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Auditing Social Media: Portrayal of Migrants on YouTube

Executive Summary

Social networks are not only an essential link between us, but also increasingly shape how we experience the world around us, what we think and how we respond to major political and social issues. In turn, YouTube is the second most popular social media platform in the world, which has a huge impact on the daily life of the entire population of the planet. Along with traditional media, YouTube plays a key role in informing and shaping public opinion about global issues and events. Given that the migrant population has often been ignored or portrayed in a negative light in the media, it is important to examine how migrants are represented in the growing YouTube content. To explore this topic, we conducted this External Audit using a sociotechnical approach. Our research has shown that there is a problem of biased and disadvantageous portrayal of migration on YouTube. We determined that YouTube and other stakeholders should work on the removal of a set of biases from algorithmic systems, show more transparency, and engage more with migrants themselves.

The structure of the report includes the following sections:

Section 1 is an introduction to the study, which presents the purpose of the report and introduces the main research questions that will be examined in the report, in combining the sociotechnical approach.

Section 2 is divided into two main subsections, which examine the issue of representation of migrants in traditional media and social networks. In **Subsection 2.1**, we explore how different types of migrants have been shown in the mass media. This subsection is the exponential basis for the study of migrants in social networks. In turn, **Subsection 2.2**, on the portrayal of migrants on social media, includes two main areas. The first part answers the question on how various types of social networks have been audited in the past and what problems these studies have revealed. In the second part of the Subsection 2.2, we provide reasoning and explain why YouTube as a social media platform should be audited for images of migrants.

Section 3 describes the methods we used to collect and analyze the data for the report. Considering that in our study we followed a sociotechnical approach, the section is divided into two main parts. The first paints a complete picture of the quantitative methodological steps, including a description of our strategy for answering the research questions posed in the introduction. The second part explains our strategy in relation to the qualitative analysis of the study.

Section 4 focuses on the results we obtained from our audit study. The section is also split into two main parts. In the **Subsection 4.1** we describe our findings we identified from the quantitative experiments for the main research questions. This includes data analysis results

on questions: (1) how migrants and refugees are represented in the top-watched Youtube video search results? (2) does YouTube's recommendation algorithm suggest differently framed migration videos in pro- or anti-migration national settings? and (3) does YouTube's recommendation algorithm suggest differently framed migration videos to migrant and native profiles? While, the **Subsection 4.2** shows the main qualitative findings on how people with a migrant background perceive the image of migrants in YouTube videos and how they react to this image on social media.

Section 5 discusses our central research findings, followed by recommendations. In particular, we highlight the main issues we have identified with YouTube's depiction of migrants. Further, we offer recommendations that can be followed both to try to eliminate, and to further prevent and improve the issues discussed.

Section 6 includes a discussion of the limitations of the study's methodology and analysis.

Section 7 closes the report with concluding remarks.

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Glossary

Term or Acronym	Definition
Data Scraping	a technique where a computer program extracts data from human-readable output coming from another program.
Dehumanization	to deprive (someone or something) of human qualities, personality, or dignity, or portray (someone) in a way that obscures or demeans that person's humanity or individuality
External Audit	audit that performed without the cooperation or sometimes even the knowledge of the organization that implements the system being audited; focused on reverse engineering models used in systems that are closed to public scrutiny and are not transparent.
Facebook	a social networking website which allows users to create profiles, to connect with people online, as well as to share content and their own thoughts and opinions
Instagram	a social networking platform which allows its users to share pictures and videos
Internal Audit	audit that performed with the full cooperation of the organization that develops the system being audited.
Migrants	people who move away from their place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons
Recommendation System	a subclass of information filtering system that provides suggestions for items that are most pertinent to a particular user
Refugees	people who have fled war, violence, conflict or persecution and have crossed an international border to find safety in another country
RQ	research question
Social Media	websites and applications that enable users to create and share content or to participate in

Term or Acronym	Definition
	social networking
Sociotechnical Approach	a method that combines involvement of human elements and technical systems to explore the issue, as well as to identify possible paths to technological and social change
Traditional/Mass Media	the means of communication that reach large numbers of people in a short time, such as television, newspapers, magazines, and radio
Twitter	a social networking website where users broadcast short posts known as tweets, which can contain text, videos, photos or links.
Video Thumbnail	a still image in the beginning that represents a video
YouTube	online video sharing and social media platform

Introduction

Social media not only connects us with family and friends, but also increasingly shapes the way we learn about the world around us, what we think, and how we react to major political and social issues. Despite the difficulty of assessing the source credibility and trustworthiness, social media tools are increasingly used as information sources (Kim et al., 2011; Westerman et al., 2014). The negative effects of social media as information sources have been widely acknowledged. It has been documented that social media facilitated the speedy dissemination of "fake news" (Silverman, 2016), disrupted democratic electoral processes as during 2016 US elections (Cadwalladr & Graham-Harrison, 2018), and even played a role in fueling violent conflicts such as Rohingya genocide in Myanmar (Stevenson, 2018). While on the one side, social media enabled quick and cost-free access to a large amount of information; on the other side, the exposure to information is mediated by social media algorithms that reinforce "echo-chambers" where like-minded people exchange information (Barberá et al., 2015) and "filter bubbles" (Pariser, 2011) where recommender systems filter the content based on the information (past-clicks, likes, searches etc.) gathered from the user.

Against this background, this audit examines how social media disseminates information on vulnerable social groups. We specifically focus on **YouTube** and **representation of migrants** in this platform. To understand how YouTube's algorithms work and how they affect migrant groups, we designed our audit by combining social and technical approaches. The first objective is to **map portrayal of migrants and refugees in YouTube video searches** by **scraping data** and conducting **systematic content analysis** on the video search results. The main questions of this part include: (1) how migrants and refugees are represented in the top-watched Youtube video search results? (2) does YouTube's recommendation algorithm suggest differently framed migration videos in pro- or anti-migration national settings?, and (3) does YouTube's recommendation algorithm suggest differently framed migration videos to migrant and native profiles?. The social approach of this audit aims to put migrants themselves at the center of the research and study **how people with migration origin perceive the portrayal of migrants on YouTube videos** and **how they react to these representations**. By conducting **focus groups** study, this part intends to hear the voices of migrants and understand how they contest the algorithmic filtering of social media content.

Mapping the field: Representation of migrants

2.1 Depiction of migrants in traditional media

While the phenomenon of migration is as old as human history, migrants have become at the very core of heated political controversies, social tensions, and stereotyping. The **media plays a key role in informing the public about migration**, framing the pressing issues, shaping the perceptions, and therefore setting the agenda for the ways that migration-related issues are publicly discussed ([Bleich et al., 2015a](#)). The media coverage of migration comes with important political consequences. The extent and type of media reporting on migrants has an influence on the rise of anti-immigrant parties ([Boomgaarden & Vliegenthart, 2007](#)); public's identification of immigration as a "Most Important Problem" ([Dunaway et al., 2010](#)); and perception of migration-policy frameworks ([Merolla et al., 2013](#)).

There is already an established research tradition that systematically studies how migrants are represented in mass media coverage. Eberl et. al. ([2018](#)) conducted a literature review of **European Media Studies on Immigration** between 2000 and 2018. They found 89 journal articles investigating content or effects of immigration news coverage in an European context. The review shows that most of the studies dealing with immigration news coverage focus on issue-specific frames including economic, welfare, cultural, and security considerations. Studies analyze both negative (such as immigrants as a threat to security, culture, economy) and positive (such as benefits of immigration) frames.

The media coverage of migration is analyzed across migrant groups, national contexts or whether the source of the coverage is of non-/migrant origin. Different **groups of migrants** tend to be identified with different framings. It was found that while Roma people and Eastern Europeans tend to be portrayed as a threat to the economy and welfare state (Meeusen & Jacobs, 2017); non-Europeans such as North-Africans are more often associated with threats to culture (van der Linden & Jacobs, 2017).

Media coverage of migrants also changes **by national context**. For example, media exposure in **Western states** paints a picture of migrants around the concept of "**threat**", where the main narrative is delinquency and lawlessness ([Merolla et al., 2013](#); [Farris & Mohamed, 2018](#); [Chouliaraki & Stolic, 2017](#)). In **coastal states** such as Italy, in recent years the topic of migration and refugees has been a crucial discourse in the mass media and political debate, given the immateriality of their maritime borders, which serves as a symbolic link with all incoming migrants. The substantial part of the media narrative on the arrival to the Italian coast is the story of shipwrecks and loss of life ([Bruno, 2016](#)). Yet, a study that analyzes mass media coverage of migrants and refugees in 17 countries finds that media outlets in some Eastern European countries in general tend to take a more critical approach towards migrants and refugees ([Fengler & Kreutler, 2020](#)). In some **ethnically and nationally**

homogeneous countries that do not have significant migration experience, it cannot be said that the picture of migration had any positive color either. For example, in the Czech Republic, a predominantly negative media representation prevailed after the 2015 migrant crisis and was focused on the image of a migrant who arrived from the Middle East. Such a portrait of the migrant was associated with terrorists who were not going to adapt to "normal" life in the Czech Republic ([Bartoszewicz, 2022](#)). **Transnational media** from the Middle East, such as Al Jazeera, in turn, tends to present a **more authentic portrayal** of the reality of migration while, to some extent, voicing their objections to excessive violence ([Sjöberg & Rydin, 2014](#)).

Additionally, the journalistic interpretation could differ depending on **whether the source** was **a migrant** or a **non-migrant**. In Spain, migrants were generally underrepresented in the mass media and deprived of their voice. If the news covered the topic of migration, it was typically framed in the context of political discussions with representatives of the state or the international institutions ([Rodríguez-Pérez et al., 2022](#)).

*"Migration and migrants are portrayed
as a threat the 'natives' need protecting from."
[Rasinger, 2010](#)*

Migration is highlighted in the traditional media as a threat to social, cultural norms or economic well-being. Migrant groups are not seen as separate individuals with complex destinies, but rather are positioned as alien groups lacking positive human qualities ([Murray & Marx, 2013](#)). As a rule, traditional media portrayed migrants in a negative light, as participants in criminal or delinquent activities ([Eberl et al., 2018](#)). News channels cover events involving migrants in terms of social unrest, crime, cultural misunderstandings, social problems and economic costs (Rosina, 2022).

Previous studies demonstrated that the way migrants are portrayed in the media has a **substantial impact on individual and public attitudes towards migration** ([Boomgaarden & Vliegenthart, 2007](#); [Esses et al., 2013](#); [Valentino et al., 2013](#), [van Klingereren et al., 2015](#)). It has been shown that the more negative the portrayal of migrants and refugees in the media, the more **dehumanized** migrants will be perceived by the audience ([Esses et al., 2013](#)). These dehumanizing visual patterns link refugees to the concepts of **threats to sovereignty and security**, thereby reinforcing the politics of fear ([Bleiker et al., 2013](#)). In addition, the unfavorable picture may lead to the incitement of anti-immigration sentiment and consequently the promotion of restrictive anti-migration policies ([Schemer, 2012](#); [Valentino et al., 2013](#)).

2.2 Portrayal of migrants on social media

While traditional media sources including newspapers and television are the most studied outlets for migration coverage, studying migrant representations on social media is relatively new. This is surprising, when we take into account that the Internet and social media have become a major part of our lives. The rapid spread of the Internet, smartphones and social media has significantly affected daily human spatial interaction. The number of social network users worldwide is growing rapidly. According to a recent DataReportal report (2022), there were 4.65 billion social media users around the world in April 2022, equating to 58.7 percent of the total global population and more than 75% of the eligible global population (people aged 13 and above).

