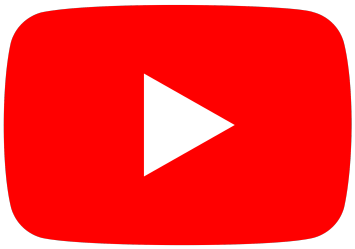
Increasing Algorithmic Literacy on Youtube



COMM 4940: Governing Human Algorithm Behavior

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Executive Summary

In this report, we investigate Youtube's algorithm and conduct a user study to identify key factors that we can communicate to users to help them make conscious choices in their consumption of content. In the end of this report, we suggest a design change to Youtube that could make algorithmic influence factors more visible to users.

Introduction

Problem Statement

Youtube is the second-most visited website in the world, and its algorithm drives 70% of watch time on the platform - an estimated 700 million hours every single day. A recent report also shows that 72% of adults see youtube as a source of news. However, very little is known to the public about its inner workings. For years, that recommendation algorithm has helped spread health misinformation, political disinformation, hateful diatribes, and their regrettable content to people around the globe. Yet, youtube has met this criticism with inertia and opacity.

There are many experts who argue that these problems are not actually the errors with the algorithm - rather, they are the output of YouTube's algorithm working exactly how it should and that there is a fundamental misalignment between algorithms optimized to further business incentives and those optimized for the well being of people. However, it is wrong to claim that the fault is only with humans. Youtube's recommendation algorithm acts as an tilting ground that drives users to adopt a certain stance about a topic which further polarizes and drives them down a rabbit hole.

This project intends to deliver an analysis of prior tools and suggestions on future work for increasing algorithmic literacy on Youtube.

Who is our target audience?

- Our target audience is the general public who knows basic knowledge of algorithms, but hardly intervene in the algorithms, and software engineers, ux designers who are intending to improve the algorithms experience.
- Delivering a report on factors that are important to increase algorithm literacy online to software engineers, ux designers who are developing software tools to combat this issue
    - More research, therefore, is needed in the area of controlling our technological destiny before it controls us (Zheng et al., 2018).
    - Algorithm literacy improvement will advance algorithm design. The model provided by Shin et al. clarifies that interacting with algorithms engages AL

processes wherein algorithm attributes are utilized to forge a heuristic of the user discovery process and to trigger actions in OTT services (Shin et al., 2021).

- Identifying the key factors necessary to increase algorithmic literacy on Youtube for its viewers
    - To the general public, however, there is a low awareness in spite of their growing exposure to algorithms in recent years. Indeed, some users realize the exposure, but AX is not always accurate or pleasant to them. A user-centered approach towards eliciting desirable AX qualities is not straightforward, since the general awareness of algorithmic influence is low among users. Serious challenges exist concerning how to design and develop algorithmic interfaces (Shin, Fotiadis, & Yu, 2019).

What is Algorithmic Literacy?

- The concept of algorithmic literacy has been derived from related concepts like information literacy and data literacy as the importance of algorithms has increased over all sectors of society (Shin et al.). While it extends beyond traditional literacy, algorithmic literacy has not yet been well conceptualized nor well measured (Cotter, 2019).
- Cotter and Reisdorf refers to the understanding of what algorithms are, how they are used, how they can benefit people and how they can negatively impact individuals and certain groups (Cotter and Reisdorf, 2020). Koenig (2020) defines AL as the social processes and practices of reading and writing what algorithms produce and mean. AL commonly means being aware of the presence of algorithms in daily life, and the increasing role they play, both for good and bad (Swart, 2021).
- In a more recent work, algorithmic literacy was defined as “being aware of the use of algorithms in online applications, platforms, and services, knowing how algorithms work, being able to critically evaluate algorithmic decision-making as well as having the skills to cope with or even influence algorithmic operations” (Dogruel et al., 2021, p. 4).
- As a newly developed term, algorithmic literacy hasn't had an acknowledged definition. However, most definitions of it are concerning users’ knowledge and skills with algorithms. Recent studies about algorithmic literacy from users acknowledging the presence and influence of algorithms, to improve people’s judgment and intervene on algorithms. “Ideally, AL also helps people to evaluate how media, firms and the government are using these technologies and, in doing so, enable them to advocate for responsible technology design and use that avoids problematic biases and helps to

safeguard privacy (Rainie and Anderson, 2017). AL engages meaningful efforts to enable more users to impact data flows and perceive if or when they or others are being marginalized (Klawitter and Hargittai, 2018)".

- However, while we refer in this paper to algorithmic literacy, the most commonly used term in research thus far has been algorithmic awareness. This at first focused on the most basic level of algorithmic understanding: that users are even aware of the existence of algorithms. It has recently been more explicitly defined as "knowing that a dynamic system is in place that can personalize and customize the information that a user sees or hears" (Hargittai et al., 2020, p. 771)

Why do we need to increase Algorithmic Literacy on Youtube?

1. Algorithmic Literacy is connected to health literacy, information literacy, and disinformation literacy.
    a. In a research study where physicians were asked to recruit to watch the videos and rate them on whether these would be considered valid and understandable from a patient education perspective, they rated YouTube's recommendations poorly despite the recent edits Youtube has made in improving its recommendations for misleading content.
    b. False information spread about Youtube content could influence people's behaviors and cause negative outcomes in areas of great importance like health literacy, information literacy, and disinformation literacy.
    c. Links
        i. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3061149
        ii. https://www.fastcompany.com/90527961/youtubes-algorithms-could-be-harming-users-looking-for-health-information
2. Lack of Public Understanding around Algorithms
    a. Because algorithms are generally invisible – even often referred to as "black box" constructs, as they are not evident in user interfaces and their code is usually not made public – most people who use them daily are in the dark about how they work and why they can be a threat. Some respondents said the public should be better educated about them.
    b. Links
        i. https://www.pewresearch.org/internet/2017/02/08/theme-7-the-need-grows-for-algorithmic-literacy-transparency-and-oversight/
        ii. https://osf.io/preprints/socarxiv/2fd4j/

3. Improve user experience in interaction with Youtube recommendation algorithm.
    a. "The combination of AI and algorithms brings the birth of algorithmic commerce: understanding buyer behavior every second and delivering the products the individual is most likely to consume".
4. The black-box nature of algorithms poses questions concerning whether the services are credible, algorithmic visibility can be evaluated, and how.
    a. Thus, it is urgent to develop algorithm services that are transparent, accurate, and accountable (Lee, 2018).
    b. The notion of transparency in algorithm contexts requires that the process of generating results via algorithms should be open and transparent to the viewers/users (Cramer et al., 2008; Shin & Park, 2019).
    c. In general, algorithms' inner maneuvers are hardly known to users due to the proprietary nature of information as well as the fact that the general public does not have sufficient technical expertise to understand them (Courtois & Timmermans, 2018).
    d. Recently, the principles of explainability and understandability became related components of transparency (Meijer, 2014).

