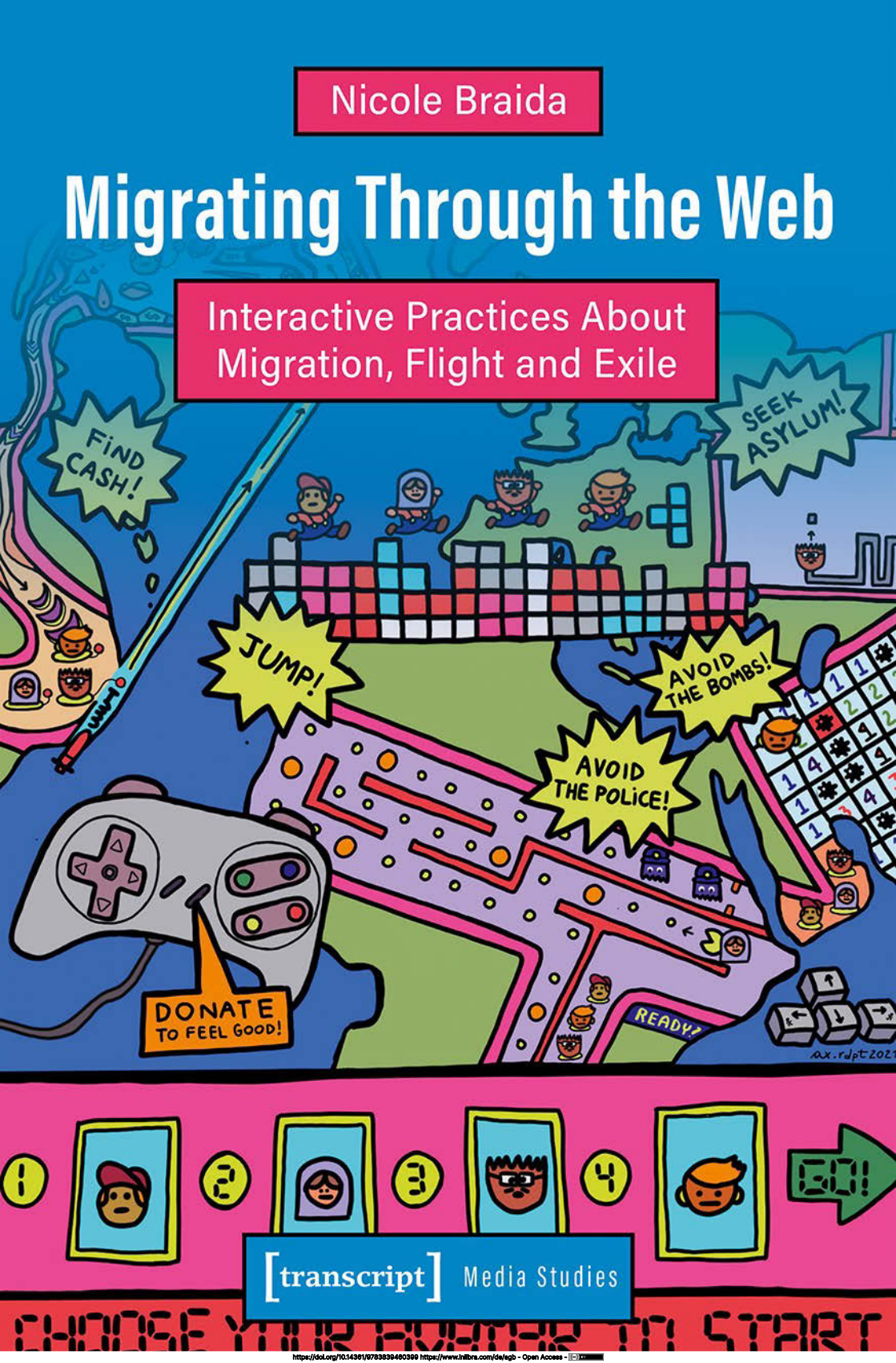
Nicole Braida

Migrating Through the Web

Interactive Practices About Migration, Flight and Exile



[transcript] Media Studies

Nicole Braida
Migrating Through the Web

Media Studies | Volume 95

A Benazir

Nicole Braida (PhD) works at Johannes Gutenberg-Universität Mainz as a post-doctoral fellow. She obtained her doctorate at the same University and as a candidate in the DFG-funded research collective "Configurations of Film" at Goethe-Universität Frankfurt. She has studied film and media in Italy, Germany, and Belgium. Her research focuses on interactive media, serious games, maps, data visualization, and the transformation of film culture.

Nicole Braida

Migrating Through the Web

Interactive Practices About Migration, Flight and Exile

[transcript]

The following publication was submitted as a doctoral thesis to attain the academic degree of Dr.Phil., to Department 05 - Philosophy and Philology at Johannes Gutenberg University Mainz in November 2020.

Examiners: Prof. Dr. Alexandra Schneider (first supervisor), Prof. Dr. Sonia Campanini (second supervisor).

The EOSC Future project is co-funded by the European Union Horizon Programme call INFRAEOSC-03-2020, Grant Agreement number 101017536

The free availability of the e-book edition of this publication was financed by the project EOSC Future.

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.d-nb.de

First published in 2022 by transcript Verlag, Bielefeld

Cover layout: Kordula Röckenhaus, Bielefeld
Cover illustration: Alessandro Aleksi Tiberio
Printed by Majuskel Medienproduktion GmbH, Wetzlar
Print-ISBN 978-3-8376-6039-5
PDF-ISBN 978-3-8394-6039-9
https://doi.org/10.14361/9783839460399
ISSN of series: 2569-2240
eISSN of series: 2702-8984

Printed on permanent acid-free text paper.

Contents

Acknowledgments 7

Introduction 9
The Structure of the Work 16

Chapter 1 – Rethinking Interactive Practices as Cultural Artifacts 19
1.1 The Importance of Context 20
1.2 Interactive Practices as Cultural Artifacts. How to Examine Context 24
1.3 Urgent (Inter)action. Contributing to the Study of Interactive Practices about Migration 27
1.4 Scholarship on Interactive Documentaries and New Documentary Ecologies 29
1.5 The Corpus of Interactive Practices about Migration: Viewing from *Within* and Viewing from *Above* 39
1.6 Software Studies and the Challenge of Preserving Interactives 44
1.7 Why do Interactive Practices about Migration Matter? 48

Chapter 2 - (Digital) Outcast 51
2.1 The Economics of Interactive Practices 53
2.2 When the New Gets Old 63
2.3 Update or Die: Format Wars 67
2.4 Regimes of Obsolescence 78
2.5 Preservation Strategies for Interactives: The Sound and Vision Institute and the National Film Board of Canada 82
2.6 Ephemeral, Displaced, Re-Usable. The Future of Interactive Archives 89

Chapter 3 – A View from Within 97
3.1 Simulating Border Crossings 98
3.2 Rules of the Game 111
3.3 Verfremdungseffekt 116
3.4 Freedom of Choice. Text-Adventures and "Regimes of Circulation" 119
3.5 Witnessing Refugee Camps 129
3.6 Viewing from Within: Simulating Vulnerability, Simulating Borders 138

Chapter 4 – A View from Above 141
4.1 The Visual Display of Migration 142
4.2 Humanitarian Mapping: Data Storytelling with Tableau 157
4.3 Humanitarian Mapping: Mapping Data with Story Maps 161
4.4 Scaling, Simplifying, Governmentalizing. Viewing from Above 176

Chapter 5 – The Promise of Humanitarianism 181
5.1 Call for (Inter)action 182
5.2 Media for Change 188
5.3 Ironic Spectators 191
5.4 From Pity to Irony, to an Ethic of Empathy? 195
5.5 Humanitarianism in Perspective: the "Emergency Imaginary" in Interactive Maps 200
5.6 The Promise behind Humanitarian Logistics and Infrastructures 209

Conclusions 217

Bibliography 227

List of Interactive and Film References* 255

Acknowledgments

This work is the result of over five years of research. It would not have been possible without the support of the Configurations of Film collective at Goethe University, Frankfurt, and the German research foundation (DFG), which financed the project.

I owe a particular debt to my first supervisor, Alexandra Schneider. I wish to thank her for accepting a meeting with me back in 2015, and deciding to support the project. My research has benefited from her invaluable guidance and insightful suggestions. As a scholar and academic, she has been a great source of inspiration, and I owe much to the opportunities she offered me at the University of Mainz in teaching, researching, and organizing academic work. I also offer special thanks to my second supervisor, Sonia Campanini, for her expertise, great support, and engagement with the project. Further, this dissertation has benefitted from the collaborative work, ongoing exchange of ideas, and constructive critiques of all the principal investigators of Configurations of Film. I especially express my gratitude to Vinzenz Hediger, Rembert Hüser, Wanda Strauven, Yvonne Zimmermann, Marc Siegel and Malte Hagener. I am also deeply honored to have had the chance to work closely in Frankfurt with scholars such as Philipp Keidl, Laliv Melamed, Kalani Michell and Verena Mund. I feel lucky that I had the opportunity to discuss, listen to talks by and share the expertise of the Mercator Fellows Marie Aude Baronian, Zach Blas, Pepita Hesselberth, John Mowitt and Benoit Turquety. I also extend my gratitude to Charles Acland, who supported my research and enabled my visit at Concordia University in Montreal.

Part of the investigation would not have been possible without the helpfulness and insights of the creators, archivists and researchers whom I interviewed, and who were willing to share their expertise, knowledge, and personal stories. I therefore thank Jesse de Vos, Erwin Verbruggen, Laure Siegel, Stephane Becker, David Zurmely, John Domokos, Jimmy Fournier and the National Film Board of Canada. I also offer gratitude to my colleague, Marek Jancovic, and to the associate researchers Iris Fraueneder and Luiza Carolina dos Santos with whom I had the opportunity to share some scholarly time. My highest appreciation goes to the constant support provided by Fabian Wessel, Maren Feller, Agnes Fink and the other student assistants that managed a great deal of administrative labor while I was working on my research. My writing has also benefitted greatly from the work of editor Edmund Stenson. I thank him for making my work more accessible and clear. For the cover of this book I want to thank my friend and wonderful map maker Ale.

It has been without a doubt the greatest pleasure to spend time and work with my colleagues Rebecca Boguska, Marie Sophie Beckmann, Rebecca Puchta, Marin Reljic, Philipp Röding and Guilherme da Silva Machado. I am also sincerely grateful for all the productive discussions I had with my colleagues and friends from the Gorizia Spring School's Post-Cinema section: Ludovica Fales, Federico Giordano, Alberto Brodesco, Ivan Girina and Berenike Jung.

I especially loved sharing my office space and my time with best office mates Karin Fleck, Andrea Polywka, Antoine Prevost Balga and Alexander Stark. Thank you for all the support—as well as the fun—I deeply enjoyed it.

Finally, I am extremely glad that during all these years I received the encouragement and love of my family in Italy and Germany. To Armin and Benazir, I am forever indebted: your support has been unwavering, grazie di cuore.

Introduction

In 2014, the Franco-German broadcaster ARTE was about to release online one of its first newsgames, *Refugees* (2014).[1] ARTE reporters and game developers created the newsgame format, which mixes journalistic reportage and audiovisual interviews with a rewards-based game structure in which users undertake a specific mission and make decisions. The game, published episodically, gave users the opportunity to become an ARTE reporter and travel to three different locations in Iraq, Nepal and Lebanon, and explore life in a refugee camp. It included a map that was discovered by watching interviews that the game designers had previously conducted in the camps. The game gave users a specific time frame—five hours in the game, and thirty minutes in real life—in which to collect information requested by their chief editor on the life of refugees in the camp; in short, the user had to collect enough (pre-recorded) video material to be able to release a report and publish a multimedia story, which they could also share on social media. As it turned out, after the release of the first episode, set in the Iraqi Kawergosk camp, the game failed to keep the audience engaged long enough to reach the end. ARTE decided to cut the length of the following episodes, so as to sustain the audience's interest and interaction with the game. The project was nevertheless one of the first examples

1 Newsgames are a genre of computer games that sit at the intersection of videogames and journalism. This is because they not only provide a journalist/reporter's perspective, but also factual information via gameplay (Bogost, Ferrari and Schweizer 2010).

of a mixture between computer game features—a point-and-click adventure, where graphic symbols on a photo/video background tell the user where to click—and audiovisual material typical of a reportage.[2] Financed in 2013 for a period of three years, the game required the work of journalists and video reporters, as well as web and game developers. In 2018, *Refugees* was placed offline because its maintenance would require additional funding.

In this dissertation, I explore what I call "Interactive Practices about Migration." This includes practices that combine documentary material with game features, and practices that make use of interactive maps and data visualization. All of the above share a web-based circulation, similar formats, and interactive features. Media objects like *Refugees*, referred to by some scholars and practitioners as "interactive documentaries," or "i-docs" (or "webdocs," initially, in France), were made to attract younger audiences that had turned away from traditional media such as television broadcasts, newspapers and film, towards web-based media. Such terms highlight a connection with a documentary film tradition that goes back to Grierson, and his concept of documentary. This scholarly tradition (Rotha [2011]1936) understands documentary as essentially an art form: it was born with directors such as Robert Flaherty and possesses a specific narrative structure and film form. The use of terms like "webdocs" or "i-docs" would then continue this tradition by augmenting the traditional documentary form with different interactive strategies. Interactivity enables users, producers, and creators to collaborate, to "co-create" (Wiehl 2016) or to simply shape the narrative in a non-linear way. Such productions form part of so-called "participatory culture" (Jenkins 2006). According to Jenkins, the benefit of participation is that instead of merely consuming media, users have the chance to create content themselves. Indeed, in interactive documentaries, participation is celebrated as a way of stepping outside a "passive" form of viewing (O'Flynn 2012). Interactive practices

2 Point-and-click refers to those early videogames in which, using a cursor, a user could literally point at an object and click on it. *The Secret of Monkey Island* (1990) is a famous example of this genre.

about migration use different formats and a range of narrative styles and game structures. They are part of a media production which is made specifically for web circulation by broadcasters, institutions and independent creators. The corpus of interactive practices I have chosen does not respond either to the film art tradition or canon to which documentary theorists like Rotha and Grierson refer. Instead, these media objects invoke a different nonfiction production, which began in the early days of film (Bottomore 2001). This research adopts a different approach towards non-fiction production, then, which goes beyond the established canon, and instead looks at non-theatrical and non-"artistic" forms. Here I am indebted to the work of Yvonne Zimmermann (2011) on Swiss industrial documentary film production and Alexandra Schneider (2004) on home movies.

When I first discovered *Refugees*, I was keen to understand how the Internet was changing the media landscape, but I was mostly surprised by how difficult it was to combine interactive features from computer games with serious topics. Interactive practices, then, posed a challenge: how do you study a media object that is at the same time a website—or that circulates on the web—a documentary, a journalistic reportage, and a game, which combines both fiction and non-fiction elements? How do you study a then-undefined genre that is undergoing continuous change? How do you look at these practices through the lens of migration?

Up to now, the study of interactive documentaries has focused on attempts to redefine the documentary film genre in a changing landscape of media production. Scholars have sought to define and re-define *what is* or *what is not* an interactive documentary, emerging practice, or webdoc, etc. What is clear is that the industry beyond these practices, mostly broadcasters and legacy media, is in a continuous process of redefinition. Indeed, public broadcasters and television channels in recent decades have ceded their power to on-demand video providers such as Netflix, Amazon Prime, as well as other news providers. Since the early 2000s, they have had to redefine themselves—something they also did when facing their first private competition—and win back the part of their audience that went online. Part of the scholarship around

these practices welcomes this ongoing experimentation; for instance, the MIT Lab has, since its beginnings, been interested in developing new technologies more than creating an established standard (Uricchio, Wolozin, Bui, Tortum and Flynn 2016).

In this work, I view interactive practices about migration not as an established form but as something in constant mutation. I choose the term "interactive practices" precisely because I do not consider media merely as material objects, but rather as "cultural artifacts." In this sense, I argue, interactive practices must be studied by looking both at their materiality and appearance, as well as the dynamic context of their circulation and production—that is, the infrastructures that enable them to circulate. As media that circulate on the web, for instance, they have to follow technological changes, and consequently, must adjust quickly. When, in 2019, I introduced *Prison Valley* (2010) in class, a webdoc that was not even ten years old, a student remarked that it looked "not yet so old to be interesting, and not new enough to be cool." Interactives like *Prison Valley* produced in 2010 were mostly browser-based and often developed with Adobe Flash—a now-deprecated software format unsupported since the end of 2020. Producers not only struggle to create something new, but they have to work hard to keep these media accessible in the decades following their release. Interactive practices, then, tell us a story of the media that are rapidly fading away. While longing for innovation, these media condemn themselves to vulnerability and risk swift obsolescence.

But this is not the only problem that interactive practices face. Interactivity as a technological promise is often tied up with a form of political agency, which aims to make a social impact or provoke change. Indeed, some interactives are marketed based on new features of immersion, interactivity and participation, as "media for change". This distinguishing feature not only challenges traditional storytelling methods, then, but also implicates the user in a political world not so different from their own. In the newsgame *Refugees*, for example, we are confronted with decisions we have to make. The question "would you like to help this person or not?" is not only a way to decide where to go next in order to progress in the game—it is also an ethical matter. Deciding

to help a refugee does not stay within the "magic circle" of the game (Huizinga [1938] 1950), but it is a choice that reflects our own position in the real world. In this sense, interactive practices such as *Refugees* subtly suggest that we are doing something about a real situation. And yet, it is just a game.

Some people find the novelty of the interactive format exciting and promising; others reject the possibility of mixing entertainment with a serious and urgent matter. We are therefore inclined to ask if these media have an impact. Of course, such an impact is not measurable. But interactive practices about migration, I argue, might contribute in different and unexpected ways to the social construction of refugees and migrants. These media objects participate in building a relationship that overcomes the distance between those that are suffering—the "vulnerables"—and those that might help them, or the "*non*-vulnerables." That is, interactives not only tell stories about migrants and refugees, but they also address and build *our* (as viewers and players) relationship with *them*. In other words, they produce a certain idea of solidarity by simulating a close relationship between *us* and *them*. In this way, they build a specific humanitarian imaginary. In so doing, they construct a notion of solidarity that reinforces the idea of migrants and refugees as vulnerable others. Moreover, they suggest that migration is an urgent problem that needs to be solved, while hinting that there are political motivations behind the way Europe and the West frame migrants and refugees as a global emergency.

In this dissertation's case studies, the question of migration engages with interactivity's technological features to produce a "crisis" which asks European and Western citizens: what can we do? This "humanitarian impulse" transforms, I argue, into two specific "scopic regimes" (Rangan 2017; Metz 1975; Jay 1988). Here I inherit Martin Jay's notion of "scopic regimes"; this refers to certain modalities of viewing which produce a visual model of how to understand the world. However, my distinguishing two visual regimes does not mean that I emphasize visual sensory apparatus over other forms of perception. Instead, this is simply a tool, which allows me to deal heuristically with multiple ways of constructing a vantage point. Indeed, these views position users as sub-

jects within a broader humanitarian discourse: as the non-vulnerables opposed to the vulnerable others. These scopic regimes mobilize users though a form of "mediated humanitarian affect" (Ross 2020), mixing the visual with digital interactivity. I ask how these specific configurations of stories, aesthetics and media experiences engage with and participate in a larger discourse about migration. What knowledge about migrants and refugees do they produce?

One view involves our need to get closer, to step into the role of someone else, and travel somewhere else. The other view alerts us to the urgency of the situation and of its scale. One tells us to be empathetic. The other suggests that we are in the midst of a "crisis" which affects hundreds, thousands—even millions—of people. Both encourage us to act immediately, so as to help solve a global "crisis." That said, most of the geopolitical decisions made in response to the perceived migration crisis, have "been less about rescuing the migrant in peril, and more about rescuing the idea of Europe from this same migrant, about restoring a vision of territorial governance and administrative right-headedness that had been imperiled by the arrival of the migrant to European shores." (Lynes, Morgenstern and Paul 2020, 28)

Migration, then, is understood in this work as human movement caused by economic, political, social or environmental factors. It is notable only because the current global political situation, distinguishes, on a geographical level, nations and states, and the people that traverse them. Migration confirms a world made of physical and political borders, which, as Mezzadra and Neilson argue, "far from serving merely to block or obstruct global passages of people, money or objects, have become central devices for their articulation." (2013, ix) Viewing the world from this perspective helps us to see humanitarian infrastructures, and how humanitarian discourse itself reinforces a specific visual regime, which offers not an objective point of view, but merely an empowered standpoint. So while interactive media address us with questions of solidarity and calls for action, images of migrants have contributed to a climate of hate and distrust, and helped foment political changes that are turning Europe into even more of a fortress. As Mezzadra notes, "the discourse surrounding the 'migrant' (or 'refugee') crisis dramati-

cally shifted the responsibility toward a threat coming from the outside of a supposedly stable and ordered European space." (2020, 12) And indeed, in 2020, data about refugee arrivals suggests that after the events of 2015, Europe militarized its external borders via different political actions—its agreement with Turkey and Frontex's border management, for example—while the number of asylum seekers plummeted (UNCHR 2020d). We might then ask if these practices concern migrants and a "migration crisis," or, as Thomas Nail instead provocatively suggests, a crisis of Europe—or perhaps the entire Western world and humanitarianism itself (2020).

My approach, although grounded in film and media studies, adopts and develops other standpoints from interactive documentary studies, games studies, and software studies. My discussion of interactive maps, in particular, draws from the field of critical cartography and focuses on questions of visual design and data visualization. With regards to materiality or media infrastructure, beyond or behind the case studies, I refer to format studies and critical media and software studies, as well as to media economics. Part of this work is combined with an investigation into the production of such practices: that is, I have interviewed makers and producers at ARTE, *The Guardian*, but also independent contractors, that were open to discussing their reasons for working on interactives. These interviews are "corings" and were undertaken before proper "excavation work." I also questioned archivists at different institutions. I visited the Sound and Vision Institute in May 2018 and I spent a few weeks in September 2019 at Concordia University in Montreal, where I was able to visit the National Film Board of Canada to interview engineers and software developers. My research includes therefore interviews I conducted in person, over Skype or via email.

This dissertation's methodology is also the product of many trials and failures. It has featured at conferences on interactive practices (such as I-DOCS 2016), on media and migration (in Prague), and in other academic contexts. But mostly, it is the result of the ongoing discussions around media and film with which I have engaged as part of the "Configurations of Film" research collective at Goethe University in Frankfurt.

This work is dedicated to interactive practices that produce a specific media ecology. I argue that studying the latter through the lens of migration helps us to think about media in a broader sense. In the following chapters, I will address interactive practices as "interactives" when I refer to their belonging to a certain media production, and as "media objects" when I regard them merely from a materialist perspective, as goods that circulate and have a specific form or format. When I refer to the corpus of media objects analyzed in this work, I use the term "interactive practices" so as to address their process-based nature.

The Structure of the Work

This work is composed of five chapters, an introduction and a conclusion. The first chapter, "Rethinking Interactive Practices as Cultural Artifacts," delineates the methodological approach and provides an overview of previous scholarship. The chapter discusses interactive practices as "cultural artifacts" and suggests approaching them as if they were archaeological artifacts. This methodology analyzes interactive practices as "media objects" (thus material objects) within a broader dynamic context, and focuses on their "framing."

The chapter outlines the issues that interactive practices about migration give rise to, and provides a summary of previous discussions in media archaeology, film studies, game studies, critical cartography, format theory, etc.

The second chapter, "(Digital) Outcast," focuses on the materiality of interactive practices and views them as goods in a specific market: the Internet. It discusses media economics, and how interactives are framed within established economic and material infrastructures. With contributions from format studies and software and platform studies, the chapter explores the digital format interactives use, and how they are economically determined. The analysis is supported by several interviews with makers and archivists, and it highlights the vulnerability of interactive practices and their complex process of preservation. This, in turn, suggests a way of re-conceiving the archive today.

The third chapter, "A View from Within," outlines the first of two "scopic regimes" that define interactive practices (Jay 1988). It is thus dedicated to practices that place the viewer or user in the role of a migrant or witness to the processes of human migration and humanitarian aid. These practices promise to bring you closer to the condition of refugees and migrants, by either virtually living their journey or travelling through a refugee camp. They consist of serious games, text-adventures, newsgames and interactive documentaries. The chapter explores the game structures of some case studies and argues that they simulate the functioning of border regimes, thus replicating pre-existing political structures rather than critiquing and offering a revolutionary—although admittedly utopian—alternative.

The fourth chapter, "A View from Above," analyzes the second scopic regime, which is a distant and empowered view. It investigates the interactive maps that show "trajectories" of migration or migrant data over time. These maps make use of data visualizations and interactive features to present migration from an unspecified point of view, and do not ask the user to step into a role but instead offer a global perspective. The chapter not only explores the implication of using maps and data following design rules, but also investigates which specific software(s) and viewing infrastructures are used to produce and create new forms of interactive storytelling about migration. This points to a new form of seeing, which integrates "operational images" into storytelling (Farocki 2003).

The final chapter, "The Promise of Humanitarianism," reworks the key findings of the previous two chapters in order to analyze and contextualize the production of interactive practices about migration within certain humanitarian discursive and material infrastructures. I argue that the views embedded in interactive practices about migration suggest and support a humanitarian view of refugees and migrants. Moreover, this view contributes to a certain political representation of "vulnerables," and thus helps to define a world divided between those that are vulnerable and those, like us, which are empowered and "non-vulnerable."

I am not interested in offering a definition of interactive practices about migration, their real-life success or failure, or their veracity vis-à-vis real life stories. Instead, this work focuses on specific media productions in a situated historical moment. It asks: why were interactive practices about migration developed and produced in this specific moment? What do they tell us about our film and media culture and how we, as humans, relate to and communicate the topic of migration?

Chapter 1 – Rethinking Interactive Practices as Cultural Artifacts

This introductory chapter outlines this dissertation's object of study—interactive practices about migration—and proposes a specific methodological approach. I suggest studying interactive practices as "cultural artifacts." This methodology encourages us to see how the archaeological work of excavating a site might be helpful in rethinking how we analyze and understand the media ecology of interactive practices about migration. In contrast to traditional media archeological approaches, I do not engage with the materiality of what is discontinuous, and perform a Foucauldian operation of finding ruptures within taken-for-granted, "progressive" narratives about media history. I am not trying to find the new in the old by studying early cinema nonfiction practices; nevertheless, media archeologists' previous findings already tell us that interactive practices concerning migration are not a completely new form. After delineating my methodology, I will provide an overview of current scholarship, which focuses on interactive practices such as interactive documentary (i-docs), webdocs, serious games and newsgames, and interactive maps and data visualizations. More specifically, I will engage with those thinkers that first identified practices at the intersection of new media, games and documentary practice.

1.1 The Importance of Context

Artifacts, explain archaeologists, are "humanly made or modified portable objects" (Renfrew and Bahn 2004, 53). When we analyze these artifacts using the methods of classical archaeology, our engagement with the physical object itself—such as a piece of pottery—is just one part of our work. That is, "ecofacts" like soil composition, its layering (the archaeological record) and the discovery of any other biological remnants and traces, are as important to the process as the recovery of pottery, stones, or other building materials.[1] While focus is placed heavily upon artistic or physically valuable findings—such as coins, statues, jewelry, documents, etc.—archaeologists also make use of cameras, GPS systems, and physical and chemical analysis methods and tools to understand context.[2] And the meaning of this context has been central to the development of archaeology.

In Italy, the discipline, which was initially a branch of philology, and later developed in art historical institutes, found new terrain in the 1970s, when a number of young archaeologists began to develop new methodologies. Andrea Carandini, for example, was the first[3] to work on and study context. He did not discard any artifact or finding, but instead focused on what was found "under, in front, behind or around the

1 Colin Renfrew and Paul Bahn in their manual about Archaeology explain that "the work of Grahame Clark and other pioneers of the ecological approach has demonstrated [that] there is a whole category of non-artifactual organic and environmental remains, sometimes called ´ecofacts´- that can be equally revealing about many aspects of past human activity." (2004, 53)

2 The context is understood as a composition of matrix (the material which encloses the "artifact"), the provenience (how the finding is positioned in the matrix) and the association with other findings. (Renfrew and Bahn 2004).

3 Here I refer to the Italian´s academic scene. Carandini was a pupil of Ranuccio Bianchi Bandinelli at the Università la Sapienza in Rome. Together, they proposed excavating and studying materials discarded by conventional scholarship. They were inspired by neighboring disciplines studying protohistory and from other scholars working in the British context. Carandini talks about his experiences in a book entitled *La forza del contesto* (2017).

artifact." (Carandini 2017, Premessa, my translation) The discipline was further broadened by the adoption of other methodologies, like typology, stratigraphy, and topography. Archaeologists began to understand that they had to apply a different analytical process to each finding, and the artifact itself determined this choice. In so doing, they used their material findings as the basis with which to reconstruct the dynamics of a site[4].

As others have pointed out, traditional archaeological methodologies are useful to the study of film and media.[5] For example, in a recent volume on media archaeology published in Italy, Diego Cavallotti and Simone Dotto argue that both media archaeology and classical archaeology share an interest in the everyday use of media/artifacts (2019). They trace back the use and meaning of an "archaeology" of media by redrawing Thomas Elsaesser's position, and distinguish efforts in scholarship to excavate media masterpieces from the past that have been forgotten or left unseen, and the intention to bring to light whatever is emerging from the "dust". They discuss Carandini's archaeological methodology and argue that an excavation of the past must begin by acknowledging that "each finding has its own materiality" (2019, 33, my translation). This operation, argue Cavallotti and Dotto, suggests that no media should be discarded. In this way, their understanding of media archaeology is less Foucauldian than it is classical. This means performing an archaeology which aims to understand the cultural ecology of a past culture, its material conditions, and the relationships between productive processes and a habitat (ibid). The authors foreground the materiality of media, and view it as a way of:

4 In anthropology around the same time Clifford Geertz would also popularize a similar approach for research using the concept of "thick description." ([1973]2008)

5 See, for example, *Media Archaelogies* (2017), in which Piccini collects essays by both media archaeologists (such as Wolfgang Ernst, Jussi Parikka, and Wintrhoup-Young) and classical archaeologists, in order to compare their practice of study and object analysis.

> renewing media history, focusing on technical/technological materiality issues, the materiality of conditions of production and consumption, and the materiality of the media environments where interactions between agents take place. (Cavallotti and Dotto, 2019, 36, my translation)

Their work privileges the materiality of culture, and moves further toward a broader understanding of the "…ecology of a past culture" (ibid., 34). In sum, taking their cues from classical archaeology, the authors call for the integration of an ecological perspective into the study of media, that combines cultural artifacts—an object's material production—with the broader conditions of and different processes within a habitat.

Similarly, other scholarship in film and media studies has looked beyond the aesthetic value of a media object, and instead considering its use, as well as the context in which it is found (Hediger 2005). As Vinzenz Hediger and Patrick Vonderau argue, industrial films, for example:

> …cannot be divorced from the conditions of their production and the contexts of their use. Far from constituting self-sufficient entities for aesthetic analysis, industrial and utility films have to be understood in terms of their specific, usually organizational, purpose, and in the very context of power and organizational practice in which they appear. (Hediger and Vonderau 2009, 10)

If we consider a media object as a cultural artifact—that is, a product of cultural and material production—and thus as simply one discourse among many, it follows that we should, paraphrasing Carandini, look at what is "around, above and in front of it." (2017, Premessa, my translation) In short, an archaeological excavation combines different forms of analysis in order to compare an artifact with other findings and other excavations of historical sites. This, in turn, provides the archaeologist with a map of what the economy, the aesthetics, the culture and the social formations of a place looked like at the time. Over the last few years at the University of Mainz, and in the research group Configura-

tions of Film at the Goethe University of Frankfurt, I have integrated different approaches and methods. The attempt is to go beyond the notions of canon, index and *dispositif*, and instead focus on configurations that do not fall into the trap of dichotomies, such as quality vs. amateur, or artistic vs. commercial. In a similar manner to the work of archaeologists like Carandini, this approach not only opens up new fields of research, but also offers the possibility of new and more tailored methodologies, specific to the research objects in question. Works like *Useful cinema* (2011), or, in its German iteration, *Gebrauchsfilme* (Hediger 2005; Schneider 2004; Zimmermann 2011) overcome these binaries and concentrate on the context of production rather than simply the object and its aesthetic value. They argue that the role of institutions in generating discourses and other forms of knowledge circulation, the study of formats, and the role of media infrastructures are fundamental to understanding media. In my view, interactive practices are part of a habitat, as the media "archaeo-ecological" perspective of Cavallotti and Dotto suggests (2019). In short, my purpose here is not to show the value of a singular media object, but to uncover how these same objects frame social, cultural and economic practices and form a complex media ecology.