Considering that social networks offer a **relatively cheap, easily accessible** and **media-rich** means of communication, today, these are one of the most vital tools that facilitate communication and interaction between people. The impact of social networks on the lives of people in migration is no exception (Dekker et al., 2016; Thulin & Vilhelmson, 2014). Social media has been shown to **help and facilitate international migration networks**. Given that long distances are often involved in this issue, social media for example, helps migrants to transmit up-to-date location information remotely (Dekker & Engbersen, 2014; Vilhelmson & Thulin, 2013). Social networking platforms also **expedite asylum-related mobility** for many migrants in need of shelter. Merisalo & Jauhiainen (2021) after surveying asylum-seeker migrants in Jordan, Turkey, Iran, and in several European “hotspots,” (Lesvos, Greece, and Lampedusa, Italy), found that social media is a **supportive and facilitating tool for migrants** and helps them make decisions about **where to move in Europe**.

On the contrary side, migrants need to be able to use social media properly and carefully to benefit, as there can be **issues with credibility** and **accessibility to information** (Dekker et al., 2018). For example, access to the Internet, as well as basic phone chargers, may not always be available, keeping migrants and refugees out of touch. In addition, the use of smartphones and social networks entails **the risk of surveillance** by third, (non)governmental parties, which makes migrants even more vulnerable (Leung, 2010). To avoid such threats, many migrants seeking asylum use strategies to hide their identities by using avatars or digital aliases (Gillespie et al., 2016).

Undoubtedly, the mass media still takes an influential position in shaping public opinion and attitudes towards events and certain groups, including migrants. However, social networks assist the participation of migrants in telling their stories in the first person, creating new perspectives and interacting with other users. In other words, mass media is an unilateral transmission, while social networks offer **two-way communication**. Being a space where people do not have restrictions, social media is a way to change the dynamic of the lack of migrants' voices. Compared to traditional newspapers, magazines, television broadcasting or

radio, social networks allow people to create their individual identity, share their personal stories, contribute to discussions through the "comment" and "share" functions, and build their own societal networks. Moreover, the political information context has sustained significant changes over the past decade ([van Aelst et al., 2017](#)), where the growth of social networks as sources of political information has led to new forms of news consumption ([Matsa & Shearer, 2018](#)). Today people are more likely to **consume news provided by social networks** rather than newspapers, television or even radio ([Bollenbacher et al., 2022](#)). For example, Facebook and Twitter have become one of the most significant news sources among online social platforms ([Heuer, 2021](#)). Since many people do not have direct contact with migrants and refugees, social networks are a valuable link in shaping our understanding of migration.

Why is it important to study the image of migrants on social media?

As seen from the previous section there are already ample empirical studies on how traditional media portrays migrants, and why it is critical. Yet, given the growing use and influence of social networking platforms in people's daily lives, it is also vital to emphasize the weight of portraying migration on social media.

First, likewise the mass media display of migration can influence societal attitudes towards migration, the social media frame is also an important link for migrants to further their **social integration** and **acceptance**. The portrayal of migrants on social media can promote acceptance and empathy on one hand, as well as **discrimination and xenophobia** on the other hand. They can further bolster stereotypes and have a direct impact on how social groups are pictured.

Second, given the **rise of the right wing political actors** in Western countries, issues of migration and anti-immigrant sentiment are becoming increasingly popular in social/media ([Nortio et al., 2020](#); [Urman et al., 2022](#)), highlighting the necessity and relevance of further studies into the ways migrant groups are portrayed.

Third, **migrants** themselves are in most cases **absent from the general discourse**. They are deprived of the opportunity to present their individual immigration story and narrate their destiny. This allows the society to perceive migrants only through the prism of the one-way mass media coverage.

Fourth, examining how social networks show the image of migration is crucial in order to be able to **reflect the discourse** on the question more broadly and to **better perceive the issues related to the online representation of migrants**. All this highlights the need to explore even more the depiction of migrants and refugees in social media.

2.2.1 Auditing social media

As of 2022, the average daily use of social media by Internet users worldwide is 147 minutes (2 hours 45 mins) per day, while having a significant impact not only on online activity, but also on the real life of people in general ([Statista, 2022b](#)). The most used social networks on the Internet, each with over a billion monthly active users, are Facebook, YouTube, WhatsApp, WeChat, Instagram and TikTok ([Statista, 2022a](#)).

Albeit digital networks can assist and facilitate lives of different social groups and integration to a new environment, they can also undermine them in various ways. Social media algorithms are an influential mechanism stealthily affecting online display and behavior that act differently but additionally to individual user prejudice. Recommendation algorithms work to optimize user interaction and maintain his/her engagement with a particular digital platform. This computation is performed by individualizing recommendations based on past actions and content consumed by the user on this platform ([Milano et al., 2020](#); [Haroon et al., 2022](#)). Simply put, social media algorithms trace a person's digital habits, predict his/her choices, and decide what information to show to this user. In addition, by studying demographic and behavioral data, which includes the profile of users (e.g. age and gender) and analyzing their actions (e.g. comments on publications, likes, shares), digital platforms' algorithms can offer targeted advertising. However, as will be seen further in the text, all this capabilities can also **introduce a discriminatory and biased tone**.

Furthermore, social networks can **limit access to different points of view** and help form groups of like-minded users that form and reinforce a common narrative, which can be unverified. Digital media algorithms thereby contribute to the creation of **echo chambers** - an environment in which users' opinions, political views, or beliefs on a topic are reinforced through repeated interactions with peers or sources with similar tendencies and views ([Cinelli et al., 2021](#)). Echo chambers can create misinformation and distort a person's point of view, favoring information that reinforces existing beliefs, making it difficult for him to consider opposing points of view and topics ([GCFGlobal, n.d.](#)).

Social media platform algorithms controlling the information that users will consume, spreading disinformation and discrimination, its unregulatedness and opacity, brought concerns from the media and academic community. For that reason, audit works have been executed, analyzing algorithmic logic of these popular social media platforms and online news on different harmful grounds. Global Witness's ([2021](#)) study found that **Facebook's** online platform optimizes the delivery of ads in **a sex-discriminatory manner**. A similar examination was conducted by Algorithm Watch through auditing Facebook and Google ads suggesting "gender-segregated" job offers. The results showed that Facebook relies heavily on an user's gender and gross stereotypes while showing promos to him/her ([Algorithm Watch, 2020](#)). Yet, social media is becoming increasingly consumed as a conduit for political content. This question has also begun to attract more attention from researchers. **Twitter** has been audited on impact of its recommendations algorithms on the basis of political content.

The results show that the **political right wing enjoys more amplification** from the Twitter algorithms than the political left, thereby reducing the visibility of the latter ([Huszár et al., 2021](#)).

While talking about the audit of social networks on the question of migration, the results are mixed. A study of political and targeted immigration ads on **Facebook** in Italy found that the number of ads increased during the pre-election period, with the parties with the highest spending more heavily biased towards anti-immigration politics ([Capozzi et al., 2020](#)). In turn, Heidenreich et al. ([2020](#)) analyzed political Facebook accounts in six European countries for migration topics. The authors highlighted that migration theme was more visible in the posts of more ideologically radical parties. Moreover, the higher the ideology of an extreme party, the more negative the mood of its migration-related status posts on their Facebook page.

De Rosa et al. ([2020](#)) researched a topic dedicated to people's social perceptions of immigrants through the photoposts of **Instagram** platform. The discourse revealed the presentation of migrants as vulnerable groups, as opposed to the portrayal of migrants as dangerous intruders. In turn, another study based on the analysis of Instagram stories by the Spanish right-wing party (Vox) related to migration, showed that migrants were in most cases portrayed in **a negative light**. Typically, the portrait was unidentified, black, and a male who is part of the group, and who were portrayed as participants in violence and fraud ([Jaramillo-Dent et al., 2022](#)).

On the example of **Twitter** social network, studies have shown different shades. From one side, tweets about migration and refugees are more **sympathetic** and also call for **further action**, thus creating new narratives and topics for discussion, different from the mainstream media's politicized depiction of migration ([Nerghes & Lee, 2019](#)). Another perspective encountered more **dehumanization** and politicization in the chronicle of Twitter. The stories of migrants were painted in far-right colors, where refugees were presented as rapists or terrorists ([Siapera et al., 2018](#)).

As perceived, social media can present the picture of migration both positively and contrarily. Considering that the illustration of migrants on social networks can form a discriminatory and stereotypical attitude and significantly affect the public perception of this problem, an audit of social platforms and their algorithms is reasonable. The issue is amplified by the insufficient platform oversight, transparency and regulatory frameworks that render social media platforms scarcely accountable. Audit studies are one of the tools that can help to effectuate the oversight of social media algorithms.

2.2.2 Why should we audit YouTube?

Second most popular platform

After Facebook, YouTube is **the second most popular social media platform** worldwide with more than 2 billion active users ([Statista, 2022c](#)). It works both as a search engine and a social media platform that connects people. As an example, in the US, 81% of the population reported using YouTube on a daily basis ([Auxier & Anderson, 2021](#)). Apart from creative and entertainment content, the popular video sharing platform is also an important source of news and useful information for a large audience. YouTube has become an important **"visual journalism"** platform for both traditional content from established news organizations and citizen eyewitness stories ([Perez, 2012](#)). Of over 80,000 people in 40 countries, 27% said they use YouTube to get news ([Newman, 2020](#)). In this way, the video platform plays one of the **major roles in informing people about global issues**, including situations with vulnerable social groups and overcoming stereotypes about them.

Visual platform

In addition, with the advent of social networks such as YouTube and Instagram, the **visual component** of social networks and all information online in general, has become increasingly popular. The reason for this was that images are easier and faster to perceive for the user, compared to textual content. The videos and images are more interactive and enticing for a viewer. They can also be captured instantly and uploaded to social media for public viewing ([Jhoti, 2021](#)). Visual portrayals are particularly influential, some studies even suggest that the very existence of "compassion depends on visuals" ([Höijer 2004](#)). The images can be seen as snapshots of certain situations or events: "visual quotations" ([Sontag, 2003](#)), which often linger in the minds of viewers and further shape their emotional attitude ([Bleiker et al., 2013](#)). On the other hand, images can also introduce ambiguous perceptions. The viewer perceives visual content through the prism of their understandings and prejudices. Simultaneously, a minus is the risk of disinformation and false news.

Recommendation algorithms can create a harmful effect

YouTube's recommendation systems work by matching and providing "*each viewer with the videos they are most likely to watch and enjoy*" ([YouTube Help, 2022](#)). According to YouTube's CPO Neal Mohan, as many as 70% of videos viewed on YouTube are suggested by their video recommendation system ([Solsman, 2018](#)). This figure indicates that a significant number of users are consuming video content recommended by the platform's algorithms. This makes the platform a weighty provider of any information, including on vulnerable social groups such as migrants and refugees. Consequently, the recommendation algorithms of YouTube can affect the perception of the migration of a large number of people around the world.