Research

A. The Harmful Effects of Youtube's Algorithm

Brazil and Youtube Radicalization

This New York Times article, indicates the political change and health system collapse accelerated by the Youtube recommendation system. YouTube videos are dragging people into the rabbit hole of extremism. They stimulate people's emotion to keep their attention on videos. "YouTube's recommendation system is engineered to maximize watchtime, among other factors, the company says, but not to favor any political ideology. The system suggests what to watch next, often playing the videos automatically, in a never-ending quest to keep us glued to our screens. But the emotions that draw people in — like fear, doubt and anger — are often central features of conspiracy theories, and in particular, experts say, of right-wing extremism".

The videos are making alarming claims and promising forbidden truths that keep users glued to their screens. The YouTube videos talking about the conspiracy of Zika created the foundation of a public health crisis as frightened patients refused vaccines and even anti-Zika insecticides.The consequences are that in poorer communities, the disease is seeing a small resurgence.

"A team at Harvard's Berkman Klein Center set out to test whether the Brazilian far right's meteoric rise on the platform had been boosted by YouTube's recommendation engine. And they found that users who watched one far-right channel would often be shown many more, and the algorithm had united once-marginal channels - and then built an audience for them".

Moreover, the recommendation algorithm is connecting the channels and audience to an extreme ecosystem. As far-right and conspiracy channels began citing one another, YouTube's recommendation system learned to string their videos together. However implausible any individual rumor might be on its own, joined together, they created the impression that dozens of disparate sources were revealing the same terrifying truth.

Mozilla RegretsReport

In 2020, Mozilla launched the RegretsReporter, a browser extension and crowdsourced research project to better understand the harms that YouTube's algorithm can inflict on people. Since then, they have released a YoutubeRegrets Report, highlighting 28 stories of people whose lives have been derailed and altered by their experiences on Youtube.

Below are the main findings of the Mozilla Youtube Regrets Report based on data reported by 37.380 volunteers online.

1. YouTube Regrets are disparate and disturbing
2. The algorithm is the problem.
    a. 71% of all Regret reports came from videos recommended to our volunteers by Youtube's automatic recommendation system.
    b. Further, recommended videos were 40% more likely to be reported to our volunteers than videos that they searched for.
    c. In some cases Youtube recommended videos that violated their own Community Guidelines and were unrelated to previous videos watched.
3. Non-English speakers are hit the hardest
    a. The rate of Youtube Regrets is 60% higher for countries that do not have English as a primary language.

Through this report, Mozilla recommends a few guidelines for platforms

1. Platforms must enable researchers to audit recommendation systems
2. Platforms must publish information about how recommendation systems work
3. Policymakers must require Youtube to release information and create tools that enable independent scrutiny of their recommendation algorithms
4. People should update data settings on Youtube and Google to make sure they have the right controls in place for themselves and their families.

B. Understanding how Youtube's Recommendation Algorithm Works

In this section of our research, we conducted research on how Youtube's Algorithm works through paper research and expert interviews. We believe that understanding how Youtube's algorithm works is important in identifying what information would be crucial for users to know in order to help them consciously think about the content they consume.

Youtube operates under the large goal of trying to recommend the best videos for you to increase user time spent on its platform. For every hour you spend on Youtube, the company earns 2 cents. Recent reports have shown that 70% of user views are coming from youtube recommendations alone. To understand how this effective algorithm works, we have decided to conduct research by looking at documentaries, papers, and expert statements.

Former Google Engineer, Guillanume Chaslot, explains in his article, "How Algorithms can learn to discredit Media" that during his time at YouTube, he has used a complex AI to pursue a simple goal: maximize watch time. Google explains this focus in the following statement:

> *If viewers are watching more YouTube, it signals to us that they're happier with the content they've found. It means that creators are attracting more engaged audiences. It also opens up more opportunities to generate revenue for our partners.*

To reach the goal of maximizing watch time, Youtube uses a wide array of data to feed into its algorithm. Through research,we were able to divide the three main components that influence Youtube's Algorithm.

1. The Library of Content
    a. Using the vast amount of videos on its platform, Youtube extracts data on these videos on information like views, topics, and production quality to recommend videos to you.
2. Context
    a. Context includes information about the environment in which you are watching the video.
    b. It includes information on what video you just watched, what time it is, and where you are.
3. User
    a. The user component refers to the information that Youtube knows about you. This information can be divided into 3 parts
        i. Voluntary Information
            1. This is the information you voluntarily provide to Youtube.

2. It includes information like likes, dislikes, adding videos to a playlist, sharting content…etc
3. According to Youtube's official paper "Deep Neural Networks for Youtube Recommendations", we were able to learn that voluntary information falls under the category of "User Satisfaction" which is one of the optimization factors that go into Youtube's recommendation algorithm.

ii. Behavioral Information
1. This refers to the behavioral information collected on you.
2. According to Youtube's official paper, behavioral information falls into the category of "User Engagement" and measures information on user watch time, clicks, hovers, and scrolls.
3. It includes information on the length of watch time in videos, user scrolls, speed of scrolls, and mouse hover over content.

iii. Inference about who you are as a person
1. This includes information that Youtube knows about you such as your Ethnicity, Income, Work, Political Stance, Sexual Orientation..etc

Though Youtube is collecting all this information on its users it is unclear to users exactly what information is collected on them. For example, in the paper Middle Aged Video Consumers Beliefs of Algorithmic Recommendations on Youtube , the study found that participants were not able to understand or explain how the system works in detail and refer to the influence factors in general terms, thinking that something like sharing a video "has consequences"or that the viewing activity of others "creates a tendency".

Research on the components that influence Youtube's recommendation algorithms show that it supports content that is stimulating and popular. By getting users to like or watch a video for a long period of time, creators can have their videos appear on the feeds of more people. According to Guillanume Chaslot and his project on algotransparency.org, he was able to notice that in the US 2016 election, the candidate that was the most aggressive against the media was recommended four times more than his opponent. Additionally, during the French 2017 election, the three most recommended candidates by YouTube were the most virulent critics of the media.