My work, then, which is reminiscent of an archaeological excavation, is not limited to past media cultures. I will show that such analysis can be performed on contemporary and recent media ecologies, such as interactive practices concerning migration. In this work I look at a contemporary cultural production that is in a state of continuous redefinition, and is in danger of becoming obsolete. This production is not artistic in nature: it does not aim to revisit the old[6], but rather to be "useful" in its production of a certain discourse about migration.

If archaeologists are concerned with "processes that determine, over long periods of time, what is left and what is gone forever." (Renfrew and Bahn 2004, 53) then my objects of study are also fragments of the processes that determine what, even over short periods of time, are likely to disappear forever. In my work, I am not only interested in the aesthetic

6 as Erki Huhthamo (1995) does in "Resurrecting the Technological Past."

value of what is left behind—the domain, typically, of art historians and philologists—but also in the use and materiality of everyday media—especially that which is outside of the canon and/or what is about to be discarded. Although I will focus on very recent cultural products, interactive practices are, by virtue of their design, ephemeral, and caught in a cycle of transformation and decay. Consequently, we can view them as evidence of a historical and cultural process.

1.2 Interactive Practices as Cultural Artifacts. How to Examine Context

In the field of media studies, the use of the term "cultural artifact" is not new. For example, Jonathan Sterne, in his study of the audio format mp3 as a "cultural artifact," argues that an "mp3 is a crystallized set of social and material relations." (Sterne 2006, 826). When we look at interactive practices from the perspective of their materiality as software, an attention to format-specificity is also useful. These standards are often the result of economic, institutional, and technological relations. Therefore, in order to understand interactive practices as cultural artifacts, I will study them as both material and technological artifacts. This means not only viewing them as media objects, but also as part of a broader media ecology. In other words: "context."

In this vein, the school of cultural analysis looks at cultural artifacts as products of a complex process. As Mieke Bal argues "cultural production is a process" which includes "cultural artifacts" as its resulting products (2013, 8). Bal further notes that the question of context is often invoked in the study of cultural artifacts. She thinks in terms of "framing." (2013) She writes:

> Context is primarily a noun that refers to something static. It is a 'thing,' a collection of data whose factuality is no longer in doubt once its sources are deemed reliable. 'Data' means 'given,' as if context brings its own meanings. The need to interpret these data, mostly only acknowledged once the need arises, is too easily overlooked. The act of

> framing, however, produces an *event*. This verb form, as important as the noun that indicates its product, is primarily an *activity*. Hence, it is performed by an agent who is responsible, accountable, for his or her acts. […] 'framing' as a verb form points to process. (ibid. 6)

The school of cultural analysis teaches us that, if we wish to understand the complex process of cultural production, we must start with the object. However, I want to argue that we might persist with the concept of "context." Archaeologists know that what they are looking at in their layers of excavations is not a static context, but a dynamic and temporary coagulation of events. Correspondingly, when we study contemporary media ecologies, our understanding of context itself is a dynamic process. That is, if I want to study interactive practices as cultural artifacts, it is imperative that I consider how they frame and how they are framed by different discourses and material and social infrastructures.

Media ecology is also concerned with the notions of context and infrastructure. This perspective, whose origins date back to the work of Harold Innis and Marshall McLuhan, argues that we need to study media as systems. For example, Innis uncovered the role of communication in the development of empires and societies (1951). "Context" from this viewpoint, then, indicates a set of relationships and infrastructures, and a dynamic system in which media objects form only one part (Granata 2015). I concur with John Durham Peters' analysis of media, which emphasizes habitats: "Media are our infrastructures of being, the habitats and materials through which we act and are." (2015a, 15)

To understand this system—or "context"—it is therefore crucial to investigate the deeper or hidden dynamics of a media object's circulation, as well as the economic discourses and structures that surround it. This is not simply a question of format and software, then, but also the discursive infrastructures in which media objects are embedded. As Parks and Starosielski point out: "media infrastructures are material forms as well as discursive constructions. They are owned by public entities and private companies and are the products of design schemes, reg-

ulatory policies, collective imaginaries, and repetitive use" (Parks and Starosielski 2015, 5).

To study interactive practices about migration as cultural artifacts means viewing them both as media objects but also as part of a larger context and broader media ecology. Indeed, when studying interactive practices about migration, we need to question the consequences of using a specific technology—and how that affects circulation and access—as well as understand how this broader ecology is shaped and made part of a larger humanitarian infrastructure. This is why the study of infrastructures is useful in understanding cultural artifacts in their dynamic context.

Durham Peters terms this "infrastructuralism," (2015a, 30) and defines infrastructures as being both "hard and soft." (Ibid. 32) He goes on to explain: "dams and websites, highways and protocols are equally infrastructural. There can be lightweight and portable as well as heavy and fixed infrastructures." (Ibid.) Adopting this view, this dissertation not only looks at visible and hard infrastructures, like those created by humanitarian aid, but also micro-infrastructures such as format, and the material structures of interactive practices. I also want to look at invisibly connected infrastructures, which can also be described as a "discursive formation[s]." (Foucault 1972) Indeed, studying interactive practices about migration also means analyzing the "infrastructures of humanitarianism." That is, I am interested in the way interactive practices supports and frames humanitarianism as a discursive formation.

Here, an archaeological analogy can help articulate the structure of this project. It will look at a dynamic system—the media ecology of interactive practices about migration—through an in-depth analysis of its elements (the cultural artifacts) and the ways in which they interact. I will first adopt a "morphological" approach, and study the artifacts' individual appearance, form and technology. However, before proceeding to a deeper excavation, I must "core" into the material site. That is to say: I interview makers, creators, developers and archivists, in order to receive insider insight that might help me to excavate further, and to prepare appropriate methodological approaches. This interdis-

ciplinary methodology is a response to the sheer formal variety of interactive practices.

I will not construct a linear history of what has emerged, then, but a snapshot of what is constantly emerging. Aside from the different forms these practices take—whether that is a graphical interface, viewing mode or software—all of them can be understood as elements within a system, that cross institutional bridges and unify diverse producers and creators such as legacy media, TV broadcasters, independent artists or media companies, universities, and international governmental, or non-profit organizations. Media, as Peters suggests, shape us as we shape them:

> The crossroads of humans and things defines the domain of media studies. We are conditioned by conditions we condition. We, the created creators, shape tools that shape us. We live by our crafts and conditions. It is hard to look them in the face. In the grandest view, media studies is a general meditation on conditions. (Peters 2015a, 51)

When we view interactive practices about migration as cultural artifacts, we might first ask what is at stake when the humanitarian impulse intersects with interactivity? What does it tell us about the way humanitarian discourse marks social and cultural processes? How is a cultural artifact like an interactive practice about migration framed by institutional and technological infrastructures, and how does it frame other discourses?

1.3 Urgent (Inter)action. Contributing to the Study of Interactive Practices about Migration

In my research, I argue that these practices produce a media ecology which shares a "humanitarian goal." This goal is inherited from certain documentary filmmaking traditions; more specifically, Grierson's belief in the educational power of documentary, (over and above any aesthetic and creative potential). As Pooja Rangan highlights:

> "Grierson's prescription of these priorities as ideals for the emerging genre of documentary can be read as an impulse toward humanitarian media intervention at a moment of disillusionment regarding the integrity of global democratic structures: as Brian Winston notes, the 'suffering humanity' of 'social victims' is the most powerful legacy of the Griersonian school." (2017, 3)

Rangan explores what she calls the "humanitarian impulse" (ibid.) in documentary practices, specifically in participatory films, which claim to give voice to the most vulnerable among us. She argues that saving the lives of suffering individuals is the "raison d'être" for this form of documentary production. She goes on to explore how the question of vulnerability is made "urgent" or "immediate" in such media practices. Indeed, they produce an imaginary of emergency: "*Emergency thinking* institutes a humanitarian order of priorities in which saving endangered human lives takes precedence over all other considerations, including the aesthetics and politics of representation." (Ibid)[7]

The media objects that I will analyze have been released by UN agencies; non-profit organizations; public, private or independent broadcasters; artists, and independent companies. Some invite you to play the role of a journalist or a migrant, while others allow you to virtually "visit" a refugee camp. Some are structured by an unconventional viewing logic that requires an "active" user, while others use non-linear storytelling techniques and interactive visualizations of data sets. Creativity is medium-specific, but it is only a means to a larger end. The novelty of the interactive features represents a technological promise that bridges a gap in distance—or visibility. The projects share a humanitarian purpose, and an understanding of interactivity as "action-oriented."[8]

Interactive practices about migration demonstrate an ambivalent attitude towards their subjects. On the one hand, these media objects

---

7 She refers here to both Calhoun and Scarry's ethical imaginaries of "emergency thinking." See Scarry (2011), and Calhoun (2008).

8 Rangan discusses Grierson's "humanitarian mission." (Ibid. 3)

offer a positive view of migrants and refugees, and emphasize their subjects' vulnerability, and the urgent need to do something about their situation. They address viewers as potential decision makers—that is, people that might make a difference or at least offer solidarity. However, at the same time, they reproduce a humanitarian discourse which sharply distinguishes between those who govern and those that can be governed. In other words: humanitarianism is another iteration of governmental rationality.

In order to effectively analyze interactive practices about migration, I aim to answer the question that Pooja Rangan poses about participatory documentary. Namely, I must interrogate: "what aesthetic, formal and narrative tropes are invented to generate sensations of temporal urgency and direct spatial presence?" (ibid. 4)

By analyzing interactives through the topic of migration from an epistemological perspective, I seek to provide an answer to Rangan's question. The interactive practices analyzed not only demonstrate a constant tension or bias in their communication of solidarity, but they also underline other trends in contemporary discourses concerning migration.

1.4 Scholarship on Interactive Documentaries and New Documentary Ecologies

Scholarship on so-called interactive documentaries and, more recently, on new documentary ecologies, originated in debates on "participatory culture" in the late 2000s (Jenkins 2008). In the early 2000s, faced with the popularity of YouTube and other Web 2.0 platforms, legacy media began to realize how important it was to reach customers that had stopped watching television or buying newspapers and instead sat in front of their PCs.[9] The Web 2.0 or "participatory Web" marked a historical shift, offering users the opportunity for direct participation via the World Wide Web. It provided two basic things:

9 For more information on Web 2.0, see Blank and Reisdorf (2012).

> There is the structure, provided by the platform, and there is the network effect, which emerges if large numbers of people find the platform valuable. Combined they create new content and much more, including new forms of user engagement, communication, and information gathering. (Blank and Reisdorf 2012, 5)

Witnessing the "network effect" in action, legacy media turned to the Web in search of audiences. For example, in 2007, German broadcaster ARTE released its first on-demand video service, and in 2008 produced the first example of a "webdoc"—a French term that mixes the words "web" and "doc" to describe a short web-based "documentary." (ARTE 2018, 43) This webdoc, released in weekly episodes, was called *Gaza/Sderot* (2008). The film made use of a split screen aesthetic to portray two sides of a story concerning Palestine and Israel. On the left side of the screen, we see interviews from people living in Gaza, and on the right side those from Sderot. The interviews provided a human insight into border stories. On the upper part of the ARTE webpage the user could switch to three other views: one featured a satellite image which pinpointed every interview location on a map; a second featured pictures of all the people interviewed; and a third used tags to direct the audience to specific themes brought up the interviews. This film represented one of the first popular iterations of the webdoc or interactive documentary.[10]

At the same time, a community of practitioners and scholars emerged in some documentary festivals such as IDFA (the International Documentary Festival in Amsterdam). These figures organized the first conference dedicated to the webdoc, which they included in the umbrella term "i-doc," or interactive documentary. As Judith Aston

10 There is no consensus about what was the first webdoc. Prior to this example, other Adobe Flash games were very popular. Further, some define interactive documentary not exclusively as a web-based media object. This means that we can find other examples even prior to or coterminous with the advent of the Internet. Herrero and Gifreu-Castells see the MIT project "Aspen Movie Map"—funded by ARPA in 1978—as one of the first examples of interactive documentaries (2019).

and Sandra Gaudenzi explained in an article that appeared in the 2012 issue of *Documentary Film*, the organizers of the first i-docs conference at the University of Bristol (Gaudenzi and Aston were among them) had already been working and meeting to discuss some emergent forms of digital documentary that emphasized user participation and interaction (Aston and Gaudenzi 2012, 128).[11]

Several i-docs conference participants contributed to the same 2012 *Documentary Film* publication, like Siobhan O'Flynn. She defined i-docs as media objects that are "often designed as databases of content fragments, often on the web, though not always, wherein unique interfaces structure the modes of interaction that allow audiences to play with documentary content" (O'Flynn, 142). She further argues that what distinguishes online documentaries is their "openness," compared to traditional documentaries which she defines as "presented in the final edit as a static closed artefact" (ibid. 149). I-docs, she argues, "can be open in form and practice, extending across multiple platforms, as expanding, interactive, porous and participatory databases." (Ibid.)

Aston and Gaudenzi pushed for a clear definition, and considered interactive documentaries to be "any project that starts with an intention to document the 'real' and that uses digital interactive technology to realize this intention" (2012, 125). Interactivity is, from their perspective, central to these media, and is defined as "a means through which the viewer is positioned within the artefact itself, demanding him, or her, to play an active role in the negotiation of the 'reality' being conveyed through the i-doc" (ibid. 126). As the authors clarify, they first met in 2009 in London at the Documentary Now! Conference. There, they found common ground because they had both worked in the field of interactive documentaries and noted that "over the previous two years there had been a real explosion of productions in the field (…) These were big projects produced for mainstream audiences leading to our conclusion that i-docs were no longer a niche form." (Ibid. 128)[12]

11 For instance, through the social network "meet up."

12 They mention projects by ARTE and the NFB: *Prison Valley* (2010) and Caterine Cizek's *Highrise* (2008-2015).

Scholars and practitioners involved in the i-docs community[13] borrowed some terms from hypertext studies, and "ergodic literature" or "cybertext" studies (Aarseth 1994) to point out that interactive documentaries were a form of non-linear narrative. The concept of non-linearity in i-docs (Aston and Gaudenzi 2012; O´Flynn 2012; Gifreu-Castells 2014) means that the story is not simply experienced as a linear plot progression from a start point to an end point, but it requires the viewer to interact with the digital environment in order to experience the story—literally to "click." Non-linearity, explains Aarseth (a literary theorist interested in Hypertext), belongs to the kind of literary texts that evolve not through a linear path but instead present "forking paths" or "a text which has no fixed sequence" (2003, 767). This means that the text is made of different blocks (which Aarseth calls "textons") and the reader chooses how to build his/her own narrative.

Gaudenzi, who had previously worked as a British TV broadcaster, was completing a PhD Thesis about i-docs at the time. Together with Aston, she published a taxonomy of interactive documentaries by looking back at Espen Aarseth's user functions in "cybertexts" (Aarseth 1994; 2003) and combining them with Bill Nichols' modes of representation (2001). According to the two authors, the four categories, or "modes of interaction," are the *conversational*, the *hypertext*, the *participative*, and the *experiential* (Aston and Gaudenzi 2012; Gaudenzi 2013). These categories are based on the user's agency. In other words, on what the user is able to do in the digital environment. This taxonomy follows others proposed by scholars from Spain (Gifreu-Castells 2011) and France (Broudoux 2011). Nevertheless, as Aston and Gaudenzi explain, one of the reasons they attempted to develop a taxonomy was to try to define i-docs or webdocs as a *genre* (2012, 133). Moreover, they hoped it would give it the status and authority necessary to build a business model (O'Flynn 2012, 151).

The scholars and practitioners who took part in the first i-docs symposia met not only to define a genre but also with the intention of re-

13 A website was created in order to connect every scholar involved, and publish articles on the topic. See http://i-docs.org/.

thinking nonfiction storytelling through interactivity. (Interactive) storytelling is a keyword often used for understanding i-docs from a narrative perspective. Storytelling alone defines not the story itself or the plot, but the process of its telling (Brownwen 2016). Interactive storytelling suggests that the reader's—or viewer's—active engagement defines the way we tell a story. As aforementioned, in "non-linear" texts, the construction of the sequences of the narration is not fixed, but is controlled to a certain extent by the user. William Uricchio, researcher and principal investigator at the Open Doc Lab at MIT in Boston,[14] argues that: "rather than thinking of narrative as an overarching structure of the entire experience (whether Aristotle's or Freytag's 'beginning, middle, and end'), it can instead be understood as the building blocks of an experience, each with its own cycle of 'exposition, transformation, and resolution'." (2019, 81)

Uricchio's belief is that technological changes and developments can offer more insightful ways of understanding and re-telling reality. He takes as one of these first visual laboratories and examples the so-called *actualités*. After that, he continues, Cinema Verité and Direct Cinema made use of new technologies—such as lightweight cameras—to experiment with new perspectives, in the process developing cinematic language that both fiction and non-fiction filmmakers have borrowed. A change, highlights Uricchio, is taking place (again):

> The documentary, long underappreciated for its transformational impact on film form, is again offering new ways of representing and intervening in the world. Only this time, rather than simply using new techniques to represent social change, the documentary form is itself the subject of social and technological change." (Ibid. 73)

14 This lab is specifically devoted to the experimentation and study of documentary forms through the use of new and innovative technologies. They state: "Drawing on MIT's legacy of media innovation and its deep commitment to open and accessible information, the MIT Open Documentary Lab brings storytellers, technologists, and scholars together to explore new documentary forms with a particular focus on collaborative, interactive, and immersive storytelling." (MIT Open Documentary Lab n.d.)

New techniques of composition offered by i-docs aka interactive documentaries thus challenge the traditional narrative form. Janet Murray has argued that narrating a story on a computer device means designing it using a procedural method (Murray 1997; 2011). That is how narrative becomes not only an "overarching structure" that should be followed, but, following Uricchio, an amalgam of "building blocks of an experience" (2019, 81). Murray proposed a vision for the future of narration in her seminal work *Hamlet on the Holodeck* (1997). In it, she compares what she calls the "computer medium" to film, and attempts to rethink, from the perspective of a storyteller, what features this might entail: "it is important first to identify the essential properties of digital environments, that is, the qualities comparable to the variability of the lens, the movability of the camera, and the editability of the film, that will determine the distinctive power and form of a mature electronic narrative art." (Murray 1997, 70)

One of the features Murray discusses is "procedurality," or the ability to express meaning through rules. Rules are, in this case, related to the way interactive media are being coded. Coding entails a set of procedures. The other essential properties of digital environments are the participatory, the spatial and the encyclopaedic (ibid. 72).[15] Narrative in computational objects offers users not only to follow a singular arc, but opens the possibility to negotiating its progress. By offering users a certain level of agency in the development of the story—or paraphrasing Uricchio, in choosing which building blocks to use to construct the narrative—interactive documentaries challenge (like other nonlinear texts) another notion of documentary filmmaking: that of the author. Authorship is not fixed, but can be negotiated. Siobhan O'Flynn reconsiders the documentary form in the light of i-docs and other interactive nonfiction, and argues that they borrow from web 2.0 the potential to empower audiences: "as networked communities who can intervene, cri-

15 If procedurality (meaning making through rules) and participatory features (the ability to interact with content) can make an environment interactive, the encyclopaedic (the possibility of unending information) and spatial (the ability to navigate a space) can create immersive stories. (Murray 1997, 91-94)

tique and occasionally mobilize in response to the calls of action embedded in documentary´s re-representation of real-world crises." (2012, 148)

Sandra Gaudenzi, in contrast, argues that for i-docs there might simply be a different expression of authorship. In other words, the director or creator becomes a "facilitator." (Gaudenzi 2014, 141) It is not clear if Gaudenzi ignores the debate on the death of the author[16] on purpose, but there is nonetheless validity to her argument. Leaving aside the implication that the viewer is a passive subject, what Gaudenzi aimed to do was providing useful categories for working filmmakers. The scholarship behind i-docs is, in fact, often practice-based, and the need to provide categories and to talk about modes or forms of negotiating authorship is directly addressed to filmmakers and creators—especially those that wish to engage the audience with interactive elements in their work.

But if we take into account the fact that meaning is constructed by readers, viewers, users or spectators, does this mean that i-docs simply materialize this process of negotiation? What if the films' non-linear storytelling is merely evidence that linear narration is not the norm, but is instead just an option? This is one reason why i-docs and interactive practices represent interesting objects of study. But this is not the only reason. Indeed, a problem that Aston and Gaudenzi address was also what to expect from the documentaries in the future. They also foreground other long-held assumptions, "blurring prior divisions between fiction and non-fiction, text and paratext, director and audience," as O'Flynn explains (143).

These assumptions though might as well be discarded by looking at the past. Other scholars, in their research into earlier media cultures, have also highlighted similarly complicated discourses on narrative. William Uricchio, in a project collaboration between MIT and

16 Roland Barthes first brought this to light in his essay, (Barthes 1967) but others have discussed the meaning of the author, for instance Foucault has written about authoriality in terms of discursive practices, arguing that the author might be seen as a function (See Foucault 1969).

IDFA Doclab, developed "Moments of Innovations," a participatory website that connects new interactive projects with their "ancestors," looking as far back as the prehistoric Age.[17] Early cinema, or the "cinema of attractions" (Gunning 1990) represents a similar visual laboratory in which experimentation with narrative, format and aesthetics, was the real standard. Uricchio, for instance, investigates VR stereoscopic vision and spectacle in early cinematic experiments with panoramas (2011). Contemporary technologies such as (digital) virtual reality applications and visors designed specifically for VR experiences are therefore not part of a new impulse, but of a historically situated practice. These past media cultures shows how contemporary interactive practices might be part of a specific moment of media-technological redefinition.

Constant technological change challenges scholars' definition of i-docs as a new genre of interactive nonfiction storytelling. If in 2012 i-docs still sought a PC-desktop distribution, the progressive shift to new and mobile formats encouraged some scholars to adopt software scholar Matthew Fuller's contention that we should look at these practices as "a dynamic system," (Fuller 2006), in "which the parts are multiply connected and interdependent" (Nash, Hight & Summerhayes 2014, 2). In other words, despite the efforts of several scholars to categorize interactive documentaries, Nash, Hight and Summerhayes argue—and I agree—that a totalizing vision is simply not possible due to "the sheer diversity and rapid rate of change" (2014, 3). Nevertheless, this effort was useful in creating not only new scholarship about this "undefinable" genre, but also in rethinking previous traditions in documentary film and more broadly in the "creative treatment of actuality" (Grierson 1946, 147). I-docs and other interactive practices once again challenged certain assumptions around media knowledge, especially those concerning linearity in storytelling and authorship. Patricia Zimmermann, a scholar who has worked on documentary film, home movies and amateur films, has also recently explored the "openness" of the documentary form on the web. She calls for a media ecological perspective in order to understand how the "creative treatment of actuality" (1946,

17 For more details: https://momentsofinnovation.mit.edu/.

147) is being negotiated. She argues that: "documentary cannot be reduced to one form or a set of practices. Rather, it may be more productively thought of as a continually evolving constellation of practices across many different technologies that investigate, engage, and interrogate the historical world." (Zimmermann 2019, 1)

In other publications, Zimmermann suggests looking at documentary today not as a "monoculture," but rather as a "heterogeneous documentary ecology" (2019, Introduction). She attempts to situate documentary within this ecology of different practices such as algorithms, media, archives, video art, gaming, user-generated projects, etc. She also sees it as an evolving and dynamic ecology which is entangled with different contexts of production, circulation and social relationships (ibid). In order to study this ecology effectively, she suggests reverse engineering each media object with the purpose of "identifying the components and interrelationships of [its] system" (ibid). What is notable about the practices she analyzes is the potential they have to invert established historiographies, to dismantle and refuse them, and to mobilize in their place new imaginaries (ibid).

This political potential is most visible in the democratic openness of interactive documentaries framed as "participatory" practices. Aston and Gaudenzi also refer to this potential when they write: "i-docs that follow a hypertext, a participative, an experiential or a conversational logic will vary in terms of their look and feel, but also in terms of their political impact." (2012, 135)[18]

18 That being said, two years after the first i-doc conference, in 2014, Kate Nash—also part of the Bristol research group—writes again about interactivity and argues that "there is no necessary connection between interactivity and audience empowerment" (2014, 53), although producers and makers often celebrate interactives, especially Virtual Reality and 360° videos, as a potential vehicles for change.

In another recent publication Zimmermann, together with the i-docs community, argues for the i-doc's potential "polyphony," (2018) using Mikhail Bakhtin as a theoretical crux.[19] She writes:[20]

> Polyphony derives from Baroque music: it designates the layering of melodies to produce new sounds and new relationships. New media documentary moves from the monophonic of one voice and one argument toward the polyphonic of many voices, many strategies, many technologies, many interfaces, and many iterations. Like Baroque musical forms, polyphonic new media strategies are generative. (Zimmermann 2018, 9)

Zimmermann, Aston and Odorico embrace this notion of polyphony and propose a model for i-docs that emphasizes a plurality of voices and media strategies, which might, in turn, "dismantle monumental national master narratives and instead configure an open multivocal mosaic generated from the dialogic." (2018, 14) In a similar vein, Amir Husak considers i-docs as tool for activism. Discussing certain examples, Husak argues that "these new technologies, dominated by immediacy and accessibility, are particularly suitable for projects that aspire to mobilize for action, engage with communities and challenge central power structures" (Aston and Odorico 2018, 3). But he acknowledges that in order to mobilize for action there is still a need for "utopian thinking' " and an "awareness of the paradoxes of new technologies." (Husak 2018, 28-29)

---

19 In the editorial, they explain that Bakhtin has written about the polyphonic and multivocal novel, which, he claims, "is constructed not as the whole of a single consciousness, absorbing other consciousnesses as objects into itself, but as a whole formed by the interaction of several consciousnesses, none of which entirely becomes an object for the other." (Bakhtin quoted in Aston and Odorico 2018, 1)

20 In another contribution Zimmermann talks about polyphony "as elaborated in postmodern and postcolonial historiography as a model structured in heterogeneity" (2017, 57), and "as a strategy to turn historical explanations away from causality, linearity, and unity, elements often linked to hegemonic power which minimizes differences." (2017, 59)

Although these utopian ideals are important for practitioners and makers, they have long been critiqued by those that do not believe in a purely democratic and open use of technologies (such as, for instance, software studies scholars). Further, I would argue—and Zimmermann has discussed the same problem—that this is not a valid approach for every participatory and interactive project.[21] It also depends on who is responsible for the production, how these "polyphonic" voices are implemented, where it circulates and in what way. As aforementioned, scholars such as Pooja Rangan criticize the "immediacy" or urgency of documentary practices. In contrast to this utopian or perhaps even positivistic belief in the use of technology, giving a voice to the vulnerable with the intention of empowering them might also reinforce the power structures that polyphonic strategies wish to dismantle. The question is to first identify and distinguish the structures of power (and also the infrastructures) which might be challenged, inverted, demolished—even if in a utopian way. Scholars that believe in the political potential of interactive practices emphasize therefore not the question of interactivity per se, but how we make use of interactivity in order to construct a counter-narrative.

1.5 The Corpus of Interactive Practices about Migration: Viewing from *Within* and Viewing from *Above*

This work analyzes and studies ten to fifteen media objects, which I call "Interactive Practices about Migration." Although I refer to and approach them as a media ecology, I would like to stress that they were not selected because of their artistic value, nor can they be integrated into a "documentary" framework, as is the case with Patricia Zimmermann's conception of the term. Nevertheless, they share with i-docs and

21 She is also aware that the realm of what she calls participatory new media and collaborative documentary is "built on collaboration, collectivity, engagement, politics, and process. And yes – she argues – it is idealized, romanticized, fantasized. " (Zimmermann 2019, Chapter 17)

open new media documentaries a common ground, which is the "creative treatment of actuality." (Grierson 1946, 147) We might also say that they belong to the realm of nonfiction, which means everything that is *not* fiction. Fiction comes from the latin "fictio" and means something that is made up, or constructed (*Lexico*, s.v. "Fiction"). The boundary, however, between fiction and nonfiction is not always clear, so I suggest framing my corpus of case studies as belonging only to a specific topic—that of migration. In this sense, it might be paraphrased as the "creative (and interactive) treatment of migration."

Looking at migration through an epistemic lens, I have chosen several case studies that claim to have a "useful" humanitarian purpose. They share with documentary practices a political urgency and an explicit social aim, but at the same time they are produced by a constellation of actors: public broadcasters, legacy media, independent companies, and UNHCR agencies. Interactive practices about migration are therefore entangled with different media and humanitarian institutions. Channelling Acland and Wasson's definition of useful cinema, these practices also "identify a disposition, an outlook, and an approach toward a medium on the part of institutions and institutional agents." (2011, 4) They can be seen, therefore, as "tool[s] that are useful, tool[s] that make, persuade, instruct, demonstrate, and…[do]…something." (Ibid. 6) It will soon become clear how this constellation of actors contributes to the production of a "scopic regime"—that is, a specific way of viewing migration, from *above* and *within* (Jay 1988). The practices wish to persuade or educate, while promising that they will make an impact. And the promise they carry is a technological and infrastructural one, which has a humanitarian bias. The two chapters titled "Views" are therefore dedicated to a close analysis of case studies, which either put the viewer in the shoes of migrants or refugees, or instead view migration as a historical, global and collective movement.

The first of this two views is what I call "A View from Within." This view addresses our moral sentiments by asking us to step into the shoes of "vulnerable" migrants, or to travel and witness a refugee camp. In chapter 3 I analyze this "View from Within" and study newsgames, serious games, interactive text-adventures. When discussing serious

games, newsgames and interactive practices that make use of certain game structures, I refer to studies about serious games, or persuasive games,[22] docu-games, documentary games or newsgames.[23]

Some game scholars explored the potential of games beyond entertainment. Ian Bogost first used the concept of "persuasive games," to analyze how computer games which deploy what he calls a "procedural rhetoric" might be able to persuade (2007, 28). The term "serious game" dates back to 1970s, when Clark Abt wrote a book about the use of games for training and education. He claims that such games have been produced since the 1950s "to illustrate… scientific research, to train professionals and to broadcast a message." (Abt 1971, 9) Jost Raessens, instead focuses on "documentary computer games or docu-games" using a semio-pragmatical approach borrowed from Roger Odin, and argues that games have both an educative and entertaining purpose (Raessens 2006). He has also written about what he calls "refugee games" (Raessens 2010). Using Lakoff´s idea of "framing." (Lakoff 1980, 2004) he argues that in such games the player activity could be seen as a political metaphor. Further, these simulations present complex issues in a way that may have an "impact on what players know, feel, and do about the issues addressed." (Raessens 2015, 258) Game scholars can be divided between those who approach games from a narrative point of view—with proponents often coming from literary faculties—known as the narratologists, and the ludologists, who study games for the specific structures that belong only to games (*ludus*), and who thus understand games as "simulations" (Frasca 2003). Yet, both believe in a game's potential beyond mere entertainment—that is, it can be a tool with which to discuss cultural and social issues. This potential is at the core of a certain independent production of games. Since 2004 the Games for Change Festival in New York is a venue that brings together game creators, producers and scholars in the name of change. In the "About Us" section of The *Games for Change* festival website, the organizers state: "[we] empower game creators and social innovators to

22 See Bogost (2007).

23 See Bogost, Ferrari and Schweizer (2012).

drive real-world change using games and technology that help people to learn, improve their communities, and contribute to make the world a better place." (Games for Change 2020)

In the name of this perhaps utopian sentiment, games are presented that deal precisely with the topic of migration, some of which will be analyzed more deeply in subsequent chapters. Here, the claims and promises of technology aim to create social impact. Indeed, the festival in recent years has become a place where game scholars discuss the political potential of these specific interactive media.

However, if we regard interactive practices about migration in general as "media for change,"[24] then we have to think precisely about what change they seek to achieve, and question the power structures that make this change possible. Games, like the utopian i-docs envisioned by Zimmermann et al., might possess the same potential to subvert established narratives by encouraging community participation and "inviting strategies of intervention in…power structures" (Zimmermann 2019, Introduction). But if i-docs undermine the author's position by foregrounding participation and enabling production outside conventional media outlets, a different strategy might be needed to implement the same activist agenda when it comes to games. In the case of computer games, for instance, Gonzalo Frasca argues that we should think about them as simulations—that is, not only as media objects of representation, but as media for simulating complex social systems and dynamic experiences (2003). Games, he suggests, can help us to rethink new futures: "simulation is the form of future. It does not deal with what happened or is happening, but with what may happen. Unlike narrative and drama, its essence lays on a basic assumption: change is possible." (Frasca 2003, 233)

We shall see in chapter 3 that serious games, newsgames and other examples of interactive practices I investigate do not always recognize or realize this potential. Frasca views games as works of art, but what

24 See, for instance, the institutions that connect journalists and creators under the banner of "media for change:" For instance: https://mediaforchange.org/, or http://www.media4change.co/.

happens when a humanitarian vision drives the creation of interactive media? Chapter 3 responds to this question.