YouTube's recommendation algorithm system is attracting increasing attention from academics and the media, sometimes suspecting the platform of being **malicious**. Many researchers and media outlets have raised concerns that YouTube's algorithm is exposing users to divisive, unverified, terroristic, conspiratorial, and otherwise debatable content. For example, some authors allegedly identified YouTube's recommendation machine as a **radicalisation tool** that leads people to rabbit holes of extreme content ([Conway & McInerney, 2008](#); [Murthy, 2021](#); [O'Callaghan et al., 2015](#); [Ribeiro et al., 2020](#)). Other studies have analyzed and audited the YouTube recommender systems with a focus on **misinformation** or **conspiracy theories** ([Albright, 2018](#); [Hussein et al., 2020](#); [Nicas, 2020](#); [Warzel, 2017](#)). Serious concerns were caused by the creation of the so-called "**filter bubble**" **effect** - states of intellectual isolation, a negative consequence of personalization in social media and search engines ([Pariser, 2011](#)). In other words, it is a state when users receive content that reinforces their beliefs and social identity, thereby entering their own personalized bubble, while content from opposing points of view and views is filtered out ([Hussein et al., 2020](#); [Tomlein et al., 2022](#)).

Despite an extensive study of different grounds in recommendation algorithms of YouTube, this issue has not yet been studied from the point of view of portrayal of migration. This study is aimed to fill this gap by auditing and get a closer attention to the question of migration, displayed by YouTube algorithms.

Methodology

3.1 Analytical strategy and methodological steps

This External Audit has been carried out through **multi-methods** research. In our experience with internal audits, we have learned that the best approach to understanding how algorithms work and impact on different groups is through the combination of quantitative and qualitative approaches. YouTube is a social media platform with a high social impact on numerous personal and public dynamics. Therefore, and as seen in Eticas' Algorithmic Auditing Guide ([Eticas, 2021](#)), any method or process designed to open up the black box of algorithms and AI will require to go beyond and above a purely technical analysis, which would not only be incomplete but also misleading.

Quantitative method framework

To better understand how YouTube portrays migrants and refugees in its videos, we have separated data collection and analysis according to the research questions posed in the introduction, using different methodological steps for each of them. Data collection for quantitative analysis took place between June and July 2022.

We used **data scraping** and **content analysis** methods for all technical tasks:

a) On the part of **scraping data** we focused on the following aspects of each video: thumbnails, video title and video description.

Why do we focus on the thumbnails rather than the full video? Following the methodology used to analyze minorities' media portrayals ([Bleich et al., 2015a](#)), we focused on video **thumbnails** rather than full YouTube videos for several reasons. Thumbnails grab the viewer's attention at a first glance more than a full video. As [YouTube](#) itself notes, usually viewers will see the thumbnail and title first. It is this information that gives an idea of what a particular video is about, further influencing the decision of users whether they will click and continue to watch a particular video on YouTube or not. While we do not argue that focusing only on thumbnails is enough to give a complete picture on how YouTube portrays migrants and refugees, video images give certain advantages in its understanding.

For all scraping tasks, a virtual agent (bot) was used to simulate human behavior (search query, scroll down, clicks, wait for the web elements to fully load, log in, etc.). We used a clean stand-alone version of Google Chrome with no cookies or any user references, except for RQ3, where an intentional login for two fake profiles was implemented.

b) For **content analysis** strategy, we made the choice of categories to be examined based on the categorization scheme design of the audit study of Umran et al. (2022) to assess specific aspects of migrant representation. Accordingly, to analyze how migrants and refugees are represented in video thumbnails, we coded each video image according to the following categories:

- 1- Human presence (Yes/No)
- 2- Facial visibility (Yes/No)
- 3- Group size (individual, small group of 2-8, big group 8+)
- 4- Race (White, non-white, both, can't identify)
- 5- Sex (male, female, both, can't identify)
- 6- Age (minor, adult, both, can't identify)
- 7- Religious symbols (present/not present) (if present, which religion?)
- 8- Working activities (present/not present)
- 9- Border crossing (present/not present)
- 10- Protest activities (present/not present)
- 11- Content producer: personal youtube channel, news providers

Framing

We used a **human coding** method to analyze the framing of the videos by reading titles and descriptions, looking at thumbnails and systematically noted its' important traits.

Why do we use human coding? In general, two main approaches to encoding text such as text headings exist: machine and human coding. In the former method the computer is programmed to look up words in a set lexicon. In other words, it is trained to scrape texts and issue specific codes for each heading (Grimmer and Stewart, 2013; Young and Soroka, 2012). As a rule, this is a fairly reliable way to code texts with a large number of words. However, in cases where complex elements are present in the text (e.g. irony or metaphors, it is more difficult for machine learning to analyze them (Bleich et al., 2018). Considering that the titles, descriptions and the thumbnails of the videos we analyze are quite complex and can carry equivocal interpretations, we chose the human encoding method. Thus, we believe we will be able to obtain and provide more valid results.

For our analysis of video framing, we used both the visual component of the video (the thumbnail) and the verbal narrative (the video title and description) to collect a more comprehensive set of data. We recognized that while visual elements can provide rich information, they can also be open to multiple interpretations, and therefore require the support of text to be fully understood. In line with the idea that a joint analysis of visuals and text can support the creation of effective interactions (Barthes, 1967; Pain, 2012), we decided to interpret thumbnails in conjunction with their verbal descriptions. By combining the information provided by both the visual and verbal elements of a video, we can gain a more concise comprehension of its framing.

The concept of "**framing**" - the idea of how a problem is described or labeled - shapes public opinion ([Gamson and Modigliani, 1989](#)). This concept played a major role in research related to the mass media. For example, previous research has shown that wording, describing and/or highlighting certain information changes public opinion in surveys ([Nelson and Kinder 1996](#); [Zaller 1992](#)). Based on this hypothesis, we included "framing" in video encoding, considering that video framing can also influence the formation of social opinion and attitudes. In this case, we coded the dominant framing of the videos and divided into the following categories:

- **Victim:** frames the unfortunate circumstances of migrants, which may evoke sympathy for them, even though it might represent without their agency taking the control (e.g. close-up images of sad faces, portrayal of poverty, crying faces, etc.);
- **Beneficial:** frames migrants/migration as contributing to society. These can be economic (e.g. hardworking migrants, successful people, etc.) or cultural contributions (added value of diversity);
- **Problem:** frames evoking fear, animosity or threat (e.g. imply migrants stealing jobs, taking the advantage of welfare systems, harming host society culture etc.);
- **Other/Ambiguous:** anything that is not covered by the first 3 frames and it is too ambiguous to encode.

Research question 1: How migrants and refugees are represented in the top-watched YouTube video search results?

In the first test, we aim to test the hypothesis of whether YouTube's recommendation system results in a biased portrayal of migrants and refugees. Thus, we check how migrants and refugees are portrayed in the most popular videos on YouTube, and how the results differ between these two different groups of migrants.

To answer the first research question, we used the method of **data scraping** and **content analysis**. The experiment involved two separate searches for the keywords "**migrants**" and "**refugees**" on YouTube. After completing these queries, we selected the 100 top-watched videos for "migrants" and the 100 most viewed videos for "refugees" by filtering results according to number views. We have limited our search to single-words to make the results more direct and consistent. Therefore, we did not include migrant-related options with two or more words (e.g., "asylum seekers") in our search. The use of singular forms can produce more search results, indicating their greater prevalence and relevance. Additionally, we selected only neutral terms and avoided controversial phrases such as "illegal migrant" in order to avoid biased results ([Umran et al., 2022](#)). London was used as the location for scraping data, although the site does not affect the search results, since we examined the most popular videos. We then completed our data analysis with a **comparative content analysis** of YouTube representation between migrants and refugees.

Research question 2: Does YouTube's recommendation algorithm suggest differently framed migration videos in pro- or anti-migration national settings?

With this trial, we want to test the "echo-chambers" hypothesis at the national level. In particular, we will observe whether anti-migration contexts receive more video recommendations with anti-migration subtext and *vice versa*, whether YouTube's algorithms recommend pro-migration content for countries with migrant support backgrounds.

To answer this research question, we used the method of **data scraping via VPN** and **content analysis**. This experiment involved searching for the keyword "migrants" on YouTube. However, this time we chose two different places to search for each keyword. As our goal is to understand the framing of migration-related video results in pro- and anti-migrant settings, we selected the **Canadian (Toronto)** and **the United Kingdom (London) IP locations through VPN**.

Canada has been selected as representing a migrant-supporting country, while the UK has been used as anti-migrant. This choice of countries is justified by the most similar design of both systems. In particular, both countries are English-speaking states, members of the Commonwealth with extensive migratory histories and common law systems. However, they differ greatly from each other in terms of their migration policy and their public attitudes towards migration.



Figure 1. 2019 [MIPEX](#) Ranking, Canada.

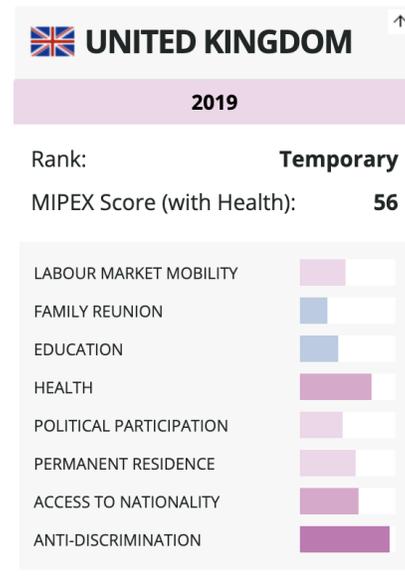


Figure 2. 2019 [MIPEX](#) Ranking, the UK

After completing these queries, we selected the 100 most recommended videos for the "migrants" search in London, and the same number of videos in Toronto. We concluded our data analysis with **a comparative content analysis** to see if there is any difference in the framing of portrayals of migrants in pro- and anti-migrant contexts.

Research question 3: Does YouTube’s recommendation algorithm suggest differently framed migration videos to migrant and native profiles?

With the third experiment, we want to test the “echo-chambers” hypothesis at the **individual** level. We aim to find out whether native people receive more video recommendations with anti-migration subtext and *vice versa*, whether YouTube algorithms recommend pro-migration content for people with a migrant background.

For this purpose, we used the method of **data scraping** and **content analysis**. We created two fake YouTube profiles: one quasi-migrant and one quasi-native. Using VPN, we located both accounts in London, but in different parts of the city in relation to ethnic diversity contexts.¹ Accordingly, we presented the native fake user profile as “Kate White” and set up a VPN to East London. The fake migrant user profile is “Fatma Aydin”, for whom we set VPN to Wembley, London. Both profiles were completely blank accounts with no previous search and click history.

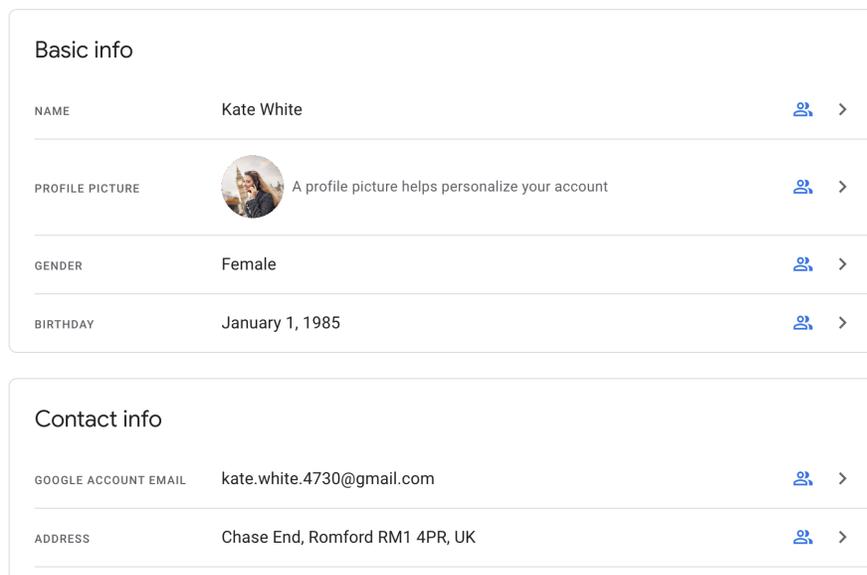


Figure 3. Kate White, native profile information.

