

TAYFUN KASAPOGLU

Algorithmic Imaginaries
of Syrian Refugees:
Exploring Hierarchical Data Relations
from the Perspective of Refugees



TAYFUN KASAPOGLU

Algorithmic Imaginaries
of Syrian Refugees:
Exploring Hierarchical Data Relations
from the Perspective of Refugees



Institute of Social Studies, University of Tartu

Dissertation accepted in fulfilment of the requirements for the degree of Doctor of Philosophy (in Sociology) on July 2, 2021 by the Council of the Institute of Social Studies, University of Tartu.

Supervisors: Associate Professor Anu Masso
Ragnar Nurkse Department of Innovation and Governance
Tallinn University of Technology
Institute of Social Studies
University of Tartu

Professor Veronika Kalmus
Institute of Social Studies
University of Tartu

Opponent: Associate Professor Minna Ruckenstein
University of Helsinki, Finland

Commencement: August 30, 2021, Senate Hall of the University of Tartu

The publication of this dissertation is granted by the Institute of Social Studies, University of Tartu. This research was also supported by the Estonian government programme Dora Plus, which is implemented with the support of EU Regional Development Fund.



European Union
European Regional
Development Fund



Investing
in your future



DoRa

ISSN 1736-0307

ISBN 978-9949-03-679-0 (print)

ISBN 978-9949-03-680-6 (pdf)

Copyright: Tayfun Kasapoglu, 2021

University of Tartu Press
www.tyk.ee

CONTENTS

LIST OF ORIGINAL PUBLICATIONS	6
AUTHOR'S CONTRIBUTION	7
ACKNOWLEDGEMENTS	8
1. INTRODUCTION	9
2. STUDY CONTEXTS	16
2.1 Syrian Civil War and refugees	16
2.2 Turkey and Estonia as two host countries for Syrian refugees	17
3. SETTING THE PROBLEM	18
3.1 Approaches to datafication and data	18
3.2 Algorithms and their social power	20
3.2.1 Techno-utopic approaches to algorithms	21
3.2.2 Critical approaches to algorithms	22
3.3 Algorithms for refugees	24
3.4 Applying the concept of "agency" for refugees in algorithmic processes	26
3.5 Research questions	27
4. METHODOLOGY	29
4.1 Narrative analysis	29
4.2 Semi-structured interviews and thematic analysis	30
4.3 Ethical considerations	33
5. FINDINGS	35
5.1 Contested agency of refugees on social media platforms and in relation to algorithms	35
5.1.1 Agentive self in creating stories on social media platforms	35
5.1.2 Agency of refugees in relation to algorithmic outcomes	36
5.2 Algorithmic imaginaries of securitized refugees on security algorithms	38
5.3 Algorithmic outcomes for refugees in Turkey and Estonia	39
6. DISCUSSION	41
7. CONCLUSIONS	49
REFERENCES	52
SUMMARY IN ESTONIAN	61
PUBLICATIONS	65
CURRICULUM VITAE	149
ELULOOKIRJELDUS	150

LIST OF ORIGINAL PUBLICATIONS

- Study I.** Kasapoglu, T., & Kalmus, V. (2020). Constructing counter-narratives: Stories by Syrian refugees in Turkey. *International Journal of Media & Cultural Politics*, 16(3), 359–366.
- Study II.** Masso, A., & Kasapoglu, T. (2020). Understanding power positions in a new digital landscape: Perceptions of Syrian refugees and data experts on relocation algorithm. *Information, Communication & Society*, 23(8), 1203–1219.
- Study III.** Kasapoglu, T., & Masso, A. (2021). Attaining security through algorithms: Perspectives of refugees and data experts. In J. B. Wiest (Ed), *Theorizing Criminality and Policing in the Digital Media Age, Volume 20* (pp. 47–65). Emerald Publishing Limited.
- Study IV.** Kasapoglu, T., Masso, A., & Calzati, S. (Submitted for publication consideration). Unpacking algorithms as technologies of power: Syrian refugees and data experts on algorithmic governance. *Digital Geography and Society*.

AUTHOR'S CONTRIBUTION

- Study I.** The author was responsible for all aspects of this article (including the analysis and writing the theoretical, methodological and discussion parts). The second author of the article contributed by writing minor parts and by editing the manuscript.
- Study II.** The author was involved in all the aspects of this article. The data on refugees were solely collected by the author. The author's role was greater in writing up the methods and findings and partial in other parts (including the theory and discussion).
- Study III.** The author was responsible for all aspects of this article (including writing the methodological, findings and discussion parts). The data on refugees were solely collected by the author. He was partially involved in the writing of the theory part.
- Study IV.** The author was responsible for all aspects of this article (including writing up the methods and findings). The author was wholly responsible for collecting data on refugees and was partially involved in other parts (including the theory and discussion).

ACKNOWLEDGEMENTS

First of all, I would like to express my utmost gratitude to my supervisors Associate Professor Anu Masso and Professor Veronika Kalmus. It has been a true privilege to work with you both. Anu Masso provided outstanding supervision to me during these four years. She guided me throughout this process and made invaluable contributions to my development and to the articles we co-authored. She is an inspiration for me and I feel so lucky to be able to work under her supervision. Thank you for all the support, patience, and encouragement. Veronika Kalmus supported me throughout this period. At times when I felt the most stressed, her recommendations and guidance enabled me to reach my goals. I am very happy that I had the opportunity of co-authoring an article with her. Thank you for sharing your knowledge and experience with me.

I would also like to thank my Ph.D. buddies with whom I shared my happiness, excitement and disappointments. Rıdvan Çınar, thank you for suggesting me the University of Tartu for my Ph.D. studies. It turned out to be an amazing experience. (Now a Dr.) Oğuz Kuş, thank you for always answering my questions related to Ph.D. life in general and academia in Turkey. I am sure I will keep asking you more questions. Most importantly, I would like to thank Maris Männiste and Sander Salvet for being the best Ph.D. buddies I could ask for. They have made Estonia a warm place for me. I also would like to thank Marit Sukk for translating the thesis summary into the Estonian language. I am very happy to have such friends in my life.

Last but not the least; I would like to thank my family who cherished the important milestones of my Ph.D. with me and often through online means. Thank you, Gülçin, Selahattin, and Gamze Kasapoğlu. It was great to feel your support at every stage of my Ph.D. experience.

1. INTRODUCTION

Today, accessing almost any service requires a form of data sharing. The data is then collected, stored, analysed, repurposed and used by relevant service providers and institutions usually with the promise of better service or opportunities. A wide range of decisions are made with the help of algorithms. Algorithms process the available data, which on the internet can consist of users' digital traces, their preferences and even the traces of their digital networks. Through filtering, sorting, evaluating, and scoring, the algorithms find patterns and relationships within the data (Just & Latzer, 2016) and make suggestions (decisions), such as which song to play next, with whom to become friends on social media, whose job application to reject, who to flag as a potential criminal. The options people have about sharing or not sharing their personal data and not being a part of algorithmic decisions are very restricted. Applying for a bank loan means the person has to provide information about their finances and the algorithms have to make an evaluation about them. Buying a plane ticket means the person will be noted in the database of the airline and they will be checked by the algorithms of relevant authorities if they are on any blacklist or not. The options get even more restricted when the people in question are from socially disadvantaged groups. When a person seeks asylum in another country, they may go through a lengthy process (Hainmueller, Hangartner & Lawrence, 2016) that often also involves a significant amount of personal data sharing (Kaurin, 2019). Relevant institutions collect their data and make decisions about their application. Many parts of this process are becoming increasingly automated with algorithms (Molnar & Gill, 2018) and the use of algorithms does not end with an asylum application but continues with further steps. Many aspects of refugees' lives are delegated to algorithms such as mobility and border crossings (Del Casino, 2016) and many post-crossing life decisions such as relocation within the same country (Bansak et al., 2018) and school selection (Jones & Teytelboym, 2017). Like most people, refugees do not have a choice of opting out of these processes and may be unaware of algorithms and what they do (Hamilton, Karahalios, Sandvig, & Eslami, 2014). Any attempt to either avoid algorithms or be uncooperative in data sharing may prevent the asylum seeker from obtaining refugee status or from accessing other opportunities.

These examples demonstrate that algorithms play an important role in the construction of social realities (Just & Latzer, 2016) and their role becomes even more relevant for socially vulnerable groups (Eubanks, 2018). Through various technologies and media platforms, algorithms exert considerable impact on power relations within society in today's world. They act as gatekeepers for different forms of information and knowledge, give or deny access to certain content and services, legitimize some people and actions while denying others the same visibility or opportunities (Wallace, 2017). As a result of widespread use of algorithms via a diverse set of digital technologies and platforms, people are globally connected not only to other people but to information, services and

opportunities (Van Dijck, Poell, & Waal, 2018). Yet, the algorithms also have the power to exclude certain groups and ideas, keep track of people and their data (Park & Humphry, 2019). Considering their common use and social power in all segments of life, having either or both the expertise and power to develop, use and control algorithms, would benefit companies, institutions, and people in numerous ways yet can also lead to oppression of certain social groups, thus deepening the inequalities within the society.

Potential (un)intended outcomes of algorithms form the basis of my thesis. The developments in communication technologies and data practices provide opportunities to certain people and institutions in constructing a social world in line with their visions and agendas while limiting certain social groups' ability to construct a social world themselves. **The thesis aims at exploring both the refugees' perspectives and their relation to aspects of datafication with a specific focus on algorithms.** I chose refugees for my thesis because datafication is a significant process for the experiences of refugees providing them potentially both improved and impoverished life chances. There are many studies that explore media use of refugees (Witteborn, 2015; Dahya & Dryden-Petersen, 2016; Aboujarour & Krasnova, 2017) or portrayals of refugees by media outlets. More recent studies have focused on various aspects of datafication of refugee experiences such as their data privacy (Kaurin, 2019), collection of their biodata (Madianou, 2019), and smart borders (Metcalf & Dencik, 2019; Jones, 2019). While some of these studies focus on legal aspects of using datafied solutions for refugees at the borders (Barrett, 2017; Molnar, 2019), others focus on ethical aspects of the issue (Vinck, Pham, & Salah, 2019). There are also data justice approaches focusing on fairness in terms of visibility, representation, and treatment of people based on digital data (Taylor, 2017). The variety of studies indicates how refugees and their experiences are engaged with the datafication process at various junctions of their lives. However, there is an absence in the literature of studies focusing on perspectives of refugees (or other data subjects) especially considering their position within hierarchical data relations and relevant social mechanisms that construct realities for refugees. The thesis will look at refugees' use of social media platforms in telling stories of refugeehood (**Study I**) and then will particularly focus on refugees' perspectives on the use of algorithms in governing their mobility (**Study II**), ensuring security (**Study III**), and the significance of various contexts, certain algorithms and personal histories for algorithmic imaginaries (**Study IV**).

The term 'datafication' has previously been defined as a transformation of social actions into online quantified data, which is then used for real-time tracking and predictive analysis (Mayer-Schoenberger & Cukier, 2013). While this definition focuses on what datafication is, my thesis aims to explore what outcomes this process may have for potentially vulnerable social groups. To that end, I understand **datafication** as a meta-process where data production, collection, storage, and analysis become commonplace in order to assist, govern and control certain social groups, often without equal participation and the consent of all the parties involved. This definition draws attention to various parties

involved in the datafication process and emphasises the inequalities among them. In these hierarchical data relations, certain people and institutions own the knowledge and financial means to guide the datafication process while others are subject to its outcomes.

Algorithms function as the driving forces of the datafication process. In order to focus on the social power of algorithms, I follow Beer's (2017: 4) definition of **algorithms**. I consider them to be calculation-based structures that are modelled on certain visions of a social world. Various interests and agendas shape those visions while they are at the same time being produced in social contexts where the algorithms are lived with and where they constitute an integral part of that social world. Due to the datafication process, more data than ever before is available (for a limited number of people/groups/institutions), easily collected, stored and analysed, and algorithms are applied to data streams to produce certain outcomes. In sum, algorithms process data and transform the input data into the desired output following various encoded procedures (Gillespie, 2014). However, this process is not an objective, neutral process of input and output, but rather reflects dynamic power relations dependent on the kind of data is the input, which encoded procedures will be followed and the ways the outcomes affect various groups of people in different contexts. Thus, rather than focusing on what algorithms can do, my thesis focuses on potential contexts that shape algorithms and the contexts that are shaped by algorithmic outcomes that have various consequences for social groups.

While algorithms are prominent in every aspect of our lives, they are commonly used by new media technologies and online platforms. The processes that lead to social transformations due to widespread use of media technologies have been coined as 'mediatization' (Couldry & Hepp 2017). **Mediatization** refers to increasing temporal, spatial and social spread of media use that enables us to communicate and keep in touch with people and have access to information, and also results in social and cultural transformations that occur as a result of mediation going on at every level of interaction (Couldry & Hepp 2017, 124–126). It is a meta-process that affects a wide variety of social and cultural realms through mediation (Janssons, 2018). **Mediation**, as understood in the context of this thesis, means a regular form of communication that makes use of a medium (Lundby, 2014). Since social platforms and other media technologies mediate information, ideas and knowledge to be distributed to the society, their control gives significant power to certain privileged social groups and institutions while restricting others. Moreover, through online media platforms vast amounts of data are being collected and stored. Then, the data is being processed with algorithms for a variety of purposes such as analytics, content suggestions or personalized ads. Thus, processes of mediatization and datafication are enforcing each other. While datafication is often seen as a sub-division of mediatization (Couldry & Hepp 2017), I consider it as two processes, which are separate yet tightly intertwined. In this thesis, **Study I** explores how refugees construct their own narratives of refugeehood on social media platforms, and scrutinizes the discourse refugees use to tell their own stories. Rather than being

strictly related to datafication or algorithms, **Study I** enables a discussion about social power of new media technologies especially from the perspective of refugees.

The use of algorithms is not limited to social media. Through both digital and non-digital means, various authorities and corporations also collect people's data, such as criminal activities, health, finances or travel, which can be analysed. Analysis provides opportunities for certain people and institutions to surveil people and benefit from their data in numerous ways. This creates a power imbalance between those who collect the data and those whose data are collected, those who create algorithms to process the data and those about whom important decisions are made with the help of the algorithms. This leads to a complex power hierarchy where already marginalized social groups encounter a new layer of inequality thanks to novel forms of technology, in this case the algorithms.

While the power hierarchy, created and deepened by new forms of technology and especially the algorithms, forms the basis of this thesis, it must also be noted that this hierarchy is not straightforward, and the relevant actors are diverse and do not occupy a fixed position within this hierarchy. For example, it can be claimed that the states occupy a powerful position in data relations. However, not every state has the same power or advantages in the context of data and data management. Industrialized countries with multi-ethnic populations such as the United States, Canada, Australia, and the United Kingdom have been destinations for large migrant and refugee populations, and they often use highly advanced border technologies and data management systems (Molnar & Gill, 2018). Estonia, by contrast, does not receive large migrant populations and instead, it provides e-residency – an initiative that gives foreigners global access to Estonian e-services via state-issued digital identity (Tammppuu & Masso, 2018). Nevertheless, both these countries have the capacity to use the technological innovations and apply them in different fields including their (digital) borders in line with their capacity, needs, and policies. However, in failed states such as Somalia or Mali, innovative technologies are used by criminals in cross-border networks presenting a danger to the security of the region and the world (Kabandula & Shaw, 2018). Thus, every state does not have the same opportunistic capacity and the technologic divide can be an issue where the existing North-South divide in matters of migration and technology is further enforced (Beduschi, 2020). The same also applies to the relations between states and tech companies. While the states can have policies and regulations for their technology industries, the world's techno giants can outmanoeuvre governments and relevant regulators and gain important advantages in the market (Dudley, Banister, & Schwanen, 2017). Tech companies and states also cooperate with and support each other. As a result, while refugees are subject to increasingly digitalized and datafied border regimes (Metcalf & Dencik, 2019), in which certain decisions are made about them by states and other relevant institutions, the power relations between the actors involved in data relations are not simply top-down with a clear structure. Rather, these relations

consist of complex relationships among a diverse set of actors. In understanding these relations, refugee perspectives can provide rich and novel insights considering the insufficiency of input from data subjects' perspectives to the discussions about innovative technologies and their social outcomes.

The main discussions in this thesis relate to refugees and their algorithmic imaginaries and to major concepts such as agency, contexts, and securitization. In the studies that compose this thesis, **refugees** refer to Syrian people who left their homeland and are unable to go back to their country due to the civil war irrespective of their legal status. The studies are based on algorithmic imaginaries of Syrian refugees. **Algorithmic imaginary** refers to “the way, in which people imagine, perceive, and experience algorithms and what these imaginations make possible” (Bucher, 2017: 31). **Agency** of refugees is understood as refugees' perspectives that comply with or resist against the use of algorithms by different authorities in managing different aspects of life.

Contexts refer to social, historical and cultural differences in Turkey and Estonia that may structure Syrian refugees' experiences and perceptions about algorithms. Turkey and Estonia are chosen as they provide contrasting country contexts where Turkey applied an open door policy (Özden, 2013) and currently hosts the largest number of Syrian refugees (ECHO, 2021), and Estonia hosts a small number of Syrian refugees and applies a selective refugee acceptance policy (Vahtla, 2018; Whyte, 2018), especially when compared to Turkey.

Securitization refers to the tendency to discuss issues related to refugees from the perspective of security and portray refugees potentially as a security risk (Beck, 2017). However, I problematize securitization further because security is a major topic for refugees not only because the way refugees are portrayed, but because of the great importance refugees attach to physical security due to experiences of instability in their home countries. I refer to this security dilemma as a **double security paradox** – where refugees who leave their home countries as a result of security concerns are considered a potential security risk in their host countries (**Study III**). In order to understand the perspectives of refugees, **Study II** explores how refugees perceive the use of relocation algorithms by authorities in managing their mobility, and **Study III** explores the refugees' perceptions on the use of algorithms for the purpose of security. **Study IV** focuses on the importance of social contexts and personal histories for algorithmic imaginaries of refugees.