Chapter 4, in turn, will interrogate those interactive practices that depict migrant trajectories and data about refugees on a global map over time, using interactive maps and data visualizations. Although only a few scholars have explored interactive maps (Adams 2018), the study of maps is part of a long tradition in critical cartography and other disciplines such as STS (Science and technology studies). Bruno Latour has argued that maps, like other inscriptions such as graphs and diagrams, can provide evidence in a "rhetorical or polemical situation" ([1990] 2011, 3) and enable those who own them to gain power over those that do not (ibid). Critical cartography in the 1980s made one important claim: maps are social constructions, and not objective representations of the world (Harley 1988, 1989; Wood 1992; Pickels 1992). In other words, they construct a specific vision over the world. Matthew Edney contends this vision of maps as mere representations by arguing that maps are processes as well. Following Edney, cartographic practice cannot be understood only as a transhistorical empiricist project; instead, different "modes"[25] have contributed to this discipline at different historical moments (2005). He claims that institutions and social organizations influence cartographic practice with their own "world view[s]." (Edney 1993, 2005) Edney, then, analyzes maps as part of a larger network of power relationships, and does so with recourse to Foucauldian terminology. In short, maps are "cultural artifacts." (Cosgrove 2007)

Media theorist Bernhard Siegert views maps as "media that are themselves agents of subject constitution." (2011, 13) From this perspective, maps are "sources of a history of representation and [can]not [be seen]…as representations in a history of intentions and their cultural conditions." (2011, 14) For Siegert, the point is to understand "what techniques of representation were part of power relations, and how the

25 Edney intends modes as a "set of specific relations which determine a particular cartographic practice." These relations are "cultural, social and technological." These relations govern a certain "production of space" in a historical moment (2005, 54-68).

very concept of the territory is related to those techniques and those power relations." (2011, 15) Map making is therefore a cultural practice that produces a territory as a political reality (ibid).

In the Chapter "A View from Above" I will explore how maps as interactive practices, combined with data visualizations, are produced through the use of satellites, software, etc. I wish to understand how interactive maps and data visualizations are entangled with the topic of migration, and how the kind of knowledge they produce depends on infrastructure and institutions. But also, in the name of the urgency of the "humanitarian impulse," I analyze how maps and data about migrants and refugees on a global scale become a humanitarian storytelling device (Rangan 2017). What happens when interactive maps pretend to show the "flow of migration?" What does it mean to see through a map? What does it mean to animate and collect data to produce maps of migration? Relying on literature from critical cartography, data visualization theory and design, chapter 4 investigates how migration intersects with this apparently empowered form of viewing.

1.6 Software Studies and the Challenge of Preserving Interactives

Studying interactive practices about migration means studying web-based software. Consequently, it also means examining how software is produced, circulated, and accessed on the web. Some idealize The World Wide Web as an open, de-territorialized space where communication is free. Nevertheless, despite its democratic-utopian origins, the Internet has undergone a process of privatization. The field of software studies has helped to uncover and problematize this process. We only need to think of the most popular Internet browsers—which belong to Google, Mozilla (which is not only a foundation but a corporation), Microsoft, and Apple. They dominate access to the World Wide Web (al-

though there are alternatives, such as the Tor browser).[26] As Wendy Hui Kyong Chun notes in her analysis of new media, Peter Steiner's famous comic strip, in which a dog surfs the Internet while claiming that "on the Internet, nobody knows you are a dog" is no longer true (2016). What has stayed constant is the Internet's open architecture, or material infrastructure, which was developed by Robert Elliot Kahn with a view to creating a packet radio system network called "Internetting." (Leiner et al. [1997] 2017, 5) This system used certain protocols to maintain more effective communication. Indeed, the TCP/IP architecture remains foundational to the Internet infrastructure that we know today: "a key concept of the Internet is that it was not designed for just one application, but as a general infrastructure on which new applications could be conceived, as illustrated later by the emergence of the World Wide Web. It is the general purpose nature of the service provided by TCP and IP that makes this possible." (Leiner et al. [1997] 2017, 7)

Critical software studies narrate the brief history of Internet infrastructure in a less promising and utopian way. On the one hand, visionaries, who hoped to share and democratize knowledge, were responsible for early projects. On the other, the protocols they created—as Alexander Galloway has stressed—may come to define new structures of political control (2003). Galloway redraws Deleuze's theory of the "societies of control." (Deleuze 1992) which, following Foucault, claimed that 17-20th century disciplinary societies are being replaced by control societies, where the performance of power is enacted not in enclosed spaces but in constantly mutating ones. According to Deleuze, the corporation has supplanted the factory as the prototypical enclosed space. For Galloway,[27] this movement towards a control society is defined by

26 The Tor browser is a portal to the so-called deep web, or dark web—the last communication tool where you can still be anonymous.

27 This "protocological control" (Galloway 2003, 8) is a combination of two different machines: the TCP/IP protocol, which allows a peer-to-peer non-hierarchical communication, and DNS, which is a decentralized hierarchical technology. DNS, for instance, translates a domain into an IP address using a top down process.

the invention of computer-mediated communication, which, since the 1980s, was not only sold to corporations, companies and research centers but also to regular consumers (2003).

The advent of the personal computer and the Internet is a moment where power becomes decentralized, but control still exists. Since Galloway (2003) wrote his critique of protocols, we have entered a new era of mobile communication. But the protocol system is still at work. New kinds of machines are being developed, such as API, or application programming interfaces.[28] Many interactive practices about migration use API, from Google, Facebook, etc. But even open web APIs, which allow anyone to forego code writing and embed an additional feature such as a map in a web page for "free," facilitate an exchange of data between a webpage visitor and the owner of the API (Galloway 2013). [29]

Complicated power relations like the above demonstrate that the Internet is more than simply a democratic equalizer. Correspondingly, despite the polyphonic promise of i-docs and web-based interactive practices, these media are embedded in infrastructures of power and control. This is why scholars such as Patricia Zimmerman are aware that what they are calling for is utopian, and perhaps, ultimately, out of reach. I think that any scholarship about interactive practices needs to look at media infrastructures critically. Media objects such as interactive documentaries or webdocs, docugames, and newsgames form an "ecology of emerging practices," that cannot be framed or enclosed in a single definite digital format (Nash, Hight, & Summerhayes 2014). Because interactive practices are software, access can only be granted via a certain standard/format. The question of format, which I will explore

28 I will discuss API in chapter 2.

29 Galloway is very critical of "open-source" code: "when Google or Facebook 'open-sources' resource x, it provides an API or 'Application Programming Interface' granting managed access to x. Let us not be fooled: open source does not mean the unvarnished truth, but rather a specific communicative artifice like any other. And in this sense one should never celebrate a piece of source code, open or closed, as a bona fide original text." (Galloway 2013, 9)

in chapter 2, is therefore fundamental. Formats, claim Jancovic, Volmar, Schneider: "can hence be regarded as specific sets of designed and negotiated features and functions that determine the aesthetic configurations of a medium, produce and reflect diverse relations of cooperation, and refer to different domains of application and models of monetization." (2019, 7)

Pioneering new formats often means breaking with established standards, while others become digital outcast in the chapter "(Digital) Outcast" I will study the use of Adobe Flash by interactive practices and its progressive deprecation. The change in formats and circulation is also the symptom of a redefinition of institutions involved in this specific media production. Stauff and Keilbach have described how television today rearticulates certain dynamics that were already at work in the era of network broadcasting (2011). They argue that "change" and "transformation" are specific features of how TV broadcasts operate. Broadcast and other producers of interactive practices, while opting for innovation become victims of technological media warfare. To keep interactive media circulating means to keep them accessible. Interactive practices highlight the tension between the new and the old, and the necessity to update and "to remain the same." (Chun 2016)

This exemplifies an important challenge against digital obsolescence. Interactive practices represent therefore a conundrum when it comes to archiving and preservation. Some institutions are starting to work towards a resolution, in order to preserve a part of web production which is otherwise destined to vanish or to be stored as mere "source code." In 2016, the IDFA Doclab invited a group of experts from different international institutions to discuss the problem[30] (Verbruggen 2017). In 2017 they co-organized a conference at the Phi

30 Following Verbruggen, he explains: "We asked these archivists, curators, publishers, developers, professors and producers to look at three specific cases. The goal being to lay out the options that exist for keeping this creation alive for the future and come up with a clear-cut project plan." (2017)

Centre in Montreal called "Update or Die."[31] In chapter 2, I will more thoroughly explore how certain institutions such as the Sound and Vision Institute in Hilversum and the National Film Board of Canada are trying to preserve web-based interactives for future generations. This chapter looks at the materiality of these media objects and their "vulnerability." By looking at their economic and software infrastructures, I seek to understand the effects of this complex network of discursive and material infrastructures on practices of archiving today. How can we look towards the future of interactive practices? What can they tell us about reshaping the way we preserve and constitute media as memory?

1.7 Why do Interactive Practices about Migration Matter?

As I have already outlined, this work is structured like an excavation. That is, I understand interactive practices to be "cultural artifacts." This selection of nonfiction media objects contributes to broadening the scholarship of documentary film studies. It does not aim to continue the tradition of documentary film as art, but instead goes beyond the canon by looking at examples which are "useful" productions. It thus inherits different scholarly traditions, such as those accounts of industrial non-fiction film history labelled "Gebrauchsfilme", such as Yvonne Zimmermann's work on Swiss industrial film production (2011). This chapter has thus offered a methodology for the analysis of what I call "interactive practices about migration." I prefer to use this term precisely, in order to broaden my approach and create a heuristic vantage point: to look at these practices as media objects that form part of a broader media ecology, and to understand their systems of production and circulation. I do all this before categorization, and before discarding the finding, and thus pay attention to what is under,

31 This dissertation also faces this issue, and suggests that there needs to be a crucial bond between media practices, their formats, economic models of production, the preservation process and memory itself.

in front, and behind it. We have to understand how they are affected by migration and humanitarian infrastructures that often determine their existence. If media studies is, as Durham Peters argues, "the crossroads of humans and things" (2015a, 51) and "a general meditation on conditions," (ibid., 51) then this work reflects on the conditions of interactive practices about migration.

The title of this work points to the "migratory" dynamics at stake: on the one hand the nonfiction media production's shift to web-based circulation, and on the other, the topic of human migration. This strategy of choosing migration as the subject with which to frame my corpus allows me to define the site and thus the limits of my excavation. As its title suggests—this dissertation is interested in mobility. this accelerated—and yet for some, decelerated—movement is part of what we might call globalization. This is a world where a new condition of mobility affects not only goods, but also, and especially, people. It is also a world where speed affects humans and things unevenly. In this world of "liquid modernity" some people "move and act faster, those who come nearest to the momentariness, are now the people who rule" (Bauman 2013, 119). Whereas others are "forced" to take a long, risky journey to reach a space where they might be given a decent life, or they are doomed not to move at all. Zygmunt Bauman compares refugees, displaced people and other "homines sacri," (Agamben 1997) to the "waste of globalization." (Bauman 2004, 58) And if refugees may remain forever in this unfortunate position, media and other goods that fail to circulate can become waste or return to source code, or might be discarded if there are no preservation practices in place.

This work will thus focus on the context in which interactive practices about migration were made, in order to understand how they define and are defined by certain infrastructures and discursive formations. This "excavation" represents my own method of preservation. The "morphological" analysis of the case studies adds detailed descriptions, as they represent a form of documentation. And indeed, some of the examples cited are already inaccessible. Let's dig in!

Chapter 2 - (Digital) Outcast

In this chapter I will focus on the micro-infrastructures that allow interactive practices to circulate. I will start by excavating the economic infrastructure in which these practices are found. When we deal with interactive practices, we deal with computational objects, software and formats. As an end product, they are enclosed media objects with a specific format that might be embedded on a platform (such as a file extension) in order to circulate. But they are first computed, developed through a programming language, and may even be encoded before being displayed on a web browser.

Interactive practices are cultural artifacts coded for distribution, and are consequently bound to a format. This format has both aesthetic and economic implications. Format, according to Jonathan Sterne, means focusing "on the stu beneath, beyond, and behind the boxes our media come in." (2012, 11) As he goes on to note: "studying formats highlights smaller registers like software, operating standards, and codes, as well as larger registers like infrastructures, international corporate consortia, and whole technical systems." (Ibid.)

These practices are distributed over the web for free. To what extent are these practices economically determined by the dynamics of software production? Why are they being produced and distributed, if they require high level development efforts but are then freely distributed on the web? *Cui prodest*?

If media production is an exchange of information goods, interactive practices might then be regarded as commodities. Archaeologists

like Colin Renfrew[1] have shown that, historically, commodities mark fundamental shifts in social life. Renfrew's analysis also shows that technological innovation is influenced as much by social and political factors as it is by purely technical ones (Appadurai 2013, 40). If we understand interactive practices as media commodities, we might then frame them as goods within an economic discourse, caught in a network of distribution, production and circulation. We need thus to look at some of the structures and infrastructures that are behind but yet follow part of an economically determined discourse.

What kind of value do these media practices hold in an economic scenario that requires them to be new and useful? The discourse around interactives such as i-docs and similar projects invokes "innovation," "emergent practices," "new media," and "change." Consequently, this means we must focus on the question of novelty and innovation, which has often been a prerequisite to the production of interactives. What does it mean to create something new and what are the consequences of such features? The novelty of interactive practices, once they began to be developed in the early 2000s, refers to their technical specificity (their invisible infrastructure), their appearance (the interface, or the browser display), but also their distribution (ARTE's website). IDFA (International Documentary Film Festival of Amsterdam) explains as much on its website when it equates interactive documentary production with "documentary storytelling in the age of the interface."[2] Investigating software means considering not only the visible part of its interface but also the invisible infrastructure as part of its materiality.

---

1 Appadurai discusses Renfrew's work in his seminal book The Social Life of Things: Commodities in Cultural Perspective (1986). Appadurai also argues that things have a social life as "objects of economic value" (2013, 9); in other words, they are commodities.

2 If we look back at how the IDFA Doclab dedicated to interactive practices talked about the subject, we see that that they emphasize "newness." For instance, they refer to some interactives as "an interactive French web documentary," "new forms of documentary storytelling," "interactive documentaries and other new digital artforms that successfully push the boundaries of documentary storytelling in the age of the interface." (IDFA 2020)

The first part of this chapter will therefore focus on the economics of interactives and questions of production and distribution. I use an interdisciplinary approach to study interactive practices, combining media economics, software studies, format studies and archive studies. Indeed, innovation as a market-driven strategy in software has an inevitable consequence: obsolescence. This, of course, becomes a problem when dealing with media productions, because it threatens the preservation process. To ground my investigation, I will turn to research I conducted directly at archives and institutions. The "coring" of my excavation work took place during two visits to major Institutions in the Netherlands and in Montreal in 2018 and 2019: The Sound and Vision Institute and at the National Film Board of Canada, respectively. There, I had the chance to talk to archivists, software engineers and developers who are working on the preservation of interactive practices. Some interviews with web journalists and developers at ARTE and legacy media institutions such as *The Guardian* were conducted via email or Skype. It is clear that the way institutions deal with the problem of preserving interactives sheds light on the future of archiving practices in a digital and globalized world, where media circulate almost invisibly.

2.1 The Economics of Interactive Practices

In 1999, Roger Silverstone opened the first issue of the journal *New Media and Society* by asking other scholars what was new about new media. Responses discussed which characteristics made the Internet, in comparison to broadcast media such as radio and TV, a different or "new" medium. Authors agreed that "new media, indeed, affect and involve us fully as social and political as well as economic beings." (Silverstone 1999, 3) Twenty years later, I am viewing this "new" economic realm though the lens of interactive practices. In this part of the chapter, I will analyze interactive practices as cultural or information goods in a market. In other words, as valuable objects in an exchange between consumers (users) and producers. The aim is to understand the conditions of production, distribution and consumption of these objects.

To fully understand the economic value of such practices, it is therefore necessary to understand the broader field of media economics. It is interesting to note that the interactive practices that are the object of this research are available online for free. Their purpose is not revenue generation through on-demand fees or advertising.

Interactives are often described as "emerging practices." (Nash, Hight and Summerhayes 2014) This sheds light on one of their supposedly distinguishing features: a new and contemporary form, which opposes a traditional or dominant one. At least, this is the image of "emergent" cultural forms we have inherited from Raymond William's definition of the term (1980). However, when scholars refers to "emerging practices" in relation to interactive documentaries or i-docs, they are instead referring to an "emergent technology," (Nash, Hight, and Summerhayes 2014) which has nothing to do with a Marxist process of social transformation. Their idea of emergence pairs more with the idea of novelty, which is a central concept in the field of media economics. Media producer of such practices, then, do share a common goal: the "creation of novelty." (Hutter 2006, my translation)

The potential of something new, says Michael Hutter—a media economist—can attract the curiosity of a potential consumer (2006). And an information good's raw material (the information) can be used many times to create novelty. For instance, video material used in a documentary can be repurposed to create reportage, or to create newspaper stills.[3] When we think about the use of archival or historical footage, the dynamics are the same: turn something old into some new "thing." The so-called "Spirale der Neuheit," (2006) or "novelty loop," is an unending process in the media industries that enables the constant creation of new products.

Another key element of information goods is that they are "non-rivalrous" and "non-excludable." (Doyle 2013; Quiggin 2013) In other

3 An interesting example is The New York Times and NFB coproduction *A Short History of the Highrise* (2014), directed by Katerina Cizek. The interactive documentary uses many stills from the photo archive of The New York Times.

words, they can be consumed infinitely by everybody.[4] For instance, marginal costs—the cost of producing, say, copies of a DVD for distribution—are very low, and that allows for an almost unending cycle of circulation and distribution. But if a physical object like a DVD still faces some marginal costs, on the Internet the costs of a digital copy—the downloading of a video file—drops to nothing. If we regard the Internet, then, as "the" market, what are the consequences for interactive practices distributed online?

In the game industry, there is something similar: free online games. Of course, the aim of these games is ultimately revenue generation: particularly eager consumers can purchase in-game items, props, additional characters, etc.[5] This kind of revenue profits from the fact that the games in question are first distributed on the Internet. In fact, a product that is shared in a network benefits from so-called "network externalities:"

> In a network with n-members, there are n (n-1) possible connections with all existing members of the network, but also creates an addi-

4 Information, argues Quiggin, is a "public good". A public good is defined as "non-rivalrous" and "non-excludable." The former refers to consumption of "one doesn't affect its availability for others" (2013, 90). The latter means that the availability for some users does not preclude its consumption by others.

5 According to Lin and Sun: "Free game players can purchase game points at convenience stores, video game retail stores, bookstores, net café's, and other real-world outlets and use them (or cash) to purchase props from game Web sites, telecommunication sites, or portal sites. Players can also use cash or points to purchase items from virtual shopping malls via game interfaces. Purchasable items belong to two categories: (a) functional or instrumental props that increase the offensive or defensive power of characters and their pets (e.g., increase character vehicle speed, double or triple experience accumulation speed, repair weapons, or retain experience value upon a character's death) or (b) decorative or expressive props for altering character or pet appearances and for enhancing social or communication tools that allow players to broadcast accusations, love proclamations, or congratulations to each other". (2011, 271)

> tional connection available to each other user. It is this latter effect that creates the externality. (Quiggin 2013, 95)[6]

In other words, every user that is drawn to a platform by a media object they consume engages other network externalities and thus increases the potential that the audience will grow.[7] Information is of course subject to proprietary rights, but the absence of "explicit" charges opens the door to other types of revenue—which usually takes the form of advertisements. In the case of publicly-funded broadcasters—some of the examples analyzed here come from ARTE and BBC—revenues are largely the result of audience share—itself generated via externalities.[8] The same goes for private broadcasters and international agencies such as the UNHCR, which rely on private international funding or government funding.

The Internet can be regarded as the market for interactive practices. Paolo Cellini, former manager of Disney's Strategy and Business Development, views the Internet as a digital media market. In a recent book, he argues that some basic features of the Internet encourage or foster the sharing of information, and thus of information goods: "the basic concept of its economic contribution is actually very simple: the Internet facilitates fast and inexpensive sharing of information. This leads to an increase in information efficiency, which promotes the creation of products and services based on the sharing of information." (Cellini 2015, 15)

To better understand how the Internet as a market works, it is necessary to first understand its attributes. The Internet can be regarded as a market platform that, due to its pervasiveness (or dissemination), allows users (or consumers) to benefit from network effects. Another

---

6 Hutter also talks about *Netzeffekte* (2006, 41).

7 Following Cellini: multi-sided platforms (such as the Internet) are "market contexts in which two or more customer groups are satisfied and where the customers of at least one group need the customers of the other group for various reasons" (2015, 173).

8 ARTE, for instance, is 95% publically-funded as reported by Ranoivoison, Farchy and Gansemer (2013).

feature and consequence of the network effect is that the cost of access to the Internet is a variable that decreases over time. Costs diminish, innovation improves, bringing with it a continuous increase in connection speed (as Mbps).[9] This is an unending process and virtuous cycle.

Although the Internet relies on physical hardware to run and store information, this process of change is continuous. Since the spread of the World Wide Web as a communication network in the mid-nineties, the Internet has changed from being a desktop platform to mostly a mobile one (in terms of user numbers). The next significant innovation is the so-called "Internet of Things," or Industry 4.0,

> where the lowering of access costs and high bandwidth speed allow the Internet to establish itself as the reference infrastructure for the exchange of information. Not just people, but also sensors, objects and things are connected to the Internet to exchange information. This stage will bring a further explosion of devices connected online and content created, as it will no longer be only humans but also objects that create information. (Cellini 2015, 46)

The interactive practices I analyze are largely made for the Internet as a Social Platform (web 2.0), where the reception of information is bidirectional. And social platforms increase the network effect and thus externalities. In fact, most of the websites use APIs that permit them to embed social network links such as Facebook or Twitter.

Moreover, the Internet as a new media market involves a different set of economic principles from those that define traditional industrial production. In the digital realm, the distribution of new products involves an incredibly marginal cost. For instance, the distribution of a good in the industrial context entails a higher cost than it would in the digital context, since reproduction and distribution costs are very low. Therefore, a shift in demand does not increase the price. If the costs of reproduction for media content producers are already low, distributing content online avoids almost entirely costs of distribution. Such a market enables even very small companies to provide services or content

9 Measured in megabytes per second.

and distribute it online.[10] Nevertheless distribution on the Web means to compete with the visibility of others.

In an economic scenario of corporate giants (with many "slaves") how can a publicly funded broadcaster survive? ARTE, in order to compete with other commercial channels, must brand its content. On its website the company states "[ARTE] conveys its distinctive slant as assertively on air as it does online and is aiming for two goals: harness technology so everyone can enjoy ARTE on any screen any time and stay at the cutting edge of digital creation to reach new audiences and open up a forum for innovation." (ARTE 2017, 68) ARTE's editorial guidelines outline the principles of "loyalty building," "innovation," and "audience expansion." (ARTE 2017, 2) In terms of innovation, they intend to find space to experiment with new formats and original content, maintaining audience loyalty by continuing to offer specific programs or weekly topics. As for audience, it wishes to conquer "new categories of viewers." (ARTE 2017, 2) In short, in the neoliberal marketplace, producers are compelled to innovate in order to maintain funding.

To understand the economic situation of media producers, such as broadcasters and independent production companies and institutions, it is helpful to consider the concept of the "creative industries:"

> The idea of the creative industries seeks to describe the conceptual and practical convergence of the creative arts (individual talent) with Cultural Industries (mass scale), in the context of new media technologies (ICTs) within a new knowledge economy, for the use of newly interactive citizen-consumers. (Hartley 2005, 5)

Creative industries produce cultural and information goods. The value of these goods is largely measured by their originality. This originality,

10 Cellini writes: "In the case of software development, for example, once the software has been developed, the cost of electronic distribution via the Internet is virtually nil. The cost of producing a copy on a media support (CD, DVD) is also negligible. […] Therefore, high fixed costs and low marginal costs are a particular feature of high tech companies." (2015, 170)

or novelty, as Hutter argues, is "the decisive value criteria for the interest of the user." (Hutter 2006, 29, my translation) With novelty, comes a "feeling of surprise [that] may encourage the user to think that he is consuming new information," even if the content may be the same (ibid. 29). Therefore, form or aesthetic is an important aspect of novelty.

With regards to the topic of migration, which has been widely reported on by every mass media outlet, why should the user be interested in consuming it over and over again? Can the story of migration or exile be told "differently"? How might we overcome the "compassion fatigue" (Moeller 2002) of humanitarian discourse? The point and aim of the productions, of course, is to offer users a different perspective through technological innovation. The platform stays the same, but in the case of interactive practices about migration, the storytelling changes. It uses the computer's specificity in every way it can (Murray 1997, 2011): interactivity, a rich media environment, and the illusion of living the same exilic experience from the comfort of one's own home. This shift entails a different production process and a different team of experts.

For example, it is useful to recall an anecdote about the creation of "The Refugee Challenge. Can you break into Fortress Europe?[11]"(2014), an interactive-text adventure made by *The Guardian*, which invites the user to become a Syrian refugee. This text-adventure uses a simple "role-playing game" structure, and has a choice-based narrative. You picture yourself in the role of a refugee on their way to Europe. Every step is represented by a simple question to which there are two answers. For instance, "would you like to reach Europe or just reach Turkey?" Every time you make a decision, you are presented with a new question that allows you to go further or forces you to end your journey, because you made a choice that will not let you carry on.

In an interview, one of the creators explains (Domokos 2016) that the content of the text-adventure was unused material from a previous reportage. The idea of trying to re-shape that content, in order to convey issues about closing migrant routes, led to the creation of *The*

11 I will refer to it simply by its title *The Refugee Challenge*.

Refugee Challenge (2014). The following year, the BBC produced *The Syrian Journey* (2015), another interactive-text adventure on migrant routes, but with additional features and a more complex branching structure. Special teams at *The Guardian* and the BBC created both of these text-adventures: *The Guardian*'s Visual Team (a merger of the Interactive team and Graphic team) and the BBC News Visual Journalism team.[12] In the case of *The Refugee Challenge*[13], the journalist John Domokos collaborated with Sean Clarke to create the game.

Other broadcasters such as ARTE often rely on a team of independent companies to develop interactive content. In 2013, ARTE commissioned and outsourced the development of *Refugees* (2014), a newsgame that explores three different refugee camps, to a small company, Method in the Madness (Becker 2016). The UNHCR also outsources the creation of media content to other companies. For example, the serious game *Against All Odds* (2005) was commissioned by UNHCR Sweden but was outsourced to a local developer's company and latterly translated into different languages.

In 2014, ARTE announced that as a result of technological changes affecting the industry, it would update its mission, with the aim of becoming a "bi-medial"[14] production company (Wiehl 2014, 79). This shift would be reflected on both their cable TV broadcasts and on their website (both mobile and desktop). With particular emphasis on the latter, the company hoped this shift would enrich their content, make use of social networks, and offer services through "innovative technologies." (ARTE 2014) Although this was perhaps just a marketing strategy, the format helped "ARTE's goal to foster its unique selling point – its brand-image as an innovative, transnational, European avant-garde venture." (Wiehl 2014, 83) Providing an additional platform for a TV audience is

12 See Banerjee 2018.

13 As Domokos explained. he did so because he wanted to find a specific format that addressed the various difficulties that several Syrian refugees went through on their journey to Europe (Domokos 2016).

14 Refers to how ARTE had marketed itself as a "100% bi-medial channel" (Wiehl 2014, 79)

a way of introducing novelty,[15] and keeping audiences engaged across platforms. Maintaining an audience and fulfilling its mission is the most important way for a broadcaster like ARTE to generate "revenue" for public broadcasting, and ensure it continues to receive public funding.

If I widen my perspective and look at other case studies, I see that ARTE is not the only broadcaster to act in such a manner. Indeed, other public broadcasters, like the BBC, are also largely publicly funded. A significant portion of my case studies is also non-profit organisations. In the US, the broadcaster PBS[16] is funded both by private institutions and by the governments. It also makes money from advertisements, but the company is officially a non-profit. The same goes for Al-Jazeera and *The Guardian*; the royal family of Qatar own the former, and a trust owns the latter (AlJazeera 2020). Donors such as the government, private organisations and private citizens fund the UNHCR, another international non-profit organisation (UNCHR 2020e). The Canadian government and ad revenue represent the most significant sources of funding for the NFB. Other independent, smaller companies or creators like the Submarine Channel rely on the government, and/or funding from European and national institutions or programs. The same is true for the producers of some interactive maps, like the one by CREATE Lab (see Chapter 4), which is funded by universities, independent companies, and artists in collaboration with the UNHCR. The same goes for maps and data visualizations created through Story Maps[17] and Tableau with UNHCR data. The impetus to make these interactive practices, then, is create cultural and social value instead of profit. They are distributed freely as a commitment to the public (as is the case with public broadcasters), or simply to serve a "useful" (humanitarian) cause.

---

15 Wiehl explains: "If one synchronizes for example one's second screen-device with the broadcast programme, one gets alternative points of view – others than those on the 'regular' television-set screen." (2014, 84)

16 PBS distributed *Undocumented* (2013), a documentary related to serious game *The Migrant Trail* (2014). I will explore this in the chapter "A View from Within."

17 I refer here as well to Chapter 4.

In order to compete in a market where other producers are generating greater profits, publicly funded broadcasters and non-profit organizations need to adhere to their "mission statement" so as to retain funding. With regards to interactive practices about migration, this means ensuring that innovation and the enrichment of and access to content go hand-in-hand (Ranoivoison, Farchy and Gansemer 2013). ARTE was the first channel (in France) to pursue content innovation.[18] Interactive practices thus form part of a strategy of survival, adopted by media producers and broadcasters, in an environment of increased and increasing competition.

By investing in innovation and branding, established legacy media companies and public broadcasters can retain and build their audience. But they also rely more heavily on re-editing and re-using their content in order to create novelty. Indeed, innovation is not simply about creating an entirely new product; it also means monetizing old material, or "raw information goods" as in the previously mentioned "Spiral of Novelty" (Hutter 2006).

According to Bourdon et al., since the 2000s, PBS has faced "competition from powerful global media players, the fragmentation of audiences, and the requirement to transition from a broadcasting mindset to a digital mindset." (Bourdon, Buchman and Kaufman 2019, 1) And to do this, it, like many publicly funded broadcasters, has had to "actively engag[e] audiences." (Ibid) A broadcaster's archives, in this scenario, might be re-used as a "resource to appeal audiences in new ways."(ibid. 2) The same can be said for legacy media groups such *The New York Times*. In an "Innovation Report" from 2014, *The New York Times* argues: "in a digital world, our rich archive offers one of our clearest advantages over

18 In an issue of *Observatorio Journal* about strategies in digital innovation, Ranaivoison, Farchy and Gansemer add that "these well-established channels have positions and images to uphold. However, the arrival of new, free channels has undermined their viewership […] faced with competition from the new DTT channels, illegal downloading, and the announced entry of giants like Apple and Google on the smart TV market, they strike back with innovation." (2013, 32)

new competitors. As of the printing of this report, we have 14,723,933 articles, dating back to 1851 that can be resurfaced in useful or timely ways. But we rarely think to mine our archive, largely because we are so focused on news and new features." (The New York Times 2014, 28)

It is easy to view the production of i-docs—and interactives in general—as public broadcasters' response to a changing media environment, in which audiences are increasingly fragmented. As Sven Stollfuß states, in Germany, for example, social media users have the most impact on television production. That is why broadcasters such as ARD and ZDF merged to create a new network that directly addressed younger audiences as collaborators (Stollfuß 2019). Public broadcasters such as ARTE and the BBC are not the only companies to engage younger audiences in this manner; other media producers, like the UNHCR, Al-Jazeera and even universities, also deploy similar strategies so as to reach new audiences online.

In all these cases, revenue is not the goal; instead, it is the social, cultural and artistic value of the media commodity itself. If externalities derived from the network effect both build and retain an audience, this focus upon audience share allows the producers above to compete with other partners that derive revenues principally from advertising.