These examples alone prove the role that Youtube's recommendation algorithm plays in the propagation of aggressive and stimulating content. Without systems that help users to think consciously about the content they consume, it is easy for users to fall into a rabbit hole of misleading information which can lead to consequences like disinformation, fake news, and conspiracies.

C. Case Studies/Literature on solutions for increasing algorithmic literacy

1. Designing for Critical Algorithmic Literacies
    a. (1) enabling connections to data
    b. (2) creating sandboxes for "dangerous ideas,"
    c. (3) adopting community-centered approaches, and
    d. (4) supporting thick authenticity.
2. Simply Secure: Exploring Youtube's Recommendation Settings
    - Mapping and analyzing YouTube's controls from a usability standpoint to understand if the design supported user experience principles of control, freedom, and transparency.
3. Algorithmic Experience
    a. Alvarado and Waern (2018) propose Algorithmic Experience (AX) as an analytical framework for making user interactions with algorithms more explicit. The framework contains five dimensions, the purpose of which are to increase algorithmic awareness and empowerment: awareness, profiling transparency, management, control, and selective memory
4. Institutional means of increasing algorithmic literacy
    a. Students: ingraining algorithmic literacy courses in classes can teach literacy starting from a young age (Bakke, 2020) (URL)
        i. "Algorithmic literacy should be included in information literacy instruction"
    b. "Increased attention to algorithmic personalization, propaganda, and persuasion in the context of K–12 literacy education may also help people cope with sponsored content, bots, and other forms of propaganda and persuasion that now circulate online" (Hobbs, 2020). (URL)
5. Education is and will remain an important pathway to educating people on algorithmic literacy from a young age
    a. *Media literacy* in particular
    b. Data literacy is often functional and utilitarian, as opposed to technical knowledge; education should focus on this route (Audenhove et al., 2020) (URL)
6. Example– "BreadTube:" community of far-left Youtubers combatting far-right radicalization on the platform, case study for platform's algorithm (URL)
    a. "Rather than knowing that an algorithm is/does X, Y, or Z, practical knowledge entails knowing how to accomplish X, Y, or Z within algorithmically mediated spaces as guided by the discursive features of one's social world" (Cotter, 2022).
    b. *Current literature focusing in media/algorithm literacy focuses on the OPERATIONAL aspect of platforms (algorithm is/does "X")*
    c. In the context of BreadTube, users proactively try to utilize Youtube's algorithm to promote left-wing content and stifle right-wing, radicalizing videos–their understanding is that those who engage in "drama" have a leg up in having their videos promoted, but group disunity prevents a consistent front

Our Findings

User Survey

To understand different user beliefs about Youtube's algorithm, we created a user survey to understand user's perceptions on algorithmic literacy. We asked questions based on two main categories. Algorithmic Awareness and Youtube Specific Questions.

The first category of questions we used were questions on the Algorithmic Media Content Awareness Scale. This scale is a standardized scale used in research to measure algorithmic awareness of a platform. The AMCA-scale offers scholars a valid, reliable and robust tool to measure algorithmic awareness and has been tested successfully on three different online platforms: Facebook, YouTube, and Netflix, showing its robustness over different environment.

1. AMCA-scale Questions

   1) users' awareness of content filtering
      - Algorithms are used to recommend [media content] to me on [platform name]
      - Algorithms are used to tailor certain [media content] to me on [platform name]
      - Algorithms are used to show someone else see different [media content] than I get to see on [platform name]

   2) users' awareness of automated decision-making
      - Algorithms are used to show me [media content] on [platform name] based on automated decisions

   3) users' awareness of human-algorithm interplay
      - The [media content] that algorithms recommend to me on [platform name] depend on the data that I make available online
      - The [media content] that algorithms recommend to me on [platform name] depend on my online behavioral data

   4) users' awareness of ethical considerations
      - Algorithms use my personal data to recommend certain [media content] on [platform name], and this has consequences for my online privacy
        - The [media content] that algorithms recommend to me on [platform name] can be subjected to human biases such as prejudices and stereotypes

2. Youtube Specific Questions
   1. Data Collection - Algorithmic Literacy
      a. How much do users know about what data is collected by Youtube?
      b. Is there a need for data control on Youtube?

2. User Control - Algorithmic Literacy
    a. How much do users know about user control on Youtube?
    b. Do users want user control on Youtube? Is there a need for user control?

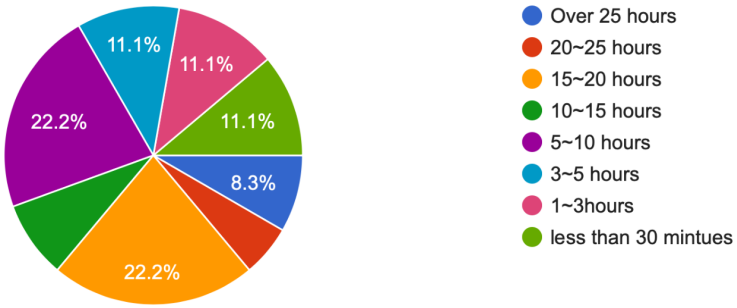
The survey questions are linked here: https://forms.gle/FME4F4jtnUcL4oRUA
The survey results are listed here :
https://docs.google.com/forms/d/1mgIsnNPvy5ItFjPthbixwj8l0jdg1CgVtHrKgb2tEIE/edit#responses

Survey Results

We found the following results in our user survey, based on 36 polled Cornell students. The questionnaire consisted of rating scales as well as some open-ended questions.

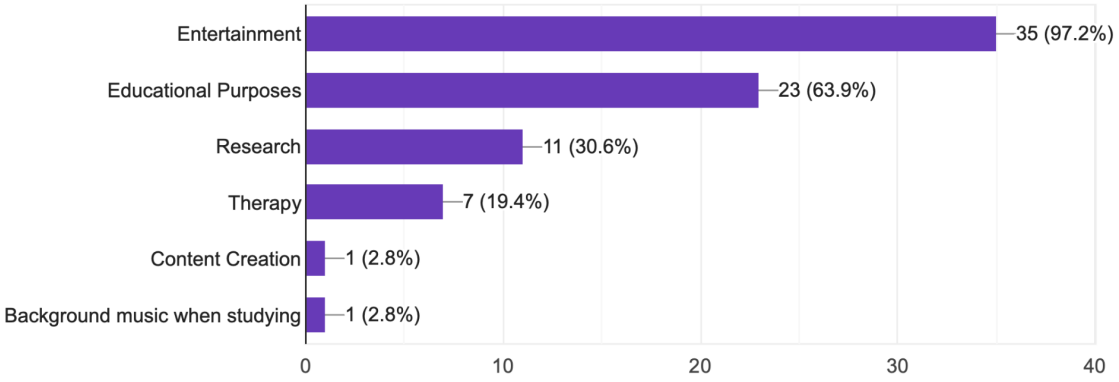
How much time do you spend on youtube on average in a week?