Despite the main critical arguments presented in this thesis, I acknowledge many benefits of algorithms. Ranging from health to transportation, from security to entertainment, algorithms are commonly used and often have results that prove to be beneficial such as in diagnosing diseases and reducing traffic congestions, fighting financial crimes and at times recommending useful or fun content. However, all these benefits also come with a cost, which is being discussed a lot less often when compared with the benefits of technological innovations including algorithms. As a result, there is relatively more emphasis on the drawbacks of algorithms and their (un)intended consequences that may create further disadvantages for certain social groups in my studies (**II, III and IV**).

This thesis mainly falls into critical data (boyd & Crawford, 2012; Iliadis & Russo, 2016) and critical algorithmic studies (Kitchin, 2016; Beer, 2017; Noble, 2018) where social, cultural and critical issues that may arise due to datafication are explored with an emphasis on those who are directly subject to these processes with limited power. The thesis takes a social constructivist approach and considers technology as a social construct that is influenced by social factors such as history, economics, and ideology (Mager, 2012). Consequently, there is an emphasis on the role social groups play in shaping technology and using the opportunities of algorithms and big data. This is a cultural, technological, and scholarly phenomenon that rests on the interplay of technology, analysis and mythology that focuses on computational and algorithmic power and the belief that large data sets provide truth and accuracy (boyd & Crawford, 2012: 664). This allows certain social groups to acquire elitist roles that grant them privileges and pushes other social groups further into a disadvantageous social position, thus creating divides based on knowledge of and access to big data (Andrejevic, 2014). While diverse social settings frame how technologies are used and perceived, the thesis also acknowledges that the technology and its outcomes may also shape the society.

In exploring how the algorithms govern different aspects of everyday life, Latzer and Festic (2019: 12) emphasize the gap in the literature for empirical studies on users and propose a guideline that emphasises the importance of differentiating between “(a) different units of analysis, (b) intentional and unintentional governance effects, (c) public and private, human and nonhuman governing actors, (d) degrees of automation and of the remaining role of human actors in decision-making, as well as (e) the kinds of decisions that are taken by algorithms, their different contexts of applications and scopes of risks.” Partially following this guideline, I conducted semi-structured interviews (N=19) with refugees in Turkey (n=12) and Estonia (n=7). The interviews discussed the potential for issues and outcomes of algorithms for refugees’ lives, the importance of governing actors in **algorithmic governance** – a form of social ordering that relies on coordination between actors, is based on rules and incorporates particularly complex computer-based epistemic procedures (Katzenbach & Ulbricht, 2019).

By exploring algorithmic imaginaries of refugees, the thesis provides three main novel contributions. First, it is a bottom-up study. I do not consider refugees only as (social media) users, but as a securitized social group that already occupies a marginalized position in the society, and I aim to explore the perspectives of refugees on algorithms at the crossroads of agency, securitization, and contexts. Secondly, it is an empirical study based on stories by, and interviews with, Syrian refugees and thus gives them a voice in the discourse surrounding issues related to datafication. Thirdly, the cultural context of the study is two-fold involving Turkey and Estonia, and enabling a comparative analysis of two distinct contexts for algorithmic imaginaries of Syrian refugees. Considering these three novel contributions, this thesis studies hierarchical data relations that structure and are structured by various contexts and social spaces

based on algorithmic imaginaries of Syrian refugees, who are a securitized social group with limited agency regarding decisions about their own mobility and lives. Exploring the perspectives of refugees on algorithms creates a unique opportunity for understanding the alternative imaginary about algorithms that includes the concerns and experiences of social groups who are affected by the algorithms.

I have structured the cover text into six further chapters. 2: **Study Contexts** – I provide brief background information on the civil war in Syria, which led Syrians to leave their homeland; and then I discuss Estonia and Turkey as two of the several host countries for Syrian refugees. 3: **Setting the Problem** – I further clarify the concepts used in the cover text, explain both theoretical and empirical gaps that my thesis addresses and pose the research questions. 4: **Methodology** – I present the methods – narrative analysis and semi-structured interviews – used in the four studies and the ethical considerations. 5: **Findings** – I present the results of the studies. 6: **Discussion** – I explain and evaluate the results and show how they relate to the corpus of research on algorithms affecting refugees. 7: **Conclusions** – I argue how the findings relate to the research questions and present avenues future research should take.

2. STUDY CONTEXTS

In this chapter, I provide brief background information about the civil war in Syria and the resulting refugee movements to other countries. Then, I specifically focus on two host countries: Turkey and Estonia. Since this thesis is mainly concerned with algorithmic imaginaries of Syrian refugees, Turkey and Estonia provide two distinct, contrasting cases to understand how the contexts potentially structure algorithmic imaginaries.

2.1 Syrian Civil War and refugees

A peaceful protest by the residents of rural areas and peripheral regions of Syria turned into a popular uprising, a revolution and then a civil war between ethnic and religious communities in a few weeks in Syria (Zisser, 2019). Since its beginning in March 2011, Syria's civil war led to indiscriminate attacks on civilian targets by local, regional and global powers, sectarian atrocities, and regional instability making Syria a base for terrorist organizations (Byman & Speakman, 2016). As a result, Syria's people still suffer a heavy cost in terms of economy, infrastructure, and displacement with an alarming and ongoing humanitarian situation.

According to the European Commission's Factsheet (ECHO, 2021) there are around 7 million internally displaced people in Syria while 5.6 million Syrians have fled across the borders. The majority of the refugees are registered in countries bordering Syria. There are 3.6 million registered Syrian refugees in Turkey, 880,000 in Lebanon and 662,000 in Jordan (ECHO, 2021).

Syrian refugees reached Europe notably in 2015. European Union member states together with Norway and Switzerland received 1.3 million asylum applications, of which 378,000 were from Syrian refugees (Pew Research Center, 2016). In 2015–2016, nearly all applications from Syrian refugees were approved and according to the Pew Research Center (2018), there were 530,000 Syrian refugees in Germany, 110,000 in Sweden and 50,000 in Austria by the end of 2017. The increasing number of Syrian refugees seeking asylum in other countries resulted in changes in public attitudes and policies towards Syrian refugees. While the refugees were welcomed initially, security concerns soon mounted and refugees started to be seen as a burden on the local job market and economy both in Syria's neighbours (Bel-Air, 2016) and in Europe (Liebe, Meyerhoff, Kroesen, Chorus, & Glenk, 2018).

2.2 Turkey and Estonia as two host countries for Syrian refugees

Turkey shares a long border with Syria and the Turkish people have close historical, religious, and kinship ties with Syrian people especially at the border regions. Turkey hosts 3.6 million Syrian refugees (ECHO, 2021) and allowed Syrians to enter following the civil war. Instead of recognizing arriving Syrians as refugees, Turkey provided them “guests” status under a temporary protection regimen following its open-door policy (Özden, 2013). Lack of refugee status restricted certain rights for these ‘guests’ and resulted in difficulties especially in accessing the job market. In 2016, Syrian refugees were allowed to work in Turkey which helped them to access work opportunities across the country and resulted in their relative dispersal throughout the country (Esen & Binatlı, 2017). Thus, Turkey has the highest number of Syrian refugees in the world (ECHO, 2021) and provides a complex context for refugees where society both welcomes and excludes them.

Contrary to Turkey, Estonia only accepted Syrian refugees through the EU quota scheme in line with the EU's 2015 migration plan. Accordingly, 206 refugees were relocated to Estonia of whom 88 migrated out of Estonia (Vahtla, 2018). The quotas for accepting more refugees for the following year, 2018 have not been met (Whyte, 2018). So, in comparison with Turkey, Estonia has far less cultural and far fewer physical connections with Syria. Moreover, Estonia has a selective relocation procedure allowing a restricted number of refugees to enter after a selection process (Vahtla, 2018; Whyte, 2018). Both security and border issues have been historically a part of the national discourse and they are still relevant today regarding (digital) migration policy in Estonia (Tamppuu & Masso, 2019). Estonia is often viewed as a technologically advanced, innovative country that uses digital solutions in the public sector (Nielsen, 2017) making it an interesting case for studying perceptions on datafied solutions. The differences in the size of hosted Syrian refugee community, policies for accepting refugees, and cultural connections to Syrian people and tendency to use technological solutions create an interesting case for exploring and contrasting Turkey and Estonia as two distinct contexts.

3. SETTING THE PROBLEM

In this chapter, I discuss datafication and the role algorithms play in this process following critical data and critical algorithm studies. Then, I explore techno-enthusiastic and critical perspectives towards algorithms in order to clarify their importance on the social power of algorithms. Then, I discuss the use of algorithms for refugees and clarify why I choose refugees to study algorithmic imaginaries specifically. Following this subsection, I focus on the main concepts of this thesis, agency and securitization, to lay the foundation of the research questions presented at the end of the chapter.

3.1 Approaches to datafication and data

Datafication refers to the process where all aspects of life are transformed into quantifiable data (Mayer-Schoenberger & Cukier, 2013). As a result, there are vast amounts of quantifiable data available. This abundance of data is beneficial in many aspects. The main promises of datafication are greater efficiency, improved productivity and increased decision-making capabilities (Gamage, 2016). By turning every aspect of life into data, it becomes possible to track, monitor and eventually optimize the processes. For example, with the help of machine learning approaches on large data sets, elections results can be predicted quite accurately (Beauchamp, 2017). The public sector may use big data to provide better, faster and cheaper services and tackle issues such as financial fraud, developing real time responses or identifying those in need (Maciejewski, 2016). By applying various classifiers to social media data available on Web forums, adverse reactions to medical drugs can be spotted and relevant measures can be taken (Yang, Kiang, & Shang, 2015). Thus, datafication provides opportunities for many fields of life ranging from election forecasting to public governance to health.

The availability of data and new ways of analyses have also been perceived as an opportunity within the social sciences. Arguments have been raised that with the use of computational approaches applied to big data, better models can be developed for answering social science questions (Hindman, 2015) and researchers can understand new kinds of complexities thanks to what this novel approach enables (Bengio, et al., 2019). Anderson (2008) even argues that social sciences should change the way knowledge is produced and instead of focusing on ‘why’ and understanding social processes with the help of social theory, scientists should focus on ‘what’ and try to track and measure people’s behaviour that is easily accessible thanks to big data. These techno-deterministic approaches have met with criticism (Masso, Männiste, & Siibak, 2020). The criticism usually focuses around computational methods’ inability to grasp the diversity of humans and human experiences, the need for a reflexive and contextually nuanced epistemology (Kitchin, 2014), and analyses potentially leading to irrelevant theories, and dubious conclusions (Veltri, 2017). Additionally,

there are also discussions that focus on data from ontological (data as structured by the reality and at the same time structures the reality), epistemological (data as a source of knowledge, a way of knowing) and ideological perspectives (Masso, Tiidenberg, & Siibak, 2020). Abundance of approaches to data and the datafication process point out to the need for further studies and discussions from diverse perspectives and the potential outcomes of these approaches for all kinds of social groups.

Critical approaches towards datafication are not limited to knowledge production in social sciences. There are empirical studies that emphasise the drawbacks of datafication process. Researchers (Sanders & Hannem, 2012; Richardson, Schultz, & Crawford, 2019; Minocher & Randall, 2020) confirm that predictive policing is biased against coloured communities because historically these communities have been criminalized and consequently the datasets are inherently biased and minority communities are overrepresented in police databases. When it comes to urban development projects, the physical marginalization of minority communities is also reflected in their digital data as they are either invisible or poorly visible (Heeks & Shekhar, 2019). This indicates that datafication is a process where certain groups are identified and portrayed as either legitimate or risky over others, where certain people have full visibility while others are wholly or partially disregarded.

Through datafication, it becomes a legitimate practice to access, understand, and monitor people and to make predictions and automated decisions (Van Dijck, 2014). Datafication is the main component of networked platforms and media practices, representing a new and powerful system of knowledge altering the conditions, under which people make sense of the world (Milan, 2018). Those with the knowledge of, access to and control over the datafication process and tools acquire an important advantage in society by having the power to frame how people make sense of the world. The social groups who lack these advantages become subjects of potential outcomes of the datafication process.

This thesis is based on the inequality between different social groups in their relation to datafication. As explained in the introduction chapter, I understand datafication as a process where data production, collection, storage, and analysis become commonplace in order to assist, govern and control certain social groups often without equal participation and consent of all the parties involved. I understand it as a process because datafication transforms all aspects of life where data is constantly produced, collected, stored and analysed with social consequences for individuals. This process creates inequalities between those that can collect data and those whose data is collected. The unequal participation in the datafication process and its outcomes for various social groups are also discussed in the literature. Zuboff (2015) discusses *Surveillance Capitalism* and refers to it as a new logic of accumulation that analyses behavioural data and creates value by predicting and shaping human behaviour, mainly responding to business logic. This points out the power dynamic between tech-companies as well as digital platforms that collect data and individuals whose data are being collected and analysed to shape behavioural outcomes. This creates a

divide between “data rich” and “data poor” (boyd & Crawford, 2011). While government institutions, international organizations, research institutes, databases, third sector agencies and tech companies are considered data rich as they have the means to utilize data, individuals whose data are collected are assumed to be data poor (Andrejevic, 2014). This power imbalance creates further risks especially for people from already marginalized communities. At this point, it is important to research datafication from the perspectives of marginalized communities and gain insights into the potential of datafication in furthering inequalities within society.

Rather than providing an analysis of support for, and criticism against, datafication I focus on algorithms that function as the driving force of datafication process and provide both techno-utopic and critical approaches to algorithms in the upcoming subsections to narrow down the focus of this thesis.

3.2 Algorithms and their social power

Algorithms process data. By filtering, listing, scoring and evaluating, they find patterns, trends and relationships in the data (Just & Latzer, 2016). Basically, algorithms transform the input data into the desired output following various encoded procedures (Gillespie, 2014). Therefore, algorithms are a crucial aspect of datafication. The availability of data comes into use once algorithms are applied to these large amounts of data and following the encoded procedures, algorithms create an output based on the input data. Rather than being neutral technical entities, algorithms always operate within, and are shaped by, those social contexts where diverse power relations are in place (Beer, 2017). Issues concerning, which data is used as the input, which encoded procedures are followed and which outcomes are desired by and for whom sets the power relations. Therefore, algorithms can function as “a mechanism for elucidating and articulating the power structures, biases, and influences that computational artefacts exercise in society” (Diakopoulos, 2015: 398). In order to focus on their social power, I rely on Beer’s (2017: 4) definition of algorithms and consider them to be calculation-based structures, which are modelled on certain visions of a social world that are shaped by various interests and agendas. I accept Beer’s argument that algorithms are produced in social contexts, in which algorithms are lived with and they constitute an integral part of that social world (Beer, 2017, 4). In this definition, there is an emphasis on various interests and agendas that are in place with algorithmic processes and also the social contexts, in which algorithms are produced and also of which algorithms are an internal element.

The social power of algorithms is not limited to their impact and consequences for individuals or social groups, the notions and ideas circulating about algorithms also have to be considered in understanding how powerful the algorithms are (Beer, 2017: 2). The ways authorities, organizations, media outlets, companies or users depict algorithms provide ideas about what algorithms are,

what they can do and what their outcomes should be. These ideas, in return, shape the norms of what is accepted and expected from the new technological developments. Bucher (2017: 31) initially defines this as algorithmic imaginary – “the way, in which people imagine, perceive, and experience algorithms and what these imaginations make possible.” My thesis focuses on algorithmic imaginaries of refugees in order to understand the social power of algorithms from the perspective of refugees.

How algorithms are imagined have important consequences for how lives are experienced and governed. Through collective efforts, goals dreamed in science laboratories and R&D departments may turn into shared objectives, which are reflected in the design and production of actual technologies. Algorithms, as the product of technocratic expertise embeds the imaginaries, ideas, objectives and business plans of programmers, their employers and their financiers into the fabrication and functioning of specific places (Williamson, 2018). However, once again the choice of whose ideas and ideals are included in these processes raises important questions especially in instances where the algorithms are used in making important decisions about certain groups of people. Therefore, it is necessary to understand the core approaches to algorithms in order to make sense of competing imaginaries and their importance in understanding social power of algorithms.

3.2.1 Techno-utopic approaches to algorithms

The notions that technology constructs society and technological progress equals social progress points to technological determinism and this approach is very common in business and policy circles, and often accepted as common sense (Wyatt, 2008). While technological innovations do not necessarily generate solutions to complex societal challenges (Cinar & Benneworth, 2020), potential problems that may arise due to using such technologies is also often overlooked (Morozov, 2013). This techno-solutionist approach is also visible when it comes to algorithms. The dominant algorithmic imaginary is based on the neo-liberal ideal of efficiency and maximization (Holford, 2019). The idea is that algorithms solve problems and bring about progress in society, providing efficiency and maximization. As a result, there is a growing interest and willingness to utilize algorithms in every field in an effort to increase productivity and maximize profitability. Broader power structures that operate within societies find their ways into algorithmic processes and the capitalist ideologies become an integral part of algorithms (Mager, 2012; Couldry and Mejias, 2019). Algorithms use indicators that are based on aspects that can be measured (datafied) rather than what really matters. The whole process contributes to the dehumanization of algorithms where the outcomes such as decisions for governing people are not based on what really matters for people but rather what sort of agendas are followed by power structures that decide about how the algorithms should function.

Techno-euphoric interpretations of Internet technologies and their portrayal as the driving forces for economic and social progress benefit the power structures that develop and use these technologies (Mozorov, 2013; Mager, 2015). These power structures such as corporations or governments that develop, use or sell these technologies tend to depict algorithmic outcomes as neutral, efficient, objective and trustworthy. Digital utopian discourses such as over enthusiastic algorithmic imaginaries can be used at a political level to ‘mask, facilitate, and eventually legitimize centralized and authoritarian practices’ (Trere, 2019: 138) or they can also be used in resisting authoritative practices. The will to comply with or resist algorithms depends on the algorithmic imaginaries people have. Therefore, it is highly important to explore, analyse and understand the perspectives of different groups of people subjected to algorithms.

3.2.2 Critical approaches to algorithms

While the technologies and relevant data processing techniques are developing along with the potential risks they bring about, such as discrimination and bias, the mechanisms and awareness regarding combating such risks are not being developed as much (Taylor, 2017). There is a growing corpus of literature in critical data studies that question ‘what all this data means, who gets access to what data, how data analysis is deployed, and to what ends’ (boyd & Crawford, 2012: 664). Through critical questions, scholars provide an analysis of big data and algorithms and what they mean for individuals and society at large with an emphasis on power inequalities and oppression of societally marginalized groups. My thesis also falls within critical data studies as I try to explore the perspectives of refugees in relation to algorithms used in managing various aspects of refugee life.