2.2 When the New Gets Old

Innovation comes at a price. It not only means producing new content through so-called "residual" or recycled media (Acland 2007); it also entails innovation at the level of media formats, content and access. The latter refers to investment in "emergent practices" not simply with a view to standardization but also customization, which privileges individual user experience. This is another strategy that works especially well in relation to web-based content. Indeed, the ability to use data-gathering technologies such as tracking systems and cookies to monitor user behaviour, allows producers to cater to each user's taste. Part of this strategy is derived from the infrastructure of websites and apps themselves.

In the global neoliberal market, therefore, the future of interactive practices is inextricably linked to technological development, and the way it shapes user experience. Recent developments in the production of interactive practices demonstrate how mobile platforms—smartphones—are preferred to desktop ones (Stollfuß 2019, 2). The current trend is to "go mobile," or to try new forms of engagement. At a 2016 showcase for interactive documentaries and interactive applications at IDFA (International Documentary Film Festival of Amsterdam), most of the new projects were developed for VR apps. Some of the most successful digital businesses have acquired VR and AR technology: Facebook bought Oculus VR, Google created the Daydream headset, and Microsoft released its first AR set in 2016, called the HoloLens.

In the projections for data traffic across devices made by Cisco VNI Global (see graph from Bolsen 2017) they forecasted five years: it projected a significant increase in smartphone and M2M (machine to machine devices, such as the Amazon Echo) use by 2021, while use of PCs will proportionally shrink. What is the other side of the coin when it comes to innovation? The market determines the future of media producers; that is, if the audience goes mobile, media production will follow. This continuous process of change that, on the one hand is driven by technological innovation, and on the other by shifts in the economy, also entails a process of endless obsolescence. As Wendy Chun explains, "to call something new is to ensure that it will one day be old. The slipperiness of new media—the difficulty of engaging it in the present—is also linked to the speed of its dissemination." (2008, 148)

In other words, the speed of change in media production highlights a very real fear of obsolescence. The economic model for the contemporary Creative Industries is one of late capitalism, a consumerist mode of production that, as the sociologist Zygmunt Bauman argues, customizes products and fosters new (unneeded) desires, so as to ensure its own survival as a system. He argues that consumer society aims to perpetuate "non-satisfaction," by devaluing and denigrating products immediately after they reach consumers' hands: "What starts as an effort to satisfy a need must end up as a compulsion or an addiction." (Bauman 2007, 47)

Like material commodities, interactive practices in their constant search for "novelty," also fall into an unending process of disposal; if this obsolescence is not planned, it is at least foreseeable. The discourse around media economics implies that if you fail to innovate, you die—economically speaking, at least. Let us recall *The New York Times*' "Innovation Report." Following a recognition of its rich archive, the newspaper struck in 2017 a tone of warning: "[The New York Times] is uniquely well positioned to take advantage of today's changing media landscape—but also vulnerable to decline if we do not transform ourselves quickly." (Leonardt et al. 2017, n.p.)

To transform, to change, to keep up to date. This neoliberal logic haunts the discourse of innovation strategies that broadcasters and other media producers pursue. When a business model fails, it is time to find a new one. In the case of interactive practices on the Internet, these media objects follow and adapt to their audience's new desires or compulsions, because retaining an audience is the principal way companies maintain funding. Sandra Gaudenzi, part of the group that first coined the word i-docs, warned about the future of interactive practices:

> TVs have seen their budget shrinking (the reason being a mixture of lower advertising revenues and lower audiences due to other forms of online entertainment) and this has had a knock-on effect onto documentary and factual production – interactive docs being positioned as the poor brother of documentaries. Data analytics has told us that more than 50% of video consumption in 2016 was through mobile phones. This means: forget complicated design that would be too fiddly on a small screen, let's concentrate on quick, short forms that we can browse from our thumb." (Gaudenzi 2017)

The model keeps changing and this constant transformation makes these practices, as Chun stresses, "at the bleeding edge of obsolescence." (2016, 1) In other words: the new gets old even more quickly.

The neoliberal—or media—economic logic of a world in which data can flow almost without borders allows media to be reused, in what Michael Hutter calls the "novelty loop." (2006) This repeated use of the

same material—a practice that can also be found in early medieval times—is present in academia, cultural institutions and archives, that are concerned with what John D. Peters ironically calls a "memento mori" (2015b, 87)[19] of postmodern humans. Babette Tischleder and Sarah Wasserman remind us how western culture (and particularly neoliberal economies of free trade) base their economic logic on obsolescence (2015).

Moore's law of digital progress (the number of transistors per square inch on integrated circuits doubles every 18 months) creates the perfect conditions for novelty. For instance, if you want to enjoy a VR application on your Android smartphone, you have to make sure it works on your current operating system environment. If it does not, you will be compelled to update your system, but that might not be enough: perhaps the application runs slowly on your "old" smartphone because of its limited hardware capacity. Consequently, you might choose to buy a new phone with the latest operating system in order to enjoy the "latest" content.[20]

I first heard the word "interactive documentary" in 2011. It was at that point something "unheard of"—indeed, it sounded "new." My interest was piqued because of the concept's novelty and its promise of innovation. In 2018, not even a decade later, Sandra Gaudenzi claimed that there is still no valid business model and that we should forget

19 "Audio-visual and digital hardware are the memento mori for postmodern humans, reminders of what was and is no more. Know thyself: look at dead media. Throwing away old storage media would be like killing the dead." (Peters 2015, 87)

20 "We entrust our lives and our identities to computers, although we all know that the half-life of digital hardware and software is shorter than that of any analog medium that came before. As a comparison, the development of photographic technology from the daguerreotype and plate cameras to light-sensitive film took decades; the formats and designs of digital cameras today change every season. Obsolescence does not just drive the development of new models; it also determines the relations between computers and their periphery." (Tischleder and Wasserman 2015, 7)

about complicated interactive design and focus on easy mobile applications (2017). In the meantime, many interactive practices have been produced, but originality does not seem a reliable indicator of audience development and retention. This may indicate that, despite interactive documentaries' fancy narrative features, traditional or linear storytelling represents a more reliable business model; quoting Gaudenzi again, interactive documentaries might be regarded as the "poor brothers of documentary" (2017). This is perhaps merely an unfortunate definition, but what the development of interactive practices has shown in the last decade is that non-profit productions within the creative industries often rely on the latest technological fads in order to generate audience interest, but, in so doing, condemn their products to swift obsolescence.

2.3 Update or Die: Format Wars

Paraphrasing Chun's book, but also recalling the title of a conference that was held at the Phi Centre in Montreal in 2017, to "update or die" is a phrase media producers must keep in mind when creating interactive (digital) media. What I want to investigate now is the relationship between the rapid obsolescence of interactives and their materiality. In so doing, I hope to discover why their rapid disposal is a foregone conclusion.

If we look back at the history of media and film we can argue that disposal, or better put, "waste disposal," is not new. Amusingly, Daniel Herbert asserts that the media business is directly connected to the waste disposal industry. He recalls the story of Wayne Huizenga, the owner of Blockbuster, who, before pioneering the video rental business, created Waste Management Inc. Herbert argues that these two businesses indeed have something in common:

> the growth of both companies entailed geographic expansion. But again, this similarity between video and garbage could simply result from basic capitalist processes, where in wealth tends to become

> centralized while successful firms expand to new markets and spaces. Yet this geographic expansion suggests a different but related link between Waste Management and Blockbuster—namely, that they were both involved in distribution. (Herbert 2016, 21)

From this premise, Herbert continues his research by interviewing film archivists (from a corporate Hollywood studio) on their roles as "disposal managers" that enact the "garbage logic" of the movie industry. Since the movie industry has shifted to digital, a growing concern today is how to manage (digital) data (2016). Herbert reports that a daily routine in the digital media archives is "figuring out what all the files are, how they relate to each other, and maintaining those relationships […] This means that archivists at this studio, like librarians and archivists at numerous other institutions, have had to become data management experts." (2016, 24)

Interactive practices are an archetypal example of the problem of preservation in the digital age. More specifically, web-based media objects pose a challenge to archivists in terms of the processes of storage, preservation, and selection—precisely because of their continuously changing nature. This "changing nature" is a consequence, too, of their status as software. As Sterne notes, computer hardware and software are designed to be wasted: once a product is released, developers are already working on the next version that would replace it (2007). Interactives distributed on the web are a repository of any kind of file material, or data, around which they have been structured using a specific encoding. This encoding makes their accessibility online possible. But in an environment of ever-changing standards, there is a need to keep things updated, so that media can be accessed through new and diverse platforms or devices. This process of updating is not automatic; it requires maintenance, which comes at a real cost.

One of the first webdocs in Italy was a series of episodes shot in a refugee camp in Abruzzo. There, people who lost their homes during 2008's L'Aquila earthquake were displaced and lived in tents. The director Stefano Strocchi produced a webcast that was aired daily on a dedicated website, and which was later presented at IDFA and broad-

casted on Al-Jazeera. Some of the material later became a documentary feature film, but the webdoc is no longer accessible because the website was put offline many years ago. The same is true of many media I analyze in this dissertation. By seeing what happened to them, we might better understand why they became outcasts.

If you try to access some other webdocs from ARTE's website, you will be surprised. First, depending on the device you use, certain popular webdocs such as *Prison Valley* (2009) are inaccessible, because they do not work on some mobile operating systems. Those systems do not support an Adobe Flash plug in, and the webdoc only works on desktop browsers if you download the plug in. By December 2020 Google Chrome has stop offering the Flash plug in.

Adobe Flash software was widely used to create interactive media objects on the Internet, and many of the serious games I analyze were developed with it, for instance *Against All Odds* (2005) or *The Migrant Trail* (2014). Ironically, I came to know of Flash's importance once it was deprecated ("a discouragement to use a technology").[21] Indeed, once experts began discussing the possibility of an open web standard such as HTML5, "proprietary" software like Adobe Flash fell into disuse.[22] Anastasia Salter and John Murray argue that its deprecation was also part of a format war: "the ubiquity of Flash depended as much on its perception as its technical capabilities. When it worked, it was virtually invisible, showcasing instead the content. But when it became a point of contention between Android and iPhone, between closed technologies

21 As Sterne argues, some formats are noticed in their absence, while others become core parts of the user's experience and therefore noticeable in their absence. In either case, the sensory and functional shape of the format may emerge from the "objective necessities and constraints of data storage" and transmission now of their development, "but they also accrue phenomenological and aesthetic value" as people actually experience them." (2012, 20)

22 However, media formats like Flash, as a recent volume explains, are essential to understanding "how medial artefacts and information can pass through vast media infrastructures, and ensures interoperability between diverse industries and ecologies of media devices." (Volmar, Jancovic and Schneider 2020, 7)

and modern, open standards, Flash became an ideological warzone." (2014, 113)

In 2010, Steve Jobs wrote an open letter published on Apple's website criticizing Flash. He claimed that the software was a proprietary closed system that threatened the security[23] of the larger system on which it was operating. Jobs instead encouraged the use of open standards such as HTML5 in order to ensure the easy functioning of interactive features on mobile phones (as well a smaller impact on battery life). In short, HTML5 is not software, but a mark-up language, and thus enables the browser to do all the heavy lifting, and avoid other processes that might affect the computer's CPU. Moreover, Flash was developed for mouse desktops, not for touch screens. Jobs continues:

> Our motivation is simple – we want to provide the most advanced and innovative platform to our developers, and we want them to stand directly on the shoulders of this platform and create the best apps the world has ever seen. We want to continually enhance the platform, so developers can create even more amazing, powerful, fun and useful applications. Everyone wins – we sell more devices because we have the best apps, developers reach a wider and wider audience and customer base, and users are continually delighted by the best and broadest selection of apps on any platform. (Jobs 2010)

For all these reasons, Jobs decided to end Apple's support for Adobe Flash, and pushed Adobe to develop open standards. It is still unclear if this push towards deprecation was merely a business strategy, since Apple wanted to innovate and leave behind any software that represented an (economic) problem in the creation of new features on their mobile devices. Whatever the case, early Android iterations supported Flash, but it eventually failed. Apple won, or at least the W3C did.[24]

---

23 If run through AIR (a native app), it gives the user an unrestricted access to local storage and filesystems, whereas browser-based applications only have access to individual files selected by users.

24 The definition of certain web open standards is decided internationally by the W3C, the World Wide Web Consortium, an organization founded by Tim-

In 2017, Adobe announced that by 2020 Flash will no longer be supported, distributed or updated, thus reach its EOL or "end of life" (Adobe 2020). This "format war" is a sign, Sterne highlights, that one standard is starting to dominate. He argues: "the combinations of secrecy, coercion, public relations, litigation, legislative lobbying, and attempts to control the market are common elements of the process through which standards come to dominance." (Sterne 2012, 133)

Open standards won because they enhance data exchange, and thus free global circulation, since you do not need to pay a vendor to offer content on your platform. Much like other media standards, such as the Unicode format or MP3, HTLM5 also offers transparency in its specifications.

But before HTML5 returned with a version that enabled "canvas" and therefore interactive content to be embedded on the webpage, Adobe Flash was already ubiquitous. Indeed, the pervasiveness of Adobe Flash as a media player and as an "authoring platform" (the file extension is SWF and uses international standards for the compression of audiovisual content) was such that it reached 99% of users (Salter and Murray 2014). Flash, claims Anastasia Salter and John Murray, has shaped for years not only a community of professionals and dedicated amateurs, but also a "view" of interactive content (ibid.). They explain that it was the first software to make animations, and was later developed to enable user interaction through the mouse cursor. And as animation software, it shaped animation aesthetics through recourse to the familiar metaphors of filmmaking and theatre.[25] As game development

---

Berners Lee (the inventor of the World Wide Web). It mediates disputes between "vendors" over issues of standardization and attempts to offer a consistent solution for every party. However, not every country in the world has a section of the W3C. China recently joined, but its headquarters are at MIT in the USA.

25 According to Salter and Murray: "at the heart of Flash's success and power lies its compelling use of metaphor: the adoption of the "frame" as a fundamental unit of a Flash movie, and the "stage" as the setting where "characters" would perform actions, were familiar and comfortable concepts that worked together to present an experience. Even the original idea of calling an invocation of an

Fig. 1: A fake picture of Steve Jobs wearing an anti-Adobe Flash Logo

Image source: Gigaom.com, https ://gigaom.com/2010/04/29/steve-jobs-thoughts-on-flash/.

software, it enabled a new way to distribute this same content: through the web.

---

action on a character "telling" evoked the experience and dynamics of directing a play. The entire user interface is set up to resemble a set of filmstrips. The simple example of bouncing a ball is so readily realized because the timeline makes visible the change over time dynamics instead of abstracting it at the level of algorithmic process." (2014, 34)

Steve Jobs' critique and the deprecation of Flash hailed the end of another era—that of the desktop PC. The focus has now shifted to mobile web browsers and native apps (which work on specific operating systems, such as Android or iOS). Even broadcasters have adapted to this change, creating dedicated mobile apps that users can download on their smartphones and through which they can access a library of content (for instance, ARTE, the BBC and *The Guardian*). For example, in 2016, ARTE produced an interactive text-adventure about a refugee journey titled *Bury Me My Love* (2017) designed specifically as a mobile app, which you can easily download from Google Play. Moreover, websites are now accessible from any and every device. This explains why Jobs wanted HTML5 to be developed rapidly: he foresaw, or was perhaps facilitating, mobile phones' market saturation.

Another ARTE-produced interactive is a useful example with which to understand the dispute between proprietary formats and open standards. The newsgame *Refugees*, in which the user becomes a reporter and conducts interviews, began airing on arte.tv in autumn 2014. The game featured three different locations and many audio-visual interviews organized in a sort of a point-and-click adventure.[26] The project is directly connected to social media: once the user reaches their goal in the game, they can publish or share with friends a multi-media reportage composed of some of the audio-visual material collected during their gameplay.

Refugees was released at the end of 2014 for desktop PC and mobile phones. However, in 2016, the mobile website ceased to work. David Zurmely, an ARTE web journalist, and Laure Siegel, the principal investigating journalist who provided the in-field audio-visual footage for the game, informed me in early 2016 (see Zurmely 2016, Siegel 2015) that this would happen. This was because ARTE's 3-year contract with the company that developed and regularly updated the features of the game had expired. As a result of a lack of financial resources, the host server on which user actions in the game were stored, would no longer

26 I talked about in the Introduction and I will analyze it more accurately in the next chapter.

"save those data anymore and thus the website will shut down" (Siegel 2015). In technical terms, the developers needed to update the code with a new API (application program interface) as well as other features, but there was no more money to perform this maintenance. The desktop website was shut down at the end of 2018. There is now no other way to access this newsgame than a user made screen-caption video of the gameplay, recorded on ichbinchristorg's YouTube channel ("Let´s Play Refugees" 2016). This example demonstrates that despite HTML5 encoding, the media is no longer accessible (if it had been encoded with Flash, it would still be online—though only until the end of 2020). So where has *Refugees* gone?

Of course, the game in binary code, or its "source code," can be easily stored. Zurmely, who also works in the field of content innovation and online media practices at ARTE, reminded me (Zurmely 2016; 2018) that the broadcaster pays a third party to store its productions as binary code, i.e. they use an external server. However, a problem arises once that code is interpreted by software on a particular operating system.[27] Since these productions are web-based, the browser software enables this process, which directly embeds plug-ins in order to run specific media files (like Adobe Flash) if needed. And each browser works differently on each operating system: Firefox, for example, uses one set of code when it runs on iOS and another on the Windows operating system.

The irony is that the production of *Refugees* began in 2013 with the express purpose of avoiding some old—or obsolete—media formats such as Adobe Flash.[28] By turning towards two pre-2013 ARTE productions, we can see why this is the case. *India 2009* (2009) depicts everyday life in

27 As Smits and Smite explain: "basically, the work itself can be the code. The code as such isn´t difficult to maintain. But the problem is caused by the fact that this code operates only in the relevant environment." (2015, 24)

28 The obsolescence of Adobe Flash has caused a battle. For a long time, Adobe Flash was the most used platform for the development of interactive content. Since smartphones became ubiquitous, corporations such as Apple pressured Adobe to cease operations on Flash Player, because the mobile iteration of the software was vulnerable to cyber attacks. In 2015, Adobe launched new soft-

India sixty years after it gained independence from the British Empire. The database consists of audio-visual interviews with both Indians and non-Indians. Through the website we can still access the videos, but the main homepage, as David Zurmely recalls: "uses an external service, the Google Maps API, to display an itinerary on a map. The way the webdoc communicates with Google Maps is now deprecated, because Google changed it in order to upgrade its service. As consequence: the map is no longer visible" (Zurmely 2016; see figure 2).[29]

Fig. 2: A screenshot from India 2009

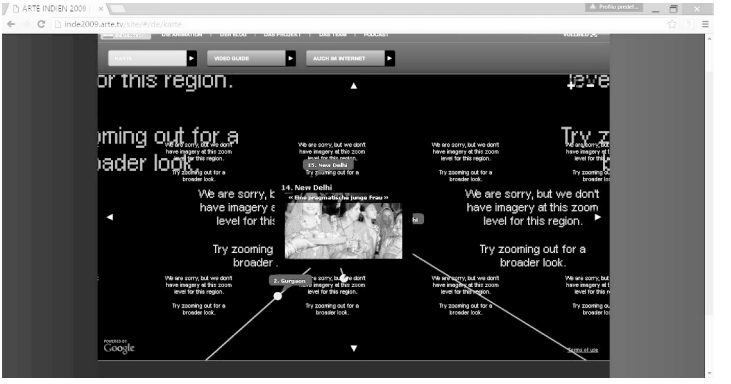


Image source: screenshot by author.

Moreover, if you want to access the website through a mobile device, you need to download a plug-in—but your device will most likely not support it. By 2021, we will no longer be able to download a plug in, thus to watch most of the interactive content made with Flash. ARTE has subsequently decided to shut down *INDIA 2009* (2009).This example demonstrates that to avoid obsolescence, producers must adopt (and

ware to replace Flash called Adobe Animate CC. Mozilla Firefox blocked the plug-in in mid 2015 (Gibbs 2015).

29 When I began researching, the website was still accessible. But now it is no longer accessible. You are simply redirected to ARTE homepage.

adapt to) the latest technology. And that is what ARTE did with *Refugees*: by using the new standard web-code HTML5 (and working in CSS and Javascript), the newsgame could be run easily in mobile phone Android environments.[30]

In a similar way to the Google Map API of *India 2009*, the API used for providing additional features from Facebook for *Refugees*, would no longer be updated. But the developer Stephane Becker, CEO of Method in Madness, the company that worked for ARTE to develop *Refugees*, explained that only some of the features would cease to function as a result of this incompatible API. But what exactly are API?

APIs are packages of information that platforms such as Google, Amazon, Facebook or Instagram, provide freely (under what conditions, however, it is not clear[31]) to developers that want to create applications with a particular feature. For example, if we want to use a like button or share button from Facebook on our blog, we need to implement a certain API code. Or, if we need a map we might use an extension of Google Maps, or OpenStreetMaps. To avoid an API like this, you would have to program such an application yourself. This would require too much money and labour; why should we invest in the development of a map when there is already a free API available to us? That said, we cannot control Google Maps' development, and so we have to check when new APIs are released in order to maintain accessibility. These API are constantly being updated[32] and if they are deprecated (yes, they get deprecated too) they will become obsolete; in that case, your website

30 Apple and Google strongly supported the development of HTML5.

31 In 2013, Oracle sued Google for using its API, claiming that it is proprietary software. Oracle lost, as the judges declared that the API cannot be considered part of an artistic creation and is therefore not protected by intellectual property law.

32 This is taken from the Java website: "Java provides a way to express deprecation because, as a class evolves, its API (application programming interface) inevitably changes: methods are renamed for consistency, new and better methods are added, and fields change. But such changes introduce a problem. You need to keep the old API around until developers make the transition to the new one, but you don't want them to continue programming to the old API." (Oracle 2020)

extension will not work anymore. This is what happened to *India 2009*, and to many of the features of *Refugees*. ARTE decided to shut down the latter's website, instead of recoding the non-working parts.

David Zurmely explained that one of the reasons ARTE decided to put some webdocs offline was because of the same fear of deprecation. The company worked on many projects using an old version of the WordPress platform, which was not updated automatically. A further reason concerns property rights. ARTE outsources labour to different production companies, and once the contract expires, the company are obliged to put everything offline—unless they extend the contract. Other times it is simply because of Flash:

> the media urls in the webdoc were hard coded in the compile flash, we had to ask the flash developer to modify it from the source. The developer did it for *Afrique 50 ans d'indépendance*. That was very kind of him, because he had to setup a whole flash development framework to do this (he doesn't code in flash anymore, as it is predicted to disappear!). So, it is quite complicated, and will only save the webdoc for a couple of years. (Zurmely 2016)

The decision as to whether to keep an interactive online therefore has to do with proprietary rights, the deprecation of technology, outdated "topics," and, above all, costs. After facing many problems with webdocs, Zurmely explains that ARTE's strategy changed, and it has decided to focus less on interactives:

> Finally, we produced fewer big webdocs in those last years. This was a choice from ARTE to concentrate energy and money to do better what we do: video and films, as we are a TV channel. So, we had lots of changes in our internal workflows but also on our websites. ARTE is now available on a website, mobile app, ADSL, HbbTV, PlayStation, YouTube, with most of its programs in French and German, and some of the programs subtitled in English, Spanish, Polish and soon Italian. Our tools are now much better. The teams are more efficient. That was a big deal to move forward. And now, all that we produce for digital and not for TV broadcast is also archived, in the same database with

> the same metadata, which was absolutely not the case at the beginning. That's also a big step forward for the future of our programs. So we still made some digital only contents, but they were less ambitious and more video centered. (Zurmely 2018)

Zurmely's words resonate with those of Sandra Gaudenzi, who claimed that interactives could not develop an efficient business model, and therefore the company changed its strategy: produce less complicated interactives and/or more "linear" projects.

Is this a regression, or simply a question of standards? Technologies are developed too fast, and over-experimentation leads to complications when it comes to the responsiveness of "new" media. Big corporations decide on the life of standards and formats, and consequently what will survive. Broadcasters can only keep up with the best option available. The history of interactive practices also shows that there is no set formula to engage or maintain audiences online. The ephemeral and rapid life of many interactives tells us more about how institutions, producers, broadcasters and legacy media are themselves victims of economic systems and market strategies. If these companies want their goods to avoid the trash heap, be re-used and maintain a long lifespan, they must find their own strategies of survival.

2.4 Regimes of Obsolescence

In the late nineteenth and early twentieth centuries, emergent technologies such as photography and cinema were referred to as "ephemeral;" that is, something "evanescent, transient and brief." (Grainge 2011, 2) The concept of ephemeral media was later used in relation to broadcast television and the "evanescence" of its content (this was before recording technology). Today, in a "post-network" era, as Paul Grainge observes, "the basis of television ephemerality has changed." (Ibid.) He argues that "clip culture-television is now less ephemeral in the evanescence of programme content but much more ephemeral in the brevity of the promotional and paratextual forms that

surround, mobilize and give meaning to that content" (ibid.). Since broadcasters are now working online and use dedicated websites (ARTE or Al Jazeera, for example) in what ways is the web screen culture of the post-broadcast era ephemeral, and data subjected to what Grainge calls "techno-cultural instabilities?" (ibid.)

Grainge defines two conditions of "ephemerality." First, there is the relationship between "briefness of content" and its "regimes of transmission." (Ibid.) This refers to the abundance of content available and its circulation via formats that face the permanent risk of obsolescence. This format obsolescence is a "techno-cultural instability;" it leads to the loss of material in the communication domain, such as the deterioration of technological hardware, the discarding of content, or the degradation of the signal (ibid.). On the World Wide Web, anything that is new today risks becoming obsolete or deprecated in its next iteration, or n.0 age. As is the case with Adobe Flash, the future of open standards such as HTML5 is equally unknown, as is the fate of formats AR/VR technologies use.

As some of the case studies in this work show, interactives can be seen as "ephemeral media," not because of the brevity of their content, but because of what Grainge calls their "regimes of transmission" (ibid.). This refers to the potential obsolescence of their software and of certain features such as outdated APIs. But obsolescence is also often a question of wide access. Although we cannot easily access some of these media objects using the most common Internet browsers, there are exceptions. In 2017, a group of researchers from the company CloudMosa[33] developed the browser Puffin. They specifically created the software to enable Adobe Flash content in environments that usually do not support it. There are two versions of the browser: one for mobile, and one for PC. They claim that it is the "fastest" browser; it is free to download on Google Play, and already has 80 million customers. It even allows you to access an Adobe Flash website by mobile. Of course, other browsers that use VPNs (so as to mask location and metadata) such as Tor Browser will also work.

33 See CloudMosa 2019.

It seems that these regimes of obsolescence are strictly tied to the standards developed by big corporations and the technological changes they entail. In the case of Adobe Flash, Apple and Google—as the principal developer using the Android system—have more power and more "market share" than Adobe, which specializes in native software development and not on browsers or operating systems. This enabled them to push their agenda. That said, the companies are all members of the W3C consortium, which developed and encouraged the switch to HTML5. Was this war, then, simply a mediatic phenomenon?

Techno-cultural instabilities also certainly affect producers and creators, who often do not keep up with technological development: as some of the examples I introduced before show, certain interactives were developed at a time when Adobe Flash was already becoming deprecated. For instance, *The Migrant Trail* (2014)[34] was released in 2014, four years after Jobs made his famous statement on Flash. Broadcasters such as ARTE archive their material, but cannot ensure that access and the experience itself, especially in the case of interactives, will be the same. Reactivation of these media objects, once outdated or obsolete, require preservation work. However, broadcasters have no control over Internet browsers, and there is neither a large enough profit nor a big enough audience to justify the maintenance costs involved in keeping web pages online.

The most important question is which of these objects should we archive, and which features should we preserve. If they are hybridizations of different media practices such as *Refugees*, should we also archive user gameplay experiences? Should we keep the Facebook extension or does the concept survive without it? Should we re-code and make the experience of the game as it was originally? What if in 20 years HTML5 becomes obsolete? How then do we preserve these media practices?

Regarding the archiving of interactive practices and other web-based media, the force that preservation requires is equally proportional to the drive of "planned" obsolescence. This is itself strictly tied

34 Cf. Chapter 3.

to a constantly changing technology, led by the imperative of novelty within the neoliberal discourse of big corporations that control the Internet.

We can talk about a specific mode of "preserving interactives" as Erwin Verbruggen recently did in a piece published by the Institute of Sound and Vision. He is responsible for the preservation of interactive media at this Institute in the Netherlands.[35] He describes "interactive documentaries" as a "loosely undefined amalgam of works that are represented online, via browser applications or mobile apps." (Verbruggen 2018, 1) His perspective on this "loosely undefined amalgam" pairs with a systemic vision of a media ecology of practices. But, here, preservation work succeeds in bringing them together. Verbruggen argues that both the products *and* the producers represent an undefined industry, which is affiliated with film and documentary festivals. What is certain is that within the term interactives we can separate computer games, interactive documentaries or interactive maps, media objects that make use of social network platforms, and other content related to different websites. Although each object requires different archival and preservation processes—due to differences in software and format—there is a common denominator. They are all accessible online, and they make use of digital code. They are all software that must be made readable for another piece of software (such as a browser). But the difficulties begin from this point.

As aforementioned, interactive practices form part of a dynamic media ecology that remains fluid. In November 2016, during the annual conference dedicated to interactive documentaries at IDFA, a book was given to the attendees which listed all of the names and categories used over the last ten years to define interactive documentaries. The purpose was to highlight the unfruitful search for a "correct" definition. As we

35 Since June 2020 Erwin Verbruggen does not work for Sound and Vision anymore.

have already seen, constant changes in the marketplace make standardisation and generic enclosure of such an object redundant.[36]

Unfortunately, it is exactly this process of storage and categorization that enables us to create a coherent archive. But what does this mean when we talk about a digital archive? Like the *Encyclopedia Galactica* in Isaac Asimov's *Foundation* (1951), archives are no longer only a repository for physical records; they are also digital. The preservation of interactive practices uses similar strategies to those developed for digital art or new media art, which borrowed from installation art and performance art (see Rinehart and Ippolito 2014). However, the preservation of interactives is dependent on some unique institutional and national formations and approaches. Broadcasters sometimes own data storage servers, but they also often rent and outsource their data to third parties. ARTE, for example, uses a third party for its data storage. Further, institutions such as national archives would ideally keep data within their facilities, but it is not always possible. Server locations require very specific temperature conditions, and when institutions cannot produce them, they outsource. For example, although the NFB owns servers it also outsources part of its digital assets. Moreover, storing data means managing it through the use of specific software. The NFB uses MIRIA, which is developed by the company Atempo (NFB 2019). To better understand how interactive practices can resist the regimes of obsolescence, I will now discuss how two institutions deal today with the preservation and archival process.

2.5 Preservation Strategies for Interactives: The Sound and Vision Institute and the National Film Board of Canada

In 2018, in Hilversum near Amsterdam, I met Erwin Verbruggen and Jesse de Vos, with whom I had been in contact since 2017. They explained

36 This is also the case with media art. On the topic, see the volume curated by Noordegraaf et al. (2013).

to me how their Institute, which is a national television archive, archives interactives. Verbruggen explained how this issue was first addressed, when, in 2016, during the yearly IDFA Doc Lab, experts met and discussed case studies and potential solutions (Verbruggen 2018).

At that time, they realized that some technologies were deprecated and had become obsolete. Of major concern were interactives made with Adobe Flash, which, quoting Caspar Sonnen, IDFA DocLab's curator, might be defined as "the nitrate of the digital era." (Verbruggen 2017, n.p.) Verbruggen and de Vos made the crucial point that preservation should not only affect and interest archivists, but also producers and creators themselves. After all, the rate of obsolescence in the digital era is growing. The creation of open standards represents a partial solution, and helps avoid the proliferation of too many formats (which is not only a problem of the digital era, as the history of early cinema shows). Once we decide to preserve what we ask first is: what do we start with? What do we want to keep? What do we agree to discard?