36 responses



What do you use Youtube for?

36 responses



Algorihtmic Awareness Questions:

- *I am aware that algorithms are used to recommend content to me on Youtube.*
- *I am aware that algorithms are used to tailor certain content to me on Youtube.*
- *I am aware that algorithms are used to show someone else see different content than I get to see on Youtube*
- *I am aware that algorithms are used to show me videos on Youtube based on automated decisions.*
- *I am aware that the videos that algorithms recommend to me on Youtube depend on the data that I make available online.*
- I am aware that the videos that algorithms recommend to me on Youtube depend on my online behavioral data.

For the above questions, which largely polled people's awareness on how their data and online behavior is used to recommend videos as well as the extent of its usage, most people were largely aware of these facts. A vast majority of surveyees (80%+ in each case) answered "5," or were largely aware of each fact.

- *I am aware that it is not always transparent why algorithms decide to show me certain videos on Youtube.***
- I am aware that algorithms use my personal data to recommend certain videos on Youtube, and this has consequences for my online privacy.
- I am aware that the videos that algorithms recommend to me on Youtube can be subjected to human biases such as prejudices and stereotypes.

For the questions above which polled people's understanding of the *implications* of their collected data and algorithm usage, the results were slightly more mixed; while most people were still largely aware of such implications on online privacy, the distribution was more spread out, reflecting a less concrete understanding of possible consequences of Youtube's algorithms.

I am aware that it is not always transparent why algorithms decide to show me certain videos on Youtube

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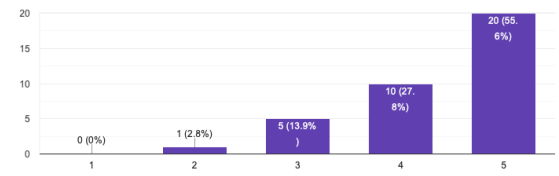

I am aware that algorithms are used to show me videos on Youtube based on automated decisions

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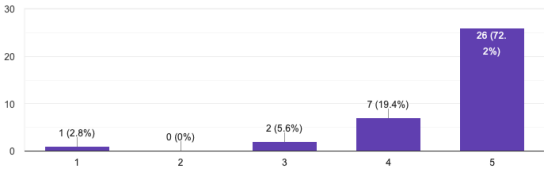
36 responses



I am aware that algorithms use my personal data to recommend certain videos on Youtube, and this has consequences for my online privacy

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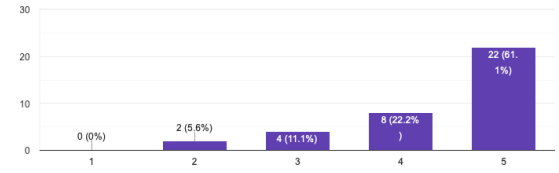
36 responses



I am aware that the videos that algorithms recommend to me on Youtube depend on the data that I make available online

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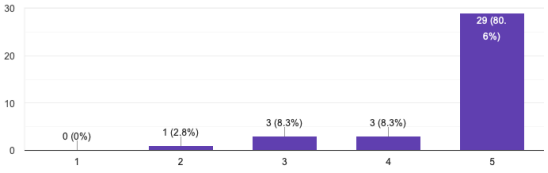
36 responses



I am aware that the videos that algorithms recommend to me on Youtube can be subjected to human biases such as prejudices and stereotypes

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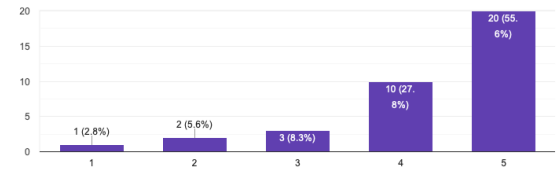
36 responses



I am aware that the videos that algorithms recommend to me on Youtube depend on my online behavioral data

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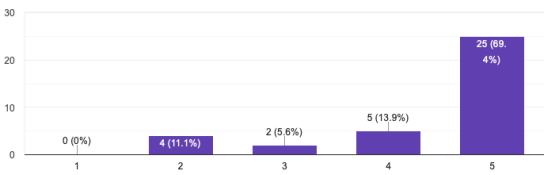
36 responses



General Questions

I am aware that algorithms are used to recommend content to me on Youtube

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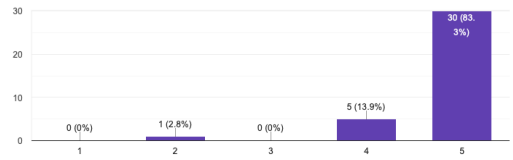
36 responses



I am aware that algorithms are used to tailor certain content to me on Youtube

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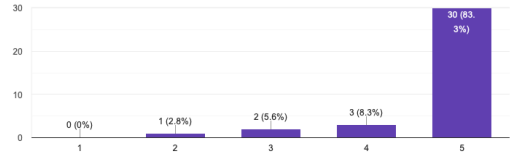
36 responses



I am aware that algorithms are used to show someone else see different content than I get to see on Youtube