Many of the critical studies focus on the increasing inequalities within society resulting from algorithms. Decisions in finance, employment, politics, health, and public services are increasingly being taken by algorithms and other relevant technological systems where people may be profiled into a category, which may adversely impact a service they are receiving and also how they are evaluated or treated by authorities (Eubanks 2018; O’Neil 2016). These decisions affect the poorer and marginalized segments of society the most. The nuance gets lost in these decisions and individuals are reduced to mere statistical categories.

Lack of transparency has also been a major criticism against algorithms. They have been perceived as a ‘black box’ due to their opaque inner workings and immunity to scrutiny (Pasquale 2015). Therefore, decisions based on algorithms are not assumed to be fair or impartial as many actions of the authorities can be justified with a ‘computer said so’ approach (Gangadharan 2015) creating a power imbalance between those making decisions about algorithms and those who are subject to those decisions. While I agree that algorithms have opaque structures with highly complex inner workings, the social power of al-

gorithms can still be explored. Bucher (2017) argues that understanding how users experience and make sense of algorithms on various platforms and how these experiences affect the expectations of users from algorithmic systems actually shapes the algorithms and helps us in understanding social power of algorithms. Although I follow this approach, my thesis goes beyond considering refugees as the users of certain media platforms and instead explores social power of algorithms from the perspectives of a social group whose life and mobility is governed through algorithms (**Study II**) and who is a more likely target for algorithmic selections (**Study III**).

There are also critical techno-legal approaches that focus on the legality of datafication-related practices such as data collection and analysis, relevant autonomy issues (Hildebrandt, 2015), data privacy (Cohen, 2013) and data sharing between private and public sectors (Taylor, 2018). Moreover, ethical concerns related to big data (Mittelstadt & Floridi, 2016) and algorithms (Mittelstadt, Allo, Taddeo, Wachter, & Floridi, 2016) are also raised focusing on issues such as informed consent, ownership and privacy, potential issues related to data and its quality that affect algorithmic outcomes and their fairness, transformative effects of algorithms and traceability. In addition to data ethics, scholars, state authorities and companies also take part in discussions related to data ethics issues to position themselves as trustworthy parties involved in the processes of datafication (Bean, 2018; Robinson, 2020).

Many approaches that aim at providing solutions for negative consequences of algorithms emphasise the issues related to representation, design or application of data and recommend further technological solutions such as inclusion or further data collection and algorithmic sophistication (Dencik, 2020). However, rather than focusing on technological remedies, understanding algorithms and algorithmic outcomes within specific social contexts can help us further in exploring the social power of algorithms. My thesis is based on the premise that algorithms are used in decision-making processes in many fields of life and they create a power imbalance between those who have the power and technological expertise and those who are subject to algorithmic decisions. Thus, algorithms have concrete outcomes that are imagined, experienced, negotiated, complied with or resisted against by different social groups. The thesis scrutinizes the algorithmic imaginaries of refugees to explore their position in these unequal data relations. While social power of algorithms and potential negative consequences are confirmed on the basis of algorithmic imaginaries of Syrian refugees, the thesis also allows a discussion about social spaces and contexts that are (dis)considered within algorithmic processes and what kind of social spaces/contexts are potentially constructed for refugees through algorithms.

There are studies exploring public perceptions about algorithms. Helberger, Araujo and Vreese (2020) acknowledge that it is the citizens who are affected by algorithmic decisions and they are the ones who engage with, resist and ultimately accept algorithmic systems and corresponding authorities. Their study conducted with the Dutch public found that while some respondents consider algorithms fairer and alarmingly in idealistic terms, others still consider humans

as fair decision makers (Helberger, Araujo, & Vreese, 2020). Also, Grgic-Hlaca, Redmiles, and Krishna (2018) conducted research in the USA, which specifically focused on criminal risk prediction algorithms and found that people's perception of what is fair or unfair about algorithms goes beyond discrimination and it mostly depends on people's value judgements. The authors of that research suggest further studies that explore perceptions of algorithmic fairness in different cultures and decision-making contexts (Grgic-Hlaca, Redmiles & Krishna, 2018). In Australia, Lupton and Michael (2017) found that while participants were aware of their data being collected, they did not know how their personal data was becoming a part of bigger data sets and there was an emphasis on who uses the data and for what it is repurposed. Lupton and Michael (2017) also acknowledge that the participants were mostly young and highly educated and encourage further studies with marginalized or socio-economically disadvantaged social groups.

While the studies above explore the public perception on algorithms, my thesis focuses on algorithmic imaginaries of refugees as a marginalized, securitized and usually socio-economically disadvantaged community. It explores the potential influence of cultural and contextual sensitivities regarding algorithms acknowledging hierarchical data relations in society and potential difficulties securitized communities may experience within these relations.

3.3 Algorithms for refugees

Algorithms construct social realities through making automated selections for and about people (Just & Latzer, 2016). In my thesis, I focus on algorithmic imaginaries of refugees because how refugees understand, experience, and imagine algorithms shape how/if they agree with or resist potential algorithmic outcomes and these imaginaries may potentially also construct new social realities for refugees. I understand algorithmic imaginaries as refugees' positive and negative ideas about algorithms, the perceived concerns and opportunities, possible solutions and recommendations they propose in relation to algorithms. I chose refugees as the social group to include in my studies because they constitute one of the most technologically targeted social groups in the society. Ranging from vast interoperable databases to digital registration processes, from biometric data collection to various forms of data-driven risk and vulnerability assessments, refugees are becoming subject to increasing digitalized forms of control especially in Europe (Metcalf & Dencik, 2019). Invasive methods of data collection such as eye scans for refugees and voice-imprinting software for use in asylum applications has been criticized by international organizations such as the United Nations (Fallon, 2020). Yet, the smart borders and related technologies used in governing and exploiting the mobility of people are becoming more commonplace.

The use of algorithms especially at the borders and main travel hubs are justified as measures for ensuring security (Ulbricht, 2018). Targeting potential

terrorists, ensuring the security of airports and other transportation networks (Tambe, 2012) or face recognition systems for police use (Kotsoglou & Oswald, 2020) are just a few examples of algorithms used for security purposes. While seeking asylum is a fundamental human right, migration and especially forced migration have been associated with issues such as terrorism, high crime rates and social unrest (Weiner, 1992/93; Lohrmann, 2000). With the arrival of Syrian refugees into Europe, top-level politicians from every spectrum of the political camp and leading activists in Europe have associated Middle Eastern Muslim refugees with terrorism, accused them of exploiting European resources and portrayed them as threats to the cultural achievements of European societies (Beck, 2017). This kind of securitization of refugees often translates into further legitimization of algorithms especially when used both for and against refugees at European borders.

Borders present a major set of challenges for refugees in terms of their data, vulnerability and power. At and across borders, refugees become subject to biopolitics – strategies and mechanisms that manage human’s lives and bodies through power and authority (Foucault, 1997). At the intersections of life and politics, and through various technologies used at the borders that aim to collect information on refugee bodies (biometric or not), refugees become subjects of surveillance where power becomes more anonymous and functional and those who are subject to this power become more individualized. At the same time, while the subject becomes more individualized within the mass, their intrinsic complexities are also being diminished (Foucault, 1995: 193–121). Thus, mechanisms of contemporary surveillance reduce the individuals to ‘dividuals’ (Deleuze, 1992) that consist of separate data points, that are used for a set of purposes such as making decisions about refugees or predicting and calculating if they would pose a security concern for the country. The subject trying to cross the border becomes ‘the object of a technology and knowledge of rectification, readaptation, reinsertion, and correction’ (Foucault 2003, p. 21). Therefore, biopolitics is always a politics of differential vulnerability that relies on the establishment of hierarchies in the value of lives, producing and multiplying vulnerability as a means of governing people (Lorenzini, 2020: 43–44). Refugees that escape from their home countries encounter a new form of vulnerability that is further deepened by border technologies and algorithms that collect, store, and analyse their data and eventually make and assist decisions about if the refugee will be allowed in the country and even if allowed, what sort of opportunities will be available to them. Refugees often have very little knowledge or control about their data, data collection methods and purposes of these processes and they have very limited opportunities to confront these data processes.

Ruckenstein and Schüll (2017) point out the various degrees within the notion of ‘data poor’ as some people are “poorer” when it comes to their ability and power to exercise control over their data. Refugees can easily be categorized as data poorer in this classification. Asylum seekers and refugees are required to share a great deal of personal data throughout their journey with vari-

ous authorities such as UN agencies, and local border and law enforcement officers. Yet, usually the mechanisms to protect their rights in relation to their data are insufficient, and refugees' informed consent for the collection and use of their data is ignored (Kaurin, 2019). These technologies are highly invisible and there is no real choice for opting out (Greenfield, 2006). This prevents refugees from assessing the risks of sharing their data with the authorities and making informed decisions. As a result, the agency of refugees concerning their data and their involvement in the relevant decisions taken with the use of these data becomes limited.

3.4 Applying the concept of "agency" for refugees in algorithmic processes

Agency is a widely used concept across various science disciplines. In sociology, it is understood as what individuals can do, know, and control in contrast to structural factors such as the institutions, governments and policies which can restrict individuals (Barker & Jane, 2016). However, agency is not only about what an individual can do, but it is also about reflexivity: what a person can do with a specific intention (Mitcham, 2014). Agency also concerns possible actions and their outcomes as a response to emerging and evolving situations (Emirbayer & Mische, 1998), which requires an understanding of the context in which the situation takes place. Thus, agency is context dependent. Based on this understanding of agency, algorithms are unable to have their own agency and be held accountable as they do not have an intention of their own or are unable to reflect on or evaluate diverse situations (Klinger & Svensson, 2018). However, algorithms can facilitate and further the intentions of people who design and regulate them and restrict the agency of certain social groups. Thus, understanding agency requires an exploration of structures of datafication, the possibility of individual agency and the spaces in between (Kennedy, Poell, & Dijk, 2015) along with places where data has connections, and the interfaces that recontextualize data (Loukissas, 2019).

There are discussions about agency on social media platforms with references to social media logic. Van Dijk and Poell emphasise the importance of programming and algorithms for social media logic – “the strategies, mechanisms, and economies underpinning social media platforms' dynamics” (2013, 3) – and consider datafication as the main part of social media logic. Datafication provides opportunities of predictive and real-time analysis to social media platforms, giving them an advantage over mass media. Van Dijk and Poell (2013) argue that through algorithms and other forms of programming a variety of social media platforms may: influence the data traffic; trigger user reactions and shape relational activities between the users of the platform, which creates further data. Users can also steer information streams by influencing the algorithms. I think the power imbalance between the platforms and users has to be mentioned here as the platforms can adjust their algorithms and cause a differ-

ence outcome for millions of users, whereas users would need to have awareness of algorithms and their functions and actively work to change the individual information stream they receive on the platform.

Klinger and Svensson (2018) argue that algorithms do not replace social media logic but they are a result of it. Algorithms privilege the popular content, and create connections between like-minded users, effecting how information is distributed on social media platforms. While the acknowledging the effect of algorithms on social media platforms, Klinger and Svensson (2018) state that algorithms do not make rational decisions and replace people without human bias. Algorithms actually have an input stage and perform certain tasks according to the way they are coded. Therefore, human agency and relevant social (and corporate) values are present in algorithms through data, programming, and design. This is also the understanding in my thesis that algorithms do not have a reflective agency and instead the agency lays with the authorities that design, program and regulate the algorithms.

The studies that explore the agency of users on various media platforms (see Treré, Jeppesen, & Mattoni, 2017 and Velkova & Kaun, 2019) generally focus on resistance since objecting to the power of algorithms and developing tactics against algorithmic outcomes demonstrates that the users exercise their agency in relation to algorithms. Those studies that explore social power of algorithms by focusing on users provide a bottom-up approach to critical data studies.

My thesis also follows a bottom-up approach and focuses on refugees. Although refugees do not necessarily provide their data by using social media platforms, they are requested to submit their data using various platforms (both digital and non-digital) throughout their journey, before, at and after crossing the borders. At these crossings, refugees have relatively very little agency in relation to their data as the relevant institutions expect refugees to share their data and not doing so can result in serious consequences such as their asylum applications being rejected. In my studies, agency of refugees in relation to algorithms is understood as their negotiations concerning algorithms – potential positive and negative outcomes, suggestions on how to improve certain aspects of algorithms and resulting attitudes that comply with or resist algorithmic outcomes.

3.5 Research questions

Datafication shapes social relations within the society and results in different outcomes for different social groups, creating unequal data relations. While it can provide opportunities, it also brings about oppression and further marginalization for certain social groups, excluding them from the processes usually portrayed and perceived as a technological advancement. Therefore, the first question the thesis explores focuses on the agency of refugees in the new digital environments, both on social media platforms in general (**Study I**) and specifically in relation to algorithms (**Study II, III, IV**).

RQ1 – How do refugees negotiate their agency in relation to algorithms? **(Study I, II, IV)**

All types of social contexts create both opportunities and problems for people. Certain social groups struggle with their own sets of problems. Being a refugee is usually intertwined with difficult experiences where people have to leave their homelands due to various reasons that threaten their safety and wellbeing. Thus, it is expected that refugees attach great importance to physical security. However, recently discussions about refugees have taken a perspective that focuses on the security of the host countries instead of the human rights of the refugees. This tendency is even clearer when the refugees are from the Middle East. The second research question focuses on refugees as securitized subjects and explores the perspectives of refugees on the use of algorithms for security purposes. Thus, the intention is to explore this security dilemma from the perspective of refugees.

RQ2 – How do the refugees as securitized subjects perceive the use of algorithms for security? **(Study II, III)**

Only within specific contexts, can agency be negotiated and securitization takes place. Therefore, the third research question focuses on how the social contexts shape the algorithmic imaginaries of refugees. The social contexts here refer to the host countries of Estonia and Turkey. This research question also explores which sorts of projections are made in relation to algorithms and the potential social contexts the algorithms may create based on perceptions of the refugees.

RQ3 – How do the social contexts, in which the design and use of algorithmic solutions are embedded, shape the perceptions of refugees on algorithms? **(Study II, III, IV)**

These three research questions allow a discussion about agency, securitization, and contexts where refugees and algorithms engage in and create hierarchical data relations among a set of actors that are involved in data processes in different ways. This relation is explored through the algorithmic imaginaries of refugees and their implications in terms of power relations.

4. METHODOLOGY

This chapter presents the methods used in the four studies. The thesis aims to explore algorithmic imaginaries of refugees. Algorithms are used to govern the life and mobility of refugees and their algorithmic imaginaries construct social realities to determine if and to what extent the refugees will accept or resist algorithmic outcomes. Rather than aiming for generalizability, I try to understand imaginaries of refugees about algorithms and gain insights into hierarchical data relations by learning about refugees' opinions, concerns and perceptions about various algorithms. Therefore, I used qualitative approaches in my studies to answer the research questions. More precisely, I used narrative analysis in **Study I** and in-depth interviews in **Study II, III** and **IV**.

4.1 Narrative analysis

In **Study I**, I aimed at exploring how refugees construct stories about their experiences of refugeehood online. Although the narratives of the refugees can probably be observed in many host countries with refugee communities, Turkey was chosen as the case for the study since it hosts the largest number of Syrian refugees. I explored two stories that Syrian refugees in Turkey narrated on a social media initiative called *Why am I in Turkey?* On the website of the initiative (whyamiinturkey.com), is the statement that “sharing the stories of refugees in Turkey to the world, we hope that it will create bridges and also combat the negative outlook at people who are seeking a better life.” The initiative also has a Facebook page (<https://www.facebook.com/NedenTurkiyedeyim>). Currently the initiative's pages are not active on Twitter or Instagram (@whyamiinturkey), yet the stories can be easily shared on these platforms via the website.

In this social media initiative, the stories are narrated by Syrian refugees and transcribed and translated by a volunteer (who is at times also Syrian but not always). The stories are published in three languages: Arabic, Turkish, and English, aiming for a widespread circulation to Syrian community at large, the host society and beyond. There are a total of 120 stories. There is often also a photo of the narrator accompanying their story. For the analysis, I chose the first two stories in English that I came across where the face of the narrator was not visible in order to ensure the anonymity of the narrator.

Narratives provide nuanced information about people who have less voice in society, are underrepresented or considered deviant, drawing attention to social exclusion and oppression they experience (Bischoping and Gazso 2016: 7). Therefore, we decided to use narrative analysis in **Study I**. We analysed the texts both structurally and linguistically and focused on how social power abuse and inequality are enacted, reproduced, legitimated, and resisted by text in the social and political contexts (van Dijk 2015: 466) with a critical discourse analysis approach. The analysis focused on the time-space sequence, the use of pronouns, active versus passive sentences and semantics in order to understand

various discursive strategies and inter-group relations from the perspectives of refugees.

4.2 Semi-structured interviews and thematic analysis

Interviewing is considered a strong data collection tool in learning how individuals experience, perceive and imagine a certain phenomenon (Brinkmann, 2013). In *Studies II, III, and IV*, I used in-depth interviews and mainly asked open-ended questions in semi-structured format as this type of interview allows a more flexible approach where the interviewer can follow a less structured questioning process and can explore unexpected, spontaneous responses and issues raised by the interviewees (Ryan, Coughlan, & Cronin, 2009).

I conducted in-depth, face-to-face interviews with Syrian refugees in Estonia and Turkey. Since the aim of the studies was to explore the perspectives of refugees on algorithms, I used a purposeful sampling strategy to ensure the inclusion of diverse perspectives in the study, and then used the snow-ball method to recruit new refugees with the help of the initial interviewees.

I interviewed Syrian refugees between the ages of 18–45 years old (N=19). Irrespective of their official refugee status, the sample included Syrians who left their country and were unable to return due to the civil war in Syria. The refugees interviewed in Estonia (n=7) lived not only in the capital, Tallinn, but also remote parts of the country. The refugees interviewed in Turkey (n=12) were all residing in Istanbul and often in neighbourhoods with dense Syrian populations creating a contrasting context when compared with Syrian refugees in Estonia. The sample consisted of 10 women and 9 men who had varying levels of education ranging from interrupted middle and high-school to post-graduate studies. All the interviewees had a cell-phone and were active internet and social media users. They had accounts on various social media platforms such as Facebook, Instagram, YouTube or Twitter. While majority of the interviewees were mainly using the platforms to keep in touch with their social networks, some of them used the social media platforms for diverse purposes such as business, education, and entertainment connected to both their home and host countries. This ensured they are engaged with and at least somehow familiar with the algorithms. The interviewees were recruited at various events and gatherings held by local or national NGO's that work with refugees or refugee youths.