The Sound and Vision Institute of the Netherlands proposed a specific preservation process for interactive media objects. They individuated certain combinations of properties[37] that helped categorize these media objects and thus guide selection of the best preservation method. The Institute then proposes a combination of different strategies: technological hardware preservation, migration, emulation and documentation. But, as Jesse de Vos remarks, the archival process is strictly dependent on the financial resources available. These media objects are hybrids, and therefore require "hybrid strategies." (de Vos 2013)

These combined strategies, specifically migration and emulation, are reminiscent of those used in the context of new media art or computer games. If the former adapts the work to a new technology, the latter—which is often used in computer game preservation—provides/ensures the authenticity of the artwork, by operating an obsolete code in an environment which simulates the software on which it once worked. De Vos, in the case of interactive applications, also suggests providing

37 Following de Vos these are "interactive, transmedial, networked, participatory, hyperlinked, immersive, hardware dependent." (2013)

"documentation;" that is to say, important information about the object. He remarks that: "documentation can be done with the purpose of preserving the original socio-historical context of the production and by doing so enrich the experience of users." (de Vos 2013) Hybrid media such as interactive non-fiction practices require thus a "hybrid" preservation strategy. Of course, scholars studying and publishing on these practices are already performing the act of documentation by writing on the subject.[38] Indeed, the many screenshots and descriptions of interactives I have collected may become a repository for future researchers.

The example of the Sound and Vision Institute demonstrates how, despite the initially overwhelming variety of format and shapes interactives take, a coherent, structured procedure helps the preservation process. Verbruggen explained how it follows three paths. First, *document* the work. Second, *capture* or record the assets. Third, *emulation* (Verbruggen 2018). Depending on the project, these strategies might be combined. The goal—or what they hope for—is to emulate, to document, capture and finally produce a format that enables those interested to play or experience the interactive. Documentation means recording interactives as they are used. For instance, "video recordings of someone navigating through the website." (Verbruggen 2018, 16) Further, any kind of paratextual material related to the interactive is considered documentation; this is also the starting point for stages of capture and emulation.

Capturing, in the context of web-based media, means recording a website and its hypertextual links—or their interaction. For interactives, there is a webtool called Webrecorder developed by Rhizome, which is able to record the user's browsing experience. The project Rhizome.org began as a database for media art, and as a collaboration of artists and curators that met at the festival Ars Electronica. It later developed into a digital archive, when, in 2003, it became affiliated with

38 In the interview de Vos discusses the main obstacles to the preservation of interactives: the lack of exact definitions, the lack of standardization of formats together with the high dependency of such objects on the technology used and the legal issues related to licencing (de Vos 2013).

and financed by the New Museum of Contemporary Art in New York. Subsequently, it developed the first open software to save interactive content. Rhizome uses a specific file format to record browsing experiences, called WARC (Web Archive file type).[39] The Webrecorder not only allows you to retrieve and save web content, it also allows you to save interactive and hyperlinked content.[40] Therefore, just like as a still photograph captures the entirety of a moment, Webrecorder saves every link and node. And you can browse the web with emulated older versions of Firefox or Chrome and reach content that is no longer supported/able to be read. That said, it does not always work perfectly. If, for instance, you try to record an Adobe Flash game such as *The Migrant Trail* the image blinks and the sound cracks, making the whole experience quite irritating. Further, it only saves everything if you access every page and play the game in its entirety. As a tool for "amateurs" it is certainly a useful compromise, but for professionals it might not be the best solution.[41]

The process of emulation, typically used for the preservation of video games, entails the re-creation (emulation) of a software environment or an operating system, in order to allow the "obsolete" software to run. As Rinehart and Ippolito explain this technique enables an old videogame to be run on a new operating system (2014, 9).

The Sound and Vision Institute uses a "case by case" strategy, meaning that each interactive is engaged with in its specificity. For video games and interactives, it uses the *Let´s Play* format,[42] letting users record their gameplay experience and upload a video screen-capture

39 See for more info the website of Rhizome: https://rhizome.org/about/.

40 Webrecorder is now to find under the name Conifer-Webrecorder, it requires a subscription to use it (Conifer n.d.).

41 In France, explains Verbruggen, the national archives use specific web crawling tools (bots that independently check the web for website to record) such as Phagosite, because they have to preserve "everything." At Sound and Vision, they instead use an external service called Archiefweb to check for websites and then eventually use Rhizome's Webrecorder.

42 This format started in the early 2000s when YouTube was becoming a widespread platform. It is simply a video-screenshot that documents gameplay. See,

of it. However, the institute often faces problems with copyright, and with the retrieval of every digital asset belonging to a media object. Sometimes, it is simply not possible to provide more than mere documentation.

Institutions, broadcasters and established archives follow a more traditional preservation process. Jesse de Vos explains as much when he elaborates on the policies that determine what is preserved:

> For instance, at the Bibliotheque Nationale de France or the Danish Royal Library they have a mandate by the government to preserve everything that has been published, and this put them in a completely different situation than us. They try to preserve everything and it is not successful, not only because it is very difficult but because there are a lot of limits anyway in the amount of funds really needed. (de Vos 2016)

At the Sound and Vision Institute they focus on Dutch media, or Dutch media makers. As de Vos explains, "we select a lot more, we cannot do everything and therefore we put more our own taste and our own stamp on our collection" (de Vos, 2016). Verbruggen and de Vos also told me that they do not have engineers or software developers at the Institute, and so some of the work has to be outsourced to other companies, such as Archiefweb.[43]

The National Film Board of Canada developed a similar strategy. In October 2019, I met software engineers Jimmy Fournier and Humbert Hardy and software developer Mathieu Sheehy in Montreal. We discussed their preservation strategies, archive and the presentation of several interactive works produced by the NFB in the last decade. The problem they faced was also largely connected to the use of deprecated software such as Adobe Flash. Many interactives were therefore no longer accessible on their website (the NFB has a dedicated website

for instance, the archive of different Let´s Play material under https://lparchive.org/history.

43 See https://www.archiefweb.eu/systeemonafhankelijk/.

and free archive), or they were at risk of becoming so. The NFB is a peculiar institution: it is both a national film archive but is also a producer with an educational agenda. In 2009, it launched an interactive studio (Darveau 2014) and a website that allows every user to stream its films online for free. This new website featured an interactive section that would become the platform for many of the NFB's own interactive productions. However, since then, things have changed to the point that web productions needed to be updated. For this reason the NFB chose the capture strategy and partnered with Rhizome, with the intention of bettering their Webrecorder tool and creating WARC files of all of their interactive work (NFB 2019). Their mission was to make them available again on their website, but this required collecting every asset (every file belonging to each interactive) and capturing the interaction so that it would feel and look like the original.

In order to achieve this goal, the NFB needed to have a proper archival platform that could save the source code, act as a repository for each asset, and then provide a platform to give access to the experience of the media itself. That is why the NFB decided to make use of another software platform by Atempo[44] to collect each asset through MAM (Media Asset Management). Ultimately, the NFB wants to preserve an archive of fourteen thousand linear productions and around 100 interactives that it has produced up until today. The importance given to each asset and not only to the interactive outcome of the productions evidences a specific workflow that envisions interactive media not as enclosed objects, but as processual works. The NFB announced that its new website, which has saved almost 90% of its interactive production, will be available in mid-2020. The different strategies

44 According to the Canadian national website: "Atempo's Miria for Archiving software platform will be a key component in NFB's new multi-site storage architecture and modified workflows. As with the initial developments in 2009, NFB's R&D teams will work alongside Atempo's Innovation Pole to integrate new features to keep valorizing NFB's media assets. One such project is the use of storage analytics to proactively define the best data storage and movement strategies."(NFB 2019)

adopted by the NFB and The Sound and Vision Institute indicate how complex a task it is to preserve interactives properly. The NFB has the advantage in-house engineers and web developers. In contrast, the Sound and Vision Institute archivists often need to outsource work. These differences owe much to differing institutional agendas: if the Sound and Vision Institute is a television and national archive, the NFB not only preserves and produces work, but also acts as a platform for artists. The latter is not interested in preserving interactives that were not created with the support of the NFB, whereas the Sound and Vision Institute aims to preserve what is "of national interest" (de Vos 2016). Nevertheless, the practices of both institutions inform us that, when dealing with interactives, we need to look less towards film history and more towards the history of media art and digital and web art.

Multimedia interactive art—Internet art, for instance—note Rinehart and Ippolito, has disrupted museological approaches to preservation and documentation because of its ephemeral nature. This ephemerality is caused by what I have already termed "techno-cultural" instabilities (Grainge 2013). It is therefore not only related to the obsolescence of this art's multi-layered technologies, but also due to manifold cultural and economic factors. Corporations and Internet consortia such as the W3C (to which major software and hardware corporations belong) also have an impact on the way we store interactive memory for the future.

What the strategies of the Sound and Vision Institute, the NFB, and ARTE tell us is that preservation is still a goal in the archival process, but what to preserve has to some extent changed. Rinehart and Ippolito recall a preservation story at PIXAR. They were advised on the best way to preserve the "end product" of a long process of development. But they knew that this end copy, made potentially of celluloid, would never be as profitable as preserving all the assets used to create the film. They write: "for Pixar, the computer files were more valuable than the film print because, from the computer files, one could generate a delicious variety of versions of the movie that could then be printed on film, but that could not be generated from a print of the film." (Rinehart and Ippolito 2014, 256) They suggest that the best version of a cultural artifact

might not be "the most accurate" but instead the "most fecund." (Ibid.) Preservation should therefore come not from fixity but from "variability." (Ibid.)

2.6 Ephemeral, Displaced, Re-Usable. The Future of Interactive Archives

As an example of ephemeral media, interactives are a remarkably revealing case study to help re-think the notion of the archive today. Wolfgang Ernst has worked on a new conception of archive as well as memory. He emphasizes the shift from physical to digital, and argues that access to knowledge itself is changing along with this new storage ability:

> Knowledge in the Gutenberg era, once trusted to an official publication ("Imprimatur!"), claimed to be (in principle) enduring and time-invariant. With the liquidation (fluidity) of electronic publishing, though, knowledge itself becomes a kind of flow, to be nonlinearly and dynamically updated at any temporal instant. […] Digitally saved information can either be read without loss of quality, or it is illegible and hence completely lost. (Ernst 2017, Chapter 6)

Following Ernst, an archive can be conceived as a process, rather than a static thing. Digital archives are "malleable and reconfigurable" and do not need to "conform to the organization structures and systems of traditional archives" (Berry 2016, 4). So how should archiving function? Perhaps the work of the NFB and the Sound and Vision Institute provides us with an answer.

The ephemerality of interactive practices and their regimes of obsolescence confront us not only with the question of what to archive, but a more fundamental concern: should we archive this in the first place? As broadcasters' archives are not always accessible, many interactives go unmaintained because the project funding has reached its end. Archivists are thus in charge of finding out what is to be preserved or *reactivated*. Throughout this process, they should be aware of the contin-

uous effort that is required to combat continuing format obsolescence. Bordina claims that "the only way to ensure a transmission of digital information is monitoring the status of obsolescence of hardware technologies, software applications and formats in which files are stored and provide for the transfer of support or coding in cycles of 7-10 years." (2015, 105)

Maybe the timespan will become tighter. Perhaps standards can help. But institutions need to make use of every strategy available. Preserving interactives means selecting what is worth being saved. The selection process also becomes more dependent on an individual user's contribution; that is to say, it is participatory. Some projects have focused on this unique feature of the web. In 2003, UNESCO developed the platform Archive.org[45] to store and archive digital works. In its statement, it made an emergency call for the preservation of the world's digital heritage. Archive.org's Wayback Machine is software that everybody can use through their web browser to save a webpage, video, photo or a series of photos and other digital files. We can even browse the history of Facebook. But beyond this participatory feature, the institution, which is based in San Francisco, has saved a lot of material like early educational games. This highlights the fact that interactive practices as well as other web-based media are constrained in an archival system that largely relies on "national" institutions. More supranational or transnational institutions are therefore needed. Web archives such as Archive.org, or Rhizome.org should serve as an example for any other public or private actor that works on web-based media preservation and archiving. However, if we transform the Internet into an archive, we need remember that we will have to rely on technologies and search

45 The Internet Archive provides a library of different media that are being purposively digitized and publically shared. Computer games as well as videos and television programs, are being stored as cultural heritage. The "Wayback Machine" is a search engine that let users search a database of websites. Similarly to Google cache, screenshots and content is being saved from time to time and the user can trace the evolution of a website such as Facebook. See http://archive.org/web/.

engines that, as David Berry argues, "make its commodification possible." (2016, 108)

The amount of data available online and its accessibility makes the web a perfect place to archive, yet there will never be a large enough labour force to preserve everything. If technological development is constant, and the amount of data unlimited, how can preservation beat these two forces? Perron and Giordano argue that modern archives are not "physical." Instead, they are "living" or "moving" and they are often made by users themselves (Giordano and Perron 2014, 10). As Ernst would argue: it is now a question of relationships or links. He claims: "the new archive´s task is to meaningfully link up different information nodes—a veritable archive art. Here it is no longer a question of reactivating objects, but of relations." (Ernst 2013, 83)

Indeed, the question that Rinehart and Ippolito make clear in the context of media and software art is that to archive means also to successfully manage different assets, from the storage of source code to the "reactivation" of and access to the experience. The NFB exemplifies an institution that in order to future-proof its assets has decided to build a new software architecture. In so doing, it will both have access to its singular assets, and captures of the interactive experiences themselves.

As we have seen, the individual files which make up the interactives and its source code are seen as much more valuable than the experience itself. If we look back to the economics of interactive practices, we can see why. Their components, or basic building blocks, need to be preserved and archived, but storing the source code—and consequently how these components interact—is a much more difficult task. Using tools like Webrecorder to capture "live" experiences of interactives, we can view its initial incarnation. But this does not mean that institutions, archives and broadcasters will be able to provide access to each singular asset with a view to one day being "reactivated." Instead, these institutions might think about these assets not as material stored in a specific catalogue, but in decentralized and fluid spaces; in other words, spaces which might one day be open to users (but also to potential creators) and thus to participation. Interactive practices encourage us not to preserve something static, but to preserve the "dynamic." If we start

from this perspective, we can reconceive of not only interactive practices, but also media in a broader sense: they are not enclosed objects, but, in a Foucauldian sense, discursive practices. In short, the way we think about media and how to preserve it has much more to do with the process itself than with the media object as final product.

Obsolescence is dependent on a specific economy, which extends globally but does not permeate any place in the same way. Restrictions on content might create virtual boundaries other than economic or mere political ones (in China, access to some content is prohibited by law and even "western" corporations must comply with that). The more the local economy is dependent on consumerism, the more obsolescence will affect commodities. Also, the greater the development of technology, the higher the capacity there is for creating data (and material items) that are disposable. As Peters notes, "Our moment is marked by the odd combination of astronomically large data storage and obsolescence of storage media." (Peters 2015b, 83) But obsolescence marks not the complete deletion of something, but rather a kind of "displacement." William Uricchio, in his discussion of obsolescence within the context of replacing long established cultural behaviours with different new practices writes: "in a self-fulfilling logic, obsolescence provokes replacement and replacement creates obsolescence. Replacement is generally bound to an idea of progress, and to a notion of a discriminating and consuming subject." (Uricchio 2015, 102)

So, it is also about the experience, the re-placing or displacing of something that was once considered as a standard. Interactive practices epitomize this displacement of an established behaviour which is being reconfigured through different narratives, aesthetics and technologies. Some aesthetics remain: think about the Adobe Flash builder and its metaphor of frames and filmstrip. But also think about the aesthetics of Adobe Flash-developed games and interactive practices developed and coded for the web in HTML5.

This chapter has excavated the dynamic, material conditions of the micro infrastructures of interactive practices. Their materiality as software, the infrastructures that enable them to circulate, that shape or encourage changes and format standardization, matter, and should not

go unregulated. But the rapidity of these changes means we have to look at them as processual works, or objects in becoming. The corporate influence on format wars, browsers and standards, highlights the fact that our memories are submitted to the logic of the market. Archivist and producers should first work towards the development of open source standards, and with dynamic software that can be updated, distributed and improved.[46]

Software is a material commodity. The obsolescence of interactive practices is evidence of this. Still, we can learn insightful lessons on how to work with our cultural memory. David Berry suggests looking at how big corporations such as Amazon organize their storage: the company indeed avoids "human-centric notions of archival cataloguing and organization, where one tends to group similar items together" (2016, 110) and has instead created a chaotic system which "functions at the highest rates of efficiency in the retail industry and relies on humans being separated from the act of stowing things and relegated to the role of 'picking' objects as dictated by the computational system. Storage capacity and its cartographies of space are delegated to algorithms." (2016, 110) Jeff Bezos' story might not be that far away from that of Wayne Huizenga, the successful manager of Blockbuster. Isn't Amazon Prime also a video rental service?

I think it is important that the logic of hardware and software waste and disposal does not greatly affect our cultural practices[47]. Hardware and software are subject to the same laws as other consumer products: they end up as waste. Only those that can keep up with current technology will survive (and maybe only for just a few more years). The issues of vast amounts of data and the instability of preservation practices do not exclusively affect digital archives, indeed the question of waste in film studies has been widely discussed (Schneider and Strauven 2015). These discussions show that hardware and software are sometimes not

46 See Verbruggen (2018), but also Rinehart and Ippolito (2014).

47 As Bauman writes, "in consumer-commodity markets the need to replace "outdated", less than completely satisfactory and/or no longer wanted consumer objects is inscribed in the design of products." (2007, 21)

just waste but also rubbish; therefore, there is a hope that they may one day be re-invested with a market value.

With archive digitalisation, dependency on licensed software grows, and this paradoxically enforces the regimes of obsolescence aforementioned. As Perron and Giordano write, the modern archive, that is "fluid and living" and not "physical." (Giordano and Perron 2015, 20) The necessity to keep up to date, the ability to be mobile—all these practices involve processes of "transfer," "migration," and "emulation." This reinforces the nomadic essence and unstable status not only of archives themselves, but of every good and object, and thus binds them to a liquid logic of time.

Despite the ongoing process of obsolescence, archives of digital and interactive media might still be able to unravel time and decelerate the speed of ephemerality. Starting from the production process, preservation should inform every stage of the creation of any cultural artefact in order to future-proof it. If cultural artifacts (including digital media) can now "move ever more swiftly across regional and national boundaries," (Appadurai 2013, 61) commodities such as software formats and web standards—thanks to their interoperability and responsivity—enhance economic globalisation, promising an even greater circulation of ideas and cultural practices. The constant drive to improve or change and produce "novelties"—and its effect on the value of commodities—shortens life span and circulation. Before disappearing, they become digital outcasts destined for waste—unless they can be recycled in the circular narrative of novelty. But what we should do is ensure that they remain as waste, waiting for a new life. As Ernst argue, "data trash is, positively, the future ground for media-anarchaeological excavations." (2006, 120)

Broadcasters and other legacy media were fundamental to the advent of interactive documentaries and practices. As social media's reach grew, they looked for new strategies, such as engagement and interactivity, to maintain audiences and compete on the global market. Still, as the case of ARTE shows, broadcasters were forced to reconsider these strategies and turn back to a more traditional—and proven successful—business model. In this scenario, institutions and archives that

want to keep interactive productions alive face manifold challenges. Indeed, we will be able to keep some web-based interactives from the early 2000s, but we will not be able to keep them all. The dream of Asimov's *Enclyclopedia Galactica* of saving every fragment of human knowledge might be replaced by a simpler line from *Hitchhikers Guide to the Galaxy:* DO NOT PANIC.[48]

48 Adams 2017.

Chapter 3 – A View from Within

This chapter analyzes a selection of interactive practices that encourage you to take the role of a migrant or a refugee, or of a journalist in a refugee camp. They invite you to virtually cross a border or to explore, as a reporter, a non-western country. They offer a close perspective on the subject, as we, the users, must position ourselves. This "View from Within" wishes to bring you "there"—far away from a comfortable position in front of your PC or digital device, and instead close to vulnerable "others."

This view not only creates an "immersive" environment, such as those found in virtual reality applications, but the idea of immersion and embodiment is also invoked through the practices' discursive premise, by their computer game aesthetic, and by the rhetoric of an interactive text adventure. In other words, through participatory features that demand interaction. For now, we can understand "immersion" as a feeling of inclusion in a world which is not the one we inhabit, but the one belonging to the stories with which we interact.[1]

1 Janet Murray defines immersion as "a sense of being contained within a space or state of mind that is separate from ordinary experience, more focused and absorbing, and requiring different assumptions and actions (like swimming when immersed in water). Immersive experiences are disrupted by inconsistency and incompleteness of the environment, and reinforced by encyclopaedic detail and a sense of vast spaces within clearly marked boundaries. Immersion is further reinforced in digital environments by the active creation of belief, by which the interactor is cued to explore and to take actions within the immersive world and is rewarded for the actions with appropriate responses. Immersion and in-

The interactive practices I analyze ask us to recognize our privilege. In this respect, such media offer us an illusion: to virtually live or to witness, in close proximity, a social condition (and a geographical space) which is not our own. They are simulations. These practices allow us to play, to see, to witness and to make choices within a virtual world. At the same time, by simulating border crossings, they also simulate border regimes.

I understand these practices as "cultural artifacts" and therefore I explore them both as media objects and within their broader dynamic context of circulation. In other words, I ask how these specific configurations of stories, aesthetics and media experiences engage with and participate in a larger discourse about migration and humanitarianism. What kind of knowledge about refugees and migrants do they produce?

In the following paragraphs I introduce case studies that share a similar subjective or embodied view: two serious games, three simple text adventures (or choice-based interactive stories) and two hybrids of audio-visual content, game structures, and maps. I investigate the contradictions and ambivalence that characterize these media materials, as well as their adoption of a humanitarian form of communication. Ultimately, I argue that different media practices offer a similar "view" on migration.

3.1 Simulating Border Crossings

The serious game *The Migrant Trail* (2014) is an Adobe Flash computer game that offers two possible perspectives: a migrant crossing the border from Mexico to US, or an American border patrol agent, looking for illegal migrants in the Sonora desert.[2] As part of the transmedia project

teractivity are characteristic pleasures of digital environments." (Murray 2011, 424-425)

2 A flash game has a recognizable aesthetic, which is square-shaped. The basic form of interactions, too, tend to mimic those found in point-and-click adventures. Moreover, once we start the game from *The Undocumented* homepage, we witness the square buffering. This is a typical sign of an Adobe Flash game.

The Undocumented (2013), filmmaker Marco Williams and his company produced a documentary film, a website with an interactive map, and this serious game.[3] The documentary film partly inspired the game; indeed, the game's characters are based on real people: either migrants that illegally crossed over to the USA from Mexico, or patrol agents with first-hand experience of catching undocumented migrants alive, or, more often than not, finding them dead in the desert. The documentary argues that the condition of the *sans-papier* in the US is a result of on-going national policies.[4] The game story, on the other hand, allows us to become migrants and experience a perilous border-crossing journey. For the game's producers, it does not matter if you survive the journey or not—what matters is your understanding the human toll of border crossings.

Beginning the game as a "migrant," you first enter an introductory page. There, you realize that the game can be played nine times, with nine different characters. Each character has a personal history and a reason for crossing the border (like Diego, see figure 3). Moreover, every migrant possesses certain features that will help or hinder their survival. The story is a collective journey: for example, together with twelve other migrants, Diego is preparing his trip through the desert of Sonora. A coyote (the smuggler) tells him what he must do to prepare, and the amount of money he owes him. In the next step, the user can buy some supplies and other items for the journey. Diego's story, as well as the other character's, offers reasons why illegal border-crossers wish to go to the US. Diego, like other children that lived in the US with undocumented parents, was ejected from the country once he turned eighteen. Part of his family still lives in Chicago and he wants to return.

3 Unfortunately, I have tried to contact both the director and the company in charge of web development but I did not receive a response to my questions. This certainly made it difficult to understand the production's workflow.

4 The French word *sans-papier*, or "without papers," broadly defines people who are not able to demonstrate their nationality through paper documents (Collins Dictionary 2020, s.v. "Sans-papiers").

The Migrant Trail is also a remake or a revisiting of an extremely popular serious game first released in 1971 called *The Oregon Trail*. The game is based on an actual route in North America used during the 19th century by settlers and traders selling fur and other products. In the first half of the century, the route was made available to wagon trains (caravans of wheeled wagons pulled by horses) travelling from Independence (Missouri) in the east, to Oregon in the west.[5] The purpose of the game was to teach users the story of the country's first "emigration route."[6] It is a simple text adventure; that is, it largely uses text or lines of text that users need to type in the game. Its structure is simple: the player has a sum of money with which they can buy supplies and items to trade and ensure that their family will survive the unfortunate events of the long journey. Both games emphasize narrative progression, and concentrate more on story development than basic gameplay structures that might encourage active and dynamic user interaction. In Jesper Juul's terminology, then, they are an example of a "game of progression" where separate challenges are presented in serial form, progressing to an endpoint (2002, 2011). The difference: *The Migrant Trail* takes the format of *The Oregon Trail* and adds to it an urgent and real issue.

Figure 3 depicts Diego, one of the migrant characters. He seems to be drawn by hand (or using animation software). There are three photographs on Diego's right, which are most likely unpublished stills from *The Undocumented*. These photographs suggest that Diego might be a real character, and I surmise that he was most likely based on *The Undocumented's* Marcos Hernandez, a young man who, similar to Diego, now

5 A popular version of *The Oregon Trail* from 1990 is available to play on archive.org, which is a web-repository of static pages, media and videogames. They hold a collection of around 14,000 items including 9,000 MS-DOS games.

6 *The Oregon Trail* has been criticized as a western or colonial view of the history of the United States, because it privileges the perspective of the settlers. Recently, a counter-game was released which offers an indigenous point of view. *When Rivers Were Trails* (2019) narrates the journey of "an Anishinaabeg in the 1890s displaced from Fond du Lac in Minnesota due to the impact of land allotments. They make their way to the Northwest and eventually venture into California." (Jawort 2019)

Fig. 3: The Migrant Trail: Diego's Story

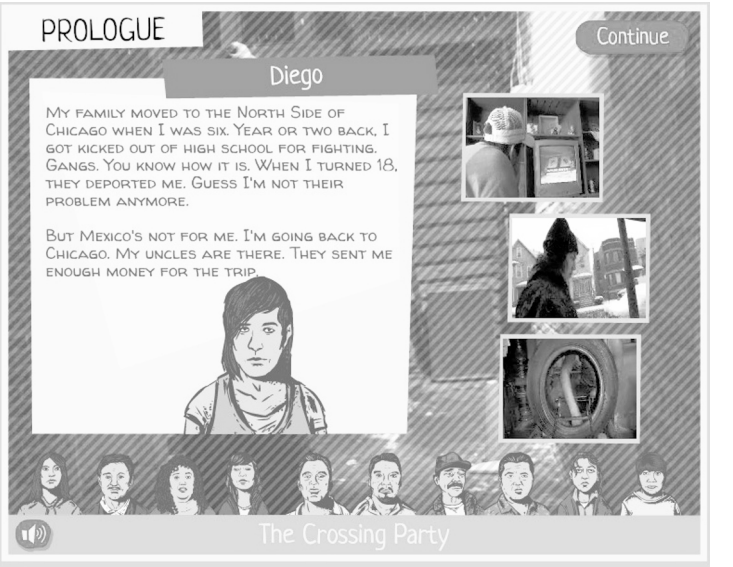


Image source: screenshot from The Migrant Trail (2014), © Marco Williams.

lives (or lived) in Chicago. In the documentary, Marcos is looking for his father who was left behind by a coyote and probably died in the desert. The game, here, represents a sort of computer reconstruction, or a simulation of how things went. In contrast to other forms of documentary reconstruction where simulation is part of the story, the game puts us in charge, and we are therefore within the simulation.[7] In sum, Diego's destiny is to a certain extent in our hands.[8]

7 I am thinking here of prominent examples such as The Thin Blue Line (1988, dir. Errol Morris). In the documentary, Morris fictionally reconstructs events with real actors.

8 But as Juul reminds us concerning games of progression, we need to believe that his "plural" destiny is in the game designer's hands (2011).

The simulation is, of course, not a realistic reproduction like a re-enactment. Instead, the drawings and font are reminiscent of comic books. Compared to the realism of certain videogame productions, this format is rather simplistic. As a result of both its "social" interest and its appearance, the game can be termed an "indie" or "casual" game (or something in-between). The difference is a question of perspective: casual games, for Jasper Juul, are games designed not exclusively for gamers but for a wider audience, whereas indie or independent games are those promoted by their developers as "having artistic merit." (Juul 2010; 2019, 11) The combination of the game's aesthetic and serious subject matter is also reminiscent of certain animated documentaries.

The reasons creators use animation to narrate nonfiction stories are numerous. For instance, in interviews conducted and published by Judith Kriger, they cite creative freedom and protecting audiences from scenes of crude violence (2012). At the same time, animation and drawing, as opposed to photographic images, allow the story subjects to maintain their anonymity. In the case of *The Migrant Trail*, the game is clearly inspired by real experiences, but combines these stories in order to give them an anonymous yet universal character. The stories, then, are not specific but prototypical, and they contribute to the broader transmedia project by simulating a border crossing. Gonzalo Frasca, a game designer and scholar, argues that simulations—in contrast to representations— "model a (source) system through a different system which maintains (for somebody) some of the behaviours of the original system." (2003, 223) In other words, simulations do not simply show us something but reproduce someone's behaviour.

This game therefore simulates how things typically go for illegal border crossers. Once you choose to play as Diego, you can choose (drag and drop) what to wear and what kind of food and drink he takes in his backpack. You are also given cash, but must use it cautiously. After playing the game a couple of times, you learn that water is fundamental but also that antibiotics are extremely helpful against the wounds, blisters or injuries caused by desert animals. The heavier your backpack is, the slower you become. If somebody in the "crossing party"—the other migrants—receives a wound, the whole group slows down. All these

features are part of game design; you can choose between certain options, but others are limited. As the gameplay progresses, the game asks you watch over your character and their peers. During your trek, you need to constantly check the decreasing "health bars" on the top left of your screen, and use some items, like water or rehydration drinks (*suero*) when your hydration level becomes too low. Meanwhile, when you reach a crossroads, you must choose a path and decide whether you turn right, left or go back. On the bottom right of the screen, a pedometer lists miles walked and the amount left until the pick-up point. It also lists how many hours you have spent travelling. You can also pause the game and check all events that have happened so far on the upper left part of the screen (fig.4).

Fig. 4: The Migrant Trail: choosing the path

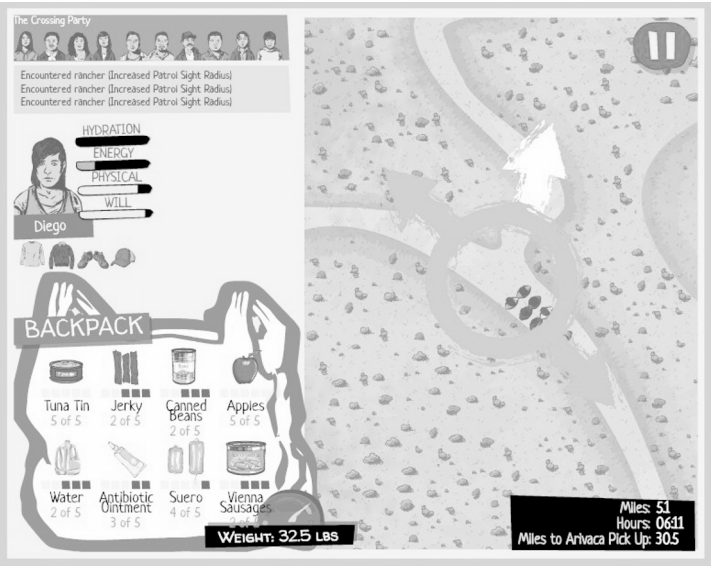


Image source: screenshot from The Migrant Trail (2014), © Marco Williams.

Ultimately, you need to decide carefully where you go. For instance, I learned that if I chose the route on the right of the first forking path, my party would be closer to border control, and would thus get caught relatively quickly. Once you finish all your supplies you face dehydration and/or heat stroke, or you might die because of complications of a wound sustained *en route*. If you are caught by the border patrol you will be held in a detention centre and sent back home.[9] If you are left behind, you will probably die in the desert and become one of many undocumented deaths.

Although the purpose of the game is to provide you with a specific migrant's point of view, you are also part of a group, and also a system. You are within the simulated world. You are positioned close to the character, but it is still a bird's eye or God's view—a common perspective adopted by most "God games."[10] This viewpoint provides an overview of the whole group while allowing players to monitor geographical space. It affords a better view of the territory, allows you to know immediately when you share space with the border agent patrol. Although the choices the player faces reproduce some of those faced by migrants, this perspective shares nothing in common with that of a migrant crossing the border.

In the game, border patrol agents are not much luckier in reaching their goal: you might patrol the border but never find anybody.[11] Items found in the desert—proven "real" by additional photographic material—testify to probable death, and contribute to the actual, although

9 We do not see detention centers or the expulsion process. Instead, everything is textually narrativized.

10 The "God game" is a genre where you do not play specific character but instead have the power to manage the lives of different actors within the game. For example, you might manage and make a civilization develop through time (for instance in *Civilization*, *Caesar*, *Age of Empires*, etc.)