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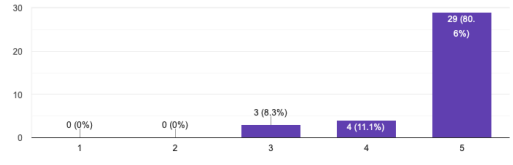
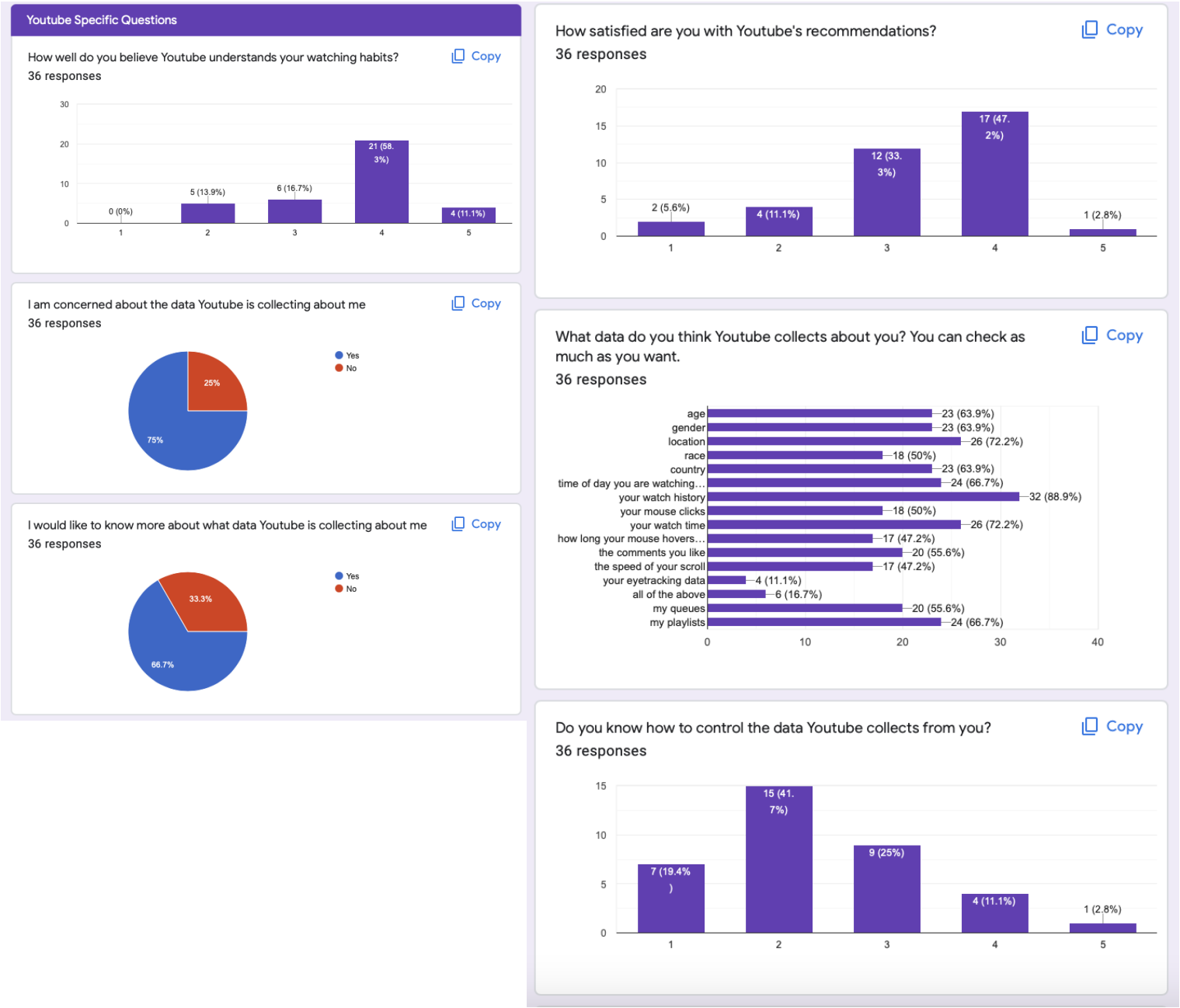
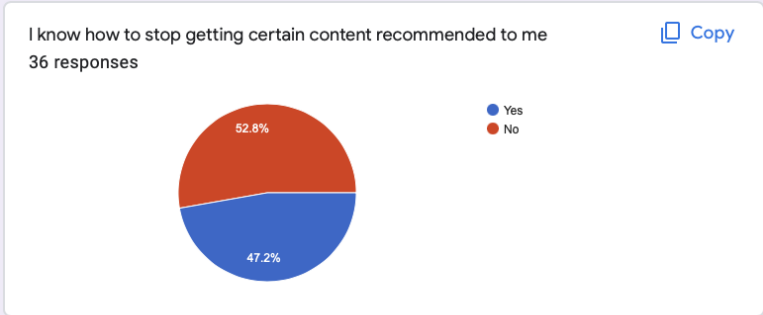
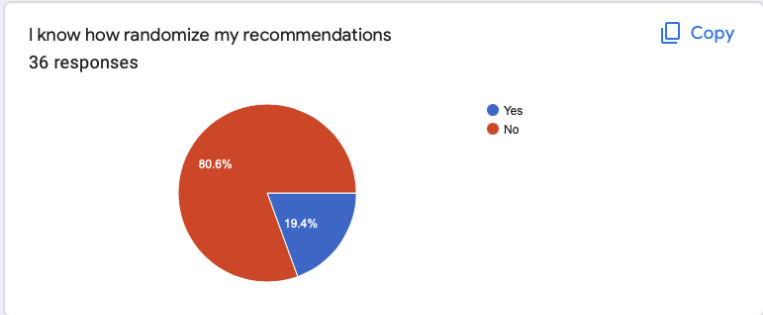


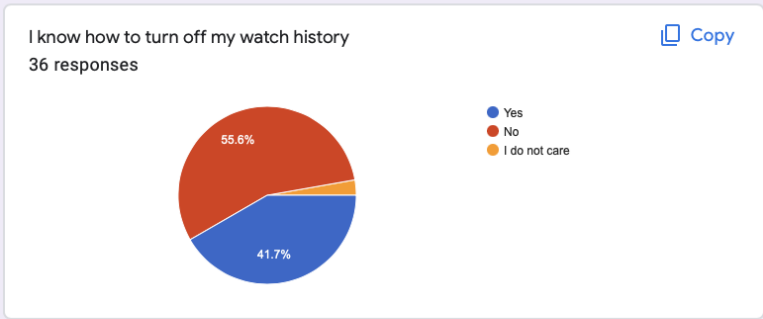
The above charts indicate people's algorithmic awareness levels of Youtube in regards to their awareness of algorithmic policies, as well as data collection methods. The results show that algorithmic awareness levels on Youtube are very high. A large majority of users prefer to understand their collected data better and reflect concern to some extent; most people, however, do not care enough to have control over their respective algorithms, likely reflecting a lack of understanding or motivation to learn.