It must be pointed out that the refugees interviewed for my research can be considered privileged in certain aspects. They were all able to speak at least one foreign language (Turkish or English), had access to the internet, had digital literacy to set up, manage, and if necessary close various social media accounts often in multiple languages, and had some form of awareness regarding potential risks and benefits of technologies and social media platforms in general. Since researching algorithmic imaginaries requires some form of awareness regarding algorithms, the discussions in the thesis are based on the perspectives

of relatively more privileged refugees especially in terms of access to the internet and relevant resources.

As I am a researcher originally from Turkey who studies and lives in Estonia, Syrian refugees both in Turkey and Estonia were often interested in my research and experiences. Syrian refugees in Turkey often asked me about life in general and my experiences as a student in Estonia. Syrian refugees in Estonia usually had a lot of knowledge about Turkish popular culture (singers, Turkish TV serials, some cities) and many had also visited or even lived in Turkey. Therefore, I was able to have conversations with interviewees about topics that are not closely related with my research before or after the interviews and having similar experiences (being a foreigner in another country or having some knowledge about Turkish popular culture). While having common conversation topics helped me in creating rapport with interviewees and enabled a more natural language interaction during the interview process, I do not expect my background as a Turkish researcher had a direct impact on the interviews or the research results.

The interviews I conducted with the refugees (see Annex for the interview guide) started with open-ended questions to talk about various and novel aspects that the interviewees wanted to discuss about their experiences as refugees and also their social media use in the host country. Then I asked the interviewees about their experiences and thoughts on online ads, believing a discussion about online ads would be an effective transition into discussing algorithms. Online ads are common on social media platforms, and everyday workings of algorithms, especially in the case of online ads, are highly observable for social media users (Ruckenstein & Granroth, 2020). After the interviewees discussed their reflections about online ads, I used projective techniques (Soley and Smith, 2008) to encourage the interviewees to talk about other algorithms as an abstract topic, about which they might not have previously thought. I presented pictures with explanations of the remaining three algorithms to interviewees (Table 1) and then asked general questions about these algorithms – such as ‘What do you think about these algorithms?’, ‘What benefits and harms it can cause and why/how?’ The three types of algorithms presented included skill-based relocation algorithms, recommendation algorithms and police risk scoring algorithms. Two of the algorithms, personalized online ads and recommendation algorithms, are relevant for everyone (Latzer and Festic, 2019; Just and Latzer, 2017). The other two of the algorithms, relocation algorithms for refugees and police risk scoring algorithms, are particularly relevant for the governance of mobile groups. I used these algorithms as a proxy for a diverse set of algorithms in understanding refugees’ perspectives. While I expected the interviewees to have lived experiences in relation to online ads and recommendation algorithms as social media users, they were not expected to have prior knowledge about the algorithms in general, but instead, their spontaneous reflections based on the brief definitions or examples provided to them were expected.

Table 1. The definitions of algorithms provided to interviewees

Algorithms	Short definition provided to the interviewees
Online Ads	Previous experiences with online ads were discussed.
Relocation algorithms	An algorithm matches people with settlement places where they have more employment chances and integration opportunities. An analysis of refugees' skills and information and the potential area for settlement helps the countries to settle refugees in their new communities.
Recommendation algorithms	Based on what people do online, which sites they visit and like, algorithms make certain content more visible for some people. So people see the content they like, interact with likeminded people and follow their interests closely.
Police risk scoring algorithms	An algorithm that assigns people a police risk score indicating how much of a threat a person is for the police. The algorithm is not publicly shared, and it shapes policing strategy and use of force by the police.

I audio-recorded the interviews and transcribed them in full. I applied thematic analysis to the textual data combining computer-aided analysis techniques using the software Maxqda (Woolf and Silver, 2017) with the manual techniques. I followed a step-by-step approach to thematic analysis as suggested by Braun and Clarke (2006). I read transcribed texts multiple times, coded meaningful data units on Maxqda, and then merged the codes with each other to form themes. After reviewing the themes to grasp the meaning and the relations between each other, I defined the themes and gave them a label. Finally, I wrote the analysis for the relevant studies. The main themes emerging in the analysis represented certain patterns based on the reflections of the interviewees.

In **Studies II, III, and IV**, we also conducted interviews with 24 data experts to provide a comparison on algorithmic imaginaries. As people who create, interpret, use and implement algorithms, data experts can be considered the human point between algorithms and their consequences on people's lives. The sample for data experts included professionals developing algorithmic solutions or working with migration-related data in their everyday work in Estonia. The experts held degrees in various disciplines (like computer or social sciences) and had thorough knowledge of and experiences with data management and analysis. The experts held a range of positions in their organisations ranging from data and system analysts to code developers, from managers to policy advisors. An equal number of male and female experts were included in the sample and the age range was between 25 and 55 years. The initial data experts were recruited through their public resumes, and then through the snow-ball method other data experts were recruited. All the data experts were from Estonia as the country has applied a selective policy regarding accepting Syrian refugees and is known for its use of innovative technologies in the public sector (Nielsen, 2017). The interviews were conducted in Estonian, and each interview

lasted around 1.5–2 hours. A native-speaker of Estonian researcher in the research group conducted the interviews with the data experts; however, I was involved in the analysis of the collected data.

4.3 Ethical considerations

In the studies, I followed the main ethical principles usually applied in qualitative research: consent, anonymity, and confidentiality, and minimizing the risk of harm (Hammersley & Anna 2012; Wiles 2013). Considering the potentially traumatic past experiences and social disadvantages refugees might have, researchers consider refugees a sensitive group for research (Mackenzie, McDowell, & Pittaway, 2007). Therefore, the interviews did not focus on the traumatic experiences of refugees and provocative interview questions (or probing questions) were not included in the study. The refugees were asked to briefly talk about their journeys into Turkey and Estonia. This strategy allowed them to narrate their own stories. This initial question often resulted in short descriptions of their journey and the reasoning behind the choices they had made during this time. Then the topic was narrowed down to social media use and online ads in line with the initial information provided to the interviewees about the aim of the interviews. The algorithms included in the studies were all very abstract; however, they were very important for the experiences of refugees and they were able to share their insights and express their opinions and concerns comfortably during the interviews.

Study I analysed two texts that have been shared as a part of social media initiative *Why am I in Turkey?* The texts are publicly available on multiple platforms and the initiative itself aims to reach wider circles in an effort to distribute stories of and by refugees. The refugees narrate their own stories and then these stories are transcribed and translated by volunteers and shared on multiple social media platforms. Usually there is also a photo of the narrator along with the text. I contacted the initiative via their Facebook page using my personal Facebook account and asked if I could use the texts for research purposes; however, I did not receive a reply. Then I chose two stories where the narrator (refugee) was not identifiable through the photo used in the text in order to ensure anonymity and confidentiality and make sure there is no risk of harm to the narrators. Considering the AoIR (Association of Internet Researchers) ethical guidelines chart (Markham, 2012), I do not think the research puts the narrators at risk or reveals potentially sensitive information about the refugees. The narrators of the texts were anonymous, and the text was accessible on multiple platforms. I also provided links to the website and Facebook page of the initiative along with direct links to two stories analysed in the article (**Study I**).

In **Studies II, III, and IV**, I informed all the interviewees about my identity and affiliation with the University of Tartu, my research topic in general, the aim of the interviews, the audio recording and likely use of the interviews for my thesis and relevant academic research projects. All the interviewees took

part in the research voluntarily and gave their oral consent. I also informed the interviewees that they could end the interviews whenever they wished and they could always ask me to delete the full audio recording. The interview venues and times were decided by the interviewees.

I paid special attention to the anonymity and confidentiality of the refugees especially due to the low number of Syrian refugees in Estonia. Therefore, information about interviewees including basic demographic information (such as age, gender) was not included in the articles. I used pseudo names for interviewees in **Study II** and codified their names in **Studies III** and **IV**.

5. FINDINGS

This chapter introduces the findings in three main parts. The first describes the ways refugees negotiate their agency in relation to algorithms that assist important life decisions. The second focuses on the importance of social contexts in relation to refugees' perceptions of algorithms. The third emphasises the significance of security and securitization for refugees and their perceptions on algorithms.

5.1 Contested agency of refugees on social media platforms and in relation to algorithms

5.1.1 Agentive self in creating stories on social media platforms

The developments in the information technology and the rise of social media platforms provide new opportunities for individuals and social groups to voice their stories to wider audiences. By analysing two stories told by refugees, **Study I** explored how the Syrian refugees in Turkey construct their narratives on social media. The study found that social media allows Syrian refugees to tell their stories and reflect on their diverse experiences without the framing of another party. It allows refugees to exercise their agency and enables them to be the authority in constructing their own stories. This way, audiences do not only hear the stories about refugees but also the stories told by them.

Mediatization provides widespread access to social media platforms that these platforms facilitate connectivity. While this is a clear opportunity for communities who do not have the chance of telling their own stories to wider audiences, the critical analysis of the texts in **Study I** also pointed out limitations when it comes to agency of refugees in constructing stories on social media platforms. Rather than being independent, the stories are often constructed as a response to the dominant narratives about refugees. There is an awareness of and an intended dialogue with the audience. Utilizing diverse discourse strategies, the refugees reflect on their stories and justify their refugeehood in the host country. By constructing stories that emphasize '*I versus the others*' and '*us versus them*' the refugees show how such dichotomies are dependent on time and space (**Study I**). They also discuss their limited agency in making some of their decisions especially in relation to a specific time and space. By pointing out that it was not their choice to leave their homes and live in another country, the refugees reflect on the lack of options before, during and after their forced migration into Turkey, and legitimize the actions that had to be taken. Moreover, by using nominalization, inanimate agents and the passive voice, the refugees at times also hide the people and the authorities who restricted the agency of refugees in making decisions about their lives (**Study I**).

Social media platforms are inclusive to a certain degree as they allow everyone to tell their stories. This can be empowering and give agency to certain so-

cial groups in constructing their own stories which is not common otherwise. However, the agency provided by the social media is limited. The social groups that do not usually tell their own stories discuss their experiences in relation to dominant stories circulating widely in society. Moreover, the awareness of being a minority further limits how people express themselves on platforms that are also open to wider publics. Despite the relative agency provided by mediation, the refugees in **Study I** still prefer to hide certain parts of their stories in an attempt to avoid bigger issues.

It is also important to discuss the potential outcomes of algorithms and the platforms in this process. The refugees are able to tell their stories on social media platforms, but this does not always guarantee that the stories reach wider circles, or the audiences are engaged with them. While the relevant Facebook page where the refugees shared their stories in three different languages has almost ten thousand followers, the posts (individual stories of refugees) have very few interactions (usually liked by less than 20 people). This means the stories on this Facebook page either reach a limited number of people or somehow the engagement of the public is limited although the page is followed by thousands. The information on social media follows a logic of virality; information needs to have a connective quality and needs to be shared among like-minded people in order to reach wider circles (Bennett & Segerberg, 2012). Considering the stories of refugees which we analysed do not necessarily fall in line with commercial imperatives of social media platforms and do not go viral in attracting further interactions with other users, the agency performed by the refugees by creating their stories online may become limited since other stories are prioritised by platform algorithms. This reflects the values and ideals of the platforms, their owners, designers and programmers.

5.1.2 Agency of refugees in relation to algorithmic outcomes

The agency of refugees in relation to algorithms can be discussed in the context of algorithmic outcomes and refugees' relevant actions. **Study II** explored the imaginaries of refugees on relocation algorithms that match refugees with potential locations based on refugees' job skills and labour demands of the area. Refugees discussed various scenarios and conditions, which would make them comply with or resist relocation algorithms. The reflexive perceptions of refugees about algorithms and potential agreements and resistance to algorithmic outcomes are understood as refugees' agency in this thesis.

The potential benefits of relocation algorithms such as better job opportunities and connectivity to information sources about job markets may lead refugees to accept and comply with the outcomes of relocation algorithms (**Study II**). In addition, those refugees that experienced long periods of unemployment expressed a more favourable attitude towards relocation algorithms and did not raise much concern (**Study II**). Thus, while the refugees exercise agency and show willingness to accept algorithmic outcomes, there may still be other fac-

tors, such as lack of access to certain resources, that limit their agency and force them into accepting algorithms as a potential remedy.

A major concern and point of resistance to relocation algorithms was over-emphasis on labour demands and lack of cultural sensitivities. **Study II** found that if the algorithms disregard cultural issues such as dietary restrictions, access to places of worship, family union and social networks, the refugees tend to have a rather negative perception of algorithms and do not accept the potential algorithmic outcomes. Moreover, there are concerns regarding racism and discrimination through algorithms both intentionally and unintentionally. Being relocated to an intolerant area because of relocation algorithms or intentionally being discriminated against based on various factors such as colour, ethnicity or religion by different states were pointed out (**Study II**). At times, the algorithms were thought to be an extension of state authority (**Study II**).

Study II emphasised the importance of listening to life-trajectories and priorities of refugees. Emotional aspects such as the feeling of home or becoming familiar with a certain area that may not be easily categorised by algorithms were mentioned by the refugees. Rather than categorically assigning people to new locations, many refugees expressed the importance of their opinions and how algorithms should not be the ultimate decision makers (**Study II, IV**). This clearly indicates that the refugees want to exercise agency in relation to decisions about their own life choices.

Study IV emphasized various concerns of refugees such as being incorrectly categorized by the algorithms, because the latter were unable to grasp certain contextual nuances or the personal life trajectories of refugees were ignored by the algorithms and the authorities. The refugees emphasised the potential temporal discrepancies between algorithms' static decisions and people's evolving life-trajectories, experiences and goals (**Study IV**). The refugees made suggestions regarding algorithms; what further to include or exclude in the algorithms or how to ensure that personal life-trajectories of refugees are included in algorithms that do not always fall in line with static categorizations of algorithms. Thus, the refugees stated their wish to be a part of algorithmic processes especially when the algorithms are utilized specifically to govern refugees' experiences.

The data experts (**Studies II, III and IV**) also shared many of the concerns that refugees voiced. The experts emphasized the agency of refugees and often discussed what refugees actually want – where they want to live, with whom and doing what (**Study II**). In order to ensure a fair algorithmic governance especially in the case of algorithms that are used in both making and assisting important life choices for refugees and other people, the data experts emphasised the importance of accountability and transparency (**Study II and III**). The data experts also supported public auditing of algorithms (**Study III**) and stated that the algorithms should be supervised by experts (**Study IV**) in order to minimize any risk to people. The data experts were also worried that misleading algorithmic decisions would put experts at risk and would diminish the trust of public in relevant institutions (**Study II**). Thus, data experts were also subject to

algorithmic outcomes indirectly, as they could be held accountable by the public for (un)intended consequences of algorithms.

5.2 Algorithmic imaginaries of securitized refugees on security algorithms

Refugees are a group of people who leave their homelands to save their lives. Syrian refugees left their country due to the civil war in Syria that has been going on since 2011. While being safe is a major concern considering their previous experiences, the discourse surrounding refugees and especially the refugees coming from the Middle Eastern countries often portrays refugees as people who threaten the sources and security of the host countries. **Study III** explained this security dilemma as the double security paradox, in which refugees who flee their countries to ensure their safety are perceived and portrayed as security threats. **Study III** explored the potential effects of this double security paradox on refugees' imaginaries on police risk scoring algorithms.

Some of the refugees indicated that refugees would be more likely targets of such algorithms yet there were still some support for the use of security algorithms mainly due to the potential physical security and terror threats, which security algorithms could reduce (**Study III**). The idea that algorithms can differentiate between good and bad people results in high levels of trust in algorithms and may prevent critical reflections on algorithms and relevant outcomes. Considering the experiences of refugees regarding safety concerns in their homelands, the need for security overrides other relevant concerns.

Study III also indicated some refugees believe that certain groups of people are more likely to be security threats. This finding demonstrates how refugees position themselves in relation to the double security paradox is important because some refugees may also consider other refugees as security threats. Potential discrimination and bias can also be found among refugee groups against each other and security algorithms may be perceived as an effective tool in eliminating such threats.

There were critical perspectives on security algorithms as well. Refugees mentioned the tendency of authorities to discriminate against certain minorities (**Study III**). This division was thought to be a potential political aim of the authorities. The main concern was the security algorithms' potential to be used in creating further social borders between various groups of people – race, ethnicity or social class – living in the same society. However, the concerns were not specifically linked to the host countries, but hypothetical scenarios and examples were discussed.

There was awareness that algorithms may be more likely to target the refugees (**Study III**). The relevant risks of social division and discrimination, and issues with transparency were all mentioned by the refugees. Crime prediction with the help of security algorithms was perceived to be a very sensitive issue and therefore, human participation in algorithmic decisions was thought to be

necessary. This indicates that the security constructed via algorithms is not thought to be functional, instead, it is perceived to be potentially unfair, risky and suspicious by the refugees.

Despite other concerns, refugees did not mention data security and privacy as an issue. On the contrary, collecting data and ensuring the safety of the country was perceived as a duty of the state (**Study II**). This can once again be attributed to refugees' tendency to prioritize physical security over other concerns and high levels of trust to host country institutions. Alternatively, this can also be understood as the refugees' way of demonstrating how cooperative they are in sharing their data so as to prove they have nothing to hide and they care about the safety of their host country. These findings point out the prominence of double security paradox for refugees' algorithmic imaginaries. While refugees are aware that they are more likely targets of such algorithms, they may still support security algorithms to ensure the physical security in their home country against possible dangers, terrorist threats and even the other refugees.