11 In the documentary *The Undocumented*, patrol agents control the border and chase migrants. Often, they *find* people on the verge of death from a heat stroke. They collaborate with aid organizations to check for separated groups, often finding only the remains of undocumented crossers.

Fig. 5: The Migrant Trail: unsuccessful game epilogue

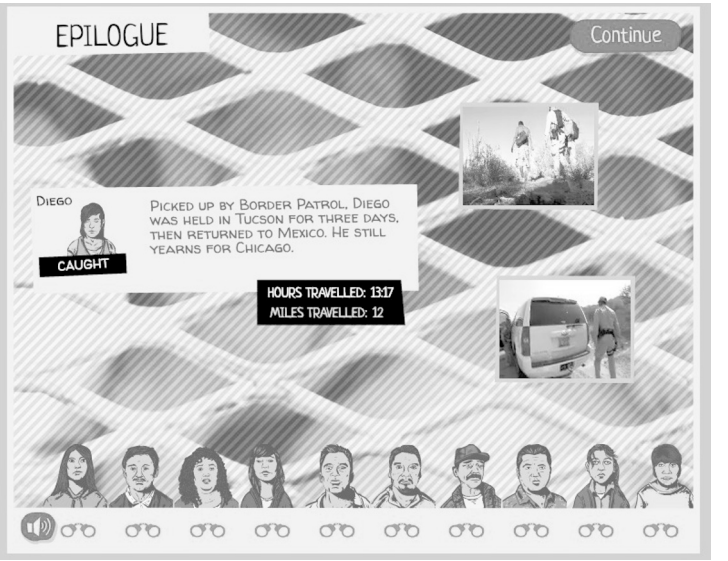


Image source: screenshot from The Migrant Trail (2014), © Marco Williams.

invisible death toll, which is displayed in the epilogue (fig. 5).[12] On a map, crosses show the position of actual human remains or human belongings found in the desert. The outcome of the game played as a border patrol agent, then, is undocumented casualties.

This computer game was released in 2014, shortly after the film, *The Undocumented*. It formed part of a freely available web-based feature, and its purpose was to further "engage conversation, investigation and inquiry, into the themes and questions raised by the film" (The Migrant Trail 2014). The game is in dialogue with a documentary film published one year later. These two media raise awareness of the death toll of the

12 These stills within the frame may also be part or some unused frames from *The Undocumented*.

US border regime. Looking closely at their nonfiction rhetoric, the difference lies first in narrative construction. In the documentary film, we follow the story of some migrants and their families who have tried to cross the border and died. The research starts from material findings in the desert and now at the morgue, where physicians and non-profit organizations workers catalogue migrants' remains and belongings in the hope of matching them to the "undocumented deaths" of missing persons on their lists. The game does not use the same video material, but instead drawings and animations based on real-life accounts. Nevertheless, the mixture of fictional and nonfictional elements make the serious game more involved: we are in charge of what to do, we know that it is a game, but we also know the simulated stories are based on real accounts. If the documentary shows us through the camera lens what is happening at the border, in the game we become, though distant and alienated, part of the "happenings."

Some of the purchased items are part of the equipment the border crossers take along with them in the film. Further, the causes of death within the game are identical to those of the bodies found by the forensic doctors in *The Undocumented*. The game, in short, is complementary to the film. Its use of Adobe Flash suggests a mixture of professional and amateur media practice. Indeed, Patricia Zimmermann argues that technologies like Flash animations blur the boundaries between traditional forms of distribution, production and exhibition, and therefore the traditional distinction between professional and amateur (2019, Chapter 9). Game scholar Jesper Juul also points out that at the beginning of the 2000s, Flash games portals—such as Shockwave and Newgrounds—or platforms like Steam allowed the direct online distribution of even low-budget games (2019, 12). Consequently, this shift in the production and distribution process contributed to the increased diffusion of indie or independent games and casual games (ibid.). This serious game is an example of such production.

The Migrant Trail, though, is not only a simulation of a border crossing but also a border regime. Indeed, it questions the structure of the border, its relationship to the negotiation of life and death, and its meaning beyond politically governed lines or fences. As with other in-

teractive practices about migration, you experience an uncanny feeling while playing. Some might find the game's structure engaging, while others will view its narrative style as unnecessary or uncomfortable. Of course, this is the general problem with serious games: for certain audiences who are not accustomed to playing videogames, the idea of mixing "entertainment" with a serious topic is disconcerting.[13] They feel uneasy taking the life of a migrant into their own hands, or making unethical choices on their behalf (like leaving somebody behind and condemning him/her to death).[14] I am not sure whether this direct challenge to the audience was part of the designers' original intentions. At the very least, the purpose of the game is not to explicitly create discomfort but, as the creators claim, to further investigate the consequences of certain immigration policies. And yet we feel discomfort.

In *The Migrant Trail* you move virtually within the simulated infrastructure of the border. The border can be understood not only by its material structures, but also by different and less visible infrastructures, which are the outcome of social, political, economic but also geographical, negotiations. It affects you differently depending on your position. As a migrant you must walk, face blisters, heat strokes and risk your life. As an American patrol agent, you move fast and can drive a car, and you do not risk your own life. Instead, you are in a position to save lives. This latter position is one of privilege, and expresses a social hierarchy based on nationality. These two perspectives also aestheticize a broader process of expulsion and expansion, where a specific force redirects human fluxes. This is the force of a border regime, or a "bor-

13 See also Braida (2018).

14 In the game, you are often asked whether to rest and gain energy—but become slower—or to keep going and risk physical collapse. It is not only the coyote that manages the dynamics of the group or "crossing party," but also your choices. If somebody suffers a wound you might help them, but this decision could compromise your virtual destiny: if you decide to offer some of your antibiotics, you could run out of medical supplies and perhaps lose your life.

derscape."[15] *The Migrant Trail* focuses on the border between the US and Mexico, but the regime it simulates could be any deadly border regime. It simulates a relationship between the migrant and the border, and how one affects the other, or how the latter defines the former. In this case, the border primarily excludes.

Thomas Nail understands the border as "something to be created not only by the societies that divides them within and from one another but also something that is required for the very existence of society itself as a 'delimited social field' in the first place." (2018, 4) The function of borders, following Nail, is not simply exclusion and inclusion, but also different forms of redirection and circulation (2015a, 2016, 2018). The migrant, from this perspective, is a fluid figure caught between different historical categories of mobility and social expansion, and they are defined with respect to the social order from which they are expelled (2015a). The migrant figure also forms part of Nail's political theory, which he calls "kinopolitics" or the politics of movement (2018). As Nail claims, "societies themselves are not, as they are often treated, static entities of fixed members, but continuous circulations of metastable social flows." (2015b) Today, the condition of what we call migrants and refugees is central to our understanding of where power exercises or redirects these flows. In "liquid modernity", some people can act and move faster, while others are compelled not to move (Bauman 2000). Or, in Nail's words, they are constrained by "junctures," and expelled to or from a certain circulations, which in turn allows others to expand their movements. Returning to the *Migrant Trail*, I found it very troubling that as a border patrol agent in the game, you can use a radius—a sort of radar vision—to catch migrants. And as a migrant, you must elude this radius by walking in opposite direction. This scenario strangely echoes the process of expulsion and redirection of flows. It simulates the border relationship between Mexico and the US, and how this affects and defines the condition of migrants.

15 The term is taken from Perera (2007; 2009) to indicate the "patterns of connection and division that invest the relations between radically heterogenous borderscapes." (Mezzadra and Neilson 2013, 9)

Nail's concept of the migrant goes beyond our everyday understanding of the word. It does not coincide with the juridical notion of either "refugee" or "migrant" but instead shares more in common with Giorgio Agamben's notion of *homo sacer* (1995). For Agamben, this figure of old Roman law defines a condition of inclusion by exclusion, and is at the very origin of politics: the *homo sacer* is both excluded by the law and the reason it exists (as the exercise of sovereignty) in the first place. Their life is not sacrificial by law, but if they are killed, there is no law that would condemn the act as homicide (ibid.). As Achille Mmembe argues, it is a life which is fundamentally disposable (2003). This leads Mbembe to define what he calls a "necropower" that, in a state of permanent emergency, expresses itself through its "right to kill." (2003) This concept of power reminds me both of how uncomfortable it is to control the life of a migrant, and to not be able to determine your *own* life as a migrant in *The Migrant Trail*. At the same time, this power is not exactly what the patrol agent experiences. Indeed, the border decides the migrants' fate—not the agent (or perhaps it is the game's algorithm). As a patrol agent you are equally powerless; you can deny entry across the border and expel migrants, but this capacity is itself determined by other, hidden power relations that delineate the border. And luck is the only protection migrants have against it.

These refugees and illegal migrants, then, are at the bottom of what Nails sees as a fluid hierarchy that affects people´s movement. For Bauman, this liquidity affects people on different levels, and accelerates or decelerates their movement within the world. In "liquid times" Bauman argues:

> Domination consists in one's own capacity to escape, to disengage, to 'be elsewhere', and the right to decide the speed with which all that is done—while simultaneously stripping the people on the dominated side of their ability to arrest or constrain their moves or slow them down. The contemporary battle of domination is waged between forces armed, respectively, with the weapons of acceleration and procrastination. (Bauman 2000, 120)

Indeed, for him, rapidity and ease of movement are today the privileges of the few, and reinforce the uncertain status of everyone else; they are the key to domination and the first agent of social division. On the one hand, refugees and illegal migrants are those that are usually condemned not to move and to be dominated; on the other, as Nail stresses with his theory, they demonstrate the only "resistance" to this condition of domination. They move in spite of the laws of a liquid globalized society, while facing death and the loss of basic human rights. *The Migrant Trail* simulates the border and how domination affects migrants' movements within it.

In 2018, following a call on social media networks, a group of migrants from some of the poorest countries in central America formed what the media would subsequently call a "caravan" (a wagon trail). Around 3500 people wanted to escape criminality and famine and reach the US border (BBC 2018). As a "multitude" in Hardt and Negri's terminology, they embody Nail's definition of the migrant—especially if we understand it not as a powerless figure, but of resistance to border regimes.[16] The response was to treat it as an act of war: Trump sent troops to the border with Mexico. But this "multitude" is crucially different from the small group of migrants presented in *The Migrant Trail*. Their journeys are the most common way to cross the border: they fear being caught by police patrols, and rely on coyotes to make it to the other side. Invisibility is more important than visibility in this context.

As well as this invisibility, the negotiation of time and space, weather, and health conditions is fundamental to a "successful" outcome in *The Migrant Trail*. But what does success mean other than crossing a border illegally? The game, by wanting to raise awareness

16 Hardt and Negri define the multitude in their book *Empire* thus: "This constituent aspect of the movement of the multitude, in its myriad faces, is really the positive terrain of the historical construction of Empire, […] an antagonistic and creative positivity. The deterritorializing power of the multitude is the productive force that sustains Empire and at the same time the force that calls for and makes necessary its destruction." (2000, 61)

about the death toll, unfortunately replicates the same border conditions present in real life. How can a game instead resist or challenge this same view?

3.2 Rules of the Game

Every computer game is made using a certain set of rules. For Juul (2002, 2011) these rules, might be simple while allowing strategies and variations (games of emergence) or they might be embedded in the story itself, as goals, challenges or quests (games of progression). The latter might be even presented as set of choices: where to go (north or south, right or left), or what to do (open a door, take poison, etc.). In *The Migrant Trail* and, for instance, in the serious game *Against All Odds* (2005), rules are often masked as questions. The latter game puts you in the role of a migrant/refugee. The narration does not cover exclusively escape or border crossing; instead, it is divided into three sections, as you come to understand the reasons for leaving your homeland, escape, and finally arrive in a new country and claim asylum.

In the first part of *Against All Odds,* set in an unspecified country where a new government is threatening basic human rights (like freedom of speech), you play a citizen who has been arrested while protesting the regime's rights violations. This section of the game is called "War and conflict," and the goal is to escape persecution. A text explains: "you have been called for questioning because we suspect you have dissenting opinions. We will give you 10 statements to respond to. We hope your answers do not conflict with the interest of your country." You are then presented with simple statements to sign such as "Do you give up your right to vote?" You can pick "yes" or "no," but if you disagree you are beaten. Blood will drop on the statement page until you sign it and affirm "their" vision of reality. These options are part of the rhetoric of the game, which makes it clear that you do not have any choice: you must accept the new regime and your consequent loss of freedom. In fact, if you persist, you end up in jail. Nevertheless, the game lets you play again and if you lie well you might be able to escape the regime. What

we learn is that living in an oppressive regime means we have no choice but to submit to draconian rules, and subversion will be repressed with violence.

Against All Odds is an educational game, financed by the UNHCR as a tool with which teachers can help children understand the refugee experience. Like *The Migrant Trail*, the game was developed with Adobe Flash, and uses computer animation software to draw its characters. The graphics are simple, and the gameplay is divided into a series of steps spread across the three sections. Within the game, the player engages with different styles of gameplay. At the beginning, the player adopts a first-person perspective when they sign away their rights to the regime, but other parts involve a God-like perspective (when you escape the city) or mimic a drag and drop game (when you decide who is viewed as a refugee and who as an economic migrant). Each part therefore uses a different scenario to make certain statements, and to construct a rhetoric.

Since the early 2000s, game scholars have claimed that, although games share common elements with narrative media, they have essentially different mechanics, and therefore offer other rhetorical possibilities (Frasca 2003). In *Persuasive Games*, Ian Bogost explores what he calls "procedural rhetoric," which is "the practice of using processes persuasively." (2007, 28) Procedurality is a characteristic of computational objects and is, as Janet Murray argues, the ability to create meaning by executing a set of rules (1997). As Bogost explains: "procedural rhetoric is a subdomain of procedural authorship; its arguments are made not through the construction of words or images, but through the authorship of rules of behaviour, the construction of dynamic models." (2007, 29)

The rhetoric of *Against All Odds* works by addressing the user's ability to make choices in a repressive regime. The rules of the game tell us to pick between different options. Nevertheless, only by choosing to commit to the regime are we able to proceed in the game. The procedural rhetoric tells us: we have no choice but to submit and renounce our personal freedom. Bogost further suggests that games deploying procedural rhetoric often have or encourage reflection upon political

values, and to do so he discusses web-based game *Kabul Kaboom* (2002). The game questions the post-9/11 attacks by the US in Afghanistan. In it:

> The player controls an avatar borrowed from Picasso's Guernica to catch hamburgers (representing air-dropped food) while avoiding bombs. The game highlights the simultaneity and inconsistency of aggression and relief. Eventually and inevitably, the player contacts a bomb, and the game depicts a scene of dismemberment. (Bogost 2007, 85)

Bogost claims that this specific procedural rhetoric, which condemns the player to failure, uses tragedy as a trope (2007, 85). This "rhetoric of failure" characterizes videogames that make "claims about how things don't work." (Ibid., 85) In the first part of *Against All Odds* we must deny our belief in freedom to go further, and the impossibility of reaching your goal in *The Migrant Trail*—crossing the desert illegally, and reaching a road where a pickup is waiting for you—also adopts this rhetoric of failure.[17]

And yet, both *Against All Odds* and *The Migrant Trail* are not just games: the death toll behind these simulations is real. As aforementioned, in *The Migrant Trail* the epilogue of the patrol agent story includes a map: not a typical map that shows the topography or the geography of the border, but a "counter-map." Counter-mapping is a practice of re-appropriating the territory which was taken or expropriated by colonizers. It aims to question to whom a territory belongs, but it also highlights unseen parts, or what is left blank. It also means challenging borders. The map at the end of *The Migrant Trail*, for example, is featured as part of an interactive map on the website of the broader transmedia project. Its aim: to record the territory by tracing

17 That said, this might simply reflect my game-playing skills. Indeed, I found a video on YouTube that shows a player successfully completing *The Migrant Trail*. The user also uploaded other videos which show them succeeding as a patrol agent or playing as an unsuccessful migrant. See ("Migrant Trail [played as Migrant Successfully]" 2014).

both the remains of the migrants, and what they leave behind. Those material remains are the image of disposability. If you think about the game in relation to its filmic counterpart, *The Undocumented* it becomes clear that this is a forensic process which begins after the crossings themselves. This practice, to locate and commemorate (often together with migrants' belongings), gives a name, and thus an identity to all those undocumented deaths that the border regime produces. Like waste, or scattered records, identities are partly recomposed. This is the game's counter map.

The Migrant Trail and *Against All Odds*'s rhetoric of failure allows me to understand the difficulty and danger of a migrant's journey through the desert. Nevertheless, the games do not ask us to question why there is such an oppressive and deadly border regime. In *Against All Odds*, we escape from an oppressive regime so as to find a new life in foreign and but discriminating country. It teaches me that I have no choice but escape or suffering. The repetitious gameplay makes me uncomfortable, because I do not want to make unethical choices in order to win the game, and yet I still want to *win* the game. The negotiation of life and death from this perspective is disturbing. I might play simply to get caught by the police, imprisoned, but crucially keep my life. What kind of choice is that, and how do we challenge such conditions?

Media psychology scholars analyzed the influence of individual moral intuitions on decision-making in videogames (Joekel, Bowman and Dogruel 2012). They tested both adult and young groups, and hypothesized that an individual's sense of morality plays a unique role in the game experience and can affect how one interacts with certain games. They constructed a scale of issues with more or less moral weight. They discovered that a player's prior moral judgments often affect the way they make decisions in games. When simulations depict a very urgent issue, we are of course influenced by the media we consume, and thus already have a specific disposition towards it. Indeed, we are constantly fed images of refugees, through social media and the news. Consequently, in some respects, even before playing the game itself, we have already played it. This might explain why the

game's rules make us uncomfortable: they directly relate to the rules of real life.

Mia Consalvo has shown with regards to fictional games, there is no clear boundary between the rules of the game and those "outside" of it. She indeed rejects what Huizinga calls the "magic circle" of play ([1938]1950): an enclosed situation where the rules of everyday life are suspended (2009). For her, previous paratexts influence play practices. A game in this sense is not only, as Juul argues, definable because of its structure, but also because it is a "contextual, dynamic activity, which players must engage with for meaning to be made" (ibid., 411). In sum, *The Migrant Trail* and *Against All Odds* produce different readings and interpretations, depending on our biases, the prior knowledge we possess, and the sorts of images and feelings we associate with the subject. I step into the role of the migrant, make decisions for them—often unethical ones—and, especially in *The Migrant Trail*, I cannot help them to succeed. I am caught, imprisoned, rejected. I am treated as pure waste. Even in *Against all Odds*, which is critical of unspecified repressive regimes, as well as the bureaucracy and intolerance of supposedly "welcoming" countries, I do not feel accepted and am treated with indifference.[18] Still, I keep on living. Despite my precarious condition I can fail and try again. But I feel hypocritical: we pretend we can be like them, and understand their suffering, but we are just playing.

This paradox is at the heart of our uncomfortable feeling while playing a game that simulates reality, and thus positions us in the role of managing, regulating, and supporting the human existence of migrants as individuals—but not empowering them as part of a community. Indeed, as Lilie Chouliaraki might say, these games are an example of a post-humanitarian practice where "the pleasure of the self has become

18 It is interesting to note that *Against All Odds*' "English" version went offline. However, you can still play it in other languages such as German. There is also a gameplay review of *Against All Odds* on YouTube. It is a complete mockery of the game and highlights its inconsistencies and the oddness of some of its features and gameplay ("Against All Odds aka. "dem FLÜCHTLINGSSIMULATOR" - Review/Walkthrough 2016).

the heart of moral action." (2013, 4) The superimposition of our pity and pleasure, as well as solidarity and domination, is the reason I find the user-oriented gameplay disturbing. As players we are oppressed by the power of the border, yet the gameplay enables precisely such an exercise of power. I feel inadequate, and this provokes a form of estrangement: I am reminded that this is not just a game. But if in the simulation we are vulnerable others, in reality we are merely ironic spectators (Chouliaraki 2013). After playing I still ask myself, "how can we change the situation?" But I do not have an answer.

3.3 Verfremdungseffekt

If a game's meaning is not only contingent on how it is structured using a specific procedural rhetoric but, as Mia Consalvo suggests, its dynamic negotiation with users, how can we create a game that engages with genuine social change? Here, it is useful to turn to the concept of Brechtian "distancing effect"[19] or *Verfremdungseffekt*. Gonzalo Frasca applies this idea to the fact that in videogames we are often reminded of the virtual nature of our immersion, or about reality outside of gameplay. He argues that, in contrast to theories around flow and immersion, which look at how those who engage and identify with the story are immersed within it, Brecht views alienation as way to encourage critical reflection upon theatrical performance (Murray 1997, 2011; Bogost 2007). He explains:

> some drama theorists do not promote immersion as a desired goal. German playwright Bertolt Brecht developed a theory of drama that was clearly against Aristotle´s ideas; he argued that Aristotelian theatre keeps the audience immersed without giving them a chance to take a step back and critically think about what is happening on the stage. Brecht created several techniques, known as A-effects, in order

19 Also referred to as "alienation" or "estrangement."

> to "alienate" the play, reminding the spectators that they were experiencing a representation and forcing them to think about what they were watching [...]. Instead of being "inside the skin" of the character, he wanted them to be a critical distance that would let them understand their role. (Frasca 2001, 169-170)

Drawing on Boal's theories of the theatre of the oppressed, Frasca suggests that a game that requires a critical rethinking of the role of characters and rules might offer a space for discussion and the challenging of social realities. Therefore, if we reconsider this *Verfremdungseffekt* as a part of refugee games, how can a critical distance while playing be developed? What I described previously as a "disturbing" feeling can also be understood as alienation. And this particularly concerns serious games. The ability to disconnect ourselves from the narrative of being a migrant or going somewhere else is to reflect on what we are doing (or what we might be doing instead). At some point it becomes uncanny, but for many it might only happen once you rethink your gameplay from a critical perspective. That is, once you return to your own shoes.

For Brecht, however, *Verfremdung* was a way of depicting a theatrical situation in such a way that the audience would think and act differently. For instance, when a character is "supposed" to be enraged, the actor builds this "estrangement" by acting in a strange way, thus making people reflect on rage as only one of multiple emotional possibilities (Brecht 1964). He wrote about *Verfremdung* and its benefit thus:

> Where does this get us? We arrive at a point where spectators no longer see the persons on stage as unchangeable, closed off to influence, helplessly resigned to their fate. They see: this person is like this because the conditions are like that. And the conditions are like that because the person is like this. But this person can be imagined not only as he is but also otherwise, as he could be, and the conditions too can be imagined other than they are. (ibid. 168)

The techniques used for *Verfremudungseffekt* speak of a theatre where emotions are collectively negotiated with the audience, and not performed by the actors to encourage "empathy" and immersion. A typical

move is directly addressing the audience. Brecht would ask questions about the theatre that are akin to the questions that game designers and scholars currently ask. He was concerned with how to make the theatrical experience both entertaining and instructive.

Like theatre, a game is a performance, and Frasca's argument concerning the possibility of designing games to foster critical thinking needs to be discussed further. If the experience of immersion and embodiment can bring us a gratifying feeling of acting smoothly in the virtual world, this pleasurable act conflicts with our moral sentiments. This is especially true if we are constantly reminded of the discrepancy between our comfortable position and the precarious condition of a refugee or migrant. This potential feature of video games represents a good technique of *Verfremdungseffekt*. Yet, how are we to construct the collective aspect of this negotiation, and use interactivity as a tool rethink the rules of the border regime?

Video games, and especially single-player games, are often solitary experience. However, some game scholars have explored how gamers build communities and negotiate emotions through MMOs, or Massively Multiplayer Online games. In these communities, the space of the game becomes a place for the negotiation of emotion itself. These games "allow player[s] to explore unfamiliar and challenging terrain and to share their experience" (Isbister 2016, 118). Further, multiplayer online games sometimes require "elaborate plans and communication among players through voice-based or text-based chat." (Ibid.) Games—especially web-based games—can therefore offer the possibility of collective action. It is simply a question of finding a way to act collectively. In this case, we would not simply accept the sad and gruesome destiny of vulnerable others, but see it as just one possible outcome. Interactivity and procedurality in serious games and other interactive practices are strategies that can invite users to make decisions and develop a different rhetoric, but the point is that we need to collectively negotiate the simulation and change the rules. Provoking empathy through the illusion of putting ourselves in the role of others only produces pity and a sense of "solidarity." We do not act, but instead feel for the other. This

is not the path to rethinking our global society, which we share with refugees and migrants. They need to be empowered, not pitied.

3.4 Freedom of Choice. Text-Adventures and "Regimes of Circulation"[20]

In the quest for a new online audience, media outlets, broadcasters and news media are adopting new strategies like interactive practices. We might see this use of game features as part of a "ludic" turn in media (Raessens 2014). I would like to discuss three different projects produced by *The Guardian*, the BBC and Channel 4 between 2014 and 2016. *The Guardian* is one of the pioneers in tailoring online content. Indeed, it was the first to create its own "interactive" department. The first "interactive team" was composed of only a few staff members and was lead by Francesca Panetta, who is often a speaking guest at the IDFA Interactive Conference in Amsterdam.[21] The BBC news also has its own "interactive" department, which takes care of online content. Its role is to respond to growth in the use of new technologies and thus "make their content available to people whenever and wherever they want." (BBC 2019)

In 2014, *The Guardian* released its first interactive adventure, a typical text-based adventure, entitled *The Refugee Challenge: Can You Break into Fortress Europe?* The interactive adventure (fig. 6) is available both on PC and laptop, and is optimized for mobile access. This choice-based journey makes use of text, maps, and photos to show user progression in the game. Labelling this sort of media object a "game" is perhaps a little imprecise, as the game's structure is instead typical of text-based adventures. Choice-based storytelling has a longer tradition that goes beyond games: it is a form of non-linear narrative that gives the reader, viewer—or user in this case—a certain freedom in the development of

20 See Nail (2018) for more information on this concept.

21 She is now XR Creative Director at the MIT Center for Advanced Virtuality (MIT Open Learning 2020).

the story.[22] Nevertheless, the choices are not endless, so a predetermined structure is present. I would argue that *Refugee Challenge*, then, is a game, as it invites you to "play," or at least that is what the title suggests by requesting your participation in a virtual challenge.[23]

The storytelling is organized in a branch-like structure. You begin from this premise: you have to take the role of a female refugee, a young Muslim widow, who, forced by the war in Syria, decides to use her money to plan a journey to Europe. Thus, the narrative introduces you to a refugee at a crucial juncture in their life—a moment in which you need to make a choice to go further: you must decide if you want to travel to Europe or go to a Turkish refugee camp. The text tells you that it will be safer to go to Turkey, but given that the challenge is to break into Fortress Europe, I am compelled to choose the riskier option. If you decide to stay in a refugee camp in Turkey, you have the option to apply to a resettlement program run by the UNHCR. Alternatively, you may try to get to Europe illegally from there. If you apply for the program, you will be told that you chances are very low. Again, you must decide if you want to stay in Turkey or illegally travel to Greece.

Two journalists from *The Guardian* wrote and shot this text adventure (John Domokos made the videos and Harriet Grant wrote the text) and two members of the interactive team—Seán Clarke and Paul Torpey—produced it. Domokos explained in interview that part of the reason why they decided to create such an interactive experience was because they had a lot of material left (they were reporting the situation for a video reportage), and they wanted to discuss the different routes and difficult journeys they had witnessed since the beginning of the Syrian civil war (2016). The structure the game allows for the recounting of multiple journeys, and many videos in the adventure indeed recount

22 This is a common structure in interactive fiction—even in recent iterations familiar to broader audiences, such as the interactive episode of *Black Mirror* (2016-) entitled "Bandersnatch." Book series such as *Choose Your Own Adventure* first developed and commercialized interactive fiction.

23 The concept of a "challenge," though, reminds us of a competition—and thus a game.

what happened after the end of 2013 (the text-adventure was published, though, in 2014). In the game we are told, for instance, that in September 2013 Sweden offered to give asylum to Syrian refugees, which is one of the reasons that might encourage you to go to Europe. You always have two or three options, and if you go to Greece or Bulgaria you might be sent back (these sort of events are often linked to real reports that include audio-visual material). Once you play and start the challenge, you are advised by the text and linked article you are reading that the best option is to reach the EU and in particular Sweden. You can also go to the UK, but the longer journey to Sweden will give you more rights. You are presented with a safe option and dangerous option, but you often take the riskier of the two because, in the end, the better way to get to Europe is illegal.

Fig. 6: The Refugee Challenge: choice-based structure

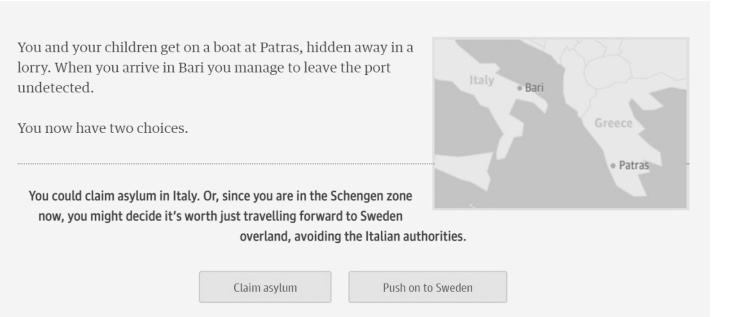


Image source: screenshot from The Refugee Challenge (2014), https://www.theguardian.com/global-development/ng-interactive/2014/jan/refugee-choices-interactive.

As the title of the game suggests, it focuses on problems with the asylum system in Europe. Bulgaria and Turkey, for example, are portrayed using images of fences; in Italy and Greece you find yourself in Europe, but the conditions of asylum seekers or refugees are worse that many other European countries. A video about Rome shows that refugees are forced to live on the streets, as there is no reliable system to

take care of them. The continent is represented as an enclosed place. It is not welcoming to you—despite Sweden and other countries opening their borders around 2013— because you can only apply for asylum after the Dublin Regulation has been enacted in your first country of landing, or you reach a refugee camp and secure help from an Aid organization first (European Commission n.d.). Regardless of the perilousness of the journey, however, it is ultimately easy to reach Sweden and succeed.[24]

A text-adventure that the BBC news published one year after *The Guardian* treats border crossing to Europe somewhat differently. In *Syrian Journey: Choose Your Own Escape Route* (2015) you are once again asked to become a Syrian refugee (the title refers to a children's book series of interactive games first published by Bantam Books and now owned by Chooseko LLC).[25] In 2015, a peak number of refugees tried to reach Europe, and this was followed by some questionable agreements between Europe and Turkey. This text-adventure does not make as much use of photographs as *The Guardian*'s example; instead, it uses drawings as re-enactments or possible outcomes of your choices. However, some character's stories are shared as video content at the end of the

24 Once you arrive successfully in Sweden you read the following: "You explain to the officials why you left Syria and within a month you are told you have permanent residence, an offer they have made to nearly all Syrians since September 2013. You are given social housing and free Swedish lessons. The way that refugees are treated varies wildly from country to country. Experts warn that as long as these differences exist, people will continue to make dangerous journeys to reach countries where they feel they will have support in the challenging task of building a new life. Of all the Syrians who have claimed asylum in Europe since the conflict began, around 55,000 people, more than 70 per cent made their claims in just two countries, Germany and Sweden. In 2012 the Swedes received 7,814 asylum requests from Syrians—more than France, the UK, the US, Australia and Canada combined. 12,000 Syrians have applied for asylum since September 2013 when the offer of permanent residency was announced. But the vast majority of exiled Syrians are nowhere near Sweden. Instead they carry on with their suspended lives in the refugee camps of Jordan, Lebanon and Turkey" (The Refugee Challenge 2014).

25 After Netflix produced and aired "Bandersnatch," the first interactive episode of *Black Mirror*, Chooseko sued them for trademark violation (Gardner 2019).

text. Additionally, the BBC created a hashtag (#whatwouldyoutake and #Syrianjourney) to invite users to participate with their own story.

The text-adventure works like *The Guardian* iteration, although you may now decide if you want to start as a man or as a woman. Next, you embark on a journey towards Europe. At least, reaching Europe remains our ultimate goal. But in comparison to the easiness of *The Guardian* text adventure, the choices presented in *Syrian Journey* are much riskier. You can die, lose your family, or be separated from them. All the outcomes of the journey, as the journalist and makers declare in the homepage, are based on real stories that they collected during their research. The text adventures use drawings to depict the cruelest outcomes: you might end up drowning, being sold to militias, or failing to reach the shores and becoming stranded and penniless. As with the rhetoric of failure in *The Migrant Trail*, you have no freedom of choice. You are put in a vulnerable position, cannot move, and are oppressed by a form of "necropolitics" (Mbembe 2003). You recognize this discrepancy and feel discomforted and helpless. And you may have to play many times before reaching a "happy ending," which could mean being rescued by a ship during your perilous Mediterranean crossing (which cost you an inordinate amount of money). However, you are not going to know what will happen next, or how happy this ending really is.

