Week 7: Monday

Ethical Issues in Technology

Unit 5: Platforms

What are “Platforms”?








Roadmap

Monday

Personalized feeds

Filter bubbles and echo chambers

Recommendation algorithms

Wednesday

[Case study] YouTube Recommendations

*******Project Midpoint Due*******

Friday

Who is responsible for content moderation?

Platform election response

[Current events]

Personalized Feeds

- personalized search on **Google**
- **Facebook** news stream
- **Instagram** Explore page
- “For You” page on **TikTok**
- Recommended videos on **YouTube**
- Trending Twitter topics

What are recommendations on Facebook?

Share Article

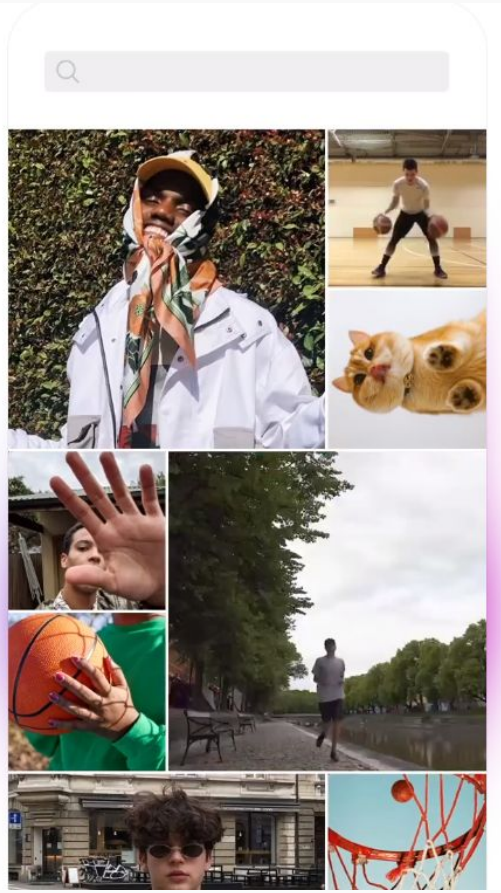
We make personalized recommendations to the people who use our services to help them discover new communities and content. Both Facebook and Instagram may recommend content, accounts, and entities (such as Pages, Groups, or Events) that people do not already follow. Some examples of our recommendations experiences include Pages You May Like, “Suggested For You” posts in News Feed, People You May Know, or Groups You Should Join.

Our goal is to make recommendations that are relevant and valuable to each person who sees them. We work towards our goal by personalizing recommendations, which means making unique recommendations for each person. For example, if you and another person have Facebook Friends in common, we may suggest that person as a potential new Friend for you.

What baseline standards does Facebook maintain for its recommendations?

At Facebook, we have guidelines about what content we will recommend to people. Those guidelines fit into a strategy we have used to manage problematic content on Facebook since

Instagram



HOW IT WORKS

Browse interesting posts, accounts, and topics.

Search & Explore offers you fresh content based on people you follow and posts you like.

Manage your recommendations and search results

Your activity on YouTube, Google, and Chrome may influence your YouTube search results, recommendations on the homepage, in-app notifications, and suggested videos among other places.

There are several ways to influence these recommendations and search results. You can remove specific videos from your watch history and searches from your search history. You can also pause your watch and search history, or start fresh by clearing your watch and search history.

Watch history and search history

- **Remove individual videos from your watch history**: If you see recommendations you're not interested in, removing a video you watched may reduce the chance that you'll see similar recommendations.
- **Remove individual searches from your search history**: If you see recommendations you're not interested in, removing a search entered may reduce the chance that you'll see similar recommendations.

How TikTok recommends videos #ForYou

Share this post

TikTok's mission is to inspire creativity and bring joy. We're building a global community where you can create and share authentically, discover the world, and connect with others. The For You feed is part of what enables that connection and discovery. It's central to the TikTok experience and where most of our users spend their time.