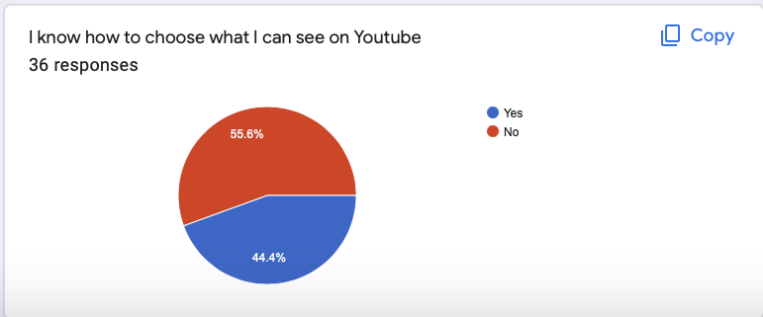


For the above Youtube specific questions, the results show a clear concern for the data the platform collects, but a mixed understanding of what types of data are collected and/or how to control such monitoring. This does not necessarily manifest in a large dissatisfaction with the algorithm's effectiveness, but more so a lack of knowledge on how it works in the first place.



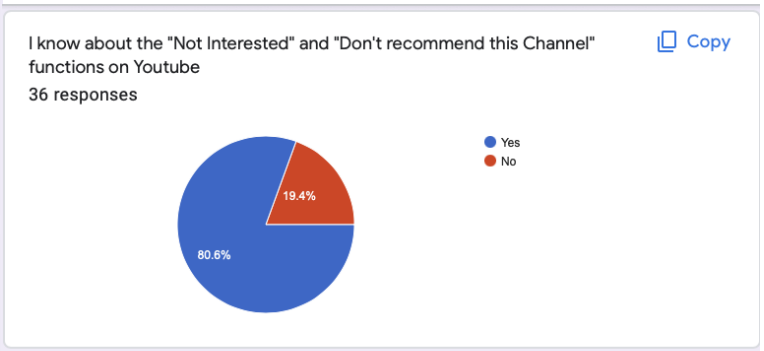


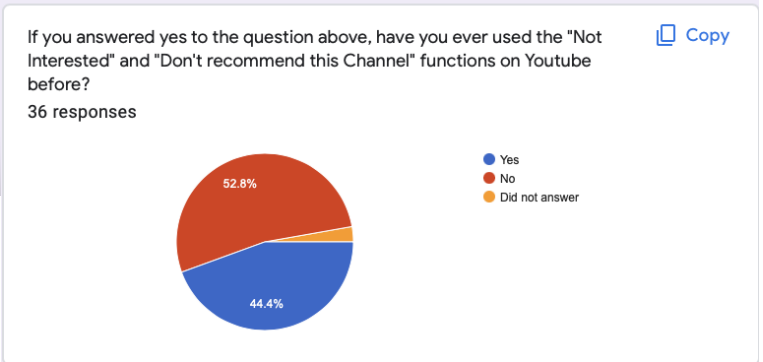




For the above pie graphs, polling people's knowledge of how to accomplish certain algorithm-related tasks, there is very clearly a mixed understanding of many common goals. Generally speaking, people don't know how to choose what they see on Youtube or how to randomize their feed; they know what certain well-known functions ("Don't recommend," etc.) do, but only to a certain extent.

Interestingly, most people also have not used the more well-known functions previously mentioned, indicating that many individuals have likely come to accept their algorithm-curated feeds as a standard part of the app experience.





Key Findings & Design Goal

1) User Survey Key Takeaways

Overall, from our user study, we were able to find out 3 main needs for Youtube's Algorithm. The document of user's survey results.

1. Data Collection Concerns
    a. The greatest concern was data collection concerns. People were very concerned about the data being collected by Youtube without their acknowledgement.
    b. Examples of user concerns
        i. *" I think, like a lot of sites, they may use cookies to track me on other websites and that makes me uncomfortable. I also would not want them to sell my data, as many other websites do. I think it is a breach of my privacy "*
        ii. *" I understand that they are helpful in that it allows the website to be more user oriented, but the consequences of possible personal information infringement are very concerning. I would like the algorithm to be more transparent and have more user-inputs."*
2. More Diverse Content
    a. Users expressed their needs in wanting more diverse content to be recommended to them.
    b. Examples of user concerns (verbatim from survey, grammatical errors may be present)
        i. *"Feel like recommends videos that are generally popular or what people that watched the same videos as you watched and if you watch that content it will recommend more of it, sometimes the content can't dry up and nothing seems interesting "*
        ii. **"***Current interest is not enough for my needs. Normally people knows what he knows now and dont know what he don't know. Youtube should recommand future interests based on current interest contents. "*
        iii. *" It keeps recommending movie clips and spoilers to me and I've repeatedly said that I wasn't interested in that content. "*
3. Added User Control & Algorithmic Literacy
    a. Users also expressed wanting more control over Youtube's recommendation algorithm to better serve their interests.

i. *"I think it is fairly well-tailored to the individual but having some control over what is recommended would be nice"*
ii. *"I would like the algorithm to be more transparent and have more user-inputs."*
iii. *" I would like to know how the algorithm works generally"*

2) Design Goals

Based on the results, we found that there people were concerned with the data that Youtube was collecting about them. In addition to the amount of data being collected on Youtube, people wanted to be recommended content that fit their interests better and have some amount of control over this. Therefore we created our final design based on 2 design goals below

Design Goal 1

Make Data Collectected by Youtube Visible

This design goal will address users' needs of wanting to know more about what data is being collected on them by Youtube's Recommendation Algorithm.

Design Goal 2

Give Users an Overview of the workings of Youtube's Recommendation Algorithm

This design goal will give users an overview of how Youtube's recommendation algorithm works by giving them options about how their recommendation algorithm works.

Final Design

In this section we explain our final design along with the reasons behind why we have decided to make certain choices. We have focused our design on Youtube's Desktop Web Interface.