The data experts provided mixed insights about use of algorithms in potentially ensuring security. Some data experts discussed the merits of algorithms that predict and analyse at risk groups in diverse fields such as education and security. Other data experts emphasised possible issues with security algorithms such as the potential failure of algorithms, related risks, and the use of such algorithms for political purposes as an extension of state power (**Study III**). Therefore, many of the experts consider algorithms used for security purposes – including police risk scoring algorithms – as risky. While the data experts acknowledged that refugees (and many other people) coming to Estonia go through a set of checks, refugees were not perceived or portrayed as a security threat to Estonia in general (**Study III**). It can be claimed that despite being highly engaged with datafied practices and algorithms, data experts are still cautious about use of algorithms especially in sensitive matters.

5.3 Algorithmic outcomes for refugees in Turkey and Estonia

Study II, III, and IV found that the perceptions of refugees regarding algorithms and their potential outcomes differed in the host countries, Turkey and Estonia. The refugees expressed different concerns or benefits related to algorithms. Thus, even if the algorithms are the same, the potential outcomes are not perceived in the same way in contrasting social contexts. By social contexts, I refer to various conditions that may affect refugees in their host countries such as cultural, historical and geographical ties to the host country, number of refugees especially from the same cultural and ethnic background, and existing social networks.

Study II where specifically relocation algorithms were discussed, the refugees living in Estonia mentioned cultural and religious concerns such as having limited access to places of worship or not being in contact with any Arabic

speakers due to potential relocation. These concerns were not raised by the refugees living in Turkey. The number of Syrian refugees is high in Turkey and most Syrian and Turkish people are followers of the same religion. The Syrian refugees in Turkey mentioned other concerns such as being relocated within the same areas together with other refugees and not having contact with the local population. This concern is related to the fact that many of the refugees live in neighbourhoods with other Syrian refugees and they have limited interaction with Turkish people. Thus, the refugees were concerned about being subject to social segregation as a result of relocation algorithms in a variety of ways.

In **Study III** which has a discussion on security algorithms, the refugees' concerns varied for Turkey and Estonia. In both countries, the refugees emphasised the importance of security and mentioned multiple times that the state should do its best to make sure the country is safe. However, when the topic was more specific and police risk scoring algorithms were discussed, the refugees living in Turkey were more likely to voice their support and often refer to events going on in Syria and also at the border regions between Turkey and Syria. Therefore, it felt important for refugees in Turkey that necessary precautions are taken. The refugees living in Estonia did not refer to a specific event that took place in Estonia and considered it rather safe. Although the security and peace of Estonia was important, the refugees said the police risk scoring algorithms in Estonia was not that necessary.

In **Study IV** where multiple algorithms including relocation and security algorithms along with recommendations algorithms and online ads were discussed, the refugees' algorithmic imaginaries differed in Turkey and Estonia only in relation to relocation and security algorithms; however, the differences were not apparent about recommendation algorithms or online ads. This can be attributed to the fact that relocation and security algorithms are territorial and institutional algorithms; they depend on an institutionalized characterization of the subject such as being either a refugee or a non-refugee within a specific territory or community. Whereas recommendation algorithms and online ads are global and commercial, they shape subjects as consumers irrespective of their location or any other status, instead these algorithms create a familiar (information or consumption) space that are tailored for every single individual. As a result, the refugees discussed relocation and security algorithms at length and raised critical points. Recommendation algorithms and online ads were perceived as normal – everyday algorithms that do what they are supposed to do; make recommendations and show people what they like, often creating a comfort space.

Data experts also discussed the importance of contexts both for refugees and the algorithmic solutions in Estonia. Similar to refugees, data experts also emphasised the importance of social networks and other priorities refugees may have when it comes to relocation especially considering the low number of refugees in Estonia (**Study II**). The data experts also said many of the algorithms cannot be created or used in Estonia due to the low number of refugees. The data would be insufficient to develop effective algorithms (**Study II**).

6. DISCUSSION

In this thesis, I aim to explore algorithmic imaginaries of refugees in order to understand their concerns, priorities and potential solutions they suggest regarding the use of algorithms that are used to manage different aspects of refugeehood. To that end, Chapter 6 provides a discussion about the agency of refugees in relation to algorithms that are used on social media platforms with a focus on the intertwined yet separate processes of mediatization and datafication. Then, I explore the agency of refugees in relation to algorithms that are mainly used by other authorities to govern and control mobility. Then, I discuss how securitization and especially the double security paradox refugees are a part of the influence of the algorithmic imaginaries of refugees. I specifically focus on the importance of social contexts and personal histories of refugees by discussing algorithmic imaginaries of refugees in Turkey and Estonia regarding different type of algorithms. Finally, I discuss the limitations of this thesis and potential future research directions.

Mediatization allows people to have more widespread access to media platforms and share stories online with other people. This is empowering and enables people to construct their own stories. This potential of social media is often theorized with a degree of optimism for minority groups (Rae, Holman, & Nethery, 2018). While the potential power of mediatization, especially for marginalized communities, needs to be acknowledged, relevant drawbacks should also be discussed, especially considering the limited agency in story creation and limited chance to compete against hegemonic narratives operating in the society.

The dominant narratives surrounding refugees emphasize the protection of jobs, welfare-related concerns and cultural incompatibilities (Wodak, Delanty, & Jones, 2008). The stories created by marginalized communities are usually reactive against the dominant discourses in the society. There is an attempt at justification of own existence-being in the host country. The refugees tell their life stories and explain why they had to migrate and the difficulties they face after arriving in the host country. The need to justify own position already shows a power imbalance between the dominant groups and the rest. The marginalized groups construct their stories often with a consciousness of being an outgroup member, and even if the members have individual experiences, at the end these stories have shared meanings within the outgroup (Andrews 2004: 1–2). This limits refugees' agency in creating independent stories that include full range of unique experiences, and instead turns them into stories that are told with the awareness of an audience and a dominant narrative.

The relevant issue is not merely the construction of stories, but also their distribution. The stories created by marginalized communities on online platforms usually do not reach the same audiences when compared with big media outlets that utilize multiple platforms to distribute their stories (**Study I**). Without the same financial power and digital expertise, the alternative stories do not

usually become mainstream. At this point, it is also important to mention the role of algorithms and their potential effects on alternative narratives. While social media allow alternative narratives to be shared, platform algorithms do not prioritize such stories and do not provide visibility to stories narrated by refugees. As a result, the visibility constructed on social media platforms creates a threat of invisibility for the users (Bucher 2012) and the platform algorithms become influential on who gets to see whose stories and which stories go viral. Once again, the disadvantages marginalised communities experience get reinforced by the algorithms.

This thesis does not aim at understanding how social media platform algorithms work; however, based on the analysis of stories by the refugees and a simple observation of the posts on the relevant Facebook page, the agency of refugees in constructing their own stories and intermingled effects of mediatization and datafication can be discussed. Thanks to mediatization process, the refugees have the chance to share their stories on different media platforms. However, in their stories the refugees are not always able to exercise agency and construct the stories the way they like. Instead, there is an awareness of social positions and the dominant discourses and the stories are told accordingly. Even when the refugees tell their stories, they do not always reach wide audiences as the stories may not be prioritized by platform algorithms. These platforms operate like big corporations that do not simply facilitate user-connectedness but also exploit it through underlying mechanisms to steer user, and filter content that rely on shared ideological principles (Van Dijck, 2013). This limits the reach of stories to wider audiences and also limits the agency of refugees in sharing their stories. As Klinger and Svensson (2018) argue, the algorithms that make certain stories invisible do not perform any agency of their own but demonstrate affordances of social media platforms and the ideals of their designers, programmers, and regulators. Thus, on social media platforms, the agency of refugees is shaped, enhanced and limited by the meta-processes of mediatization and datafication along with their social position in the society.

The algorithms are not only in place on social media platforms. Government bodies and authorities are increasingly using algorithms in assisting decision making processes. In the process of creating algorithms, the people who will be affected by the outcomes are usually not consulted. Therefore, when I discuss agency in relation to algorithms, I refer to people's way of complying with or resisting algorithmic outcomes after reflecting on the potential effects of the algorithms on their lives.

It is noteworthy to mention that refugees' abilities to provide critical reflections on algorithms and their outcomes even after a small description of relevant algorithms indicate that when enough information and options are provided, people can evaluate outcomes of algorithms and make informed decisions. They can be reflexive and evaluate their situation within a specific context and consider potential outcomes of algorithms. While it is true that algorithms can be very complex and their inner workings very opaque (Pasquale, 2015) for people to understand with or without the expertise, this should not result in exclusion of

people from algorithmic processes. In instances where algorithms make important decisions about certain social groups, not only the members of those groups but also social experts, such as psychologists, sociologists, or demographers can be included in the processes for creating, applying, revising and adjusting algorithms. Otherwise, the experts who create and apply algorithmic systems are replacing all other people and experts (Lustig et al., 2016). This limits the agency of people affected by algorithms and can easily be used against their interests and creates power imbalances between those who develop policies and create algorithms and those who are subject to outcomes of algorithmic decisions. Therefore, understanding algorithmic processes requires an analysis of the ‘triple agency’, which consists of the agency of experts developing and using these datafied solutions, the agency of data subjects being targets of those calculations, and the agency of algorithms (**Study II**). While algorithms themselves do not have reflexive agency, the authorities behind them, their aims and practices should be analysed and if necessary criticized. Often what is reflected as the agency of algorithm is an extension of state power and its migration policy inscribed into algorithms when it comes to relocation algorithms. Solely focusing on algorithms blurs the responsibility that needs to be placed on relevant authorities and results in a false image of algorithms as being objective or fair.

Algorithms are designed to produce particular outcomes and meet certain desires and needs (Willson, 2017). Therefore, it is always important to ask why algorithms are being used and whose needs are being met. What state authorities or companies deem important, necessary or desirable may not align with the interests of data subjects and this can result in a situation where data subjects are subjugated to the power of authorities through algorithms. As a result, the algorithms meet with resistance, and they restrict the agency of data subjects – refugees in my thesis. Instead, algorithms making suggestions for refugees (such as about their relocation) and allowing them to make choices would be useful for refugees and would not be as restrictive. This would also lessen the authority of algorithms and shift the decision-making power partially to refugees.

There is evidence supporting people’s preference for algorithmic decisions over decisions made by humans (Thurman, Moeller, Helberger, & Trilling, 2018; Kennedy, Waggoner, & Ward, 2019) and also a tendency for algorithmic aversion (Dietvorst, Simmons, & Massey, 201; Burton, Stein, & Jensen, 2020). The algorithmic imaginaries of refugees differed based on algorithms; while the imaginaries were generally critical regarding relocation and police risk scoring algorithms, the imaginaries were relatively more neutral or positive regarding online ads and recommendation algorithms. The differences in imaginaries may be due to the fact that online ads and recommendation algorithms are affected by the preferences and digital traces of the user, which gave a sense of control to refugees (**Study IV**). It can be claimed that the relocation and police risk scoring algorithms were perceived as technologies of power that “determine the conduct of individuals and submit them to certain ends or domination” (Fou-

cault, 1998: 18). Furthermore, online ads and recommendation algorithms were perceived as technologies of the self which “permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being (Foucault, 1998: 18)”. However, the technologies do not function separately, and both enable the governance of human life and choice through data and automation. Munro (2012: 687) argues that through biopolitics authorities do not explicitly intervene into human life but biopolitics, instead, “defines the frame within which choices can and must be made”. In this case, both the online platforms that use online ads and recommendation systems, or states that use relocation or police risk scoring algorithms, define the frame, in which choices are made for and at times by data subjects, and govern the lives of people, limiting their options and agency.

Human bureaucrats such as police officers or judges make decisions based on policies and these decisions create direct outcomes for people which is called street-level bureaucracies (Lipsky, 2010). The concept has been applied to the use of algorithms in decision-making processes as well. Alkhatib and Bernstein (2019) discuss street-level algorithms and argue that there will always be novel cases that are at the margins and are not common (or are non-existing) within the training data, once again raising questions about reflexivity of algorithms when it comes to making a decision in a novel situation. **Studies II, III, and IV** pointed out that both refugees and data experts acknowledge the potential benefits of algorithms but still want to have the last decision to be made by a human in order to ensure their life-trajectories and relevant contexts are fully understood and considered in the decision-making processes underlining similar concerns in line with the literature.

Refugees are a group of people who leave their countries with the fear of being persecuted due to great political changes in their country of origin (Maley, 2016). The decision to leave the home country is a traumatizing experience and finding shelter in another country does not always put an end to refugees’ problems. However, usually after finding shelter in another country, refugees are safe from threats to their physical integrity and they value this form of security even if other forms of insecurities continue to prevail in their host country (Ajil, Jendly, & Mas, 2020). Although refugees themselves escape from security threats, there is a surge in securitization of refugees especially following the so-called EU refugee crises. The portrayal of refugees’ shift from ‘threatened’ to ‘threat’ and the discussions about refugees move away from regular politics to the realm of security (Gray & Franck, 2019). The use of advanced technology at the borders also points out to this tendency.

In parallel with the literature, **Studies II and III** found that refugees value security within their home country and think that it is the states’ responsibility to take the relevant measures to ensure their safety. The refugees are also partially aware that they can be more likely targets of police risk scoring algorithms. The discussions of potential risks such as discrimination and bias based on certain categories that may be related to race, ethnicity, ideology, social class

or even appearance indicate critical reflections and concerns of the refugees about police risk scoring algorithms. The refugees also perceived these risks to be potential objectives of authorities which can be assisted by algorithms and used against refugees and other minority groups. The supporting views on police risk scoring algorithms were based on security threats and potential benefits algorithms can provide to make the society a safer place (**Study III**).

Double security paradox (**Study III**) refugees are a part of also influence their algorithmic imaginary. Some refugees also consider other refugees (such as those who relocated recently) a security threat and may want them to be further scrutinized by the states to ensure security. This points out to a new layer of inequality among the refugees where the refugees who are more integrated into the society may frame other refugees within a securitization discourse (**Study III**). This would require further exploration and could be an opportunity to investigate inter-group relations among Syrian refugees that are made up of diverse ethnic and religious groups. Moreover, this also reflects a fear of being wrongly categorised by algorithms and a need to disassociate oneself from some other group of refugees.

Migrating to a new country and experiencing refugeehood may result in changes in refugees' social networks, interests, opportunities, concerns and priorities. However, algorithms use the data at hand as the input and produce outputs based on that data. Therefore, the algorithms are quantitatively projective and not qualitatively adoptive (**Study IV**). This creates a temporal discrepancy between algorithmic decisions and subjects' evolving needs and priorities that change over time and in different contexts, making algorithms partially unfit to account for newer situations and people. The inclusion of the temporality perspective into algorithms can benefit data subjects and meet their ever-evolving needs and life trajectories, a process forced migration accelerates even further.

Despite being a major concern in critical data studies, privacy did not emerge as a major concern for the refugees. On the contrary, security was prioritized, and data collection conducted by state authorities was perceived as normal and necessary (**Study II**). Gilman (2016) points out privacy is a luxury for the poor by exploring privacy issues people encounter to receive welfare support in the USA. This also applies to refugees when it comes to data privacy. The readiness of refugees to cooperate in data collection efforts of host countries can be understood as a form of confirming to "I have nothing to hide" argument (Solove, 2007). It must also be considered that refugees have very little control in collection, storage and analysis of their personal data. As a securitized social group, lack of cooperation in sharing their data could have serious consequences for refugees, the simplest one being the rejection of their asylum claims. Thus, data privacy becomes a privilege which refugees are not concerned about or fight for.

Loukissas (2019) argues that data has connections to time and place, and is created in diverse contexts that shape it. **Studies II** and **III** indicated that in the same way, datafied solutions should also be created and adjusted in line with the

contexts they are applied to. The findings clearly demonstrate that refugees in Estonia and Turkey have different needs and expectations from algorithms and how the algorithms are perceived are very much about these needs and expectations shaped by the contexts.

People's needs, concerns and expectations within a specific context determine if and to what extent they will perceive algorithms positively and readily accept the relevant outcomes (**Studies II and IV**). Accordingly, the contextuality of algorithms should be considered by relevant authorities and rather than any one-fits-all approaches, attention should be paid to specific contexts where algorithms provide positive and negative outcomes for relevant data subjects. In addition, the relations between these contexts should also be scrutinized (Magalhães, 2018). In considering the contextuality of algorithms, the perspectives of refugees or relevant data subjects should be the focus – personal trajectories of data subjects should also be taken into consideration. Moreover, the relevant contexts need to be re-evaluated according to the potential of the algorithms as algorithms can also set contextual factors that affect data subjects. Territorial and institutional algorithms (such as relocation or police risk scoring algorithms) that aim to govern life within a specific area through authority of various institutions run the risk of overlooking specific needs and unique life trajectories of data subjects (**Study IV**). Global and commercial algorithms (such as online ads or recommendation algorithms) that target everyone with the purpose of making some form of profit seem to be relatively more transparent and less discriminatory according to perspectives of refugees (**Study IV**). Inclusion of these perspectives of data subjects along with the potential outcomes of algorithms would enable a more thorough understanding of contextual factors that shape algorithmic outcomes and also, potential contexts the algorithms may create for data subjects.

States are often eager to promote and benefit from technological innovations. Some problems that are being addressed through technology are caused by the state policies that create vulnerability for some social groups (Lind, 2020). For example, many states apply serious restrictions for refugees about employment and require them to get a work permit which may be a costly and lengthy process (Werker, 2007; Bloch, 2010). However, relocation algorithms are being developed to give refugees more chances of employment in their host country (Bansak et al., 2018). Thus, while opportunities to have access to employment are being restricted by the states, there are also technological efforts to solve this problem. A vulnerability created by the state leads to a situation where the vulnerabilized group's life is governed through technology again by the state.

Algorithms can be helpful and assist refugees in their mobility related experiences. However, irrespective of the social contexts, new technologies should not be regarded as complete solutions to existing social problems. This attitude indicates the tendency to ignore the deeper causes of social problems and complexity of human interactions (Sturken & Thomas, 2004). Social policies that address social challenges and their root causes should be the main focus. In order to understand the social problems and if necessary, develop algorithms

that can help in improving the situation, it is important to understand the social contexts and people involved in and affected by the outcomes of the algorithms. This can only be achieved by giving the relevant people or experts a chance to voice their opinions and then considering these perspectives in the creation, application and revision of algorithms.