It is interesting to reflect, here, on the use of the role-playing narrative—the "choose your own adventure" trademark. In both examples, the user is invited to step into the shoes of a character. Whereas in *Syrian Journey* you are an unspecified male or female Syrian refugee (it makes almost no difference to the outcome), in *The Refugee Challenge* you are a named female. The latter story is based on a real character, Karima, a 28-year-old Sunni woman from Aleppo, and a widow with two children. The first photo you see—although not providing a clear reference to the aforementioned woman—shows two women with two children in front of bombed ruins. This is the reason that your character chooses to escape. In comparison, the first image in *Syrian Journey* shows a family: a man and a woman with children. But in this case, it is a drawing. There are a finite number of drawings in the story—depicting the outcome of your choices—that are used to represent different endings. Drawings

as animations can depict the most violent outcomes without creating too much emotional discomfort or distress in the viewers.

Although both text-adventures make use of a role-playing feature, *The Refugee Challenge* is more "faithful" to news aesthetics. Indeed, it mostly uses photos and videos taken by the same journalists that wrote the text-adventure. In *Syrian Journey*, the comic-like graphic and also the indefinite gender role of the character/avatar allows the story to become more fictional, despite both being based on real stories. The populist newspaper *The Daily Mail* criticized the BBC for having produced "a sickening game." (2015)[26] The newspaper saw the game as uninformative, and only depicting a macabre journey.

Roger Odin's concept of "documentarizing reading" is relevant in this hybrid context, in which journalism and games combine with interactive storytelling features. For him, every text can be read semio-pragmatically through a "documentarizing reading." (Odin, [1984] 1998; 2000) This semio-pragmatic approach is a methodology that considers not only the text but also its reception, and thus what Odin refers to as the space of communication. This method allows for the possibility that texts can generate multiple readings, or that different meanings can be applied to the same text. The process of this "documentarizing mode" starts with the "real enunciator"—that is, the viewer or receptor of any media ([1984]1998; 2000; 2011). In our case, it could be the creators or journalists from *The Guardian* and BBC news. The platforms themselves then are spaces which enable such documentarizing reading. The use of photos and videos help to legitimize this reading as they offer evidence or "truth." Nevertheless, *The Daily Mail*'s critique represents a distorted reading. Further, if we consider playing such text-adventures or other serious games in a different context to that of a journalistic platform, a festival dedicated to documentaries, or the website of UNHCR, this

26 See also Braida (2018).

would change the nature of the documentarizing reading and thus produce a completely different text.[27]

Nevertheless, it is possible to produce a documentarizing reading of serious games. Some researchers demonstrate how certain strategies can reconstruct a reality that points to a documentarizing mode (Ibanez-Bueno and Allain 2017). In some serious games this is achieved through CGI and the construction of a model that simulates reality. This model is built using a recollection of facts and usually puts the user/viewer/actor in a first-person role, as for instance in *Against All Odds*. Other broadcasters use this same idea of a choice-based interactive narrative and employ text, photos and video material in a more dynamic way. A good example is Channel 4's *Two Billion Miles* (2016), an "interactive video story" which aims to count all of the miles Syrian refugees covered during their exile from their homeland. Upon arriving on the homepage, a looped video shows you images of a boat crossing the sea, refugees walking along fences, and stranded migrants taking shelter somewhere in a city.

The stories explore what happened in 2015 when media outlets began to talk of a "refugee crisis." As Germany and other countries in northern Europe opened their borders to refugees from Syria, migrants from other countries were also tempted to claim asylum in Europe. The story's branch-like structure is exactly the same as the previous case studies. But here, audio-visual material is of greater importance. Although most video material is combined with dramatic extra-diegetic music, we are sometimes able to listen to interviewee testimonies. Subtitles provide narrative progression and address us directly. As in *Syrian Journey* or *The Refugee Challenge*, the text creates narrative flow and provides you with choices (fig. 8). In contrast to previous examples, you cannot choose your character. Instead, an algorithm randomly selects a location from where you must start your journey, and you are given some details about your struggles and goals.

27 This is what happens when video-captured gameplay content is uploaded to YouTube, and the player or commentator misinterprets the game's reception. I here refer to the YouTube video mentioned in footnote 98.

Fig. 7: Two Billion Miles' Homepage

Image source: screenshot from Two Billion Miles (2016), http://twobillionmiles.com/.

However, narrative choices here are more numerous, and thus the structure of the non-linear stories is more complex. We can start our journey from Syria (different cities such as Aleppo, Homs and Damascus), Iraq, Sudan, Nigeria, Somalia or Eritrea. Different reasons may be offered as to why you chose to escape: civil war, repressive regimes, state violence. The narratives converge once you attempt to cross the Mediterranean or reach Europe by land using the Balkan Route. If you start in Africa, you end up either in Libya or Egypt; if you start from Syria you might end up in Turkey or Lebanon. Still, you try to reach Europe by land or by sea and thus end up in Italy. Once you reach a country in which you can apply for asylum, the narratives converge again. The stories cover many countries: Turkey, Lebanon, Macedonia, Serbia, Croatia, Hungary, Austria, Germany, Italy, France, UK and Sweden.

Every sequence presents a video short story that you can always skip in order to reach the next crucial narrative point. Sometimes, news broadcasters provide the videos, as evidenced by the videos' lower-quality resolution. These videos explore all of the significant episodes and developments from 2015. For instance, we witness some already iconic

Fig. 8: Two Billion Miles :an algorithmically selected journey in Northern Iraq. The choice-based narrative asks you to make you first decision

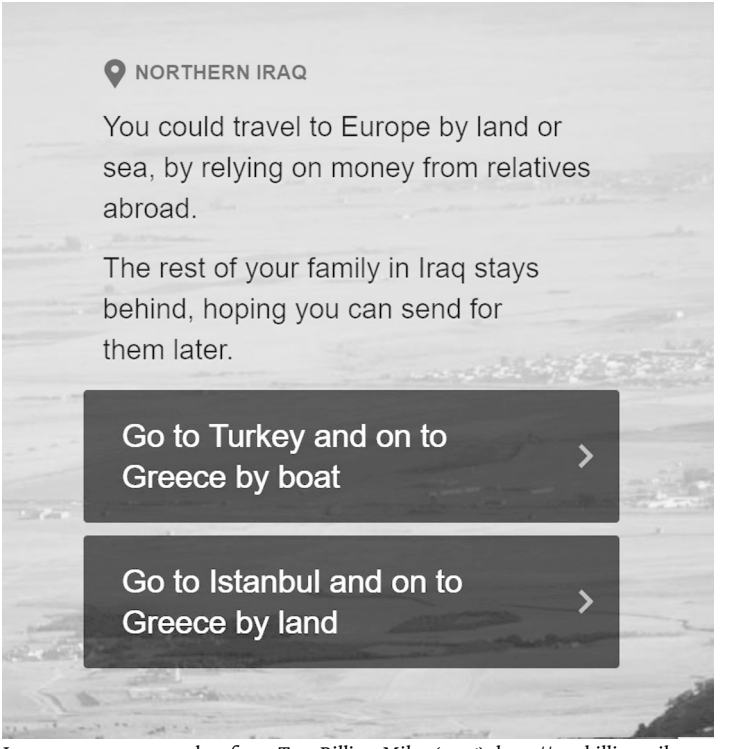


Image source: screenshot from Two Billion Miles (2016), http://twobillionmiles.com/.

images: the death of the young boy Aylan Curdi on the Turkish coast, the rescue of a group of refugees by Italian coastguards, and, once again, images of police brutality visited upon migrants at the border between Serbia and Hungary. At the end of every journey, a collection of video links offers you the opportunity to watch additional Channel 4 news broadcasts on its YouTube Channel.

In terms of narrative progression, the video material is secondary to text. Moving images here work mostly as a commentary on the actual story. There is only one dead end in the game—when in Libya, you choose to board a smuggler vessel—but otherwise the narration evolves, as you make many attempts to cross borders, and negotiate with smugglers. Hopefully you succeed in reaching Europe. Once you enter a European country, you have the option to start another journey in order to reach a place where refugee conditions seem more favourable. The stories paint a clear portrait of an uneven Europe. Southern European countries are often a long stop rather than a final destination. Settling in Italy or Greece might make you consider other options, because the countries' refugee camps are often crowded and asylum procedures take too much time. Chaos reigns. Mediterranean and eastern European countries are also unwelcoming. Setbacks, mishandling, poor conditions, and the violation of human rights are part of the daily routine in some eastern countries like Turkey and Lebanon. Even cities in eastern Germany like Dresden are not particularly friendly to refugees, whereas West Germany seems more tolerant, and on par with Sweden and the UK.

The continuity established by the audio-visual material and accompanying soundtrack makes the experience of playing *Two Billion Miles* fluid. You do not simply read text and make decisions—you also watch and listen to a coherent succession of events. However, compared to the BBC and *The Guardian's* simpler text-adventures, you do not really care or identify with a character, and the role-playing element is simply a thread that ties together the narrative of facts and news. The story's branch-like structure is therefore less visible, and you are often not aware at which step of your journey you have arrived (in *Syrian Journey*, for example, this is made explicit through a simple map on the right column of the page). Thanks to the clarifying nature of videos and actual interviews, there is no risk of a distorted reading. Instead, crucial decision-making points in the narrative feel more like constraints on the flow—a rupture in the flux of images. In contrast, *The Migrant Trail*'s interruptions and discontinuities offer you time to reflect; but here, you do not have to interact as much or control your avatar. You are merely

a witness: while watching the images, your perspective is more akin to the reporter's that shot the images, or perhaps a viewer watching news footage on TV. *Two Billion Miles*, then, is more of reportage-like: despite the immersiveness of its audio-visual flow, we rarely adopt a refugee's specific, subjective point of view. Indeed, this only happens in the text narrative.

This sort of interactive reportage, in which we are able to explore a number of migrant journeys, fulfils the journalistic purpose of collecting and retelling real refugee stories. It uses video material as evidence of these retellings. *Two Billion Miles* is a testimony to the inequality and diversity of European responses to the "crisis;" Europe is not simply a fortress, but a complex organism where different bordering processes coexist. The game experience simulates different forms of negotiating the border regime from different locations and positions—but never from the position of a privileged European citizen. If a border, following Nail, exists only as long as it is performed, it becomes clear that the border politics behind pushbacks (forms of expulsion) and crossings (flows and circulations) are permanently renegotiated. Even if a migrant manages to survive and reach the EU, her social position is still unstable. In other words, as Nail reminds us, even if migrants decide to move, they will never be "free to determine their social conditions of their movement." (2016, 34).

All these case studies show how media outlets adopt online strategies, using game structures and interactive storytelling tropes to attract different audiences. That said, what these examples in fact simulate are simply different "regimes of circulation," which end up recreating the space of the border (Nail 2018). In the following paragraphs I explore the specific space of refugee camps by investigating interactive practices that asks the user to step into the role of a reporter.

3.5 Witnessing Refugee Camps

What does it mean to become a reporter and travel to a refugee camp, or meet aid organizations and refugees that escaped war, famine and per-

secution? These are the premises of two newsgames produced in 2014 by ARTE and by the production company Submarine Channel: *Refugees* and *Refugee Republic*. The newsgame is a hybrid that sits at the "intersection of videogame and journalism" (Schweizer, Bogost and Ferrari 2010, 6). Although we could distinguish between various formats, the focus in these two newsgames is clear: the user takes on the role of a reporter. Although *Refugees* became unavailable in 2018, a YouTuber uploaded a video capture of his playing the game (in German), so that audiences could view one specific episode of the newsgame. It is therefore still partially accessible as an individual's recorded gameplay experience.

Fig. 9: Refugees: YouTube gameplay video

Image source: screenshot from YouTube.com, https://www.youtube.com/watch?v=FJE-qjbY8VM.

In figure 9 you grasp the game's aesthetic: you are face to face with your chief reporter, who gives you a task while you take notes. You must report on four refugee camps. In this way, *Refugees* is not a CGI simulation, but combines photos and videos with computer graphics and gameplay. It functions like a role-playing game and looks like a point-and-click adventure (Adams 2014, 565; see fig. 10). This means that there are graphic symbols to click on, and through them we make choices: for

example, by clicking on one of the icons, which becomes visible once we reach a specific location on the refugee camp map, we can either watch a video-interview or reach another point on the map. We have two maps: one appears very briefly before we start the journey, and shows the location of the place we are going to visit (Nepal, Iraq, Lebanon); and the other is always available during gameplay, and shows the refugee camp itself, or at least the location chosen by the creators. In this newsgame, there are three different refugee camps (in Iraq, Lebanon and Nepal).

A group of ARTE-hired journalists did most of the pre-production work, such as writing the scenario and sketching the structure for video material. As Laure Siegel—one of the journalists—explained to me in an interview, they used Twine software to construct the choice-based structure of their first script (2015). Twine is simple open access software that allows you to create exactly the kind of choice-based interactive stories that the BBC, Channel 4 and *The Guardian* have made. The web development and game aesthetic were outsourced to the French company Method in the Madness. This work lasted a year and it involved weekly meetings with the ARTE journalists. The newsgame was released in episodes, and the first, that explores a refugee camp in Nepal, is the longest. The initial outcome was unfortunate: only fourteen players won the game during the first week of its release, and thus played it to the end (ibid.). For that reason, the team decided to shorten every video interview in the two subsequent episodes set in Iraq and Lebanon so that they only lasted around one minute.

In contrast to the BBC, *The Guardian* and Channel 4 text adventures, this web-based interactive possesses a clear game structure. Its gameplay— "everything a player can do while playing the game" —has an explicit goal and offers rewards (Mäyra 2008, 17).

The layout of the user interface has two levels: a bi-dimensional level—or what Agata Meneghelli calls a *spazio rappresentante*, or the "representing space"—which simulates a computer desktop display, and a three dimensional level, which is the world of the game: the Kawergosk refugee camp (2007). The photographs belong to the world of the game, and at the same time to the real world. But the simulated and bi-dimensional space of the graphical interface belongs to a sort of *hors-*

Fig. 10: Refugees: an example of the point-and-click aesthetic and double-layer interface

Image source: screesnshot from Refugees (2014) © ARTE G.E.I.E.

champ that breaks with the world of the game, and enables our role-playing. This layout represents both a computer desktop in the game world, while also performing our subjective view from an invisible camera. At the same time, our positioning in the real world mirrors this two-dimensional level: we are in front of our desktop or laptop computer. When we conduct interviews, we are placed behind the camera. This layer is a control panel, and offers us the ability to disconnect through a "pause" symbol. The three-dimensional level is shot with a video camera and positions us just behind it. To emphasize the role-playing aspect, there is a "recording" symbol on the image, and we are able to press "abort the shooting" if we so choose. These graphic symbols further suggest our inhabiting the role of a video reporter. The indexical images are shot so as to give us a first-person POV during interviews and travel sequences. Diegetic sound further helps us to immerse in the world of the game.

The two-dimensional level also supports the role-playing aspect of the game: for instance, while playing, we receive chat messages from our editor-in-chief, who gives us feedback on our progress. If the world

in which we are immersed (the world of the game) is constituted by video recorded images, we are able to explore it on the two-dimensional level in which clickable symbols give us access to people and places. Everything is at once virtual and real. Stories of witnesses and interviews with aid workers are supposed to be trusted and are presented as truthful. Images are "real". At the same time, we are only "virtually" visiting and working as reporters. At the desktop-like level of the interface, we are able at the end of the exploration of one of the refugee camps to edit the material— video interviews and photos we browsed during the game—and shape a multimedia story that will be published with a link on a social network. Once the story is published, we receive "fake" feedback (a game reward) from the ARTE team. We post to real social networks, but the media-reportage itself is fake, because we are not ARTE journalists. That said, interviewee stories are testimonies of actual exile experiences.

This constant tension between the supposedly real and the virtual is reflected in the hybrid nature of the aesthetic, which combines two- and three-dimensional graphics. In the world of a CGI videogame, despite the often-realistic nature of the images, there is no such disjunction. It is even more discomforting and uncanny than the photographs used in *The Migrant Trail*, which evidenced the "truthfulness" of the fictionalized world of its computer graphics. But in *Refugees*, this double layering and double meaning works in reverse. The real world becomes the world of a game. How do these game strategies influence our perspective on the story of exile? What kind of view are we enacting? Is it that of a witness, with a point of view that we might have from our computer desktop, TV, or mobile phone? Is it just about watching news? Or is it about playing a game?[28]

The game structure is perhaps a way to attract particularly younger users with additional rewards, but the power of the video material dominates. That said, the configuration of the user experience, which for the

28 As Laure Siegel explained, the ARTE team received emails from gameplayers who wondered if they could be hired by ARTE. The game, in their "reading" was a training exercise to become a journalist (Siegel 2015).

first episode requires significant time, disrupts the flow of the moving-images. This structure might confuse and annoy users. For example, in order to view the map in its entirety, you must watch all previous material, which means you need around 30 minutes for each episode—which does not include prior game attempts if we wish to complete and "win" the game. We cannot skip interviews, but only "travelling" sequences that take us from one place to another on the map.

Although as compared to a traditional linear documentary or reportage we are given the impression of being able to make choices and create our own story, all that we can draw from at the end of the game is an archive of pre-recorded interviews and photos which give us little freedom. The reportage we can post online is also pre-written by an imagined ARTE reporter. It feels like pretending. Depending on our interests, we might find the exile testimonies relevant and compelling. Whatever the case, the overarching game structure adds nothing to player experience. Instead, it works as a voice-over, which leads us through a convoluted and confused story and frames witness accounts.

Another issue with the game is its emphasis on refugee camps. Focusing on the camps means adopting a perspective that is not exactly that of the refugees, but is instead an overview of the structural organization of international aid in non-western countries, and the infrastructure of humanitarian relief agencies. What we learn, then, is how the UNHCR and UNWRA (the organization exclusively responsible for Palestinians) help refugees in emergency situations. If the camp offers refugees the ability to act, it also confines them: that is, rights might be granted within the camps, but the space outside of them can easily take them away, or reduce refugees' social mobility. Moreover, the camps depends on the local government, which grants residents more or less rights. This is shown by the lack of recognition of Palestinians in a Lebanese camp; outside the camp, they are not allowed to practice their professions (such as a physician or engineer). In Nepal, camp residents are highly dependent on food distributed by aid organizations but they do not have land to cultivate. This is in spite of the fact that most of the refugees are farmers of Nepalese origin that have been pushed out of Bhutan. If some of them are dependent on drugs,

most of them are dependent on international aid. In contrast, in Iraq, refugees share a common nationality with the host nation; they can obtain permits to work outside the camp, and this allows them conquer a space by opening businesses and conducting trade. The refugee camp, in this articulation, becomes a sort of enclosed or liminal space where material and "immaterial" bordering practices are enacted, and where the organization offers more or less freedom. Spaces like refugee camps represent what Nail would call "junctions" where a sort of perceived stasis is secondary to the forms of circulations that traverse them (2016; 2018). Camps (formal and informal ones, like in Calais) represent, inside and outside Western countries, a space to redirect these fluxes through practices of resettlement.

There is nevertheless a strong *Verfremdungseffekt,* which is enacted via the double layering of the virtual and the real. The difference with previous examples, however, is that this was not an intended effect of the game play experience. It is thus, from a critical standpoint, a failure. We are not asked to question our position as virtual witnesses in the camp. Instead, the game is reduced to a form of entertainment, offering rewards and precise goals, which nonetheless fail to amuse even the most carefree gamers. This failure, evidenced by the game's recent disappearance online, as well as the creators' own testimonies, suggests that a more complex interface and unconventional aesthetic is not enough in itself to engage an audience (Siegel 2015). Ultimately, the experience remains individual: even if you are able to publish your story on social networks, you cannot discuss the topic within the game with other players.

In the interactive documentary produced by Submarine Channel entitled *Refugee Republic* (2014), we are also given access to a refugee camp in Iraq, this time in Domiz. Here, our perspective can quickly shift from distant to close. The map, drawn by Dutch artist Jan Rothuizen, is a subjective representation of the Domiz camp, and is composed of drawings and words.

The camp's map instead is a "personal" view which is not meant to be objective; it is rather a very intimate portrait, which includes comments

Fig. 11: Refugee Republic: the map, and a view from one side of a street while taking one of the documentary's proposed routes

Image source: screenshot from Refugee Republic (2014), https://refugeerepublic.submarinechannel.com/.

added by the artist.[29] If we decide to take a closer look, we can choose four routes that are represented by different colours on the map. With the zoom tool and, like in Google maps, we can go to "street level" and adopt a subjective point of view (fig. 11).

Once we click through, we are offered another perspective: as in *Refugees*, it is a camera's point of view. We are again put in the position of a refugee camp visitor, as we are placed behind the camera of an actual visitor—a video reporter. But this time the visit, although planned and structured, goes smoothly. We can jump from one route to another, and quickly scroll down or to the right to see different video material and browse the embedded individual stories. This more linear storytelling style allows us to decide what to explore without constraints. We are not really playing a role; we are simply exploring from a subjective point of view. What kind of witnessing are we then performing?

29 Jan Rothuizen is also known in Amsterdam for having drawn a guidebook to the city using this same style, which mixes detailed drawings and text.

Many scholars have explored the question of "media witnessing" especially in relation to traumatic events, such as the Holocaust (Frosh and Pinchevski 2008; Felman and Laub 1992). I will not delve into this matter in detail; instead, what I wish to focus on is how this specific configuration of interactive practices implicitly or sometimes explicitly involves witness roleplay. John Durham Peters asks if media can sustain the practice of witnessing and replies that in media events "the borrowed eyes and ears of the media become, however tentatively and dangerously, one's own. Death, distance and distrust are all suspended, for good and evil." (2008, 717) He defines different forms of witnessing, which involve varying degrees of absence or presence in space during or after a specific event. "Being there" means being present in time and space, while a recording of an event—like the material collected in newsgames and interactive documentaries—means being absent both in space and time (ibid.). For the latter form to become a performance of witnessing, what Coleridge called a suspension of disbelief is necessary (Ji and Raney 2016). We know that we are not present in time or in space, but this is what we need to forget in order to become sensorially immersed in a mediated world. As Roger Odin argues, this is as necessary for fiction as it is for non-fiction. That is, we rely on a real enunciator for a "documentarizing reading"—in this case we might argue that it is the video-maker or the artist who drew the map (Odin [1984] 1998). Yet, we are encouraged to take their position and thus their role. This double position—between witness and enunciator—is therefore ambiguous.

All the examples I have analyzed in this chapter ask us to make different readings— especially those that mix photographs or video material with fictional game elements in a superimposition of graphic layers. We need to believe in the fictionality of the role-playing game, but at the same time in the truthfulness of what we see, listen to or read (or at least that they are based on real life). The urgency of the topic and the question of vulnerability affect and craft our emotions, and heighten our experience of "being there," getting closer, and stepping into the shoes of the vulnerables. By responding to the urgent need for solidarity, the games risk producing incompatible, often distressed readings by their players. We do not witness events through the eyes of refugees, but from

the point of view of a news reporter. This point of view simulates a form of witnessing—a "participatory act of self-expressive solidarity"—while also mimicking news reportage (Gregory 2016, 185). We listen to a story being recounted, we watch, we look at a detailed map of a refugee camp. Our reportage, then, is not only a recounting of a refugee's life. It is also an exploration of how the infrastructures of humanitarianism work: the bordering process limits movement and confines refugees within a circumscribed space. They wait to be resettled, go back home, and start a new life. Humanitarian infrastructures of aid keep them safe—but still.

3.6 Viewing from Within: Simulating Vulnerability, Simulating Borders

I have showed how different interactive practices offer a perspective that claims to bring us closer to the condition of migrants and refugees. They are different practices, but all wish to be "playful" (Raessens 2014). In serious games, text-adventures and newsgames, the role-playing aspect performs this function. We are asked to step into the role of a migrant or a refugee and take control of his or her choices. We nevertheless feel the dissonant combination of discomfort and pleasure while playing the game. But ultimately, we never leave our comfortable position. And if we are reminded of it, through a mechanical or conscious alienation, we might once again feel discomfort. If interactive practices want to be tools for action, or for political of activism, they need to expand their focus from simply immersion and embodiment. Instead, they could offer or promote a critical distance, encouraging users to reflect on the space that separates the real conditions of those suffering from those who act in solidarity. They should propose alternative scenarios instead of focusing on a rhetoric of failure. This dichotomy that separates *us* from *them*, and the representation of the other as a vulnerable individual, could be challenged with a different rhetoric that empowers the vulnerable, and makes them part of a shared community. Serious games such as *The Migrant Trail*, as well as text-adventures

such as *Syrian Journey*, simulate the border regime, but do not question or collectively negotiate it. That is, while we play as migrants, the border tries to expel us, and so we seek redirection. However, we are still oppressed by the power of the border regime. Often we die, and succumb to its "necropolitics." (Mbembe 2003) Camps become part of an extended border regime which redirects the circulation of migrants.

Text-adventures also put us in the role of refugees and migrants, but they do not produce notable discomfort, because we do not embody a human subject or immersively role-play. They are still playful, but the employment of drawings can often lead to misreadings: practices like this give creators freedom, but they still break with the tropes of a "documentarizing reading" (Odin [1984] 1998). They recall the same "view," and the possibility of overcoming a distance between the player and vulnerable other. In newsgames and in interactive documentaries such as *Refugees* and *Refugee Republic*, we are promised a witness role, and to explore a refugee camp in close detail. Here the discrepancy—the gap between the virtual and the real—is more a question of not being present in the camp, rather than our taking the specific role of a vulnerable other. The role-playing narrative is here used as a strategy to "be there," and to get closer to the condition of migrants and refugees. In so doing, we are able to empathize with them.

Yet, a rhetoric of pity and vulnerability is still at the centre of all these interactives. We once again experience the isolated individual's disempowerment. Online games, on the other hand, could promote a collective effort towards empowerment, and generate a community which is conscious of the distance between *us* and *them*, and aware that the border regime can be negotiated, contested, and eventually torn down. The spectacularizing of suffering which calls for a moral response is part of a larger contemporary political discourse. As Didier Fassin writes, "moral sentiments have become an essential force in contemporary politics." (2012, 1)

In his book *Humanitarian Reason* (2012), Fassin criticizes the elicitation of such emotions as they represent the humanitarian desire to "define and justify discourses and practices of government of human beings." (Ibid., 2) In other words, we should not simply see refugees

and migrants as vulnerable. To do so is to allow humanitarian aid to provide a stable infrastructure which might respond to the urgent issue of human suffering, but also reinforce a power relation in which one side is allowed to manage and regulate the existence of the other. Ultimately, interactive practices, while hypocritically encouraging users to feel what migrants and refugees feel, and to witness "being there," nevertheless focus on the players' moral engagement, instead of the causes of migrant suffering. They suggest that the infrastructures of humanitarian aid are a solution, as is offering of our immediate solidarity. These practices, through different technological means, simulate suffering and border regimes, without exploring the conditions for their dismantling. This is different to what Patricia Zimmermann utopically hopes for with new documentary practices, and represents a failure to mobilize new imaginaries (2019, Chapter 1).

Chapter 4 - A View from Above

This chapter will analyze interactive practices that offer the viewer a distant point of observation. These media objects do not ask us to step into the shoes of the vulnerable, nor do they ask us to maintain our position. Instead, they promise us to shift our perspective, and to give an omniscient point of view, by offering the ability to zoom in and out, or follow a moving target. This is, then, an empowered position, or a view from above. I will analyze interactive maps, which typically use a Mercator map display—a "projection" of the globe on a two-dimensional surface—to show migration trajectories over time. These lines are, more or less abstractly, a scaled representation of specific human movement. To analyze the examples presented, I will engage with theories of mapping and cartography, as well as data visualization design and theory.

I am interested in the question of how interactive maps and data visualization might become part of a new form of storytelling. They allow the user to zoom in and out, and, thanks to software such as Tableau and ESRI Story Maps, can now be embedded in a story. The user can explore data, visualizations, and simplifications where bodies become "dots on maps." (Kwan 2007) As part of a story, these visualizations can represent a form of evidence. Bruno Latour considers mapping practices a form of inscription and refers to them as "immutable mobiles." These inscriptions can provide an advantage in a rhetorical and polem-

ical situation (1990).[1] This means that they aim to tell us something in order to provoke a response. As the school of critical cartography has argued, "map making is not a neutral activity divorced from the power relations of any human society." (Edney 1993, 54) What do these practices tell us, then, about migration and power relations? How do software and design standards transform data into storytelling?

In this chapter I argue that the visual display of migration, using design strategies and software, helps construct a specific view of migration. This perspective represents the "humanitarian impulse" behind interactive maps and data visualizations, as it produces an imaginary where the urgency of saving lives is its "raison d'être." (Rangan 2017) To view something from above means assuming an empowered position, and this is connected to the way states view their subjects (Scott 1998). In other words, it simplifies and makes complex entities legible in order to govern. The danger is that migration comes to be seen as a problem in need of a solution (Tazzioli 2020).

4.1 The Visual Display of Migration

To understand interactive maps and data visualizations as "cultural artifacts" it is necessary to look at the context in which they are found, and at the discourses and infrastructures they are embedded within. This means focusing on not only how they are constructed using design strategies, but also understanding their circulation, the use of specific formats, as well as their integration of certain data sets. When we view interactive maps about migration, which display trajectories of people

1 A note on usage is necessary, here. Erhard Schüttpelz argues that Latour's account of the history of maps as "immutable mobiles" is imprecise. Latour claims that such practices and the use of immutable mobiles between the 15th and 17th century led to what could be considered the later dominance of the western world. But, as Schüttpelz argues, these media were not immutable at all. The process of standardization came later. However, maps and other media beginning in the 19th century onwards can be considered "immutable" because they formed part of the practices of standardization (Schüttpelz 2009).

moving across time and space, we are not only looking at a representation, but also at human and software interpretation of data. In order to study interactive maps with data visualizations effectively, then, it is also necessary to consider them as visual and textual practices.

It should be noted that interactive digital maps no longer require the same level of expertise as cartography once did. A variety of tools are accessible in scientific, professional, and amateur contexts. We might use specific software—typically GIS (Geographical Information System)—but many maps made by designers which embed data visualizations can be created using programming languages like Python, SVG, CSS, or Javascript. This software can embed maps and projections using standard libraries, where some specific format—for instance, hemispheric projections—is used to produce an interactive map to visualize data.

I would like to introduce a case study so that we might better understand how data can be used to display the movement of refugees using a series of specific design rules. *The Refugee Project* (2014-2018) is the result of collaboration between Nigerian–American artist Ekene Ijeoma, Hyperakt, a New York City social impact design studio, and the Oak, a Brooklyn-based, independent design-led product studio. *The Refugee Project* seeks to provide a map-based exploration of refugees' migration over time (fig. 12). It uses the UNHCR's data on refugees as well as some original stories with photographs taken from the UNHCR digital archives.

A Mercator map of the world reproduces through differently colored circles the increase or decrease in the number of registered refugees under the protection of the UNHCR. As the creators claim on the website:

> *The Refugee Project* does not consider the large number of economic migrants and other undocumented populations, nor does it show the millions of internally displaced persons in troubled countries around the world. As a result, it is an image almost exclusively of social and

> political crises, rather than of natural disasters or economic turmoil. (The Refugee Project n.d.)[2]

The UNHCR's data on refugees is constantly updated. They now have a website and an app for public use. On the website's homepage, data now refers to "forcibly displaced people," and this might be separated into refugees, asylum-seekers and internally displaced persons (UNHCR 2020b). Refugees represent therefore only a small part of the data. The interactive map of *The Refugee Project* nevertheless uses this data.

To illustrate the number of global refugees over time—written in text form as well as highlighted on a histogram—the map displays circles of varying diameters. When you click on the "play" button on the top left of the page, the circles expand or contract, depending on the number of refugees in a given year. The time span starts in 1975 and ends in 2018. If you stop the image or hover the cursor over a specific country, you can see lines showing the trajectory of exiled refugees. This spatio-temporal way of displaying data is not new. Some cartographic illustrations of the colonial period showed for instance emigration on a global scale (Bacon et al. 2016). Today, these kinds of maps have been updated, and interactivity allows exploration of the data itself. Some scholars have noted, however, that it is important that these maps be sensitive to how movement is represented, and adopt the position of the migrants: "Some media maps—argue a group of cartographers—may confuse 'routes' and 'flows', fueling anxiety of an 'invasion'." (Ibid.)