¹ For more see: [London Ethnicity map](#).

Basic info		
NAME	Fatma Aydin	>
PROFILE PICTURE	 A profile picture helps personalize your account	>
GENDER	Female	>
BIRTHDAY	January 1, 1985	>

Contact info		
GOOGLE ACCOUNT EMAIL	fatma.aydin.7856@gmail.com	>
ADDRESS	East Ln, London, Wembley HA0 3NG, UK	>

Figure 4. Fatma Aydin, migrant profile information.

The experiment involved a YouTube search for the keyword "migrants" for each profile. After completing these queries, we scraped the top 100 recommended videos for each profile and concluded our data analysis with **a comparative examination** to check if YouTube recommends differently framed migrant-related videos to natives and migrants.

Qualitative method framework

The second purpose of the audit is to put the migrants themselves at the center of the study. As we aimed to take a socio-technical approach in our audit, this social part of the methodology, dedicated to the question: ***how do people with migration origin themselves perceive the portrayal of migrants on YouTube videos*** and ***how do they react to these representations?***

To answer this question, we conducted **a qualitative study** using **a focus group method**. The discussions were held during the "Decolonization of the Newsroom" roundtables held in Madrid in July 2022 to hear the voices of migrants and understand how they challenge the algorithmic filtering of social media content. For the purposes of this qualitative study, four people with a migration background were selected to participate in a focus group. During the roundtable, general issues of the representation of migrants in social and mass media were discussed. In addition, participants were shown YouTube videos with or about migration/migrants/refugees and were asked about their reactions and attitudes towards the image.

The qualitative methodology used in this study was appropriate for achieving the research objectives and providing a rich and in-depth understanding of the participants' experiences and perspectives. The use of focus group discussions allowed for a collaborative and interactive data collection process, enabling the participants with migrant backgrounds to share their views and ideas with each other. Overall, the use of a qualitative methodology in this study was effective in providing valuable insights into the research topic and contributing to the advancement of knowledge in the field of representation of migrants on YouTube and social media in general. The findings of this part of the study highlight the complex and varied ways in which migrants are represented on YouTube and social media, and provide important insights into the challenges and opportunities that migrants face in these spaces.

Auditing YouTube: Results

4.1 Quantitative findings

4.1.1 Migrants in top-watched YouTube videos

This part discusses the results of the first research question: **how migrants and refugees are represented in the top-watched Youtube video search results?**² For that purpose, as we already mentioned, we tried to analyze top-watched video results on YouTube by searching "migrants" and "refugees". We divided the data analysis into two groups: migrants and refugee representation, thereby trying to highlight the representation of separate groups of migrants and its differences.

Migrants representation

Analyzing all top-watched "migrants" video thumbnails, we were able to distinguish two main types of content: videos **with the presence of migrants** and videos **without the presence of migrants** in the thumbnails. Our analysis showed that a bigger share of images (68%) are depicting migrants on the thumbnails, rather than without them.

Videos with presence of migrants:

Videos with migrants in attendance had a common feature in that it was **unfeasible to determine the face visibility**, since in most images migrants are presented in **big groups** of 16 or more people, which contributes to their dehumanized portrayal ([Bleiker et al., 2013](#); [Esses et al., 2013](#)). However, it can be recognized that most of the depicted people are **adults** who belong to **a non-white** race, where **women are underrepresented**. In the vast majority of videos with migrants present, migrants are shown as **crossing a border**, which is 75% of thumbnails. While only in 19.1% of video images do migrants not cross a border and in 5.9% there is unclear activity.

Taking a close look at the predominant "border crossing" thumbnail group, we could identify images that show other characteristics or activities at the same time. One common picture is the presence of the **armed forces (21,6%)** along with migrants crossing the border, where the problem framing prevails. The same amount of videos shows migrants **crossing the sea** by boats or ships, with a predominance of victim framing.

In sum, the most common trait for top-watched videos with migrants present is **a large group of adult non-white migrants crossing a border**. Herewith, in these video thumbnails, the migrants are framed as **victims** and a **problem**.

² For more details see *Annex 1*.

Videos without migrants:

Fewer video images (30%) that we have analyzed do not capture migrants, but rather they portray politicians, the military, or others (e.g. TV or news anchors). Among them, migratory videos **with politicians** have predominantly **a problem framing**.



Image 1. The most common trait for "migrants" search.
Video title: African migrants storm border into Spain's Melilla

	Migrant Presence						No Migrant Presence		
	Border Crossing				No border Crossing				
	Armed Forces	Crossing by sea	Other activities	No activities	Activities	No activities	Armed Forces	Politicians	None
Framing	Problem 45.5%	Victim 81.8%	Victim 47.1% - Problem 47.1%	Victim 47.1% - Problem 47.1%	No predominant framing	Victim 85.7%	No predominant framing	Problem 53.3% - Ambiguous 46.7%	Ambiguous 61.5%
Characteristics	-Face Not identifiable 72.7% -Big gp +16 63.3%	-No female or both gender -Big gp +16 63.3% -Non-white 72.7%	-Face Not identifiable 66.7% -Big gp +16 50% medium 41.7%	-Face Not identifiable 58.8% -Big gp +16 41.2% medium 45.3%	-Non-white 100%	-Non-white 100% -Adult 71.4%	N/A	N/A	N/A

Table 1. Migrants representation in the top-watched YouTube videos

Result: By analyzing all the videos with the keyword "migrants", we were able to see the overall picture that migrants represented in the most viewed videos on YouTube. Thus, *migrants are mostly imaged in a large group of adult non-white migrants crossing the border, and it is reachable to determine their facial features. It is alarming that migration in the analyzed videos is predominantly framed in the context of the victimization and problem.*

Refugees representation

Likewise videos focusing on migrants, refugee-oriented searches helped us identify two main types of videos: a group of videos **with refugees' presence** and another group **without refugees** depiction on it. In turn, the number of videos with the presence of refugees (75%) significantly outnumbers videos without them, similar to the search for "migrants".

Videos with refugees' presence:

Our study found that when searching for the most popular YouTube's videos of refugees, the share of videos with images of refugees is noticeably different from the portion of searches for "migrants". The big difference between "migrants" and "refugees" queries is the visibility of their features. Compared to migrants images, we were able to determine **the facial and demographic characteristics** of refugee groups. In particular, the thumbnails depicting refugees equally include **both adult women and men**, only 3% are children. In addition, the query "refugee" showed that the images contained fewer people in the thumbnails. Refugees are portrayed on YouTube videos mostly in **small groups of 2-4 people**. Further, we observe a difference from the "migrants" search in that in the proportion of images refugees are presented predominantly as representatives of the **white race**. For example, Ukrainian refugees are shown, probably strongly marked by the war in Ukraine.

Unlike the video search for "migrants", refugees thumbnails do not show refugees as crossing the border. Rather, they are shown **without any action** within a victim framing, which accounts for 46.7% of all videos with refugees present. A slightly smaller number of images depict refugees crossing the border, 41.3% of all with the presence of refugees. In this group, most video images do not have clear activity or characteristics. Only a few of these video thumbnails contain an image of the armed forces (5) or crossing the sea (5). Others, in a single case, show political or religious symbols, working or protesting images.

As a result, after analyzing the YouTube thumbnails with the "refugees" search we could identify that the most common picture with refugee presence includes **a small group of adult white refugees of both genders with different activities or characteristics**.

Videos without refugees:

Videos without images of refugees make up only **17%** of all "refugee" videos. This group mainly portrays politicians (35.3%) or other neutral people (64.7%, such as YouTube bloggers or other entertainment content).



Image 2. The most common trait for "refugees" search.
Video title: Picking up Hot Ukrainian Refugees!

	Refugees Presence				No Refugees Presence	
	Border Crossing		No border Crossing		Politicians	No politicians
	Activities	No activities	Activities	No activities		
Framing	Ambiguous 42.9% - Victim 50%	Ambiguous 47.1% Victim 47.1%	Victim 50%	Ambiguous 47.8% - Victim 43.5%	Ambiguous 54.5%	Ambiguous 66.7%
Characteristics	-Big gr 50.0% -Both gender 57.1% -Both age 57.1% -Non-white 42.9%	-Both gender 64.7% -Both age 47.1% -White 52.9%	-Adult 83.3% -Non-white 66.7% -Small gr 58.3% -Facial visibility 58.3%	No Big gp +16 -More individual 39.1% /small gr 43.5% -Facial visibility 65.2% -Adult 65.2% -White 60.9%	N/A	N/A

Table 2. Refugees representation in the top-watched YouTube videos

Result: As can be seen from the query *refugees* are presented on YouTube with clear facial features, in contrast to dehumanized migrants. They are predominantly portrayed in a small group of adult white refugees of both sexes doing different activities or characteristics, predominantly are shaped in victim or ambiguous framing.

In conclusion, for both queries for "migrants" and "refugees", we can confirm that there is a clear difference in the representation of different groups of migrants in the most popular YouTube videos, namely between refugees and migrants. The YouTube algorithm system shows different results for these two groups of migrants and presents them diversely. It can be inferred that migrants are presented on YouTube more negatively than refugees. Migrants are usually portrayed in large groups without facial identification, which dehumanizes them. Moreover, it is alarming that migrants are portrayed predominantly as non-whites and framed as a problem. Speaking of refugees, we can trace another result: we can see their facial appearance. They are, on the contrary, predominantly in small groups of the white race, not crossing any state borders..

4.1.2 Video framing in pro-/anti-migration contexts

This part discusses the results for the second research question: ***Does YouTube's recommendation algorithm suggest differently framed migration videos in pro- or anti-migration national settings?***³ In particular, we will observe whether anti-migration contexts receive more video recommendations with anti-migration subtext and *vice versa*, whether YouTube algorithms recommend pro-migration content for countries with a history of supporting migrants. To this end, we tried to analyze YouTube recommended migrant-related video results in two different locations: London and Toronto. We divided the data analysis into two groups: the representation of migrants in London (anti-migrant) and the same query in Toronto (pro-migrant), thereby trying to highlight the portrayal of migration in two different national contexts. The analysis includes the comparative examination of whether there are differences in pro-migrant and anti-migrant contexts.

Portrayal of migrants in London (anti-migrant background)

As in RQ1, when analyzing the videos, we found a distribution into groups of videos with the presence and absence of migrants captured on them. While, the largest number of video thumbnails **contain images of migrants (78%)**, rather than without them.