When you open TikTok and land in your For You feed, you're presented with a stream of videos curated to your interests, making it easy to find content and creators you love. This feed is powered by a recommendation system that delivers content to each user that is likely to be of interest to that particular user. Part of the magic of TikTok is that there's no one For You feed – while different people may come upon some of the same standout videos, each person's feed is unique and tailored to that specific individual.

The For You feed is one of the defining features of the TikTok platform, but we know there are questions about how recommendations are delivered to your feed. In this post we'll explain the

About Twitter's account suggestions

Account suggestions on Twitter are based on many factors, including your address book contacts (if you have chosen to upload them) as well as patterns from your following history. These suggestions are generated by algorithms, which means you may or may not know the accounts or find them relevant.

How does Twitter find accounts to suggest?

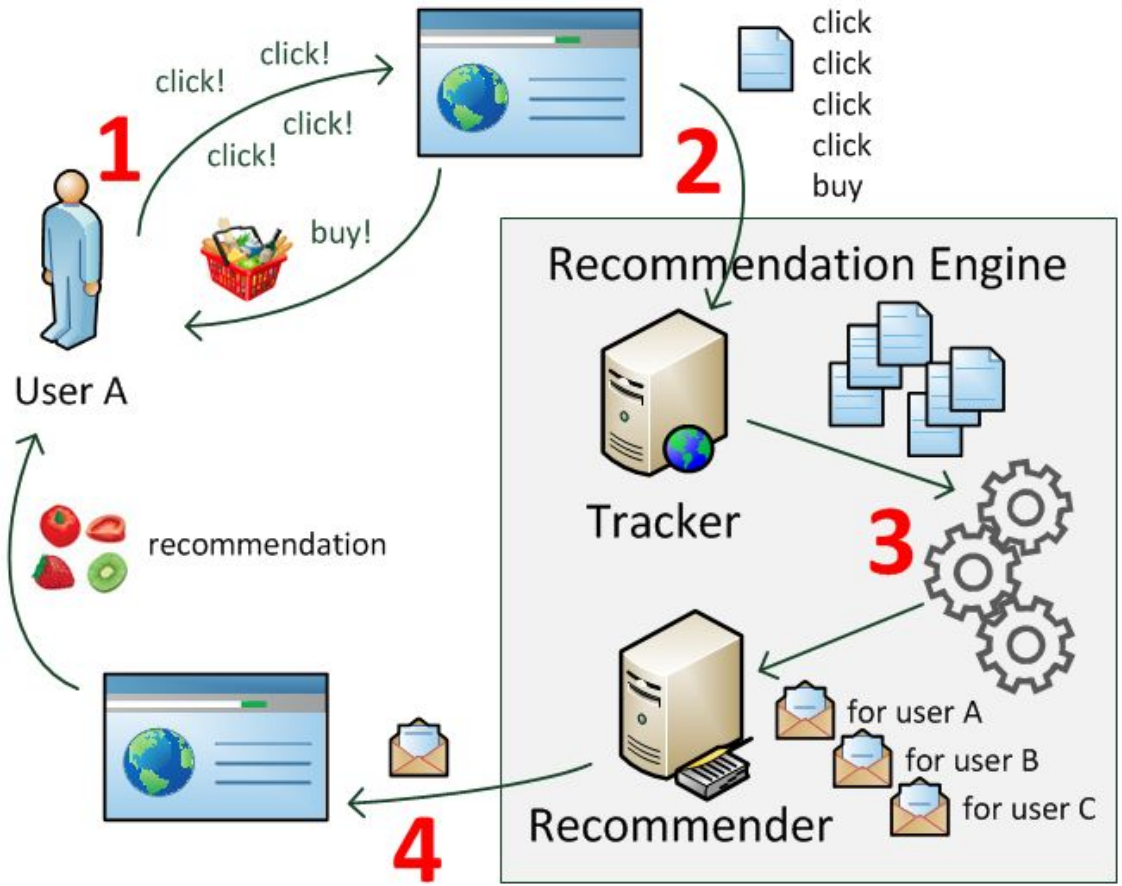
Twitter's account suggestions are based on algorithms that make personalized suggestions for you. You may see suggestions based on criterion such as:

- If you've uploaded your contacts to Twitter, we'll suggest you connect with those who already have Twitter accounts.
- If someone has uploaded their contacts to Twitter, and your email address or phone number is included in their contacts, we may suggest

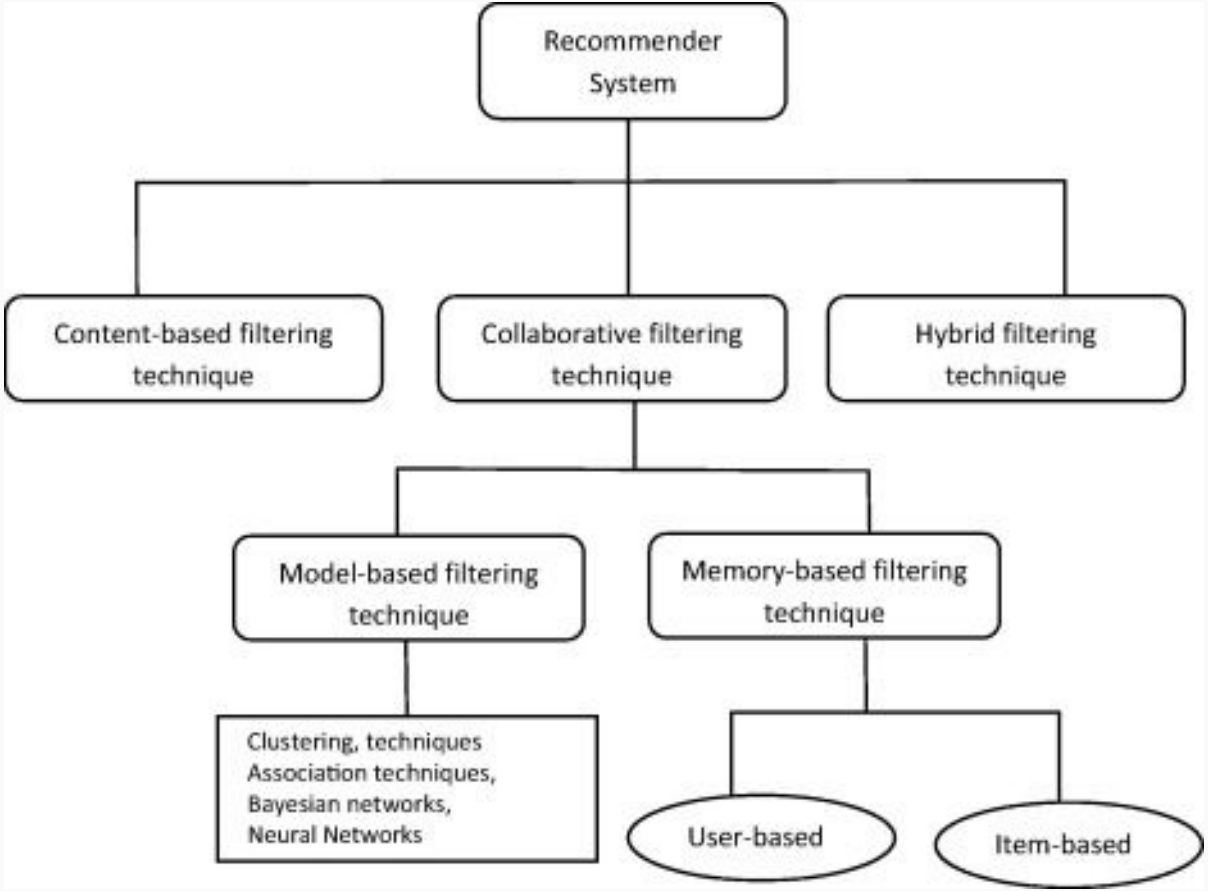
Recommender Systems

- Wikipedia
  - a subclass of information filtering system that seeks to predict the "rating" or "preference" a user would give to an item
- Data used by recommendation systems may include:
  - past activity
  - ratings and reviews
  - information from profile
  - click-through patterns

