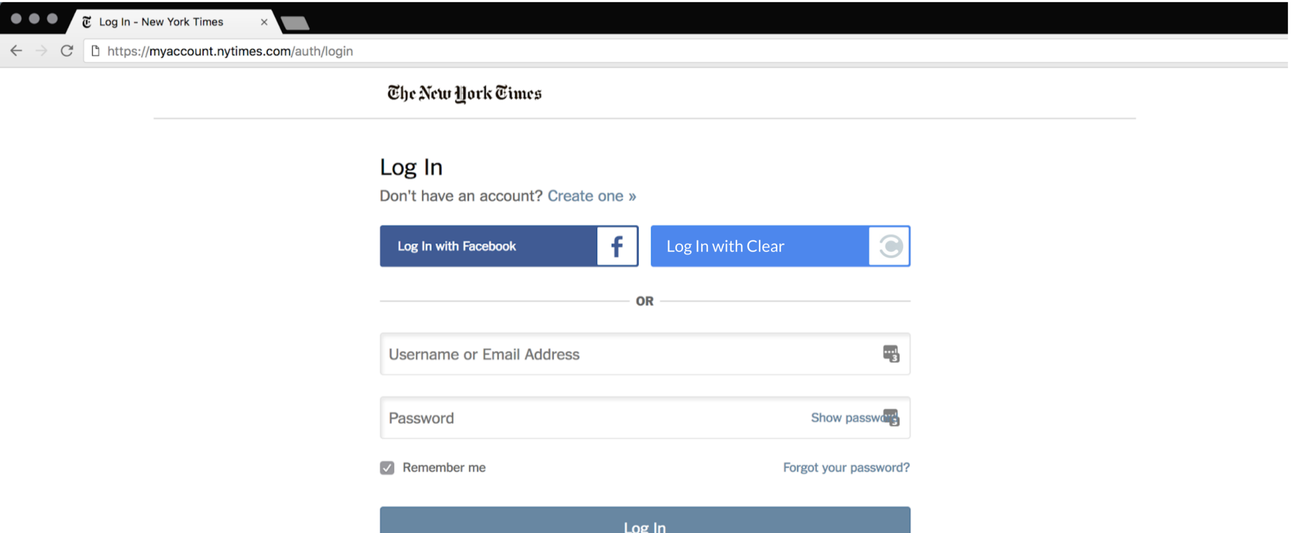


The Missing People Layer

Your Clear account gives you a place on the web to view and post messages. Clear will provide a default app as an interface, but in the same way that any app can connect to the internet, anyone can build an interface for viewing and posting content. You can even design one yourself. Clear makes it easy to manage privacy and permissions.

Think of it as the http of social networks. Except instead of addresses for websites, it connects addresses for people.

An identity to use across the internet



A Secure Identity

Your Clear account is also an identity that you can use across the internet. You can log into websites with your clear account, the same way you would be google or facebook. Clear allows you to securely interact with sites across the web, sharing only the data you choose to share.

In addition to this, your Clear address also functions like a digital bank account, similar to paypal or venmo.

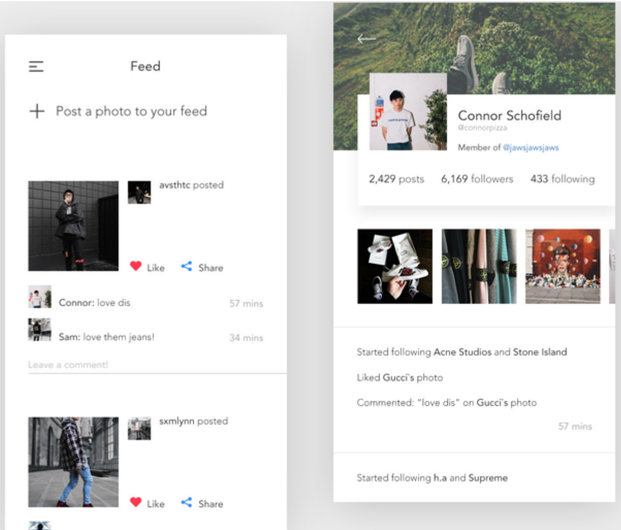
The Trimtab Turns the Ship

In this example the new york times has charged you a fraction of a cent for this page view, but is also paying you for viewing some ads according to your preferences and for some data of you decided to share. You could also choose to simply pay the cost from your account balance.

Performing financial transactions this small has been too costly until recently, but some new open source technology has now become available that makes this possible.

This model allows publishers to offer a default experience that is *break-even* for users, instead of free, which we believe is a simple distinction with the power to upend the attention economy. A trimtab, as Bucky Fuller used to say.