An inclusive algorithmic process that prioritizes the needs of refugees would foremost need to acknowledge the diversity of refugees and refugee experiences. This acknowledgement of diversity cannot simply be achieved by diversifying tech workers, including larger data sets or ensuring transparency of algorithms. Adding extra checkboxes to the systems to ensure more concerns are included will not constitute a narrative that fully integrates “the context, values, purposes, and intentions into a meaningful pattern” (Sloan & Richard, 2019: 12). Therefore, algorithmic decisions will always run the risk of missing certain nuances even in instances where they are developed with good intentions. As Foucault suggests (1995: 120–121), through novel forms of technology the subject becomes more individualized within the mass, yet their intrinsic complexities are also being reduced. When refugees attempt to cross borders, the authorities collect their highly individualized (often unique) data (such as eye scans, fingerprints); however, when it comes to relocation, the refugees are often categorised into large groups and their personal concerns, priorities and life trajectories are not included in the relevant algorithms. In both cases, data rich institutions manage the lives of refugees and exclude them through biopolitics that can identify refugees among the mass, yet not being able to consider their diverse personal life trajectories.

Inclusion of refugee voices in the algorithmic processes can be achieved by creating a collaborative loop between “supervisors-algorithms-targets” (**Study IV**). The refugees can take part in algorithmic processes along with the experts that supervise the algorithms from the beginning, enriching the process with their input and ensuring their voice is heard. Then the refugees can also review the outcomes of the selection process with the supervisors to evaluate the outcomes and improve the algorithms. The algorithms need to be constantly updating themselves with the feedback and the refugees should be able to easily challenge the algorithmic decision and ask for a revision in order to ensure the collaborative loop is fair and the decisions are still taken by the refugees about their life. In this case, algorithms become a tool that assists the refugees instead of oppressing them by making decisions about refugees without considering their concerns and priorities. This approach would give more agency to refugees and contributes to the lessening of inequalities stemming from hierarchical data relations.

An effort to democratize algorithmic governance requires inclusion of refugees’ perspectives, concerns and priorities in every stage of algorithmic processes. Policies that create conditions of vulnerability for refugees should be addressed and other social issues refugees encounter should be resolved through social policies by the states and relevant institutions. In cases where technological approaches and especially the algorithms are deemed necessary, diversity of

refugee experiences, possible temporal discrepancies and contextuality of algorithms should be considered from the perspective of refugees. Relevant systems should be in place to check the algorithms and their outcomes both through the feedback of refugees and other relevant experts or institutions.

In my thesis, I aimed to explore concerns, priorities and insights of refugees through their algorithmic imaginaries. Instead of aiming for representation, I explored the general tendencies among refugees regarding algorithms that make and assist important decisions about mobility and life experiences. There are a multitude of experiences and opinions regarding the use of algorithms for refugees, and the studies include only the opinions of those who agreed to take part in our research. Future studies that investigate interactions between humans (and especially certain social groups) and various types of algorithms and focus on selections of the actors involved in the algorithmic processes such as the tech companies, developers, policy makers and the policies would enrich our understanding of hierarchical data relations further and would allow the development of more fair algorithmic processes. Rather than exploring only the algorithms that are commonly used on various social media platforms, exploring a range of algorithms, and looking at mediatization and datafication processes from different perspectives can also be fruitful in understand intertwined but diverse outcomes of these meta-processes. In addition to social groups that are subject to increasingly datafied forms of governance, exploring the perspectives of social groups whose data are ignored (such as homeless people or stateless people) can also provide rich perspectives regarding the outcomes of algorithmic governance or exclusion from it.

7. CONCLUSIONS

In this chapter, I will conclude the thesis by answering the research questions presented earlier.

- 1) How do refugees negotiate their agency on digital platforms and in relation to algorithms?
 - a) Refugees are able to share their own stories on social media platforms and exercise agency by becoming the author of their own narratives. While this is partially empowering, the inequalities and pressures refugees face in society are also reflected in their stories. The stories are constructed with an awareness of belonging to a minority group and with the intention of having a dialogue with the audience that justifies their existence in the host country. This limits the agency of refugees in constructing their stories and sharing their authentic experiences with the wider public (**Study I**).
 - b) Social media algorithms play a gatekeeper role and shape who sees whose stories. Even if refugees exercise their agency by constructing their own stories, to whom these stories reach is up to social media algorithms. Thus, the agency of refugees enabled by mediatization (social media platforms) through story sharing is also limited by datafication (platform algorithms). The two meta-processes are interrelated with each other and enforce existing power hierarchies (**Study I**).
 - c) The agency of refugees in relation to algorithms that are used by the authorities to manage various aspects of mobility can be discussed in the context of refugees' compliance with or resistance to algorithmic outcomes. However, in order to exercise agency, the refugees need to have a basic understanding of algorithms and what they intend to do. This way, refugees can be reflexive about algorithms. This basic understanding does not mean a form of expertise on algorithms and their inner working but instead a discussion focusing on what outcomes algorithms may have for people and society enables refugees to reflect on algorithms. This way, refugees also become a part of the discourse that covers what algorithms should do for refugees (**Study II, III**).
 - d) Rather than relying fully on algorithms, refugees emphasised being the decision makers about their own life choices. This indicates the importance refugees attach to their agency regarding algorithmic outcomes. In cases where algorithms are only used as suggestion making tools for refugees, the perceptions are more positive and power to make decision about their life still lays with refugees (**Study II**).
 - e) The agency of refugees can be secured in algorithmic processes by creating a collaborative loop between "supervisors-algorithms-targets". Refugees can enrich the process from the beginning by taking part in the algorithmic processes along with the experts that supervise the algo-

gorithms and by providing inputs from their perspectives. Then the refugees can also take part in reviewing the algorithmic outcomes and providing constant feedback to the algorithms. This would ensure that the voice of refugees is heard, and refugees are able to challenge algorithmic outcomes easily and improve the outcomes in line with their perspectives (**Study IV**).

- f) Any effort to ensure refugees have agency regarding algorithmic processes and outcomes needs to take into account the diversity of refugee experiences, possible temporal discrepancies and contextuality of algorithms from the perspective of refugees. Relevant systems should be in place to check the algorithms and their outcomes both through the feedback of refugees and other relevant experts or institutions (**Study IV**).

2) How do the refugees as securitized subjects perceive the use of algorithms for security?

- a. As people who have experiences of insecurity and physical danger in their home country, refugees attach importance to the security of their host country and consider it a responsibility of the state. As a result, they are not essentially against the use of algorithms for security purposes and at times, even consider it highly important for the common good of the society (**Study III**).
- b. The refugees acknowledge the potential risk of being more-likely targets of the security algorithms and also other relevant risks such as discrimination and bias based on certain categories that may be related to race, ethnicity, ideology, social class or even appearance. However, some of the refugees also consider other refugees as a potential security risk and support the further scrutiny of refugees. Thus, the refugees are not securitized only by dominant groups but also among themselves. This points out to the influence of double security paradox where refugees attach great importance to security and at the same time agree with algorithmic solutions even if the algorithms as more likely to target the refugees since they may be perceived as a security threat in many host countries (**Study III**).
- c. Refugees demonstrate a willingness to cooperate in terms of personal data collection for security purposes. This can be attributed to prioritization of physical security over other concerns such as data privacy. As a securitized social group, not sharing their personal data can have significant consequences for refugees. Therefore, their readiness to share data can be a way of providing the refugees do not pose a danger for the society. The lack of opportunities to contest data collection and inability to know the details of these processes can create further disadvantages for refugees and raise questions about consent and informed decision (**Study II, III**).

3) How do the social contexts that are embedded in the design and use of algorithmic solutions shape the perceptions of refugees on algorithms?

- a. Social contexts shape the needs, expectations and concerns of the refugees in relation to algorithms. Expectations from algorithms in Estonia is not the same as in Turkey. This is especially correct for the algorithms that make and assist decisions about important life choices of refugees (**Study II, III, IV**).
- b. By considering social contexts and local factors, the needs and concerns of refugees can be prioritized and included in algorithms. This would ensure the algorithms that are created to manage different aspects of refugees' lives are used for the benefit of refugees and does not create potentially harmful results for them. In addition, this can also ensure that a one-fits-all approaches that prioritize common goals such as profit would be replaced by context sensitive approaches that consider diverse contexts and experiences refugees are engaged in (**Study II, III, IV**).
- c. In cases where social context is ignored by the algorithms, the refugees perceive algorithms more critically and consider potential outcomes that could worsen their experiences and turn into discriminatory or authoritarian practices. This results in decreasing trust in algorithmic solutions and also in authorities behind the algorithms (**Study II, III, IV**).

REFERENCES

- Abujarour, S., & Krasnova, H. (2017). Understanding the Role of ICTs in Promoting Social Inclusion: The Case of Syrian Refugees in Germany. *Twenty-Fifth European Conference on Information Systems (ECIS)*. Guimarães, Portugal.
- Ajil, A., Jendly, M., & Mas, C. C. (2020). ‘Yes, security, there is security. But other than that, nothing.’: An empirical inquiry into the ‘everyday (in)security’ of Syrian and Iraqi Urban Refugees in Jordan. *The British Journal of Criminology*, 60(6), 1395–1515.
- Alkhatib, A., & Bernstein, M. (2019, May). Street-level algorithms: A theory at the gaps between policy and decisions. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1–13).
- Anderson, C. (2008). The end of theory: The data deluge makes the scientific method obsolete. *Wired*, 16(7), 108.
- Andrejevic, M. (2014). The big data divide. *International Journal of Communication*, 8, 1673–89.
- Andrews, M. (2004). Opening to the Original Contributions: Counter Narratives and Power to Oppose. In M. Bamberg, & M. Andrews (Eds), *Considering Counter-Narratives: Narrating, Resisting, Making Sense* (pp. 1–7). Amsterdam: John Benjamins.
- Bansak, K., Ferwerda, J., Hainmueller, J., Dillon, A., Hangartner, D., Lawrence, D., & Weinstein, J. (2018). Improving refugee integration through data-driven algorithmic assignment. *Science* (New York, N.Y.), 359 (6373), 325–329. <https://doi.org/10.1126/science.aao4408>
- Barker, C., & Jane, E. A. (2016). *Cultural Studies: Theory and Practice*. London: SAGE Publications.
- Barrett, L. (2017). Reasonably suspicious algorithms: predictive policing at the United States border. *41 N.Y.U. Rev. L. & Soc. Change*, 327–363.
- Beam, M., Hutchens, M., & Hmielowski, J. (2018). Facebook news and (de)polarization: reinforcing spirals in the 2016 US election. *Information, Communication and Society*, 21(7), 940–958 DOI: 10.1080/1369118X.2018.1444783.
- Bean, R. (2018, Oct 29). *A rising crescendo demands data ethics and data responsibility*. On 13 02, 2021 retrieved from forbes.com: <https://www.forbes.com/sites/ciocentral/2018/10/29/a-rising-crescendo-demands-data-ethics-and-data-responsibility/?sh=14a6a770b5d5>
- Beauchamp, N. (2017). Predicting and interpolating state-level polls using twitter textual data. *American Journal of Political Science*, 61, 490–503.
- Beck, M. (2017). Securitization of Refugees in Europe. *E-International Relations*, <https://www.e-ir.info/2017/09/18/securitization-of-refugees-in-europe/>.
- Beduschi, A. (2020). International migration management in the age of artificial intelligence. *Migration Studies*, DOI: 10.1093/migration/mnaa003.
- Beer, D. (2017). The social power of algorithms. *Information, Communication & Society*, 20(1), 1–13.
- Bel-Air, F. D. (2016). *Migration Profile: Syria*. Migration Policy Center: Policy Briefs, 2016/2.
- Bengio, Y., Deleu, Y., Rahaman, N., Ke, R., Lachapelle, S., Bilaniuk, O., et al. (2019). A Meta-Transfer Objective for Learning to Disentangle Causal Mechanisms. *ArXiv Preprint*, arXiv: 1901.10912.

- Bennett, L. W., & Segerberg, A. (2012). The logic of connective action. *Information, Communication and Society*, 15(5), 739–768.
- Berg, M. (2014). Participatory trouble: Towards an understanding of algorithmic structures on Facebook. *Cyberpsychology*, 8(3), Article 2. DOI: 10.5817/CP2014-3-2.
- Bischoping, K. and Gazso, A. (2016), *Analyzing Talk in the Social Sciences: Narrative, Conversation & Discourse Strategies*, Thousand Oaks, CA: Sage.
- Bloch, A. (2000). Refugee settlement in Britain: The impact of policy on participation, *Journal of Ethnic and Migration Studies*, 26(1), 75–88. DOI: 10.1080/136918300115651
- boyd, d., & Crawford, K. (2011, September). Six provocations for big data. Presentation at A Decade in Internet Time: Symposium on the Dynamics of the Internet and Society, Oxford Internet Institute, Oxford University, Oxford, UK. Available at SSRN <http://ssrn.com/abstract=1926431> or <http://dx.doi.org/10.2139/ssrn.1926431>
- boyd, d., & Crawford, K. (2012). Critical Questions for Big Data. *Information, Communication & Society*, 15(5), 662–679.
- Braun, V., & Clarke, V. (2006). Using Thematic Analyses in Psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Brinkmann, S. (2013). *Qualitative Interviewing: Understanding Qualitative Research*. New York: Oxford University Press.
- Bucher, T. (2012). Want to be on top? Algorithmic power and the threat of invisibility on Facebook. *New Media & Society*, 14(7), 1164–1180.
- Bucher, T. (2017). The Algorithmic Imaginary: Exploring the Ordinary Affects of Facebook Algorithms. *Information, Communication & Society*, 20(1), 30–44.
- Burton, J. W., Stein, M. K., & Jensen, T. B. (2020). A systematic review of algorithm aversion in augmented decision making. *Journal of Behavioral Decision Making*, 33(2), 220–239.
- Byman, D., & Speakman, S. (2016). The Syrian refugee crisis: Bad and worse options. *Washington Quarterly*, 39(2), 45–60.
- Cho, J., Ahmed, S., Hilbert, M., Liu, B., & Luu, J. (2020). Do Search Algorithms Endanger Democracy? An Experimental Investigation of Algorithm Effects on Political Polarization. *Journal of Broadcasting & Electronic Media*, 64(2), 150–172. DOI: 10.1080/08838151.2020.1757365.
- Cinar, R., & Benneworth, P. (2020). Why do universities have little systemic impact with social innovation? An institutional logics perspective. *Growth and Change*, 1–19. DOI: 10.1111/grow.12367
- Cohen, J. E. (2013). What privacy is for. *Harvard Law Review*, 126(7), 1904–1933.
- Couldry, N., & Hepp, A. (2017). *The Mediated Construction of Reality*. Cambridge: Polity.
- Couldry, N. & Mejjias, U. E. (2019) *The Costs of Connection: How Data is Colonizing Human Life and Appropriating It for Capitalism*. Stanford, CA: Stanford University Press.
- Dahya, N., & Dryden-Petersen, S. (2016). Tracing Pathways to Higher Education for Refugees: The Role of Virtual Support Networks and Mobile Phones for Women in Refugee Camps. *Cooperative Education*, (December): 1–18.
- Del Casino, V. J. (2016). Social geographies II: Robots. *Progress in Human Geography*, 40(6), 846–855. <https://doi.org/10.1177/0309132515618807>
- Deleuze, G. (1992). Postscript on the Societies of Control, October 59, 3–7.
- Dencik, L. (2020). Mobilizing Media Studies in an Age of Datafication. *Television & New Media*, 21(6), 568–573.

- Diakopoulos, N. (2015). Algorithmic Accountability. *Digital Journalism*, 3(3), 398–415.
- Dietvorst, B. J., Simmons, J. P., & Massey, C. (2015). Algorithm aversion: People erroneously avoid algorithms after seeing them err. *Journal of Experimental Psychology: General*, 144(1), 114.
- Dudley, G., Banister, D., & Schwanen, T. (2017). The rise of Uber and regulating the disruptive innovator. *The Political Quarterly*, 88(3), 492–499.
- ECHO. (2021). *Syria Factsheet*. On 15 02, 2021 retrieved from: European Civil Protection and Humanitarian Aid Operations: https://ec.europa.eu/echo/where/middle-east/syria_en
- Emirbayer, M., & Mische, A. (1998). What is agency? *American Journal of Sociology*, 103(4), 962–1023.
- Esen, O., & Binatlı, A. O. (2017). The Impact of Syrian Refugees on the Turkish Economy: Regional Labour Market Effects. *Social Sciences*, 6, 129.
- Eubanks, V. (2018). *Automating Inequality*. New York: St. Martin's Press.
- Fallon, K. (2020, Nov 11). *UN warns of impact of smart borders on refugees: 'Data collection isn't apolitical'*. On 15 02, 2020 retrieved from Guardian: <https://amp.theguardian.com/global-development/2020/nov/11/un-warns-of-impact-of-smart-borders-on-refugees-data-collection-isnt-apolitical?fbclid=IwAR2w7MTVPAu592A9zUcu1FjmovMBofYc0AJyvXtaHQz3A4XugBn9i8QJP9M>
- Foucault, M. (1995). *Discipline and Punish: The Birth of the Prison*. New York: Knopf Doubleday.
- Foucault, M. (1997). The Birth of Biopolitics. In P. Rabinow and J.D. Faubion (eds), *Ethics, Subjectivity, and Truth* (pp. 73–79). New Press.
- Foucault, M. (1988). *Technologies of the Self*. Edited by Luther H. Martin, Huck Gutman and Patrick H. Hutton. London: Tavistock Publications.
- Foucault, M. (2003). *Abnormal. Lectures at the Collège de France 1974–1975*. London: Verso. Translation of *Les Anormaux*, Paris: Gallimard, 1999.
- Gamage, P. (2016). New development: Leveraging 'big data' analytics in the public sector. *Public Money & Management*, 385–390.
- Gangadharan, S. (2015, November 18). Predictive Algorithms are not Inherently Unbiased. *The New York Times*, Retrieved from <https://www.nytimes.com/roomfordebate/2015/11/18/can-predictive-policing-be-ethical-and-effective/predictive-algorithms-are-not-inherently-unbiased>.
- Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie, P. J. Boczkowski, & K. A. Foot (Eds), *Media Technologies: Essays on Communication, Materiality, and Society* (pp. 167–193). Cambridge, MA: The MIT Press.
- Gilman, M. E. (2016). Privacy as a luxury not for the poor: *Wyman v. James* (1971). In E. Rosser, & M. Failing (Eds), *The Poverty Law Canon: Exploring the Major Cases* (pp. 153–169). Ann Arbor: University of Michigan Press.
- Gray, H., & Franck, A. K. (2019). Refugees as/at risk: The gendered and racialized underpinnings of securitization in British media narratives. *Security Dialogue*, 50(3), 275–291.
- Greenfield A (2006) *Everyware: the dawning age of ubiquitous computing*. New Riders
- Grgic-Hlaca, N., Redmiles, E., & Krishna, P. (2018). Human Perceptions of Fairness in Algorithmic Decision Making: A Case Study of Criminal Risk Prediction. *Proceedings of the 2018 World Wide Web Conference (WWW '18)*. (pp. 903–912).