Recommendation Systems



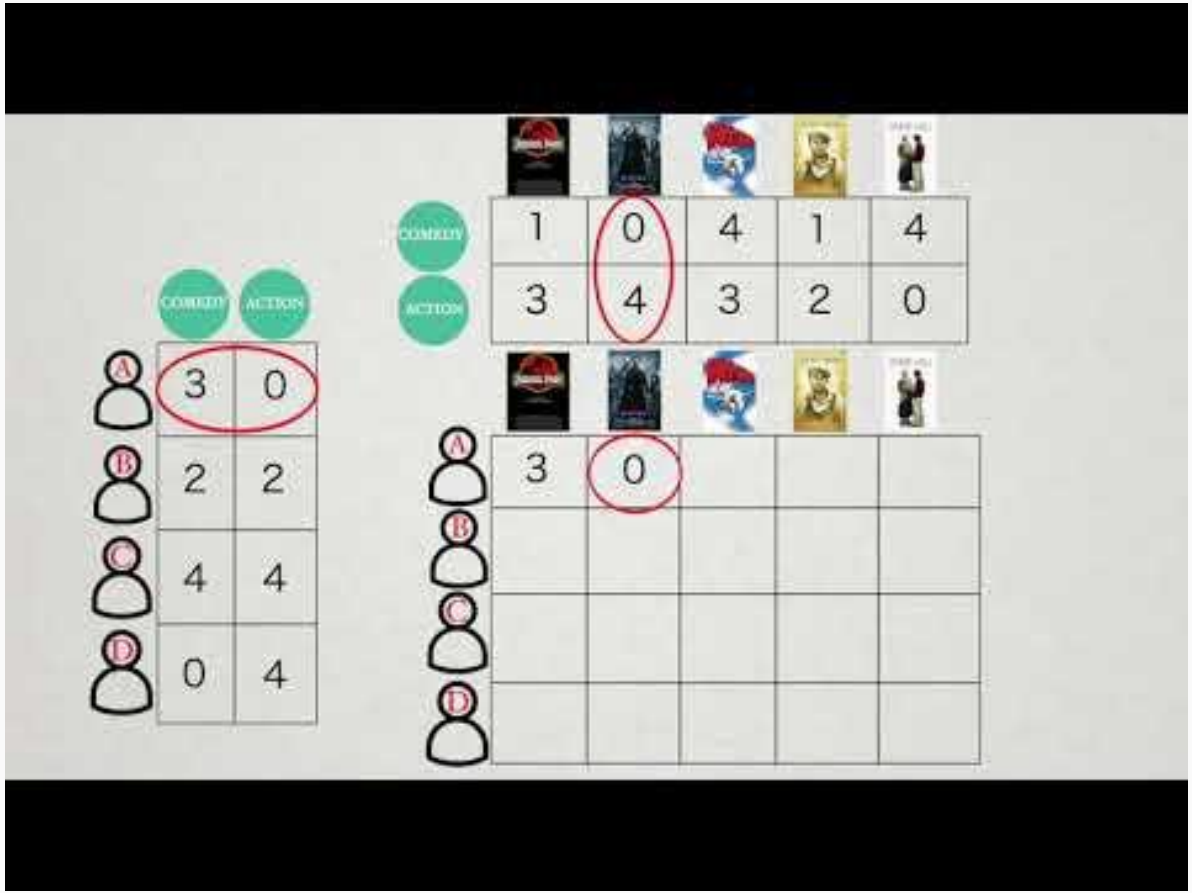
Recommendation Systems



Types of Recommendations

- Content-based filtering
  - well-defined features come from human mind
- Collaborative filtering
  - features defined from patterns in the data
- Hybrid system!