Create and view content



Open for Development

Imagine a world in which there was a single account, owned and controlled by you alone, for which Facebook, Twitter, Whatsapp, etc... were all interchangeable interfaces for a single network of people and messages.

Each of these products may offer a distinct style of communication, as well as different opportunities for filtering information, but at the foundation of it would be a network of content, data and addresses owned and controlled by the users themselves.

Our team of talented AI researchers and designers are building out default interfaces for posting and viewing content, including suggestion algorithms, and while we plan to set a high-standard for customization and privacy, because Clear is open for developers, we won't be the only game in town and algorithms will compete on customization, privacy, cost, etc... Users can switch without having to sacrifice access to their friends and family.

Okay, perhaps you're saying, this is all very good, but who pays for it?

Store your data and serve it yourself

Your Data, Your Network

You do.

When you sign up, you choose a storage and compute provider when you set up your clear account. Set up is automatic and clear never needs to see your account credentials for the provider you choose.

Because every user runs a clear installation on a computer that they control instead of us, we cannot access or give away user's data. If you don't trust any cloud services companies to be good stewards of your data, the clear software is open source and can be downloaded and run for free from your personal computer.

Because it is open source its security and privacy code can be audited by anyone in the world at any time.

Public Transactions (infrastructure cost) Ledger

From Address	To Address	Tx Number	# of bytes	Cost
0x5asdfl67i65	0x6asdf53po87	1x3fdo87sdfd89	29859263747	0.0000011

Private Transactions (buying and selling content) Ledger

From Address	To Address	Tx Number	Encrypted Smart Contract
0x5asdfl67i65	0x6asdf53po87	1x3fdo87sdfd89	mQENBFg0l44BCAC9zjE5Ml+d/auZmPS1ulUx2h7+nAqp0j/oawiKSHwkYrz9olpQvEJbzuCLKmJr5ZVWKU+HC7dsTNzvHQ3K7fCJKo...

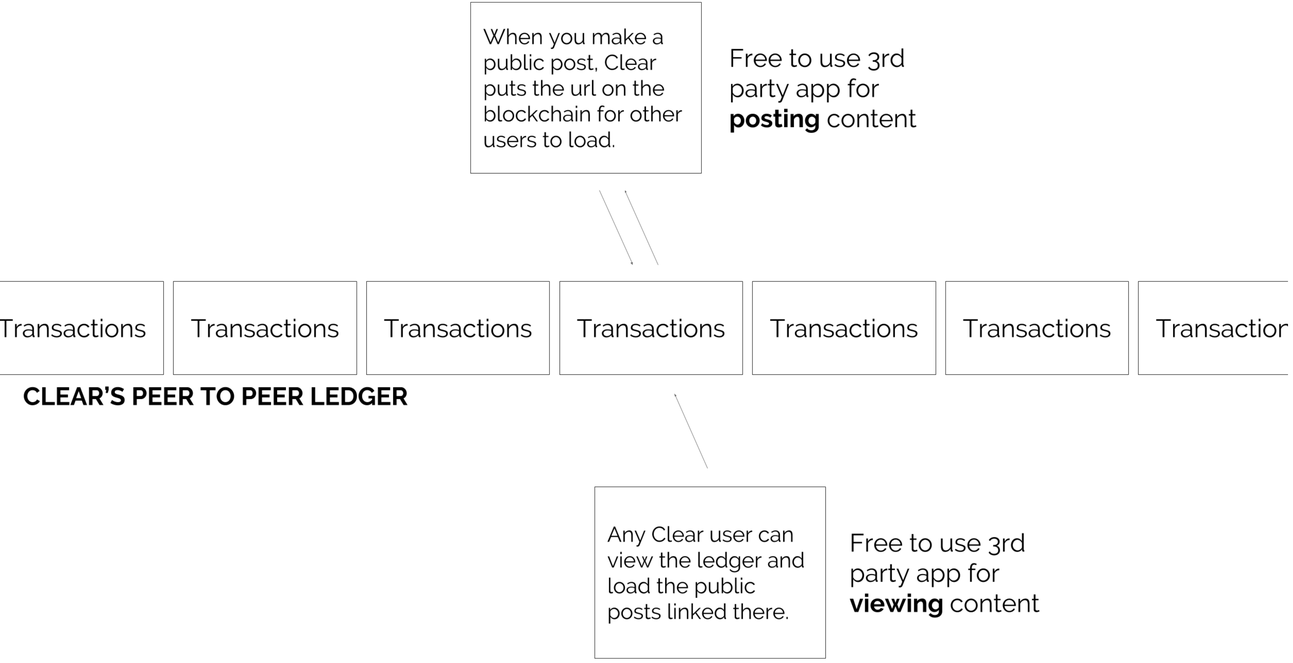
Sharing the Cost

There is a service cost every time data stored or sent across the network.