Videos with presence of migrants:

The main trend found in the videos with the presence of migrants lies in the characteristics of the frontier passage, in **70.5%** of the videos, migrants are presented at the **border crossing**. As in the previous research question, in videos presented both at the border crossing and non-border crossing, we could track a group of videos that depict other characteristics or actions at the same time. This includes thumbnails such as the presence of armed forces, migrants crossing the sea, working activities, etc. The second group does not contain any actions/characteristics, while "other" includes all videos that have an action/characteristic but cannot be grouped into previous categories. Border crossing videos depict slightly more videos of migrants **crossing the border by sea (32,7%)**. The rest show military forces alongside migrants (20%), images without any specific characteristics (30,9%) and others. The video thumbnails of migrants crossing the border are presented mostly in a **victim framing** in videos of migrants crossing the sea and in videos without activity. In turn, the rest of the videos show migrants doing other actions than crossing borders, and also mostly shaped in a victim framing.

An analysis of all videos with presence of migrants collected by geolocation in London showed that most of the videos have common features. These general trends show migrants as **a large group of adult non-white migrants crossing a border (not by sea)**. As it can be

³ For more details see Annex 2.

seen, the tendency is similar to the results of the RQ1. In this test, we also noticed that the videos shown for London are dominated by migrants depicted as **victims**.

Videos without migrants:

A smaller number of video images (21%) that we analyzed do not contain images of migrants, rather they depict politicians and the military or neither, and are designed in ambiguous, problematic and victim framings. .



Image 3. Most common trait for “migrants” search in London.
Video title: Migrants at U.S. border despair over asylum rule

	Migrant Presence						No Migrant Presence		
	Border Crossing				No border Crossing				
	Armed Forces	Crossing by sea	Other activities	No activities	Activities	No activities	Armed Forces	Politicians	None
Framing	No predominant framing	Victim 55.6%	No predominant framing	Victim 47.1%	Victim 60.0%	Victim 60.0%	No predominant framing	Ambiguous 40%- Problem 40%	Ambiguous 50.0% Victim 41.7%

Table 3. Portrayal of migrants in London

Result: In the London test, we could observe that *YouTube's recommendations for the anti-migration context tend to feature migrants as a big group of adult non-white people crossing a border. In addition, the test about London also found that the recommended videos typically portrayed migrants as victims.* The trend is in line with the results of the previous RQ1. Yet, the next test will involve examining the recommendations received by pro-migration context to see if they are similar to the recommendations received by the London location. This will help to determine if YouTube's recommendation algorithm prioritizes content that dehumanizes and victimizes migrants in all contexts or just in anti-migratory ones.

Portrayal of migrants in Toronto (pro-migrant background)

Videos with presence of migrants:

As with the analysis of the London videos, the biggest amount of video thumbnails contained **images of migrants (86%)**, which were extracted from Toronto's location. The largest proportion of videos from Toronto depicting migrants show them at the moment of **crossing the border**, which is **81.4%**. Compared to the London context, videos from Toronto show migrants mostly crossing boundaries without **any extra action**, rather than being at sea which takes only 17% of share. A small proportion of videos also show armed forces (21.4%) as migrants cross borders. While for the most part, migrants crossing borders are presented predominantly as **victims**, with the exception of videos with the armed forces, where migrants are framed as a **problem**. In turn, the rest of the videos show that migrants perform other actions or have different characteristics than crossing borders, and also have a strong victim framing.

Thus, the most common type of depiction of migrants in Toronto's YouTube recommendations also suggests that they represent **a large group of adult non-white migrants crossing the border** (not by sea). A dominating mood showing migrants as **victims**.

Videos without migrants:

In contrast to the London context, an analysis of the results in Canada found that videos that do not feature migrants show fewer politicians and more military forces. However, the high prevalence **does not capture any of them (61,5%)**, as in the British test.



Image 4. Most common trait for "migrants" search in Toronto.

Video title: How U.S. immigration policy affects fate of migrants braving the deadly Darien Gap

	Migrant Presence						No Migrant Presence		
	Border Crossing				No border Crossing				
	Armed Forces	Crossing by sea	Other activities	No activities	Activities	No activities	Armed Forces	Politicians	None
Framing	Problem 46.7%	Victim 58.3%	Victim 41.7%- Problem 41.7%	Victim 48.4%	Victim 100%	Victim 72.7%	No predominant framing	No predominant framing	Ambiguous 50%- Victim 50%

Table 4. Portrayal of migrants in Toronto

Result: While analyzing videos scraped in the Canadian context, we observed strongly similar results to those in the British context. Like the anti-migrant national context exercise, the YouTube recommendations algorithm offers migration-related videos in Toronto, depicting migrants in a predominantly victim framing as a large group of adult non-white people crossing borders. This suggests that YouTube's recommendation algorithm does not prioritize video content for either anti- or pro-migratory locations, but rather focuses on depicting migrants in a dehumanized and victimized manner.

In summary, we can highlight that the results of the pro-migrant and anti-migrant exercises for Toronto and London are very similar, which does not support our hypothesis for RQ2 that YouTube's recommendation algorithm would differentiate between pro- and anti-migration national contexts. However, both profiles received similar video recommendations from the YouTube system, with a majority of videos framing migrants predominantly as victims, as large groups of adult non-white migrants crossing the border. The conclusion is that YouTube's recommendation algorithm does not take into account national migration context when recommending content. Instead, certain types of migration-related content, particularly those that depict migrants in a disadvantaged light, appears to be prioritized by the YouTube algorithm system, regardless of national migration context.

4.1.3 Framing of videos recommended for migrants and natives

This part of the report discusses the results of the third research question: ***Does YouTube's recommendation algorithm suggest differently framed migration videos to migrant and native profiles?***⁴ As noted earlier in the methodology, in the third experiment we wanted to test the "echo chambers" hypothesis at the individual level, and tried to find out what video recommendations on YouTube receive native people and people with a migration background. For this purpose, we used two created fake profiles: Kate White, for whom we installed a VPN to East London, and Fatma Aydin, based in Wembley, London.

Kate White (native profile)

⁴ For more details see Annex 3.

Videos with presence of migrants:

76% of the videos recommended for Kate White include **a picture of migrants**. Most of these videos represent migrants **crossing borders** (63,2%), as in all previous tests. Like in RQ1 and RQ2, we could identify the same subgroups, which also includes other activities and characteristics together with migrants depicted on them. In this sense, there are slightly more videos, where migrants cross a sea (33,3%) and least of videos with armed forces (16,7), while 27,1% of all border crossing videos do not present any activities or any other characteristics.

Taking into account the most common traits, the type of migrant portrayal in native profile showed is **a medium group of 5-15 adult non-white migrants crossing the border**. The subtext that dominates in videos with migrants is a victim framing. What we can say about the framing of videos offered by YouTube is that, as with all previous questions, we could see a trend towards a victimizing tune in migrant content and predominantly displaying them as **victims of circumstances**.

Videos without migrants:

Analysis of the results of videos recommended for Kate contains only 23% of videos that do not capture migrants. This part of the video mostly does not contain any politicians or military, and makes up a large proportion of 59.1%.



Image 5. Most common trait for "migrants" search for Kate White profile
Video title: African migrants storm border into Spain's Melilla

	Migrant Presence						No Migrant Presence		
	Border Crossing				No border Crossing				
	Armed Forces	Crossing by sea	Other activities	No activities	Activities	No activities	Armed Forces	Politicians	None
Framing	Not predominant framing	Victim 56.3%	No predominant framing	Victim 46.2%	Victim 60.0%	Victim 46.2%- Ambiguous 46.2%	Victim 66.7%	Ambiguous 40%- Problem 40%	Ambiguous 46.2%- Victim 46.2%

Table 5. Recommended YouTube videos for Kate White

Result: At the end of this exercise, we observed that, as in previous RQs, *native profile Kate White received most of the YouTube video recommendations showing migrants in a victim framing, in a group of adult non-white migrants crossing the border.* The next test will involve examining the recommendations received by the migrant profile to see if they are similar to the recommendations received by Kate. This could help understand whether YouTube's recommendation algorithm prioritizes content that dehumanizes and victimizes migrants for all users or just for the native profile.

Fatma Aydin (migrant profile)

Videos with presence of migrants:

Fatma's YouTube video recommendations for a migrant also showed a high number of **videos featuring migrants (76%)**. As with Kate, the largest proportion of videos are about migrants **crossing borders**, accounting for 57,9% of all videos with migrants. Compared to the native profile, Fatma received a slightly higher number of videos of migrants passing the sea, but the figure is unpretentious, only 36.4%. The rest does not/includes other activities or characteristics, while the smallest number of videos also shows the armed forces (13,6%) along with migrants crossing borders.

The most common type of image of migrants in the YouTube recommendations for Fatma Aydin is exactly the same as in the results for the native profile. This suggests that the migrants showed usually in **a medium group of 5-15 adult non-white migrants crossing the border** (not by sea). The prevailing mood frames migrants as **victims** of circumstances.

Videos without migrants:

As in the case of Kate White, Fatma received fewer videos without the presence of migrants, only 23% of all videos analyzed. Most of such video thumbnails also contain neither politicians nor the military forces and make up the majority of 63,6%.



Image 6. The most common trait for "migrants" search for Fatma Aydin profile. Video title: What migrants face as they journey through the deadly Darien Gap

	Migrant Presence						No Migrant Presence		
	Border Crossing				No border Crossing				
	Armed Forces	Crossing by sea	Other activities	No activities	Activities	No activities	Armed Forces	Politicians	None
Framing	Not predominant framing	Victim 43.8%	Victim 40.0%-Problem 40.0%	Victim 58.3%	Victim 40.0%-Ambiguous 40.0%	Victim 50.0%-Ambiguous 41.7%	No predominant framing	Ambiguous 40%-Problem 40%	Ambiguous 53.3%-Victim 46.7%

Table 6. Recommended YouTube videos for Fatma Aydin

Result: The video content received by the migrant profile, Fatma Aydin, was remarkably similar to that received by the native profile, Kate White. Likewise, *the migrant profile received a majority of recommendations that depicted migrants as victims in medium groups of non-white adults crossing borders.* This suggests that YouTube's recommendation algorithm does not prioritize content for either native or migrant users, but rather focuses on portraying migrants in a dehumanized and victimized way.

After conducting the exercises involving the native and migrant profiles, Kate White and Fatma Aydin, respectively, we found that the results were very similar, which do not maintain the hypothesis for RQ3. Both profiles received similar video recommendations from the YouTube algorithm system, with a majority of videos framing migrants predominantly as victims, in medium groups of non-white adults crossing frontiers. The conclusion is that YouTube's recommendation algorithm does not differentiate between native and migrant users in terms of the content it recommends. Instead of prioritizing content that strongly supports or opposes migration and creating a polarizing dynamic between local and migrant users, the algorithm appears to focus on portraying migrants as dehumanized and victims regardless of the user's background.



4.2 Qualitative findings

4.2.1 Perception of migrants to their social media portrayal

The second objective of the study is to put migrants themselves at the center of the research. For this purpose this part of the report will be focused on the question: ***how people with migration origin themselves perceive the portrayal of migrants on YouTube videos and how do they react to these representations?***

In a review of the roundtable's discussion, participants with migrant backgrounds confirmed the underlying trend that people with a migrant background use social media primarily **to stay connected to their community**, as was proved by previous studies ([Dekker & Engbersen, 2014](#); [Vilhelmson & Thulin, 2013](#)). At the same time, they highlighted some of the common issues they face, and in particular when consuming social/media migration-related content, including their reactions to how social and mainstream media portray them.

While our sample is not representative of the larger group of migrants and therefore our findings are not generalizable. However, our focus group discussion raised critical issues that need to be explored more systematically and ideally addressed at the institutional level.