Recommendation Systems



[Optional Reading]

If you’re interested in learning more about the specific techniques used in recommendation algorithms, this paper is a good place to start:

Recommendation systems: Principles, methods and evaluation

Echo Chambers

- Wikipedia
  - situations in which beliefs are amplified or reinforced by communication and repetition inside a closed system and insulated from rebuttal
- Social media echo chambers may increase:
  - political polarization
  - extremism
  - rumor reinforcement

The echo chamber effect on social media

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Social media may limit the exposure to diverse perspectives and favor the formation of groups of like-minded users framing and reinforcing a shared narrative, that is, echo chambers. However, the interaction paradigms among users and feed algorithms greatly vary across social media platforms. This paper explores the key differences between the main social media platforms and how they are likely to influence information spreading and echo chambers' formation. We perform a comparative analysis of more than 100 million pieces of content concerning several controversial topics (e.g., gun control, vaccination, abortion) from Gab, Facebook, Reddit, and Twitter. We quantify echo chambers over social media by two main ingredients: 1) homophily in the interaction networks and 2) bias in the information diffusion toward like-minded peers. Our results show that the aggregation of users in homophilic clusters dominate online interactions on Facebook and Twitter. We conclude the paper by directly comparing news consumption on Facebook and Reddit, finding higher segregation on Facebook.

information spreading | echo chambers | social media | polarization

tion and public opinion formation. In this paper, we explore the key differences between social media platforms and how they are likely to influence the formation of echo chambers or not. As recently shown in the case of selective exposure to news outlets, studies considering multiple platforms can offer a fresh view on long-debated problems (34). Different platforms offer different interaction paradigms to users, ranging from retweets and mentions on Twitter to likes and comments in groups on Facebook, thus triggering very different social dynamics (35). We introduce an operational definition of echo chambers to provide a common methodological ground to explore how different platforms influence their formation. In particular, we operationalize the two common elements that characterize echo chambers into observables that can be quantified and empirically measured, namely, 1) the inference of the user's leaning for a specific topic (e.g., politics, vaccines) and 2) the structure of their social interactions on the platform. Then, we use these elements to assess echo chambers' presence by looking at two different aspects: 1) homophily in interactions concerning a specific topic and 2) bias in information diffusion from

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information spreading | echo chambers | social media | polarization

Filter Bubbles

- Wikipedia
  - a state of intellectual isolation that can result from personalized searches when a website algorithm selectively guesses what information a user would like to see
- Farnam Street
  - many sites offer personalized content selections, based on our browsing history, age, gender, location, and other data
  - even when a site is not offering specifically targeted content, we all tend to follow people whose views align with ours

Exploring the Filter Bubble: The Effect of Using Recommender Systems on Content Diversity

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ABSTRACT

Eli Pariser coined the term *'filter bubble'* to describe the potential for online personalization to effectively isolate people from a diversity of viewpoints or content. Online recommender systems - built on algorithms that attempt to predict which items users will most enjoy consuming - are one family of technologies that potentially suffers from this effect. Because recommender systems have become so prevalent, it is important to investigate their impact on users in these terms. This paper examines the longitudinal impacts of a collaborative filtering-based recommender system

sonalized product and information offerings. They play a significant role in companies' profit margins. For example: Amazon once reported that 35% of its sales came from its recommendation systems [7]. Netflix in 2012 reported that 75% of what its users watched came from recommendations [1]. Recommender systems have greater influence on users' choices than peers and experts [14]. They lower users' decision effort, and improve users' decision quality [20].