For example the cost of a public post you have made will be split between you and the person viewing it, and you'll both charged a tiny amount each time it is served.

Our back-of-the-napkin cost estimate assuming typical social media use and a cloud provider like Amazon is somewhere around a dollar per month, which you are of course free to offset by viewing ads, giving away data, or charging for some content you've created.

The bottom ledger is basically the same but will sometimes need a bit more privacy, for example if we're choosing to share personal data.



CLEAR is a Clearinghouse

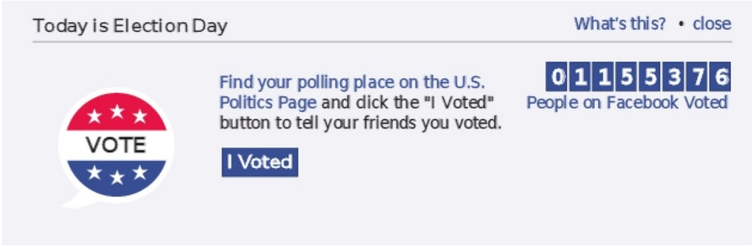
Clear is merely an infrastructure for recording activity on the network and making sure people have permission to access it.

I won't dive too deeply into peer to peer networking here, but just imagine a big spreadsheet that every user holds a copy of, with some coding magic that makes sure each edit passes muster with the community before moving on to the next. We call this big spreadsheet a ledger, because it's recording transactions.

You have access to all of the public content on the network, but the interfaces that people build for Clear help you get to the stuff you want as well as create your own.

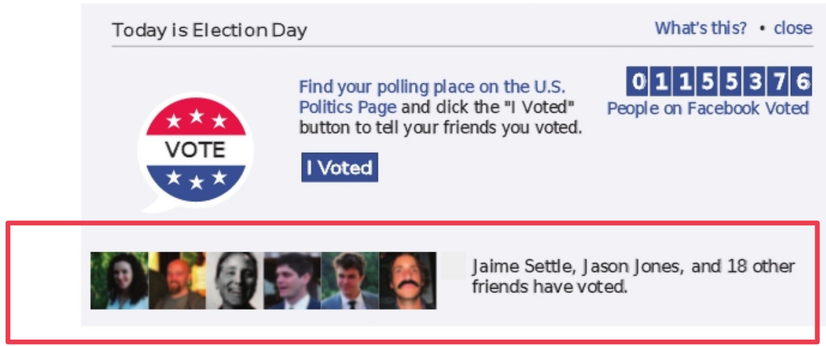
Since your data and clear installation are running on your own cloud account, Clear is basically just a big clearinghouse for urls that helps manage the permissions required to view them.

Effect of Ads Near Zero



VS

Effect of Friends 10,000x



[1]See Bond et. al. & Krasno and Greene in appendix

Decentralizing Power

One of the really exciting possibilities here is that by returning control over visibility to users, everyone possesses the power to move cultural mountains, if they can get the sufficient consent.

These are the treatment and control specimens from an experiment run on Facebook in 2010 and replicated in 2012, on a population of 62 million americans. The study found that the post on top had zero significant effect on voting behavior, while the post on the bottom increased turnout by nearly 0.3%, after seeing it once. This may have been enough in both of those years to change the majority party of the US congress if deployed asymmetrically.

Facebook is the only organization in the world with this level of scientifically-verified immediate influence over consequential human behavior. Right now, it deploys users' social capital at the times and places of its own choosing, but with a protocol like Clear, that power could distributed back to the community of users with an emphasis on the constraint of freely-given consent.

Just as a living cell needs an effective membrane to protect its internal machinery from the vicissitudes of the outside world, **so human organizations need a protective interface between their internal affairs and the public world, and the old interfaces are losing their effectiveness.**

— Deb Roy & Dan Dennett, Our Transparent Future, 2016

The Old Interfaces

In their essay, "Our transparent future" the computer scientist Deb Roy and the philosopher Dan Dennett argue that traditional institutions have evolved in a murky epistemological environment where most knowledge was local and secrets were easily kept.

Comparing the recent diffusion of real-time information to the clearing of coastal waters during the Cambrian explosion, they assert that...

"Just as a living cell needs an effective membrane to protect its internal machinery from the vicissitudes of the outside world, so human organizations need a protective interface between their internal affairs and the public world, and the old interfaces are losing their effectiveness."

Since I began these projects, the Cambridge Analytica scandal has foregrounded some uneasyness with the design of the interfaces that bind us to the network, and we may be in a moment of opportunity to make a more public project out of this conversation.

I look forward to observing the role that designers come to play in steering this conversation and reconsidering the interfaces that mediate our view of the wider world, and our relationships with one another.

THANK YOU

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