- Republic and Canton of Geneva, CHE: International World Wide Web Conferences Steering Committee.
- Gurumurthy, A., & Bharthur, D. (2018). Democracy and the Algorithmic Turn. *Sur – International Journal on Human Rights*, 15(27), 39–50.
- Hamilton, K., Karahalios, K., Sandvig, C., & Eslami, M. (2014). A path to understanding the effects of algorithm awareness. *HI '14 Extended Abstracts on Human Factors in Computing Systems (CHI EA '14)* (pp. 631–642). New York, NY: Association for Computing Machinery.
- Hammersley, M., & Anna, T. (2012). *Ethics in Qualitative Research: Controversies and Contexts*. London: Sage Publications.
- Heeks, R. (2018). *Information and communication technology for development*. Abingdon: Routledge.
- Heeks, R., & Shekhar, S. (2019). Datafication, development and marginalised urban communities: an applied data justice framework. *Information, Communication & Society*, 22(7), 992–1011, DOI: 10.1080/1369118X.2019.1599039.
- Helberger, N., Araujo, T., & Vreese, C. H. (2020). Who is the fairest of them all? Public attitudes and expectations regarding automated decision-making. *Computer Law & Security Review*, 39, 105456.
- Hildebrandt, M. (2015). *Smart Technologies and the End(s) of Laws*. Cheltenham: Edward Elgar Publishing.
- Hindman, M. (2015). Building better models: Prediction, replication, and machine learning in the social sciences. *The Annals of the American Academy of Political and Social Sciences*, 659(1), 48–62.
- Holford, W. D. (2019). The Future of Human Creative Knowledge Work within the Digital Economy. *Futures*, 143–154.
- Howard, P., Woolley, S., & Calo, R. (2018). Algorithms, bots, and political communication in the US 2016 election: The challenge of automated political communication for election law and administration. *Journal of Information Technology & Politics*, 15(2), 81–93. DOI: 10.1080/19331681.2018.1448735.
- Iliadis, A., & Russo, F. (2016). Critical data studies: An introduction. *Big Data & Society*, 1–7.
- Jansson, A. (2018). *Mediatization and Mobile Lives: A Critical Approach*. Oxon-New York: Routledge.
- Jones, R. (2019). From violent borders: refugees and the right to move. *NACLA Report on the Americas*, 51(1), 36–40. DOI: 10.1080/10714839.2019.1593688.
- Jones, W., & Teytelboym, A. (2017). Matching systems for refugees. *Journal on Migration and Human Security*, 5(3), 667–681.
- Just, N., & Latzer, M. (2017). Governance by Algorithms: Reality Construction by Algorithmic Selection on the Internet. *Media, Culture & Society*, 39(2), 238–258.
- Kabandula, A., & Shaw, T. M. (2018). Rising powers and the horn of Africa: conflicting regionalisms. *Third World Quarterly*, 39(12), 2315–2333.
- Katzenbach, C., & Ulbricht, L. (2019). Algorithmic governance. *Internet Policy Review*. DOI: 10.14763/2019.4.1424.
- Kaurin, D. (2019). Data protection and digital agency for refugees. *World Refugee Council Research Paper No. 12 – May*, Retrieved from: https://www.cigionline.org/publications/data-protection-and-digital-agency-refugees?mc_cid=248ff8c362&mc_eid=2c30163da1.
- Kennedy, H., Poell, T., & Dijk, J. v. (2015). Data and agency. *Big Data & Society*, DOI:10.1177/2053951715621569.

- Kennedy, R., Waggoner, P., & Ward, M. (2018). Trust in Public Policy Algorithms. DOI:10.2139/ssrn.3339475
- Kitchin, R. (2014). Big data, new epistemologies and paradigm shifts. *Big Data & Society*, 1(1), 1–12.
- Kitchin, R. (2016). Thinking critically about and researching algorithms. *Information, Communication & Society*, 14–29.
- Klinger, U., & Svensson, J. (2018). The end of media logics? On algorithms and agency. *New Media & Society*, 20(12):4653–4670. DOI:10.1177/1461444818779750.
- Kotsoglou, K. N., & Oswald, M. (2020). The long arm of the algorithm? Automated facial recognition as evidence and trigger for police intervention. *Forensic Science International: Synergy*, 2, 86–89.
- Latzer, M., & Festic, N. (2019). A Guideline for Understanding and Measuring Algorithmic Governance in Everyday Life. *Internet Policy Review*, 8(2).
- Liebe, U., Meyerhoff, J., Kroesen, M., Chorus, C., & Glenk, K. (2018). From welcome culture to welcome limits? Uncovering preference changes over time for sheltering refugees in Germany. *PLoS ONE*, 13(8), e0199923.
- Lipsky, M. (2010). *Street-level Bureaucracy: Dilemmas of the Individual in Public Service*. Russell Sage Foundation.
- Lohrmann, R. (2000). Migrants, Refugees and Insecurity: Current Threats to Peace? *International Migration*, 38(4), 32–50.
- Lorenzini, D. (2020). Biopolitics in the time of Coronavirus. *Critical Inquiry*, 47(S2), 40–45.
- Loukissas, Y. A. (2019). *All Data are Local: Thinking Critically in a Data-Driven Society*. Cambridge, MA: The MIT Press.
- Lundby, K. (2014). Mediatization of Communication. In K. Lundby (Ed), *Mediatization of Communication (Handbooks of Communication Science)* (pp. 3–35). Berlin: De Gruyter Mouton.
- Lupton, D., & Michael, M. (2017). ‘Depends on Who’s Got the Data’: Public Understandings of Personal Digital Dataveillance. *Surveillance & Society*, 15(2): 254–268.
- Lustig, C., Pine, K., Nardi, B., Irani, L., Lee, M. K., Nafus, D., et al. (2016). Algorithmic authority: the ethics, politics, and economics of algorithms that interpret, decide and manage. *CHI EA '16: Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems* (pp. 1057–1062). New York, NY, USA: ACM.
- Maciejewski, M. (2016). To do more, better, faster and more cheaply: Using big data in public administration. *International Review of Administrative Sciences*, 83(1), 120–135.
- Mackenzie, C., McDowell, C., & Pittaway, E. (2007). Beyond 'do no harm': the challenge of constructing ethical relationships in refugee research. *Journal of Refugee Studies*, 20(2), 299–319.
- Madianou, M. (2019). The biometric assemblage. Surveillance, experimentation, profit, and measuring of refugee bodies. *Television & New Media*, 20(6), 581–599.
- Magalhães, J. C. (2018). Do Algorithms Shape Character? Considering Algorithmic Ethical Subjectivation. *Social Media + Society*. DOI: 10.1177/2056305118768301
- Mager, A. (2012). Mager, A. (2012). Algorithmic ideology: How capitalist society shapes search engines. *Information, Communication & Society*, 15, 769–787.
- Mager, A. (2015). *Glocal Search: Search Technology at the Intersection of global capitalism and local socio-political cultures*. Vienna: Institute of Technology

- Assessment (ITA), Austrian Academy of Sciences. Retrieved from <http://www.astridmager.net/wp-content/uploads/2015>.
- Maley, W. (2016). *What is a Refugee*. New York: Oxford University Press.
- Markham, A. (2012). *Appendix 1, AOIR Guidelines: Ethical Decision Making and Internet Research Ethics*. Retrieved from aior.org: <https://aior.org/ethics/>
- Masso, A., Männiste, M., & Siibak, A. (2020). 'End of Theory' in the era of big data: Methodological practices and challenges in social media studies. *Acta Baltica Historiae et Philosophiae Scientiarum*, 8(1), 33–61.
- Masso, A., Tiidenberg, K. & Siibak, A. (2020). *Kuidas Mõista Andmestunud Maailma?* Tallinn: TLÜ Kirjastus
- Mayer-Schoenberger, V., & Cukier, K. (2013). *Big Data. A Revolution that will Transform How We Live, Work and Think*. London: John Murray Publishers.
- Metcalfe, P., & Dencik, L. (2019). The Politics of Big Borders: Data (in)justice and the Governance of Refugees. *First Monday*, 24(4) DOI: 10.5210/fm.v24i4.9934.
- Milan, S. (2018). Political agency, digital traces, and bottom-up data practices. *International Journal of Communication*, 2, 507–527.
- Minocher, X., & Randall, C. (2020). Predictive policing: New technology, old bias, and future resistance in big data surveillance. *Convergence*, 26(5–6):1108–1124. DOI: 10.1177/1354856520933838.
- Mitcham, C. (2014). Agency in human and in artifacts: a contested discourse. In P. Kroes, & P. Verbeek (Eds), *The Moral Status of Technical Artefacts* (pp. 11–29). Berlin: Springer.
- Mittelstadt, B. D., & Floridi, L. (2016). The ethics of big data: Current and foreseeable issues in biomedical contexts. *Science and Engineering Ethics*, 22(2), 303–341.
- Mittelstadt, B., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2), 1–21.
- Molnar, P., & Gill, L. (2018). *Bots at the Gate: A Human Rights Analysis of Automated Decision-Making in Canada's Immigration and Refugee System*. The Citizen Lab: University of Toronto.
- Molnar, P. (2019). New technologies in migration: human rights impacts. *Forced Migration Review*, 61, 7–9.
- Morozov, E. (2013). *To Save Everything, Click Here: The Folly of Technological Solutionism*. New York, NY: Public Affairs.
- Munro, I. (2012). The management of circulations: Biopolitical variations after Foucault. *International Journal of Management Reviews*, 14, 345–62.
- Noble, S. U. (2018). *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York, NY: New York University Press.
- Nielsen, M. M. (2017). eGovernance and Online Service Delivery in Estonia. *Proceedings of the 18th Annual International Conference on Digital Government Research* (pp. 300–309). dg.o.
- O'Neil, C. (2016). *Weapons of Math Destruction*. Broadway Books : New York.
- Özden, Ş. (2013). *Syrian Refugees in Turkey*. <http://www.migrationpolicycentre.eu/docs/MPC-RR-2013-05.pdf>: Migration Policy Center.
- Park, S., & Humphry, J. (2019). Exclusion by design: intersections of social, digital and data exclusion. *Information, Communication & Society*, 934–953.
- Pasquale, F. (2015). *The black box society: the secret algorithms that control money and information*. Cambridge, MA: Harvard University Press.

- Pew Research Center. (2016). Number of refugees to Europe surges to record 1.3 million in 2015. <https://www.pewresearch.org/global/2016/08/02/number-of-refugees-to-europe-surges-to-record-1-3-million-in-2015/>.
- Pew Research Center. (2018, 1 29). *Most displaced Syrians are in the Middle East, and about a million are in Europe*. On 08 02, 2021 retrieved from [pewresearch.org: https://www.pewresearch.org/fact-tank/2018/01/29/where-displaced-syrians-have-resettled/](https://www.pewresearch.org/fact-tank/2018/01/29/where-displaced-syrians-have-resettled/)
- Rae, M., Holman, R., & Nethery, A. (2018). Self-represented witnessing: the use of social media by asylum seekers in Australia's offshore immigration detention centres. *Media, Culture & Society*, 40(4): 479–495.
- Richardson, R., Schultz, J., & Crawford, K. (2019). Dirty data, bad predictions: How civil rights violations impact police data, predictive policing systems, and justice. *New York University Law Review Online*, Available at SSRN: <https://ssrn.com/abstract=3333423>.
- Robinson, S. C. (2020). Trust, transparency, and openness: How inclusion of cultural values shapes Nordic national public policy strategies for artificial intelligence (AI). *Technology in Society*, 63, 101421.
- Ruckenstein, M., & Granroth, J. (2020). Algorithms, advertising and the intimacy of surveillance. *Journal of Cultural Economy*, 13(1), 12–24.
- Ruckenstein, M., & Schüll, N. D. (2017). The Datafication of Health. *Annual Review of Anthropology*, 46, 261–78.
- Ryan, F., Coughlan, M., & Cronin, P. (2009). Interviewing in qualitative research: The one-to-one interview. *International Journal of Therapy and Rehabilitation*, 16(6), 309–314.
- Sanders, C. B., & Hannem, S. (2012). Policing “the risky”: Technology and surveillance in everyday patrol work. *Canadian Review of Sociology/Revue Canadienne de Sociologie*, 49(4), 389–410.
- Sloan, R. H., & Richard, W. (2019). Algorithms and human freedom. *Santa Clara High Technology Law Journal*, 35(4), 1–34.
- Soley, L. C., & Smith, A. (2008). *Projective techniques for social sciences and business research*. Southshore Press.
- Solove, D. J. (2007). ‘I’ve got nothing to hide’ and other misunderstandings of privacy. *San Diego Law Review*, 745–772.
- Sturken, M., & Thomas, D. (2004). Technological visions and the rhetoric of the new . In M. Sturken, D. Thomas, & S. Ball-Rokeach (Eds), *Technological Visions: the Hopes and Fears that Shape New Technologies* (pp. 1–18). Philadelphia: Temple University Press.
- Sumpter, D. (2018). *Outnumbered*. London: Bloomsbury Sigma.
- Tambe, M. (2012). *Security and Game Theory*. New York, NY: Cambridge University Press.
- Tammpuu, P., & Masso, A. (2018). 'Welcome to the virtual state': Estonian e-residency and the digitalized state as a commodity. *European Journal of Cultural Studies*, 21(1), 136754941775114.
- Tammpuu, P., & Masso, A. (2019). Transnational digital identity as an instrument for global digital citizenship: The case of Estonia's e-residency. *Information Systems Frontiers*, 21, 621–634.
- Taylor, L. (2017). What is data justice? The case for connecting digital rights and freedoms globally. *Big Data & Society*, 1(14) DOI: 10.1177/2053951717736335

- Taylor, L. (2018). On the presumption of innocence in data-driven government. Are we asking the right question? In E. Bayamlioglu, I. Baraliuc, L. Janssens, & M. Hildebrandt (Eds), *Being Profiled: Cogitas Ergo Sum 10 years of 'Profiling the European Citizen'* (pp. 72–75). Amsterdam: Amsterdam University Press.
- Thurman, N., Moeller, J., Helberger, N., & Trilling, D. (2019). My friends, editors, algorithms, and I: Examining audience attitudes to news selection. *Digital Journalism*, 7(4), 447–469.
- Treré, E. (2019). *Hybrid media activism: Ecologies, imaginaries, algorithms*. London: Routledge.
- Treré, E., Jeppesen, S., & Mattoni, A. (2017). Comparing digital protest media imaginaries: Anti-austerity movements in Spain, Italy & Greece. *tripleC: Communication, Capitalism & Critique*, 15(2), 404–422.
- Ulbricht, L. (2018). When big data meets securitization. Algorithmic regulation with passenger name records. *European Journal of Security Research*, 3, 139–161.
- Vahtla, A. (2018). *Estonia reaches first refugee quota*. On 18 04, 2021, retrieved from ERR: <https://news.err.ee/689666/estonia-reaches-first-refugee-quota>
- Van Dijck, J. (2013). *The Culture of Connectivity: A Critical History of Social Media*. Oxford University Press.
- Van Dijck, J. (2014). Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology. *Surveillance & Society*, 12(2), 197–208.
- Van Dijck, J., & Poell, T. (2013). Understanding social media logic. *Media and Communication*, 1(1), 2–14.
- Van Dijck, J., Poell, T., & Waal, M. d. (2018). *The Platform Society: Public Values in a Connected World*. New York, NY: Oxford University Press.
- Van Dijk, T. A. (2015), 'Critical discourse analysis', in D. Tannen, H. E. Hamilton and D. Schiffrin (eds), *The Handbook of Discourse Analysis*, Second Edition, Oxford: John Wiley & Sons, Inc. pp. 466–485.
- Velkova, J., & Kaun, A. (2019). Algorithmic resistance: media practices and the politics of repair. *Information, Communication & Society*, DOI: 10.1080/1369118X.2019.1657162.
- Veltri, G. A. (2017). Big data is not only about data: the two cultures of modelling. *Big Data & Society*, 4(1), 1–6.
- Vinck, P., Pham, P. N., & Salah, A. A. (2019). “Do No Harm” in the Age of Big Data: Data, Ethics, and the Refugees. In A. Salah, A. Pentland, B. Lebri, & E. Letouzé (Eds), *Guide to Mobile Data Analytics in Refugee Scenarios* (pp. 87–99). Cham: Springer. DOI: 10.1007/978-3-030-12554-7_5.
- Wallace, J. (2017). Modelling contemporary gatekeeping: The rise of individuals, algorithms and platforms in digital news dissemination. *Digital Journalism*, 6(16):1–20.
- Weiner, M. (1992/93). Security, Stability, and International Migration. *International Security*, 17(3), 91–126.
- Werker, E. (2007). Refugee Camp Economies. *Journal of Refugee Studies*, 20(3), 461–480.
- Whyte, A. (2018). *No EU migrant plan refugees arrive in Estonia in 2018*. On 26 01, 2020, retrieved from: ERR: <https://news.err.ee/887732/noceu-migrant-plan-refugees-arrive-in-estonia-in-2018>
- Wiles, R. (2013). *What are Qualitative Research Ethics*. London: Bloomsbury.
- Williamson, B. (2018). Silicon Startup Schools: Technocracy, Algorithmic Imaginaries and Venture Philanthropy in Corporate Education Reform. *Critical Studies in Education*, 59(2), 218–236.