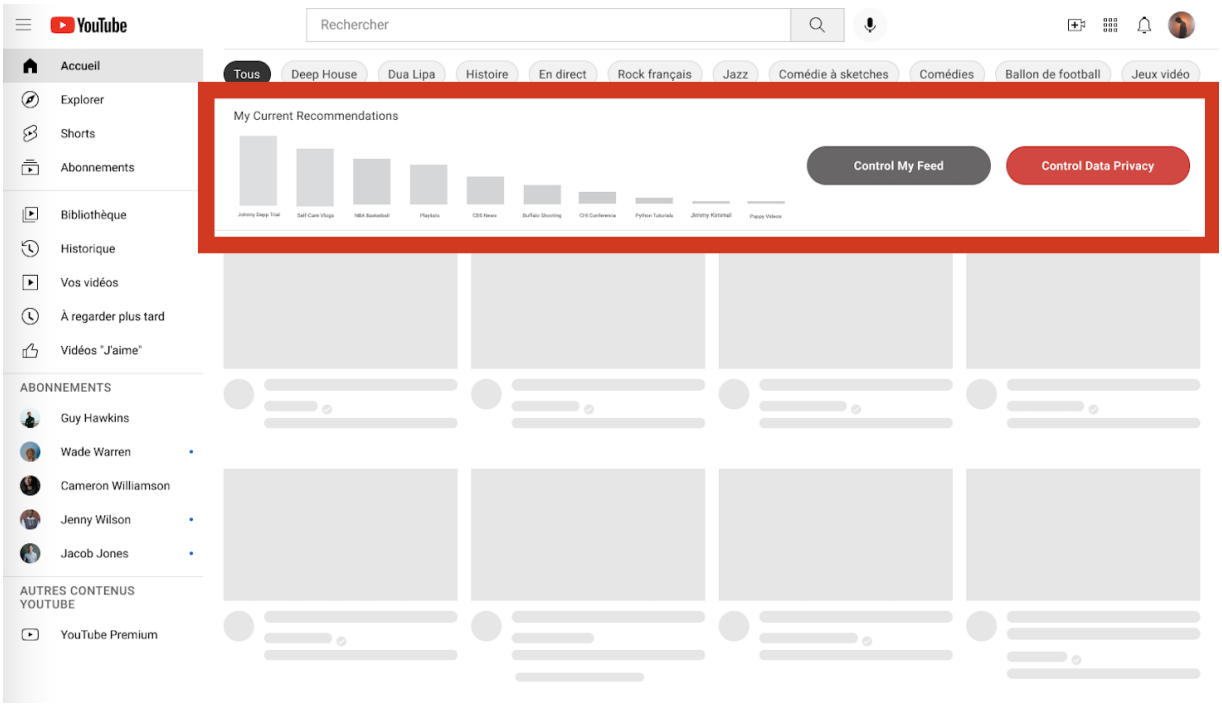
Main Screen

In our final design, we have included a section on the top that includes three main features.

First, there is a section that shows a histogram of the current main topics that are being recommended to you.

Second, there is a button "Control My Feed" that allows users to control their own feed by allowing them to control the type of content they watch.

Third, there is a button "Control Data Privacy" that allows users to control the data that Youtube is collecting on them.



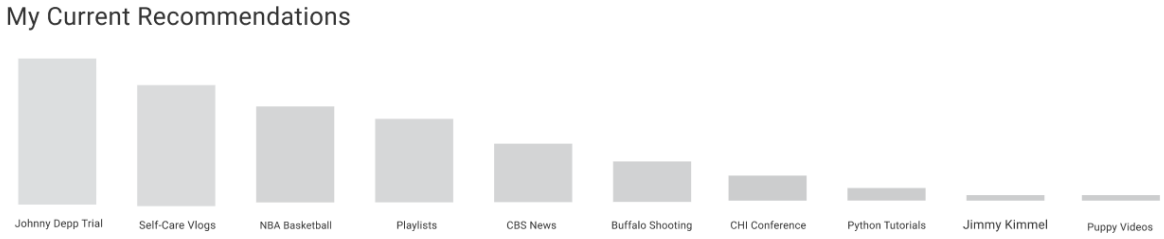
Making Data Settings Visible

Solving the problem of complicated user journeys

We have decided to add these 3 functions to the top of the Youtube Page so that they could be visible to the user the moment they enter Youtube. Current Youtube design face limitations in the fact that they require users to go through multiple processes in having to figure out how they could turn off certain Youtube features in trying stop Youtube from having access to their data. By having these features be displayed directly on the page, we are able to solve the problem of having users go through complicated journeys in trying to figure out how they could change their data settings.

Feature 1

Histogram of Recommendations



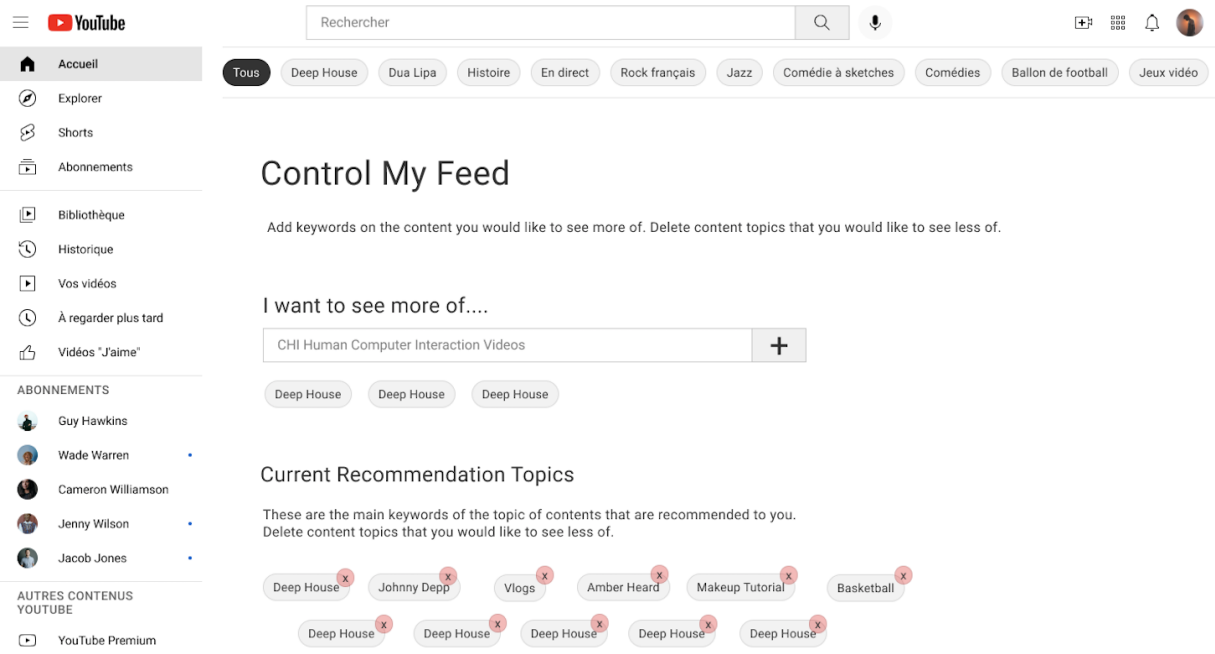
- Increasing Consciousness about Feed Recommendations
    - This feature can help users be aware of the main topics in their feed that are being recommended to them. By giving users this awareness, we can help them think more critically about the type of content they are being recommended and create an awareness for the need for more algorithmic transparency and conscious consumption of content.