The first concern of all participants was that **migration in social media** is portrayed and boosted in **a negative light**, usually framed as a **problem**. Whereas content showing migrants or refugees in a positive way does not reach the audience of social media. For example, one participant mentioned that he created an app to help unregistered migrants in Amsterdam. When he posted an ad for the app on social media, the post had very little engagement. This has led to the feeling that content that promotes a positive or neutral portrayal of migrants is being silenced by social media rather than being promoted. In turn, as another participant mentioned, users need to pay to promote and increase the views of a positive migration image.

The other issue that was pointed out was the representation of migrants in social networks in **large groups**, which affects the perception of them as a **danger** or **threat**. One participant gave an example of how Spanish people feel about migrants or refugees: *"People in Spain say: "The migration that we had in the 80s is normal, only one or two people came to us, now that there are a lot of them, this is a problem."* Often such big groups of migrants are compared on social/media to a **"wave"**, **"tsunami"** or preceded by the phrase **"they are coming!"**, thereby singling them out as an unidentified mass and further reinforcing the negative overtone. This representation is also related to the portrayal of migrants in most videos as **crossing borders**, which many can perceive as **arriving or invading their homes**. At the same time, showing migrants in such big groups makes it inconceivable to recognize the gender and faces of people. All these aspects brings us back to the theory of **dehumanization** of migrants and refugees in media ([Bleiker et al., 2013](#); [Esses et al., 2013](#))

From another side, the participants believe that portraying migrants as victims has a **negative connotation**, meaning that they are seen as recipients of something unfavorable.

The members of the focus group suppose that the main issue in negative portrayals of migration is **mainstream media** rather than social media, as the most watched videos on YouTube are from news sources. YouTube or any other social media content is moderated, but the **voices of migrants are often underrepresented**, it is always dressed in a **political context**. For instance, if a migrant can be interviewed, he/she tells their own experience and story. In turn, journalists interpret this story in another perspective, in accordance with the agenda or goals of their media.

Further mentioned problem was that social media algorithms strictly divide and present content into two extremes: **stories of successful migrants** or **failure migration narratives**. Sometimes this negatively affects the general mood or even the mental health of migrants. Where success stories are framed in terms of the "American or European dream" and are shown as a matter of luck or talent, excluding real hard work behind. Whereas the stories of failed migrants portrayed on social media are framed in grief that makes people think "there is someone worse off than me".

Speaking specifically about **refugees**, the participants emphasized that there is a chance to see **double standards** in social/media regarding current political events. For example, taking account of the war in Ukraine, one of the participants assumed that when searching for "Ukrainian refugees" and other refugees, the images and narratives of the video would be completely different.

Perception questions addressed to migrants themselves are important as, ultimately, on the one hand, we can witness the level of migrants' trust in social networks, including YouTube, which also affects their engagement and use of these social networks. On another hand, this aspect will further have an indirect impact on the general public understanding of migration issues. This would be one-sided comprehension given that migrants would have less trust and therefore will use less and be underrepresented on social media. And, consequently all this will have a major impact on the quality of the data that the platform displays and distributes. Our tools and available data do not allow us to have a more global view about migrants' perception of themselves on YouTube, but in our opinion provide a strong case for a systematic improvement of the weak points that our External Audit has identified.

Discussion and recommendations

Through our analysis, we tried to test the algorithm system of the YouTube platform, in particular how it spreads information about vulnerable social groups. We focused on the representation of migrants on this platform and tried to understand how YouTube's algorithms work and how they affect migrant groups. When we launched an External Audit of the YouTube algorithm system, we had concerns about the discriminatory and biased overtone of representation of migrants on social media, given previous research on the topic. While some of our concerns were not confirmed, such as an impact of "echo chambers" at the national and individual levels –echo chambers only happen for anti-migration narratives, not for pro-migration, which can radicalize attitudes towards migration, and deepen the negative impact on migrants' self-worth–, others have reaffirmed that YouTube's algorithms indeed can portray migrants in a disadvantageous light, which can further affect the migrants themselves. Yet, our quantitative findings' concerns were strongly supported by the qualitative results we received from people with a migration background:

1. YouTube shows migrants in a predominantly disadvantaged light

We are concerned about results we got for migrants representation in the most watched and recommended YouTube videos. In all of our experiments, migrants were most often portrayed in the same way on YouTube: a large or medium group of non-white migrants crossing the border without a clear face visibility.⁵

First, this finding helped us to identify and validate an alarming trend, already discussed in previous studies, where migrants are visually portrayed on YouTube in a highly **dehumanizing way** ([Bleiker et al., 2013](#); [Esses et al., 2013](#)). Such a trait to show migrants that we found on YouTube risks leading to further negative public attitudes towards migration, amplifying xenophobic and racist sentiments. The lack of personalized representations of migrants and the dehumanized depictions of migrants in social networks/media will prevent the public from empathizing with them ([Bleiker et al., 2013](#)), and the more negative the overall migration picture will be for the audience.

Second, we found that YouTube's algorithms present migrants mostly as **border crossings**. This footprint also confirms the stereotype of migrants illegally crossing frontiers and links migration to notions of "invasion", "they are coming!", "threat" to the sovereignty or security of the host state ([Bleiker et al., 2013](#)), which bothered the migrants themselves in the social part of our audit.

⁵ We recognize that the faces of migrants may be hidden in an attempt to protect their privacy, however, we have not observed cases where this would be obvious using any face hiding techniques.

Third, most of the YouTube video thumbnails depict migrants as **victims** of circumstances. The portrayal of migrants as victims is a complex and a potentially contentious issue within the general discourse. Some scholars argue that framing migrants in the victimizing way can serve to highlight the challenges and hardships that they face ([Benson, 2013](#); [Bleich et al., 2015b](#)). By drawing attention to the asperity that migrants endure, such as discrimination, violence, or economic insecurity, victim framing can generate empathy and support for their plight. This can be especially important for migrants who may be marginalized or overlooked in mainstream discourse. However, there are also potential drawbacks to using victim framing in relation to migrants. One may view it as negative because it could **reinforce stereotypes** and **prejudices about migrants**, such as the idea that **they are weak or dependent** and **lack agency** ([Banulescu-Bogdan et al., 2021](#); [Haw, 2021](#); [Smets et al., 2019](#)). This could have harmful effects, as it could perpetuate discriminatory attitudes and policies towards migrants. Moreover, as our qualitative study has revealed, some migrants themselves may not want to be portrayed as victims, as it could be seen as derogatory or condescending. They may prefer to be depicted as strong and resilient, with agency and autonomy, rather than as passive recipients of aid or victims who need to be rescued.

Fourth, migration-related YouTube video **content featuring politicians** were predominantly **with problematic frames**, which should also be alarming. Given the growth of political actors of the right wing, it leads to the fact that migration topics are being discussed more widely in social networks ([Heidenreich et al., 2020](#)). More than that, such politicians get more support of social media algorithms and get more visibility in the feed ([Huszár et al., 2021](#)). The trend that politicians shown on YouTube's videos carry negative attitudes towards and frame migration as a synonym of "problems" for countries, can lead to an even more negative attitude of the YouTube's audience and the public in general towards migration.

Finally, our observation of **a lack of videos** on YouTube showing **a beneficial or successful picture of migrants** is another cause for concern. The scarcity of favorable depictions of migration on YouTube and other social media platforms could have harmful effects. By focusing on negative or victimizing narratives, the platform could reinforce adverse stereotypes and prejudice about migrants. Moreover, it could limit the ability of migrants to present themselves in a more nuanced and positive light, potentially hindering their social and economic opportunities.

2. YouTube presents biased results for different groups of migrants

We are concerned that YouTube's algorithms present bias and double standards towards two groups of migrants in the most popular YouTube videos, in particular, between refugees and migrants. As we found in our study, refugees are portrayed by YouTube in a better light than "migrants". Accordingly, we can see more of their facial appearance and, unlike migrants, they are shown in small groups of the white race, not crossing any state borders.

As it is important to consider the context in which the data was collected when interpreting the results, it is possible that the increased number of Ukrainian refugees in 2022 may have influenced the results of the data collection for the "refugees" query. As the videos were scraped in 2022, it is likely that the current events and trends at the time had an impact on our findings. The media has developed a biased "superior" attitude towards Ukrainian refugees compared to all other nationalities of refugees, given the racist language of journalists used in reporting ([Asylum Access, 2022](#)). This was peppered with racist and xenophobic rhetoric about refugees and migrants from the Middle East and Africa, and pursue hostile policies such as border pushes and draconian detention measures ([Global Detention Project, 2022](#); [The United Nations, 2022](#)). Our assumption is that the query "refugees" on YouTube in RQ1 mostly showed white refugees because they are likely to be Ukrainian refugees. This has apparently influenced the fact that refugees are represented more positively than other migrants in the data, who are probably of different nationalities. This concern is doubly confirmed by the mentioned opinion of one of the participants in our discussion that the results of the search will be different if Ukrainian refugees are considered.

We acknowledge once again that our sample is not representative of the global migrant population and therefore our findings are not generalizable. However, our analysis raised important questions that need to be explored more systematically and ideally addressed at the institutional level.

In light of the above, **we recommend:**

- Although YouTube started to struggle with a number of [social issues](#), raised in previous years, the recommender system still shows certain biased content. In particular, as our audit study found, YouTube needs to further develop its recommendation system for better minority representation, such as migrants. The capability to **independently audit the recommender systems** of YouTube and other social networks is a high priority in addressing the issues. This is important as social media has a huge impact on minorities and society at large. The inclusion of an independent audit of social media platforms would not only confirm the correct functioning of a particular system, but also allow independent researchers to identify possible harmful effects of its algorithms. Social media audits will further help to build trust and hold technical systems accountable when needed. Whereas government agencies can and should take the lead in promoting responsible data practices.
- The second critical issue is **the transparency of the algorithms** of YouTube and other social networks. For that reason social media platforms need to share transparency reports that will give deeper insights into the algorithmic issues and give overview of any progress made for completing them. In connection with this, researchers should also be able to test and validate social media recommender systems to help improve them. For this purpose, YouTube and other social platforms should **facilitate**

researchers or research institutions in accessing necessary internal data in order to study the possible harm or risks that their recommender algorithms can bring. Indeed, the reliability of researchers' access to internal data should also be taken into account, and conditions for compliance with data protection and security protocols has to be observed.

- A collaborative effort by public institutions, experts and YouTube itself should better **define the set of biases that should not be present in YouTube's algorithm system**, including those based on gender, race, ethnicity, and other factors. As our study showed, YouTube's algorithm system has gaps in its ability to track biases and stereotypes related to the representation of migrants and refugees, often framing them in a stereotypical and victimized manner. In this regard, it is necessary to develop a more accurate, decolonized, and anti-stereotypical migration terminology that can positively represent interests of migrants in social/media contexts. This should be based on careful research and consultation with experts and members of the affected communities, and should aim to avoid perpetuating harmful stereotypes or biases. It should also be regularly reviewed and updated to ensure that it remains relevant and effective.
- **Engaging migrant communities** in all of the mentioned processes is another suggested step, as our study showed the concerned sentiments of the migrants themselves about their representation or absence in social media. This could include both involvement in the activities with public institutions and experts in setting deprecated biases towards migrants, and implication with YouTube or other social networks to improve their recommender systems. While YouTube already has some instruments that attempt to [prevent mispredictions](#), it should also include deeper engagement with vulnerable groups, including migrants. To do this, YouTube should design its feedback or reporting tools in a way that allows migrants or any other minorities to actively shape their experience ([Mozilla, 2022](#)), while user feedback should have more weight in determining which videos are recommended.