- Willson, M. (2017). Algorithms (and the) everyday. *Information, Communication & Society*, 20(1), 137–150. DOI: 10.1080/1369118X.2016.1200645.
- Witteborn, S. (2015). Becoming (Im)Perceptible: Forced Migrants and Virtual Practice. *Journal of Refugee Studies*.
- Wodak, R., Delanty, G., & Jones, P. (2008). Introduction: Migration, discrimination and belonging in Europe. In G. Delanty, P. Jones, & R. Wodak (Eds), *Identity, Belonging and Migration* (pp. 10–18). Liverpool: Liverpool University Press.
- Woolf, N., & Silver, C. (2017). *Qualitative analysis using MAXQDA: The five-level QDATM method*. Routledge.
- Wyatt, S. (2008). Technological determinism is dead; long live technological determinism. In E. J. Hackett, O. Amsterdamska, M. Lynch, & J. Wajcman (Eds), *The Handbook of Science and Technology Studies* (pp. 165–180). London: The MIT Press.
- Yang, M., Kiang, M., & Shang, W. (2015). Filtering big data from social media – Building an early warning system for adverse drug reactions. *Journal of Biomedical Informatics*, 54, 230–240.
- Zisser, E. (2019). The Syrian refugees – left to their fate. *British Journal of Middle Eastern Studies*, 46(2), 293–309.
- Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, 30(1), 75–89.

SUMMARY IN ESTONIAN

Süüria põgenike algoritmilised kujutluspildid: Hierarhiliste andmesuhete uurimine põgenike vaatenurgast

Kommunikatsioonitehnoloogia ja andmepraktika areng pakub mõnede inimestele ja institutsioonidele võimalusi sotsiaalse maailma loomiseks vastavalt nende nägemusele ja plaanidele, piirates samal ajal teiste rühmade võimet ise sotsiaalset maailma konstrueerida. **Doktoritöö eesmärk on uurida nii põgenike seisukohti kui ka nende suhet andmestumisse, pöörates erilist tähelepanu algoritmidele.** Valisin oma doktoritöösse põgenikud, sest andmestumine on põgenikele oluline protsess, mis võib parandada või halvendada nende eluvõimalusi.

Doktoritöös on kolm peamist uutset tulemust, mis põhinevad põgenike algoritmiliste kujutluspiltide uurimisel. Esiteks on see nn alt-üles-uuring. Ma ei pea põgenikke ainult (sotsiaalmeedia) kasutajateks, vaid julgeolekustatud sotsiaalseks rühmaks, kes on ühiskonnas juba sotsiaalselt tõrjutud positsioonil. Minu eesmärk on uurida põgenike arusaamu algoritmidest agentsuse, julgeolekustamise ja eri kontekstide ristumiskohas. Teiseks, see on empiiriline uuring, mis põhineb Süüria põgenike lugudel ja nendega tehtud intervjuudel, ning annab neile seega hääle andmestumisega seotud diskursuses. Kolmandaks on uuringul kahetine kultuuriline kontekst, hõlmates Türgit ja Eestit, mis võimaldab Süüria põgenike algoritmiliste kujutluspiltide võrdlevat analüüsi. Põgenike vaatenurga uurimine annab ainulaadse võimaluse mõista alternatiivset kujutluspilti algoritmidest, mis kätkeb nende sotsiaalsete rühmade muresid ja kogemusi, keda algoritmid mõjutavad.

Kasutades Süüria põgenike sotsiaalmeedias jagatud lugude narratiivianalüüsi ning nendega Türgis (n = 12) ja Eestis (n = 7) tehtud poolstruktureeritud intervjuude temaatilist analüüsi, annab doktoritöö uurimisküsimustele järgmised vastused.

1. Kuidas saavutavad põgenikud agentsuse digiplatvormidel ja algoritmide suhtes?
 - a. Põgenikud saavad jagada oma lugusid sotsiaalmeedia platvormidel ja väljendada nende narratiivide autoritena oma agentsust. Ehkki selline tegutsemisviis võimestab põgenikke, kajastuvad lugudes ka ebavõrdsus ja surve, millega põgenikud ühiskonnas silmitsi seisavad. Lood on konstrueeritud teadlikkusega vähemusgruppide kuulumisest ja kavatsusega pidada auditooriumiga dialoogi, et õigustada põgenike olemasolu vastuvõtvas riigis. Selline olukord piirab põgenike agentsust oma lugude loomisel ja autentsete kogemuste jagamisel laiema avalikkusega (**Uuring I**).
 - b. Sotsiaalmeedia algoritmid mängivad värvavahi rolli ja kujundavad seda, kes kelle lugusid näeb. Isegi kui põgenikud väljendavad oma agentsust ise lugusid luues, sõltub sotsiaalmeedia algoritmidest see, kelleni need

lood jõuavad. Seega piirab andmestumine (platvormi algoritmid) põgenike agentsust, mis on saanud võimalikuks tänu lugude jagamise kaudu toimuvale meediastumisele (sotsiaalmeedia platvormid). Need kaks meta-protsessi on omavahel seotud ja jõustavad olemasolevat võimuhierarhiat (**Uuring I**).

- c. Põgenike agentsust nende algoritmide suhtes, mida ametivõimud kasutavad liikuvuse juhtimiseks, saab vaadelda seoses põgenike kuulekusega või vastupanuga algoritmilistele tulemustele. Selleks et agentsust väljendada, peavad põgenikel olema algteadmised algoritmidest ja sellest, mis nende eesmärk on. Nii saavad põgenikud olla refleksiivsed algoritmide suhtes. Need algteadmised ei tähenda, et põgenikud peavad olema algoritmide eksperdid. Diskussioon algoritmide toimimise tulemuste üle võimaldab põgenikel algoritmide teemal kaasa mõelda. Nii saavad ka põgenikud panustada diskursusesse, mis kirjeldab, mida algoritmid peaksid põgenike heaks tegema (**Uuring II, Uuring III**).
 - d. Selle asemel et üksnes algoritmidele loota, rõhutasid põgenikud, et soovivad ise oma valikute üle otsustada. See näitab, kui tähtis on põgenikele nende agentsus algoritmiliste tulemuste suhtes. Nendel juhtudel, kui algoritme kasutatakse üksnes selleks, et põgenikele ettepanekuid teha, on arusaamad positiivsemad ja võim oma elu üle otsustada on endiselt põgenikel (**Uuring II**).
 - e. Põgenike agentsust algoritmilistes protsessides aitaks tagada infovahetus järelevalvajate, algoritmide ja põgenike vahel. Põgenikud saavad protsessi algusest peale rikastada, osaledes nendes protsessides koos ekspertidega, kes jälgivad algoritme, ning jagada oma seisukohti. Seejärel saavad põgenikud osaleda ka algoritmiliste tulemuste ülevaatamisel ja algoritmidele pideva tagasiside andmisel. See tagaks, et põgenike häält võetakse kuulda, ja põgenikud saaksid algoritmilistele tulemustele hõlpsalt väljakuulda esitada ja tulemusi parandada vastavalt oma vaatenurgale (**Uuring IV**).
 - f. Igasugused jõupingutused tagamaks, et põgenikel oleks agentsus algoritmilistes protsessides ja tulemustes, peavad arvestama põgenike kogemuste mitmekesisuse, võimalike ajaliste lahknevuste ja algoritmide kontekstuaalsusega põgenike vaatenurgast. Algoritmide ja nende tulemuste kontrollimiseks peaksid olema olemas asjakohased süsteemid, mis lähituksid põgenike või teiste oluliste ekspertide ja institutsioonide tagasisidest (**Uuring IV**).
2. Kuidas tajuvad põgenikud julgeolekustatud subjektidena algoritmide kasutamist julgeoleku nimel?
- a. Koduriigis ebakindlust ja füüsilist ohtu kogunud inimestena peavad põgenikud tähtsaks seda, et vastuvõttvas riigis oleks turvaline elada. Nad usuvad, et julgeoleku eest vastutab riik. Seetõttu ei ole nad laias laastus julgeoleku nimel algoritmide kasutamise vastu ja peavad sellist tegevust kohati isegi ühiskonna üldise hüvangu jaoks äärmiselt oluliseks (**Uuring III**).

- b. Põgenikud tunnistavad, et neil on suurem tõenäosus sattuda turvaalgoritmide sihtmärgiks. Nad tajuvad ka teisi olulisi riske, näiteks diskrimineerimist ja eelarvamusi teatud tunnuste alusel, mis võivad olla seotud rassi, rahvuse, ideoloogia, sotsiaalse klassi või isegi välimusega. Osa põgenikest peab aga potentsiaalseks julgeolekuriskiks ka teisi põgenikke ja toetab põgenike põhjalikku kontrolli. Seega ei julgeolekusta põgenikke mitte üksnes valitsevad sotsiaalsed rühmad, vaid ka teised põgenikud. See on paradoks, kus põgenikud peavad julgeolekut oluliseks ja on samal ajal nõus algoritmipõhiste lahendustega, isegi kui algoritmid sihivad pigem põgenikke, kuna neid võidakse paljudes vastuvõtvates riikides pidada julgeolekuohuks (**Uuring III**).
 - c. Põgenikud on valmis julgeoleku nimel isiklike andmete kogumisel koostööd tegema. Seda võib seostada tõsiasjaga, et füüsilist julgeolekut peetakse olulisemaks kui teisi muresid, näiteks andmete privaatsust. Julgeolekustatud sotsiaalse rühmana võib isiklike andmete jagamata jätmine tuua põgenikele kaasa märkimisväärseid tagajärgi. Seetõttu võib nende valmisolek andmeid jagada olla viis näitamaks, et põgenikud ei kujuta endast ühiskonnale ohtu. Andmete kogumisele vastuhakkamise võimaluste puudumine ja suutmatus nende protsesside üksikasju teada saada võivad panna põgenikud veelgi halvemasse olukorda ning olla vastuolus informeeritud nõusoleku põhimõttega (**Uuring II, Uuring III**).
3. Kuidas kujundavad algoritmiliste lahenduste loomisse ja kasutamisse põimitud sotsiaalsed kontekstid põgenike arusaamu algoritmidest?
- a. Sotsiaalsed kontekstid kujundavad põgenike vajadusi, ootusi ja muresid seoses algoritmidega. Algoritmide ootused põgenikele pole Eestis samad mis Türgis. See kehtib eelkõige algoritmide kohta, mis aitavad langetada olulisi otsuseid põgenike elu kohta (**Uuring II, Uuring III, Uuring IV**).
 - b. Põgenike vajadused ja mured saab seada esikohale, kui arvestada algoritmides sotsiaalsete kontekstide ja kohalike oludega. See aitaks tagada, et algoritmid, mis on loodud põgenike elu eri aspektide haldamiseks, oleksid kasutuses põgenike heaks, mitte ei teeks neile hoopis kahju. Lisaks võimaldaks see asendada justkui kõiki ühe vitsaga lõövad lähenemisi, milles seatakse eesmärgiks näiteks kasum, kontekstitundlike lähenemistega, milles võetakse arvesse põgenike eriilmelisi kogemusi ja kontekste (**Uuring II, Uuring III, Uuring IV**).
 - c. Juhul kui algoritmid ei võta arvesse sotsiaalset konteksti, suhtuvad põgenikud neisse kriitilisemalt ja arvestavad sellega, et algoritmid võivad kaasa tuua negatiivsemaid kogemusi ning diskrimineeriva või autoritaarse tava. Selle tulemusel väheneb usaldus algoritmipõhiste lahenduste ja ka algoritmide eest vastutavate ametivõimude vastu (**Uuring II, Uuring III, Uuring IV**).

PUBLICATIONS

CURRICULUM VITAE

Name: Tayfun Kasapoglu
Date of Birth: April 10, 1990
Phone: +37258464038
Email: tayfun.kasapoglu@ut.ee

Education:

2017–2021 PhD studies in Sociology, University of Tartu
2014–2016 MA studies in Applied Sociology, Vytautas Magnus University
2008–2012 BA studies in Translation and Interpreting Studies,
Hacettepe University

Publications:

Kasapoglu, T., & Kalmus, V. (2020). Constructing counter-narratives: Stories by Syrian refugees in Turkey. *International Journal of Media & Cultural Politics*, 16(3), 359–366.

Masso, A., & Kasapoglu, T. (2020). Understanding power positions in a new digital landscape: Perceptions of Syrian refugees and data experts on relocation algorithm. *Information, Communication & Society*, 23(8), 1203–1219.

Kasapoglu, T., & Masso, A. (2021). Attaining security through algorithms: Perspectives of refugees and data experts. In J. B. Wiest (Ed), *Theorizing Criminality and Policing in the Digital Media Age, Volume 20* (pp. 47–65). Emerald Publishing Limited.

Conferences:

Tayfun Kasapoglu, Anu Masso – Security Algorithms and Securitized Subjects: Perspectives of Data Experts and Refugees. Data Power: Global In/securities, 12–13 September 2019, Bremen, Germany.

Anu Masso, Tayfun Kasapoglu – Power Positions in a New Digital Landscape: Refugees and Data Experts on Relocation Algorithm. Data Justice 2021: Civic Participation in the Datafied Society, 20–21 May 2021, Data Justice Lab, Cardiff University, UK (Online).

Teaching experiences:

Co-instructor: Big Data and Society, University of Tartu, Spring 2021.
Teaching Assistant: Recent Issues in Big Data and Governance, Tallinn University of Technology, Spring 2019.

ELULOOKIRJELDUS

Nimi: Tayfun Kasapoglu
Sünniaeg: 10. aprill 1990
Telefon: +372 58464038
E-mail: tayfun.kasapoglu@ut.ee

Haridus:

2017–2021 Tartu Ülikool, doktoriõpe sotsioloogia erialal
2014–2016 Vytautas Magnuse ülikool, sotsiaalteaduste magister (MA)
rakendussotsioloogia erialal
2008–2012 Hacettepe ülikool, sotsiaalteaduste bakalaureus (BA)
tõlkeõpetuse erialal

Publikatsioonid:

Kasapoglu, T., & Kalmus, V. (2020). Constructing counter-narratives: Stories by Syrian refugees in Turkey. *International Journal of Media & Cultural Politics*, 16(3), 359–366.

Masso, A., & Kasapoglu, T. (2020). Understanding power positions in a new digital landscape: Perceptions of Syrian refugees and data experts on relocation algorithm. *Information, Communication & Society*, 23(8), 1203–1219.

Kasapoglu, T., & Masso, A. (2021). Attaining security through algorithms: Perspectives of refugees and data experts. J. B. Wiest (Toim.). *Theorizing Criminality and Policing in the Digital Media Age, Volume 20* (lk 47–65). Emerald Publishing Limited.

Konverentsid:

Tayfun Kasapoglu, Anu Masso – Security Algorithms and Securitized Subjects: Perspectives of Data Experts and Refugees. Data Power: Global In/securities, 12.–13. september 2019, Bremen, Saksamaa.

Anu Masso, Tayfun Kasapoglu – Power Positions in a New Digital Landscape: Refugees and Data Experts on Relocation Algorithm. Data Justice 2021: Civic Participation in the Datafied Society, 20.–21. mai 2021, Data Justice Lab, Cardiff University, Ühendkuningriik (veebis).

Õpetamiskogemus:

Lektor: Big Data and Society, Tartu Ülikool, kevad 2021.
Assistent: Recent Issues in Big Data and Governance, Tallinna Tehnikaülikool, kevad 2019.

DISSERTATIONES SOCIOLOGICAE UNIVERSITATIS TARTUENSIS

1. **Veronika Kalmus.** School textbooks in the field of socialisation. Tartu, 2003, 206 p.
2. **Kairi Kõlves.** Estonians' and Russian minority's suicides and suicide risk factors: studies on aggregate and individual level. Tartu, 2004, 111 p.
3. **Kairi Kasearu.** Structural changes or individual preferences? A study of unmarried cohabitation in Estonia. Tartu, 2010, 126 p.
4. **Avo Trumm.** Poverty in the context of societal transitions in Estonia. Tartu, 2011, 215 p.
5. **Kadri Koreinik.** Language ideologies in the contemporary Estonian public discourse: With a focus on South Estonian. Tartu, 2011, 128 p.
6. **Marre Karu.** Fathers and parental leave: slow steps towards dual earner/dual carer family model in Estonia. Tartu, 2011, 125 p.
7. **Algi Samm.** The relationship between perceived poor family communication and suicidal ideation among adolescents in Estonia. Tartu, 2012, 121 p.
8. **Tatjana Kiilo.** Promoting teachers' efficacy through social constructivist language learning: challenges of accommodating structure and agency. The case of Russian-speaking teachers in Estonia. Tartu, 2013, 156 p.
9. **Ave Roots.** Occupational and income mobility during post-socialist transformation of 1991–2004 in Estonia. Tartu, 2013, 130 p.
10. **Tarmo Strenze.** Intelligence and socioeconomic success A study of correlations, causes and consequences. Tartu, 2015, 119 p.
11. **Mervi Raudsaar.** Developments of social entrepreneurship in Estonia. Tartu, 2016, 141 p.
12. **Ero Liivik.** Otsedemokraatia Eestis: õigussotsioloogilisi aspekte. Tartu, 2017, 166 p.
13. **Mai Beilmann.** Social Capital and Individualism – Collectivism at the Individual Level. Tartu, 2017, 145 p.
14. **Rainer Reile.** Self-rated health: assessment, social variance and association with mortality. Tartu, 2017, 123 p.
15. **Katri Lamesoo.** Social Construction of Sexual Harassment in the Post-Soviet Context on the Example of Estonian Nurses. Tartu, 2017, 185 p.
16. **Andu Rämmer.** Sotsiaalse tunnetuse muutused Eesti siirdeühiskonna kontekstis. Tartu, 2017, 230 p.
17. **Kadri Rootalu.** Antecedents and consequences of divorce in Estonia from longitudinal and multigenerational perspectives. Tartu, 2017, 128 p.
18. **Kairi Talves.** The dynamics of gender representations in the context of Estonian social transformations. Tartu, 2018, 129 p.
19. **Aare Kasemets.** Institutionalisation of Knowledge-Based Policy Design and Better Regulation Principles in Estonian Draft Legislation. Tartu, 2018, 252 p.

20. **Dagmar Narusson.** Personal-recovery and agency-enhancing client work in the field of mental health and social rehabilitation: Perspectives of persons with lived experience and specialists. Tartu, 2019, 139 p.
21. **Oliver Nahkur.** Measurement of Interpersonal Destructiveness: the Societal Perspective. Tartu, 2019, 164 p.