- Automatic Updates based on User Changes
    - This section will automatically update once the user has made changes by controlling their feed or turning off certain data privacy options. This will help users create a mental model of the algorithms' workings and the affect it has on the contents they consume.
    - This section will also update after each scroll for loading new types of content. Or after the user has viewed a certain content.

Feature 2
Control My Feed Button

1. Pressing the Control My Feed button

2. Control My Feed Page



The Control My Feed page inclues design elements that allow users to add more content and delete current recommendation topics that they would like to see less of.

1. Adding new topics
    a. In this page, users can add main keywords of types of videos they would like to see more of. The topics they add will be reflected in the algorithm and be shown on their recommendation feed
2. Deleting Topics they would like to see less of
    a. In this section, users can delete topics that they would like to see less of.

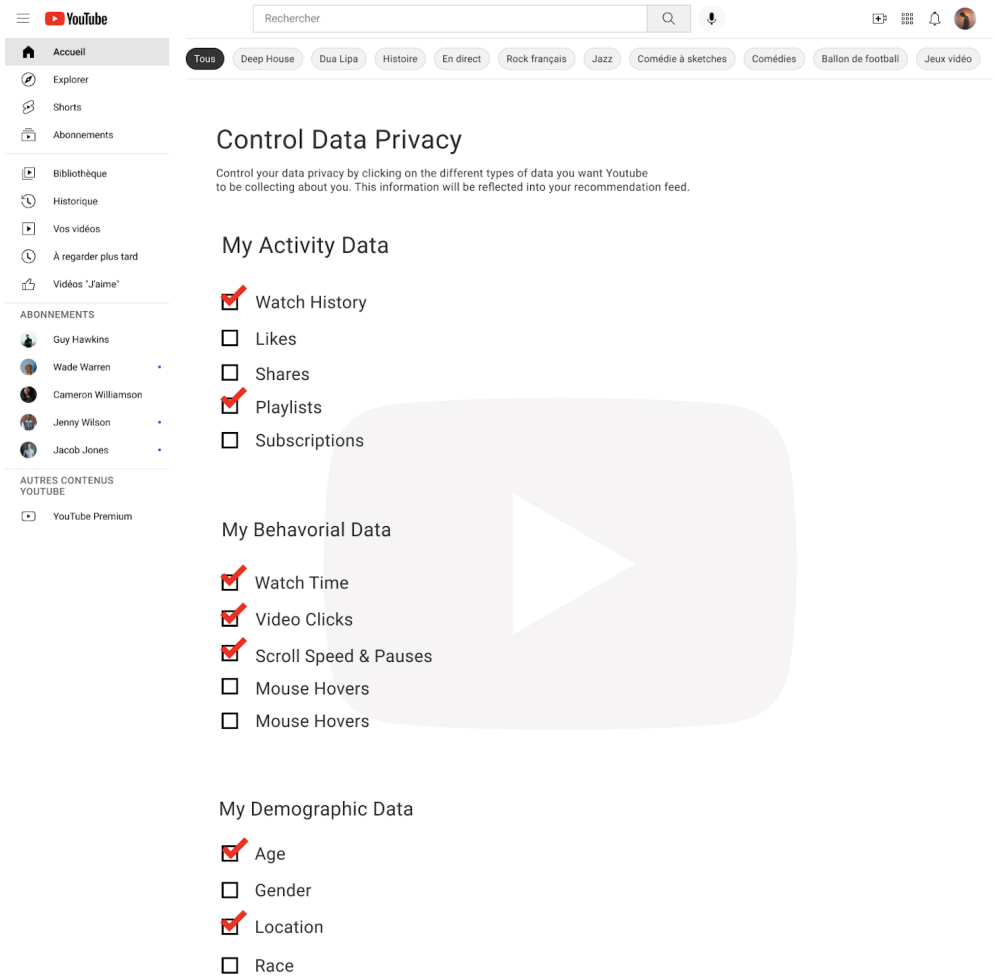
b. By removing these topics, users can remove topics that they would like to see less of. This could help the users make conscious decisions in the types of content they consume.

Feature 3

Control Data Privacy

1. Pressing the Control Data Privacy button

2. Control Data Privacy Page



By clicking on the Control Data Button, users will be led to the Control Data page. We have made the design of this page clear so that users can click checkboxes on parts of the data they wish to share to Youtube.

We have organized the activity data parts in this page according to the data that Youtube collects on its users. Youtube collects three types of data : user activity data, user behavioral data, and demographic data.

1. User Activity Data
    a. This data includes explicit information about user activities such as likes, shares, playlist, and the list of their subscriptions.
2. User Behavioral Data
    a. This data includes content on their behavior such as their mouse hovers, watchtime, and scroll speed which are data that the user may not be conscious of the fact that Youtube is collecting.
    b. This section can help raise awareness to users about the type of data that Youtube is collecting on them.
3. User Demographic Data
    a. This section includes data on demographic information that is collected by Youtube.

Design Reflections

1. Histogram of Recommendation Feed
    a. Some users may not want to know about this information and it may become additional clutter on their page.
    b. Limited space might not be able to reflect all the types of content.
    c. It may be difficult for users to switch back and forth between user control pages and data controls to see how it has reflected their recommendation feed.
2. Control Recommendation Button
    a. Users might be curious to know more about how the changes to the user control affect the recommendation topics.
    b. It is questionable whether changing user's recommendation feeds in this way can be possible with the current Youtube Algorithm.
3. Control Data Privacy Button
    a. This section might cause a lot of user responses where people would be more curious and concerned to know about how the data collected by Youtube is being used in its system and whether it is influenced by other platforms too.
    b. While this could be challenging to Youtube, it would help raise awareness on algorithmic literacy and make people think more consciously about the content they consume.

Conclusion

For the first time in history, we are building tools that outsmart us on some level. These tools can have complex, far-reaching repercussions that we don't fully understand. Recognizing the different user beliefs around Youtube recommendation systems is an essential first step towards addressing Youtube's role in the propagation of harmful content. Moreover, understanding how users reason about complex algorithmic curation systems can motivate further research to make influence factors more visible to users.

We have created a visualization of one design solution that could help combat these problematic issues. We hope that these design solutions can be developed in the future and be a help in encouraging more ethical designs on Youtube.

*** All references are linked directly to the report.*