Limitations

The purpose of conducting any research is to increase our understanding of the world around us and to uncover new insights and knowledge. However, it is important to recognize that all research has limitations, which are factors that can affect the accuracy and reliability of the research findings. These limitations can arise from a variety of sources, such as the methods used to collect and analyze data, the sample size and population studied, and the inherent biases and assumptions of the researchers. It is essential to acknowledge and understand these limitations in order to properly interpret and evaluate the results of a study, and to recognize the potential limitations of the research in the context of its broader implications and applications. As any study, our report has certain limitations related to its methodology and analysis, which may affect the accuracy and generalizability of the results.

1. Our report does not cover the global migrant picture, as we **focus only on single-word queries** and exclude queries (such as "asylum seekers", "legal migrants", "worker migrants", etc.) to make the results more direct, consistent and unbiased. This means that our findings may not be representative of all types of migrants or the broader issue of migration. Despite this, we believe that our study provides valuable insights into the use of YouTube data to understand public perceptions and attitudes towards migrants. However, it is important to acknowledge this limitation and interpret the results accordingly.
2. We **used country-specific data** as a benchmark and focused on two countries with significant migration backgrounds, the UK and Canada, in order to test the effects of geolocation on research results. However, conducting audits on a global scale is a decent direction for future research. Subsequent studies could benefit from the inclusion of more robust geographic data to provide a more comprehensive assessment of the representation of migration in social media analysis results.
3. Our study only **examined the three main components** of YouTube content: the video thumbnails, titles and description. However, we did not consider other aspects of YouTube videos, such as the full video content, user reactions in the comments, hashtags, and other metadata. This limitation of our study suggests potential directions for future research.
4. Our data collection took place during **a specific time period** (June and July 2022) and may not necessarily reflect the representation of migrants and refugees at other times. The context of the 2022 Russia-Ukraine war may have had an impact on the results of our study, specifically the results of RQ1. While this helped us identify the presence of biases in YouTube's algorithms, using a longitudinal research approach that involves collecting data over a longer period of time can provide valuable insight

into how robust these biases are in YouTube's algorithms and how they can evolve or change over time.

5. Using only English-language YouTube video data in a study can cause limitations. The employment of **single-language data** may have restricted the ability to generalize the results and may not accurately reflect the diversity of global population perspectives.
6. While we argue that there is strong evidence for the existence of prejudice against migrant groups on YouTube, our work does not focus on investigating **why these issues occur**. Further research may benefit from examining the causes, it can help prevent unequal treatment of individuals and groups, address existing social prejudices and inequalities, and inform efforts to reduce or eliminate bias in algorithms.

Conclusion

YouTube has a huge impact on the daily lives of the entire population of the planet, given that it is the second most popular social media platform in the world with a multibillion audience. At the same time, the platform is increasingly on par with traditional media, playing a key role in informing the public about global issues and events and becoming a critical platform for "visual journalism". All this pointed to the need to explore how the migrant population, which has often been ignored or portrayed in a negative light in the mass media, will be represented in the growing YouTube's content.

Our research helped to highlight the problem of biased and disadvantaged portrayal of migration on YouTube, which has not been previously studied in the context of this platform's algorithms. Some of our hypotheses were not confirmed. The study showed that YouTube's recommendation algorithm does not consider a national migration context or differentiate between native and migrant users when recommending videos. Instead, certain types of migration-related content, particularly those that depict migrants in a disadvantaged light, appears to be prioritized by YouTube's recommender system, regardless of national migration context or user's migration background. Yet, the study results convincingly confirmed other concerns. We observed a bias in the way that migrants and refugees are represented in most watched and recommended YouTube videos. Migrants are portrayed more negatively, often in a dehumanized manner and predominantly as non-whites in problematic frames, in contrast, refugees are predominantly portrayed as small groups of white individuals. Moreover, continuing the mass media narratives, migration in general tends to be portrayed negatively in all YouTube content. In the videos analyzed, migrants were predominantly portrayed as victims in the form of large or medium-sized groups of non-whites crossing a border without a clear view of their faces, which maintains their dehumanization and stereotyping. All this brings up the question of the further impact on public perception of migration. By highlighting negative or demeaning narratives about migrants, the YouTube platform could perpetuate harmful stereotypes and biases.

The report suggests that YouTube and other stakeholders should work to address the biases found in their algorithmic systems, including providing greater transparency and engaging more with migrants themselves. This could help improve the representation of migrants on the platform, and provide a more balanced view of migration-related issues. Additionally, it could boost the reduction of negative stereotypes and dehumanization of migrants that were observed in the study. By addressing these issues, YouTube and other parties of interest could create a more inclusive and fair platform for all users.

Indeed, our study showed only a minuscule piece of the overall puzzle and had certain limitations, however, the issue of discrimination and biased content on the topic migration on

YouTube exists and needs further exploration in order to improve algorithmic systems of the platform and protect minorities from misrepresentation on social media.