But from the early days of recommender systems, researchers have wondered whether recommender systems might cause the *'global village'* to fracture into tribes [12],

Interactive Demo

Blue Feed, Red Feed: See Liberal Facebook and Conservative Facebook, Side by Side

https://graphics.wsj.com/blue-feed-red-feed/

Interactive Demo

Measuring the "Filter Bubble": How Google is influencing what you click

https://spreadprivacy.com/google-filter-bubble-study/

Ethics Inf Technol (2013) 15:209–227
DOI 10.1007/s10676-013-9321-6

ORIGINAL PAPER

Bias in algorithmic filtering and personalization

Engin Bozdag

Published online: 23 June 2013

Abstract Online information intermediaries such as Facebook and Google are slowly replacing traditional media channels thereby partly becoming the gatekeepers of our society. To deal with the growing amount of information on the social web and the burden it brings on the average user, these gatekeepers recently started to introduce personalization features, algorithms that filter information per individual. In this paper we show that these online services that filter information are not merely algorithms. Humans not only affect the design of the algorithms, but they also can manually influence the filtering process even when the algorithm is operational. We further analyze filtering processes in detail, show how personalization connects to other filtering techniques, and show that both human and technical biases are present in today's emergent gatekeepers. We use the existing literature on gatekeeping and search engine bias and provide a model of algorithmic gatekeeping.

extensive travelling of news, information and commentary makes it very difficult for an average user to select the relevant information. This creates serious risk to everything from personal and financial health to vital information that is needed for fundamental democratic processes. In order to deal with the increasing amounts of (social) information produced on the web, information intermediaries such as Facebook and Google started to introduce personalization features: algorithms that tailor information based on what the user needs, wants and who he knows on the social web. The consequence of such personalization is that results in a search engine differ per user and two people with the same friends in a social network might see different updates and information, based on their past interaction with the system. This might create a monoculture, in which users get trapped in their "filter bubble" or "echo chambers" (Sunstein 2002, 2006; Pariser 2011b). Social media platforms, search and recommendation engines affect what a daily user sees and does not see. As knowledge, commerce,

Abstract Online information intermediaries such as Facebook and Google are slowly replacing traditional media channels thereby partly becoming the gatekeepers of our society. To deal with the growing amount of information on the social web and the burden it brings on the average user, these gatekeepers recently started to introduce personalization features, algorithms that filter information per individual. In this paper we show that these online services that filter information are not merely algorithms. Humans not only affect the design of the algorithms, but they also can manually influence the filtering process even when the algorithm is operational. We further analyze filtering processes in detail, show how personalization connects to other filtering techniques, and show that both human and technical biases are present in today's emergent gatekeepers. We use the existing literature on gatekeeping and search engine bias and provide a model of algorithmic gatekeeping.

Pariser describes how the internet tends to give us what we want:

> Your computer monitor is a kind of one-way mirror, reflecting your own interests while algorithmic observers watch what you click.

Pariser terms this reflection a filter bubble, a "personal ecosystem of information." It insulates us from any sort of cognitive dissonance by limiting what we see. At the same time, virtually everything we do online is being monitored — for someone else's benefit.

In particular, the existence of filter bubbles has led to widespread concern. Pariser writes:

> Democracy requires citizens to see things from one another's point of view, but instead we're more and more enclosed in our own bubbles. Democracy requires a reliance on shared facts; instead we're being offered parallel but separate universes.
>
> ... Personalization filters serve a kind of invisible autopropaganda, indoctrinating us with our own ideas, amplifying our desire for things that are familiar and leaving us oblivious to the dangers lurking in the dark territory of the unknown.

Breakout Rooms

- Meet with your discussion groups for 10-15 minutes
- Choose one person to screen-share
- Search for interesting and *qualitative* research on the effects of the echo chamber or filter bubble effects on social media
- Submit URLs to the form below and we will discuss as a class
- https://forms.gle/m7qRa17wE7skTpHu9

*******Project Midpoint Due Wednesday*******

Students should **report on their project progress**. Specifically, what concrete steps have been taken towards completing the project? The midpoint report should demonstrate substantial progress towards the production of an impactful deliverable. If any circumstances have changed since the project proposal, students should document the changes to their plan and strategies going forward.

Please note: this is not a description of how much progress has been made on the write-up. The write-up is a reflection on the impact and success of the project deliverable itself!!!

Wednesday Readings

Casey Newton: How YouTube Perfected the Feed

Kevin Roose: The Making of a YouTube Radical

Mark Ledwich: Algorithmic Radicalization -- The making of a New York Times Myth