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Annex 1

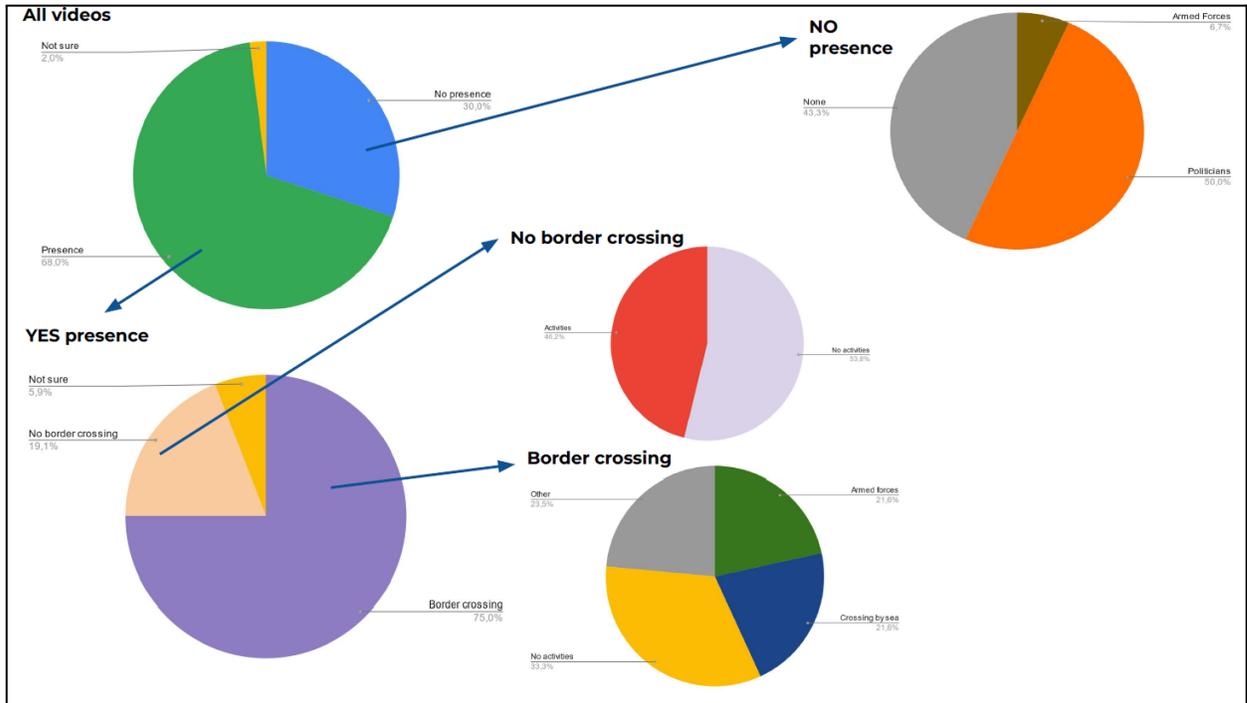


Figure 5. Migrants representation in the top-watched YouTube videos

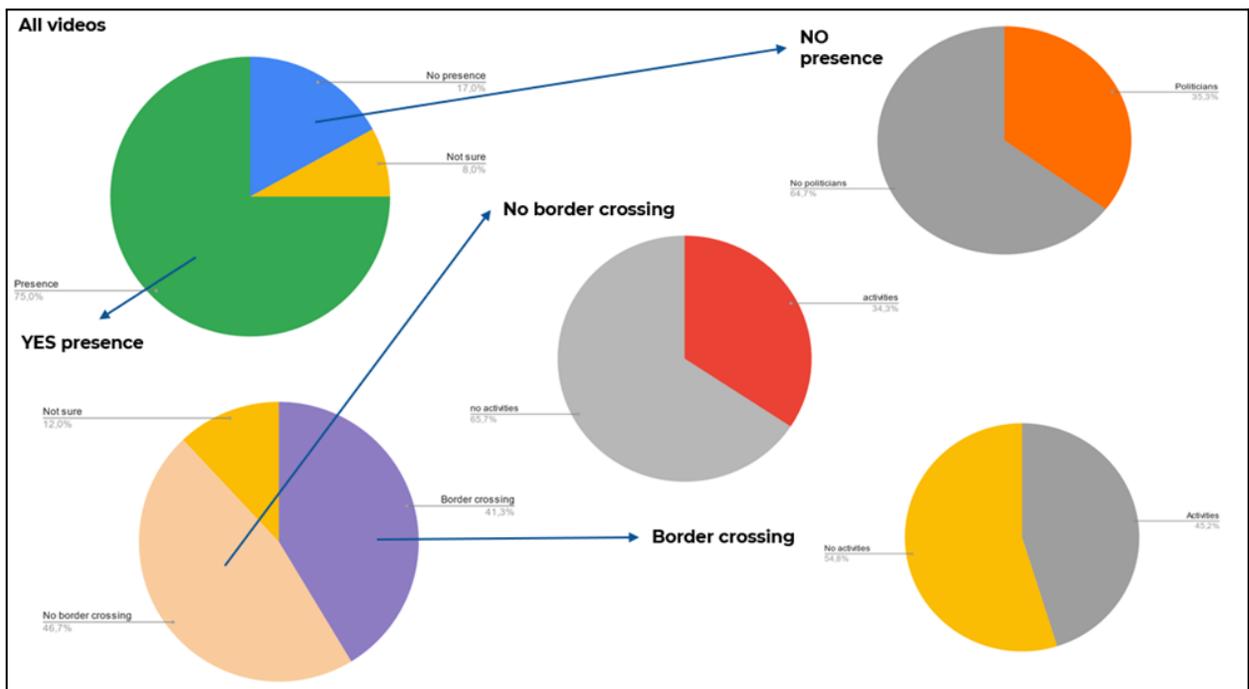


Figure 6. Refugees representation in the top-watched YouTube videos

Annex 2

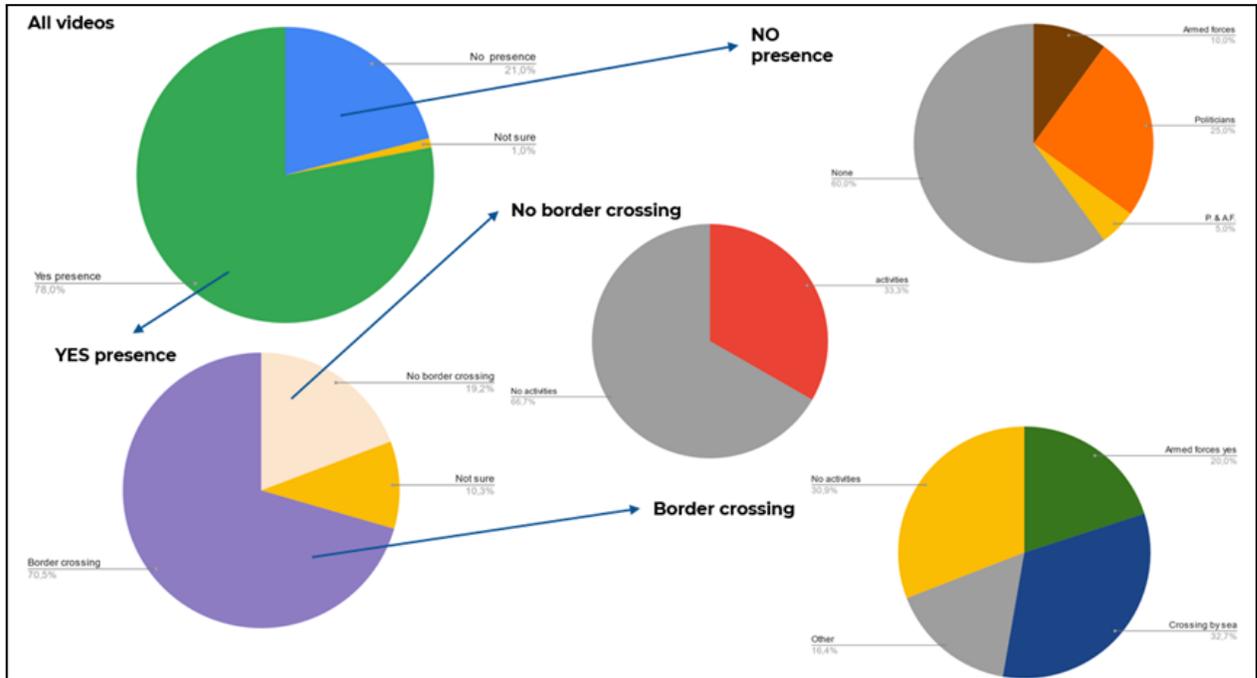


Figure 7. Portrayal of migrants results in London

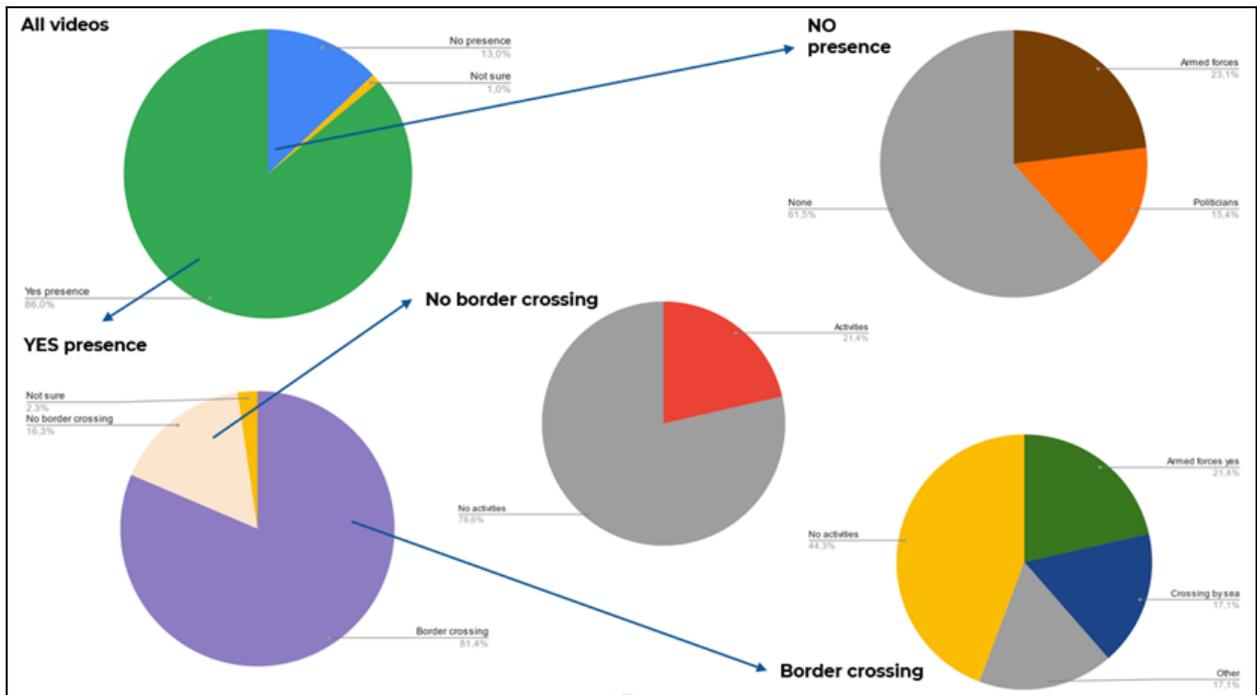


Figure 8. Portrayal of migrants results in Toronto

RQ2: Recommended videos in pro-/anti-migration contexts

Annex 3

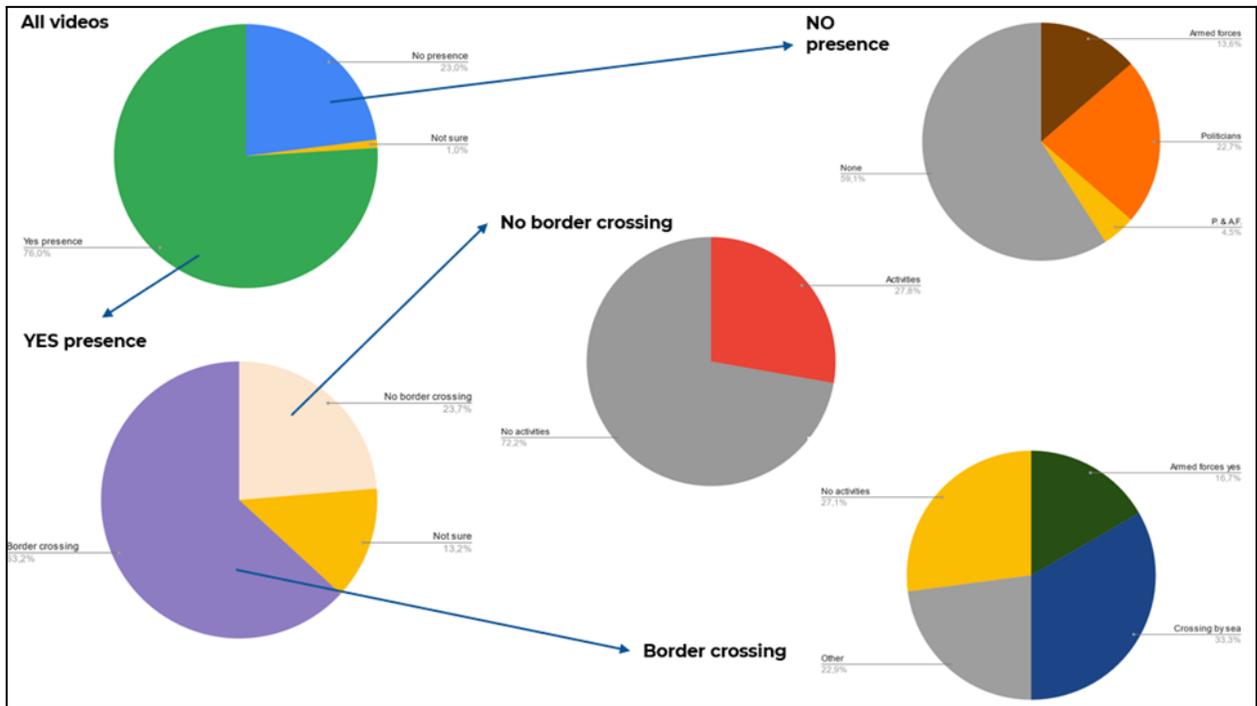


Figure 9. Videos recommended for Kate White, native profile

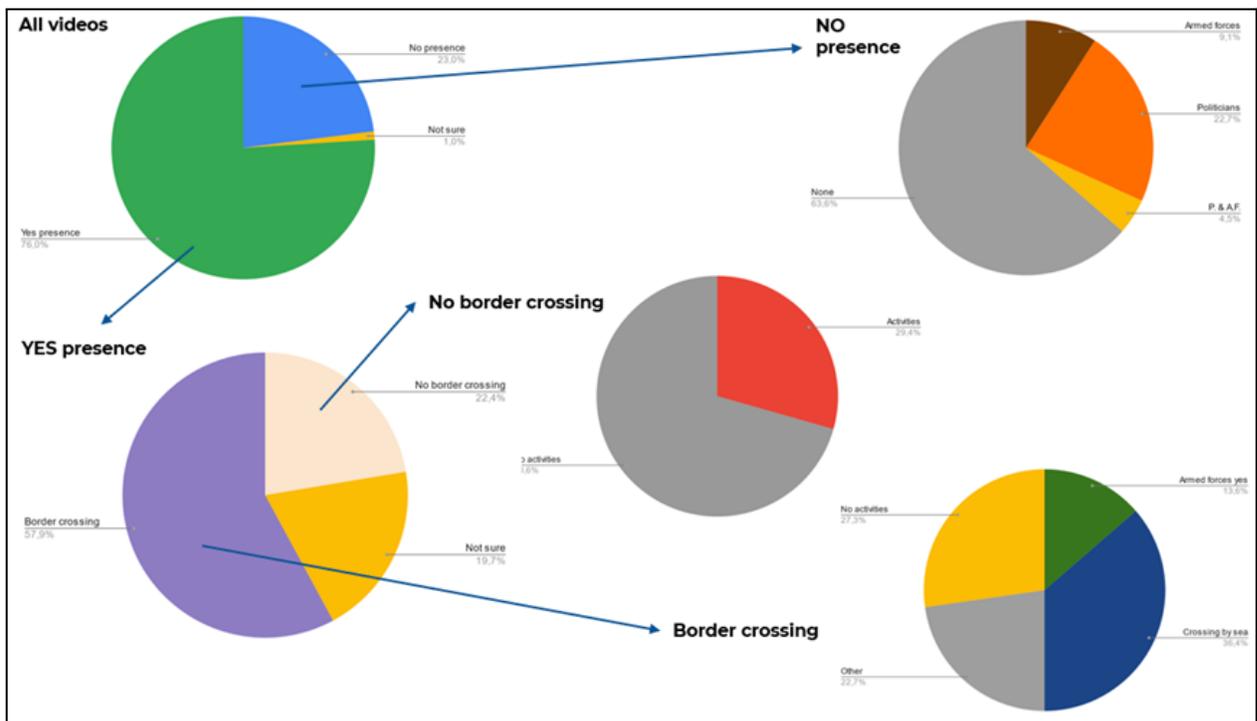


Figure 10. Videos recommended for Fatma Aydin, migrant profile

RQ3. videos recommended for migrants and natives

The logo for 'eticas' is presented in a white, monospace-style font within a solid black square. The letters are spaced out, giving it a digital or technical appearance.

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