As Orit Halpern notes in her book *Beautiful Data* (2014), the fetish for data visualizations has a long history, and flourished after World War Two. It was a result of the rise of information infrastructures at the time. Their use highlighted how society—at least in neoliberal countries—was shifting its management of perception and cognition. As Halpern notes, the scientific disciplines (such as cybernetics) that emerged in the postwar period "redefined vision as encompassing

2 These statements featured in the About section of the website before 2018 (see Chapter 5, fig. 30). However, the layout and some aspects of the website changed in 2018.

Fig. 12: The Refugee Project. Actual version of the Website

Image source: screenshot from The Refugee Project (2014-2018), http://www.therefugeeproject.org/#/2018.

the entire relationship structuring the act of observation" (ibid. 206). Moreover, for information designers like Edward Tufte, the effectiveness of graphics depended on how elegant they were. In short, data aimed to be beautiful. Designers and map designers today still follow a series of rules that Tufte helped to define. For him "graphical elegance is often found in simplicity of design and complexity of data" (Tufte [1983]2001). Today, data visualizations are becoming ubiquitous, not only because we are collecting more data, but also because they circulate through new and more pervasive infrastructures—for instance, in standardized formats. Everyone with an Internet connection, not only designers and experts, can access data visualizations and use tools to creatively visualize data. The language of data visualization is evolving into a standardized series of tropes, and often the software used limits what designers—professionals but especially non-professionals—can or cannot employ in their *dataviz*[3].

3 Short for "data visualization."

If we look closely at *The Refugee Project*, we notice that data on refugees by country of origin is displayed in red, and data on refugees by hosting country is in blue (see fig.12). From the circles, lines can depart to a destination or origin country. Their shape and variations cover a time span of almost 30 years. We can browse the map to follow the direction of refugees, starting from a specific country while moving the cursor to a destination country of our choice. The map uses circles and perfect trajectories, which move from A to B in a straight line. The colors are balanced, and we can easily distinguish the two main data sources: on the one side, red for origin countries; on the other, blue for destination countries.

In Andy Kirk's handbook *Data Visualization* (2016), maps are considered as one type of chart—or pure visualizations, models made by data sources. "Visual cues," the book explains, are based on the Gestalt theory of sensory perception, and are "influential visual properties" which a designer must take into account. (ibid., 263)[4] As Kirk further notes, a fundamental part of design is color, which should only be chosen after a designer considers its meaning. Moreover, their choice of color has to respect the defined standards of data legibility, editorial salience and functional harmony (ibid). Decorative effects, therefore, come later. Moreover, color choice also depends on the design's final delivery format (print or digital). Decisions in design, Kirk offers in summary, follow the harmonious employment of the three parameters of hue, saturation, and lightness. In this way, this design theory follows standard color theories.

We see indeed in *The Refugee Project* how different saturations of blue or red refer to higher numbers in the statistical data. The data legibility standard responds in part to the question of why two colors are used: red represents a country and the number of departing refugees; blue represents the number of refugees registered in that country. This feature is called "nominal color" (ibid.), and refers to the categorization of

4 Gestalt theory studies how perception is organized. It claims that the human brain translates reality's complexity into patterns of similarity, proximity, continuity, closure etc (See Arnheim 1954).

different values using different colors. Each color has a qualitative value, which helps to outline the difference between two data sources. Kirk explains that blue typically has a "cold" or negative meaning, while "red" has a warm and positive meaning (Kirk 2016; Arnheim 1954). Red is also used for traffic "stop" signs, thus it not only holds a positive meaning but it also symbolic of danger. If for Gestalt psychologists and designers, choosing a saturated red color means something specific, our everyday experience reinforces this symbolic significance—especially when the color is placed in contrast to other colors such as blue or green. Blue is never used to signify oncoming danger or to remind someone to pay attention.

Overall, this binary color choice, invites us to make a comparison: the contrast of blue and red—which is also color-blind friendly—emphasizes the lines representing refugee trajectories, which spread over the dimension of the territory. We distinguish trajectories over time, compare them between different countries, and switch them from destination to origin nations. The question of *functional harmony* in visualizations means considering the effectiveness of balance in the use of color, suggests that designers should create neither a too chaotic or too boring aesthetic (ibid.). The process of design aims to find a balance—an aesthetic harmony. In other words, a form of beauty.

Given how used we are to inscriptions such as data visualizations, charts, and statistics (from newspapers etc.) we would perhaps not ask why refugee origin countries are displayed in red. But red still carries symbolic meaning. For the designer, it is simply to make information more visible: it is a way to persuade us, because it is visually "better." Nevertheless, it also suggests that the designer does not believe the viewer associates symbolic values with certain colors—which seems unlikely. Colors can also provoke emotional reactions, which of course are highly subjective, but some scholars have demonstrated how they can indeed have an "affective value." (Oyama, Tanaka and Chiba 1962) Following this line of thought, red encourages feelings of excitement and blue provides a calming feeling. Others have found evidence in a cross-cultural study to suggest that red has bad connotations, while blue has good connotations (Adam and Osgood 1973). Beyond any cultural conno-

tations, the distinction between origin (red) and asylum country (blue) clearly distinguishes between those in exile and those that are welcoming to refugees. It marks a separation between the vulnerables and the humanitarians.

In Tufte's book, *The Visual Display of Quantitative Information* ([1983] 2001), he compares graphs over time and highlights the features that make their design more effective. As with Kirk, the book suggests that for data visualization to be beautiful, it needs balance, clarity and simplicity. With regards to color, Tufte argues that it can be used to label, measure, represent or decorate. For data to be attractive, Tufte goes on to explain, data complexity must be rendered accessible (ibid.). Also, graphics should have a "narrative quality, a story to tell about the data" (ibid.). The story that *The Refugee Project* tells is of people moving, and shows us what a "flow" of people moving from one place to another looks like. The increase in size of the circles conveys the growing number of refugees. Yet what this interactive map makes clear using the color transition between red and blue is the unidirectional path of certain "flows." When we click on a country of origin, the map creates lines departing from there to destination countries. And it is the same if we first click on a destination country: the map still shows lines departing from the origin countries. It is always a unidirectional movement; a moving image of a growing emergency in some part of the world.

Refugee trajectories in *The Refugee Project* are incredibly linear and simplified. Borders seems to vanish. At the same time, the number of refugees expands. The image the map creates is that of an undisturbed flow. Its creators have followed the design principles of data visualizations, seeking to make data "beautiful." But this simplified and harmonious visualization offers only a partial account of refugee trajectories, which is on a specific scale, over a finite amount of time. We are distant from the very affective and emotional images of vulnerable refugees, like mothers with their children trying to cross borders. Individuals are reduced to lines, colors, and circles. To overcome this unidirectional and impersonal representation, the creators of *The Refugee Project* added refugee stories that we can consult on one side of the page. Yet, the dominant visual display of migration emphasizes, in this case at a global

level, a growing humanitarian emergency rather than a mere representation of historical data. It is no wonder that this image uses humanitarian data sets.

The Higher Commission for Refugees has been collecting data about human displacement since 1951. This data is collected from hosting country governmental sources, but also from local UNHCR offices and NGOs. The UNHCR releases yearly statistical reports on refugees, asylum seekers and internally displaced persons (UNCHR 2020c; 2020b). *The Refugee Project* used its data sets, but so have other data visualizations such as Lucify.

This other project's subtitle makes clear what it wants to show: *The Flow towards Europe* (2015), see figure 13. This interactive map uses only the data of asylum seekers coming to Europe in recent years, beginning in 2012. On the project's homepage, the creators explain: "Europe is experiencing the biggest refugee crisis since World War II. Based on data from the United Nations, we clarify the scale of the crisis." (The Flow Towards Europe 2015)

Fig. 13: The Flow Towards Europe: data visualization of asylum seekers going to Europe

Image source: screenshot from The Flow Towards Europe (2015), https://www.lucify.com/the-flow-towards-europe/.

Some dots move towards a destination country. A time-lapse can be sped up and slowed down using a sliding button, but the time span always remains between January 2012 and August 2018. The focus is Europe. If we move the cursor over the map, we can see in different opacities of lilac the number—the brighter, the higher—of refugees coming from their origin countries. We do not know, however, how many refugees went to border countries (those physically adjacent to the origin country of migrants). We only know how many reached Europe. For every European country there is a white histogram, thus an indexical representation of data on a vertical scale.

Lucify is a Finnish collaboration between designers, web and software developers, and an independent team funded by a Google Initiative. It is addressed particularly to decision makers and communication experts in the governmental sector, as well as international and national non-governmental agencies. In their blog, the creators explain why they chose to work with the data set:

> This dataset only contains a part of the story. For example, the two million Syrian refugees in Turkey are not counted as asylum seekers, but registered refugees. While the UNHCR publishes some data about registered refugees, it is not as comprehensive as with asylum seekers. We chose to focus on the European perspective of the crisis, and show only asylum seekers arriving in Europe. Thus, we can work exclusively with the UNHCR's asylum seekers dataset. (The Flow Towards Europe 2015)

So, the choice to focus on Europe was driven by the desire to show asylum seekers—not those who have been granted asylum. This is how the creators justify an ethnocentric choice to highlight the number of people arriving exclusively to Europe. Each dot represents 25 to 50 asylum seekers. They distinguish a direct flow from A to B, from some hypothetical center of the origin country to that of a destination country. Although they first also wanted to show migrant routes, they eventually opted to use a single origin and destination point located at the center of each country. On the website they explain that "this makes it easier to see where refugees are coming from and going to." (The Flow Towards

Europe 2015) On the bottom of the page, if we scroll down, we also find another graphic: a simple visualization makes use of soccer field icons (each representing a set of number of refugee in an actual squared area) to compare the number of the "flows" going to Europe with those going to neighboring countries. The *Flow towards Europe* is inaccurate and easy to criticize; it makes Europe the center of the so-called refugee crisis by choosing not to represent—justified by design choices—the global dimension of migrant trajectories. This latter visualization, which seeks to relativize the number of refugees coming to Europe, is much less transparent in its "designer choices." First, it uses no colors. Second, no movement is involved. Third, there is no actual geographical reference. In some way, it conceals information rather than clarifying it. The emphasis is clearly placed upon the apparently unidirectional flow of migrants towards Europe. Again, as in *The Refugee Project*, borders are not visible—even as simple lines distinguishing countries. The Fortress Europe previously discussed is not intelligible. Instead, the impression is that there is no border at all.

The same creators complemented this visualization with more interactive maps. *The Cost of Displacement* (2015) not only shows a map of Europe, but the entire globe, using a hemispheric projection. This time lapse from 2000 to 2014 shows internally displaced populations together with refugees and asylum seekers. Here, the map uses additional data sources and focuses not simply on Europe but on the rest of the world. A bright shade of red signifies internally displaced people, that is, refugees who have escaped but are still living in their country of origin. White represents the number of refugees exiled from another country. On the website, the creators claim that the color shows people that have been forced to leave their homes due to conflict or violence. That said, they declare that people who have fled natural disasters are not included. Each tiny dot corresponds to 5000 people. According to this map, the number of internally displaced persons in Syria is much higher than the number of refugees who chose to make their way to Europe (white dots represent asylum seekers). Here, refugee data has been buttressed with internal displacement figures from the Internal Displacement Monitoring Centre (IDMC). These numbers cover conflict-

and violence-induced internal displacement. The creators make clear, however, that "some value ranges have been averaged, and some missing data has been interpolated." (The Cost of Displacement 2015) The UN agency for humanitarian affairs, UNOCHA (United Nations Communications Office for Humanitarian Affairs) also supported the project. But as the title of the visualization suggests, there is something else at stake beyond mere representation: the cost. What cost? Are we talking about the material cost? Under the title, a short text reads: "displacement leads to an immense human cost, but it also puts enormous pressure on the humanitarian system. For the first time in history, the United Nations humanitarian agencies and its partners are requesting over 20 billion dollars to meet humanitarian needs" (ibid.).

Initially, this visualization's target audience might seem unclear, because it circulated widely; however, we learn from the creator's statement, that they are mainly addressing decision makers: those who finance and support humanitarian aid, or those working for humanitarian agencies. The language of statistics and data tells us what the reader should expect, or might be looking for. It is not about engaging emotionally with individual stories. This data offers a broader and simplified overview of the so-called "European crisis." But it is exactly this visual display of migration's unidirectional flows that supports an ethnocentric idea of a "crisis" in the first place. For designers, it is perhaps difficult to create a clear global map of migration, which traces the complex routes taken by refugees and migrants. Nevertheless, using a single point of origin and destination creates unidirectional flows, which are far from the real and complex journeys of exiled peoples.

Heaven Crawley and Katherine Jones recently published an article which questions the linear representation of refugees and migrant journeys. Conducting qualitative interviews with refugees, they show that humanitarian and academic discourse often discusses migration flows using concepts such as "transit migration." (2020) This, they argue, is unrepresentative:

> The notion of transit migration contributes to the idea that millions of people are on the move, currently 'stuck' in other countries but ul-

> timately 'heading to Europe.' Whilst 'transit migration' accounts for a relatively small share of arrivals the spectre of potential migration haunts Europe and provides a vehicle—and rational—for policies that aim to manage and control migration flows. (ibid., 3)

This simplified picture of migration's flow also contributes to understand how data has been used and displayed. Even on a global map, the impression is of a European emergency, and if not, a global one.

John Harley, a critical cartographer prominent in the 1980s, first argued that maps are social constructions. For Harley, a location's absence or presence on a map, contributed to its presence or absence in our perception of reality—or in our social construction of it. Critical cartography's aim as to apply Foucauldian principles to maps and unveil their hidden power structures. If maps, before Harley, symbolized the accuracy of the scientific method, then his contribution was to show how unreliable they were. Lucify's first map, for example, in its focus on Europe, obscured what was happening elsewhere. This means that when we develop an interactive map that aims to convey information objectively, we should clarify which data sets are used. But this alone might not be enough. Even on a global scale, as we have seen in the case of *The Refugee Project*, visualizing trajectories by approximating them on a linear scale is dubious as well. In all these cases, the data used has an impact on visual display. Nevertheless, their purpose is clear: to provide decision makers with evidence of an emergency that requires an immediate response. Francois Bahoken, Nicolas Lambert and Philippe Rekacewicz also recently criticized some maps circulated by Frontex (the European Border and Coast Guard Agency), which represent migrants as "thick red arrows" heading to Europe (Bahoken et al. 2019, 21). They claim such depictions reinforce a "rhetoric of invasion." (Ibid.)

It is not only independent companies and artistic collaborations that produce interactive maps of flows using refugee data. The Carnegie Mellon University CREATE Lab's map *Global Refugee Crisis. The Big Picture* (2015) again uses UNHCR data on refugees, and aims to use data visualization to build data literacy. As their mission and values states, they want to use maps to make a social impact:

> By showing the results of our past decisions with visual evidence through time, we create the scaffolding that supports positive future decision-making. We can empower our decision makers in public and private spheres to make more informed, forward-facing choices. Together, we can move from "Is this happening?" to "What do we do about it"? (EarthTime n.d.)

In contrast to Lucify's maps, which focused on the impact on Europe, we can see that migrant displacement or the flow to neighboring countries has a much broader impact, which changes over time. Here, "flows" are mostly directed towards what can be understood as the "Western" world, as opposed to an underdeveloped and unordered world of others. Stuart Hall argues that this division is mostly economic, and that "the West" is a historical, not a geographical, construct. By "Western" we simply mean "[…] a society that is developed, industrialized, urbanized, capitalist, secular, and modern." (Hall 1992, 57) Nevertheless, if we zoom in to get a closer look at a specific nation state, we realize that, once the "flow" starts, neighbouring countries are also affected. For instance, it is clear if you look at figure 14 and zoom in the flow from Syria at the beginning of internecine conflicts in 2011 is directed towards only a very small part of Europe.

This demonstrates how important it is to have a broader, global overview on migration in order to relativize what the creators from Lucify call the "scale of the crisis" for Europe. These interactive maps aim to tell us one thing: the number of refugees is growing over time on a global scale. It is an emergency. Yet they depict a clear inequality in the origin of flows: those starting from non-Western countries are larger. When data on internal displacement is included in representations, we realize that our European "migration crisis" is relative to the migration flows elsewhere. This form of counter-mapping would help to free us from ethnocentric views and realize the limits of small-scale representation. Decision makers need to know that if they want to invest in humanitarian aid, the priority is to bring help where it is most needed.

Fig. 14: Global Refugee Crisis. The Big Picture

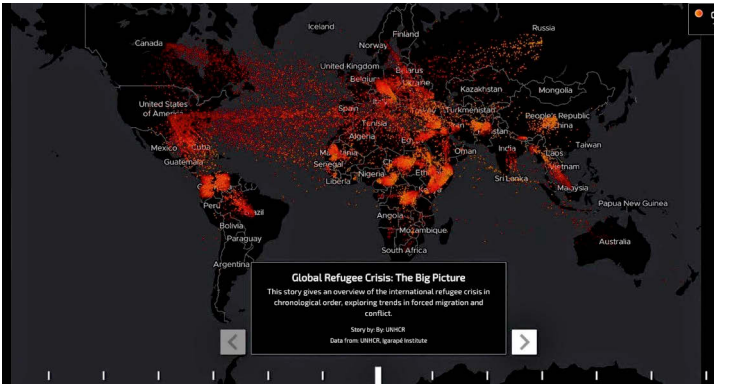


Image source: Global Refugee Crisis. The Big Picture (2015), https://earthtime.org/stories/global_refugee_crisis_the_big_picture.

By scaling movement over time, such "flows" only represent numbers and do not express how slow such trajectories might be. In other words, interactive maps depict migrant routes at a constant speed, and there is no distinction between routes across sea, land or air. A time span, that might expand for over fifty years or sweep just for less than a decade is the prerequisite to display movements. Migration across time and space. This is what we might see, the picture of movement. Represented in its simplicity, as it would be just so easy, to trace a line from a centroid of a country directly to that of a destination country. When I look at EarthTime's interactive map (fig. 14), I am also always astonished by the apparent cascade of reddish-orange dots; like a stream, it increases over time around certain countries, like Syria in 2014-2015, but then ends in nothing. These images representing movement are deeply affective, but they do not explain much about the real scale or speed of the issue—even if it is clarified on the website. Moreover, they remind us of the ways in which humanitarian discourse is shaped from an empowered view. As we watch and interact with the map, we are

able to zoom in and out, and we can obtain certain details. At the very least, we can learn about the data sample they used to produce the visualization. In sum, the choice and availability of data and the scale of time and space used determine the accuracy of the representation of migration routes. Utopically, if we collect enough data, as Jorge Luis Borges envisioned in one of his short stories, the map would become so precise that it became the size of the territory. But of course, this is not an option: a map is ultimately a simplified representation at scale of social or territorial data.

That being said, the use of a geo-referenced map indicates a belief that even critical cartography shared: we might be able to know the world objectively. This is part of the Enlightenment legacy of "empiricist cartography" which saw the practice as an exact science, driven by experience, experiment, observation and measurement (Edney 1993). For Matthew Edney, in contrast, the history of maps is not linear; instead, maps represent a specific historical and situated practice, which is determined by cultural, social and technological relations (ibid., 54-68). He distinguishes between different "cartographic modes," which combine "cartographic form and cartographic function, of the internal construction of the data and their representation on the one hand and the external *raison d'être* of the map on the other." (Ibid.) For the interactive maps aforementioned, the choice to use specific datasets and design strategies bespeak their historical circumstance. The *raison d'être* of such interactive maps, thus their function, is humanitarian. This is emphasized by the textual explanations that often complement these interactive maps: the maps seek to offer an "urgent" picture of migration, an emergency that requires decision makers (whoever they might be) to respond immediately.

I have analyzed interactive maps and how they display the movement of migration across time. I looked at their power relations and the aims they pursued. In the following paragraphs, I investigate the practice of making such interactive maps and data visualizations and try to engage with the question of how they are transformed into a particular form of storytelling. To do so I will introduce and explain how two pieces of software work.

4.2 Humanitarian Mapping: Data Storytelling with Tableau

Tableau is a piece of software that allows its users to produce, from spreadsheets and other forms of raw data, captivating visualizations which translate data into storytelling. As BI (Business Intelligence) software, it is principally a platform that manages, organizes, shares and makes use of data for various types of companies.[5] As a promotional video advertises, Tableau "empowers" everyone and allows them to "see" and "understand" their data clearly (Tableau n.d.). In another video, Pete Misner, a teacher who defines himself as a geek for data, describes a talk, given by Hans Rosling back in 2007, which "blew is mind" and demonstrated a mastery of storytelling through data. Misner argues that Rosling showed the world the "knowledge compression" that data visualization could offer (ibid.). In the original TED talk offered by Rosling, a doctor that believes in the use of statistics to teach global health, we see some animated infographics, and, like a *bonimenteur* of silent cinema, Rosling[6] uses them to comment on the evolution of data.

For Rosling and Tableau software's developers, data has the potential to tell stories. In the company's advertising video, for example, they compare it to oral narration, where fragments of stories are collected within a "narrative arc." But perhaps more than simply being a requirement of the data itself, storytelling has become a necessity. As Kosara

5 It is a platform because it can be run on several systems and computers using different applications while also enabling data and content sharing. As Corsello explains: "Cloud services platforms (think AWS, Microsoft Azure, Google Cloud Platform) now enable companies to bifurcate the logic functions of applications so that an IT structure can be built for change. While many SaaS have hundreds (and in some cases, thousands) of features, the predefined business logic narrows their ultimate breadth of scope and the flexibility is limited to the modular design of the platform." (2018)

6 Rosling was the founder of Gapminder (a non-profit foundation), that developed in early 2000s a software called "Trendalyzer" to measure data and provide interactive graphics. Google bought it in 2007 and it is now available as an API for the larger public.

Fig. 15: Hans Rosling performing behind some graphic animations

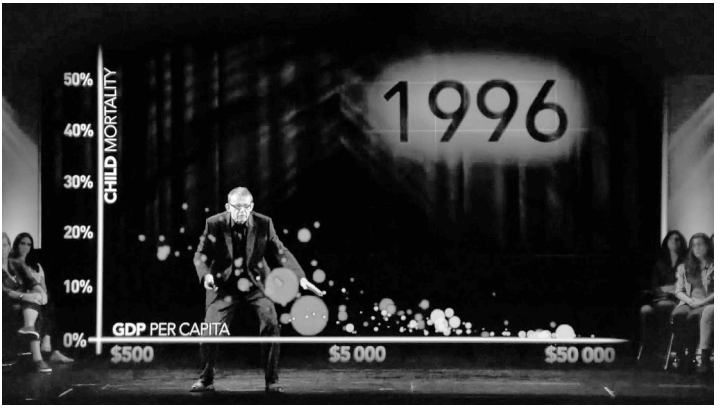


Image source: screenshot from YouTube.com, https://www.youtube.com/watch?v=5JiYcV_mg6A.

and Mackinlay note, the need to communicate data successfully with visualizations is contingent upon the fact that data analysts are not those in charge of making decisions based on these same figures. They observe how certain features support the creation of successful data visualization, and, drawing on previous research, they acknowledge how elements borrowed from other media could help people understand how to shape data visualization.

> Data stories differ in important ways from traditional storytelling. Stories in text and film typically present a set of events in a tightly controlled progression. While tours through visualized data similarly can be organized in a linear sequence, they can also be interactive, inviting verification, new questions, and alternative explanations. (Segel and Heer 2010, 1)

Interactivity, for instance, might help to effectively explore data, but it could also hinder or distract from a story's flow. This notion of flow is inspired by filmmaking and journalism. Clicking or moving the cur-

sor usually enables interactivity in visualizations, and allows for more autonomous user exploration. Interactivity entails different degrees of freedom and fluctuates between an "author-driven" and "viewer-driven" form of storytelling (ibid. 1-10).[7] This is a form of interactivity that either performs the author's explanations (you click, zoom in, and follow a linear construction) or facilitates user exploration.[8] The interactivity of Google Maps, for instance, is a form of viewer-driven storytelling, whereas the use of explanatory textual parts or visualizations organized through a timeline enabled by a play button (such as in *The Refugee Project*) represents author-driven storytelling, because the latter constrains the degree of interaction.

Since 2018, Tableau organizes a yearly competition for the best visualization called "Iron Viz" on its public platform. Recently, Pradeep Kumar participated with his entry "Beyond The Border" (fig. 16). Using Tableau, Kumar created an interactive visualization: a world map showing the flow of refugees to different US cities and states. If we scroll down, we can see other graphs which show the historical numbers of accepted refugees from 1975 onwards. The visualization shows that the eighties welcomed the highest number of refugees, whereas the number of resettlements has dropped in recent years—particularly after President Trump became President. Kumar's sources include the UNHCR database, but also other organizations such as Worldrelief.org, a humanitarian agency that the visualization directly addresses via a "donate" button at the bottom of the screen.

It becomes clear in this visualization what Tableau's developers mean by making data "powerful." The first interactive map visualization depicts plotted lines of refugees trajectories that cover a linear

7 For data visualizations, interactivity might include: "navigation buttons, hover-highlighting, hover details-on-demand, filtering, searching, drill-down, zooming, and time sliders." (Segel and Heer 2010, 8)

8 This also echoes research on user participation with interactive documentaries. Sandra Gaundenzi argues that the role of the filmmaker-creator as author has changed to more of a "facilitator" who organizes and structures user participation (2014).

route from a place of origin to the US. It combines text with data and interactivity "on-demand" using simple finger-scroll navigation.

Fig. 16: Visualization from Beyond the Border: refugees going to the US

Image source: screenshot from Beyond The Border (2018), https://public.tableau.com/app/profile/pradeepkumar.g/viz/BeyondTheBorder/ironviz.

This example reminds us of one of the techniques data visualization inherited from other forms of storytelling: guidance, which is connected to "continuity editing" in filmmaking, and linearity in text or storytelling more broadly (Bordwell and Thompson 2006). Typically, in interactive documentaries and practices, or "ergodic" media, linearity gives way to non-linear forms of storytelling (as we have seen for text-adventures and serious games) which are mostly user-driven (Aarseth 1994). The user decides which path to take. However, as some scholars of interactive documentaries and I have argued, interactivity is not always the best strategy to make storytelling more engaging; it might even constrain the flow of the story.

To achieve narrative flow, thus a form of guidance that helps the user to explore data while emphasizing continuity, the data animates itself through a simple scroll down function. This "animated transition" is more intuitive in mobile formats and today is referred to as "scrol-

lytelling." (Thudt et al. 2018, 71) This is an "author-driven" style because the composition of graphs, maps and animation is organized in linear fashion, and is enabled by the scrolling function.[9] The scrolling, when it animates between pages, provides a transition that moves us further into the story. Indeed, "animated transitions" are typically employed to orient readers, and to help them identify common elements and relationships across disparate graphics (Heer and Robertson 2007). Interactive maps often make use of this form of interactivity to enable animated transitions.

Storytelling here combines data with statistics and visualizations to emphasize readability via guidance. For Hans Rosling, the founder of Gapminder and inspiration for Tableau, data visualization has a fundamental role in spreading fact-based information. He believes in fighting ignorance with a "fact-based worldview." (Rosling et al. 2018) By facts he of course means data, and by "fact-based worldview" he means looking at the world through statistical data instead of sensational TV news, which privileges the extraordinary over the ordinary (ibid.). That said, not every data visualization creator's agenda is the same. In the case of interactive maps about migration, the purpose is not only to reveal certain facts to a wider audience, but also to encourage the audience to donate to the cause.

I will now introduce another piece of software that uses geographical information datasets as well as spreadsheets.

4.3 Humanitarian Mapping: Mapping Data with Story Maps

In 2016, the ESRI (Environmental Systems Research Institute), a billion-dollar company and leader in geographical information system software, launched a free storytelling tool for its professional GIS software,

9 As Segel and Heer argue, "a strongly author-driven approach works best when the goal is storytelling or efficient communication. We see this approach used in comics, art, cinema, commercials, business presentations, educational videos and training materials." (2011, 146)

ArcGIS. Named "Story Maps" the tool is easy-to-use, combines GIS imagery with text and other material, and is responsive across mobile platforms. With several template options, it allows every ArcGIS user to create interactive stories with maps and data. The developers of Story Maps explain how their software works thus:

> The linear, scroll-driven layout of (this) story map works to deconstruct a highly complex issue into manageable chapters. We are drawn into a richly immersive experience by a combination of maps, photos, videos, charts, and text. A consistent color palette brings all of the visual elements into harmony. (ESRI n.d.)

The software helps to create a linear story divided into chapters, made interactive only by the scrolling function. Here, maps and text are combined with additional charts and statistics, but also audiovisual material. As the designers suggest, the experience you create can be "immersive," while all the elements will conform to design rules and the principle of "harmony" (Kirk 2016). The idea behind Story Maps is to provide a tool that not only GIS experts and programmers can work with, but everyone with basic computer skills.[10] The developers first published *The Uprooted* (2016), a scrollytelling story, as an example of how the tool works. It centers on refugees and displaced persons in general, although there is a specific focus on the recent Syrian conflict. The homepage of *The Uprooted* presents a looped video showing a group of migrants walking in what it looks like a countryside environment. This introductory image is used to capture the viewer's attention and offer a glimpse of the story. The story's title is superimposed on the image, as is the subtitle "War, sectarian violence, and famine have forced more than 50 million people from their homes—the largest number of displaced people since World War II" (The Uprooted 2016). There is also

10 Although the free trial version is available for 21 days, the yearly cost is around 100 dollars. There also exists free software like StorymapJS which can be accessed directly from your browser. The latest version emphasizes the fact that you can choose between different designs without a great deal of programming knowledge or design skills.

a watermark in the lower left corner of the screen: UNHCR/Viktor Pesenti. Some data sources are mentioned: UNHCR and Airbus Defense and Space. If you scroll down, you first read text. By scrolling even further down, you read and view more data on internally displaced people. There are photos of people in refugee camps (in Zaatari and in Somalia) but also stills of migrant groups gathered in a train station in Hungary.

Two graphics appear after the text and you can compare them using scroll-enabled animation. They show the number of refugees (in violet) from 1995 to 2015. This number does not show a significant change over time unless you add, via a scrolling function (in blue), the number of internally displaced people, which has been rising since 2012. With further scrolling, a Mercator map of the world appears, which compares the number of refugees and internally displaced people in 2014 (figg. 18 and 19). Scaled circles in the same violet and blue display the number for each country, whose names are written only on top of the largest circles. This feature of keeping the same color is an example of "semantical consistency." (Segel and Heer 2011)

The subsequent pages depict the three countries with the highest number of refugees. This information is once again displayed on a hemispheric map, where you can only view the side of the globe closest to the country of origin. Here, the number of refugees in violet refers to figures on a small window on the right side, but you also see arrows departing from source countries in different gradients of color, length and width, which display, on scale, the trajectories of refugees going to foreign countries (fig. 20). Continuing your scroll, you reach a new chapter of the story highlighted with a title. It focuses on the civil war in Syria, and images of destruction. Another map guides attention to Syria, its neighboring countries, and the location of some refugee camps—outside and inside Syrian territory. Circles again show the population of the camps in terms of people living there. You can recognize the camps of Zaatari in Jordan, and Domiz and Kawergosk in Iraq—the same camps that featured in *Refugees* and *Refugee Republic*. The next chapter of the story focuses on Zaatari, the largest refugee camp in the Middle East, which is also now the fifth-largest city in Jordan. Several images testify to the size of the camp,

Fig. 17: The Uprooted: homepage viewed on a smartphone

Image source: screenshot from The Uprooted (2016), © UNHCR/Viktor Pesenti.

Fig.18 and 19: The Uprooted: Map of displaced people across the world, showing data for refugees (above) and IDP (below) in 2014

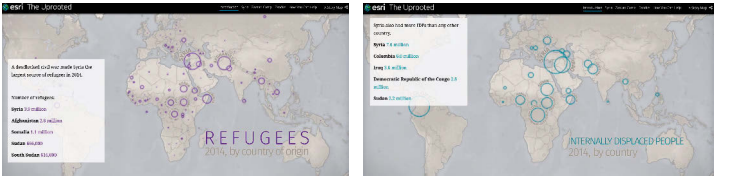


Image source: screenshots from The Uprooted (2016), https://storymaps.esri.com/stories/2017/the-uprooted/.

Fig. 20: The Uprooted (2016): a hemispheric map displaying refugee flows from Syria in 2014

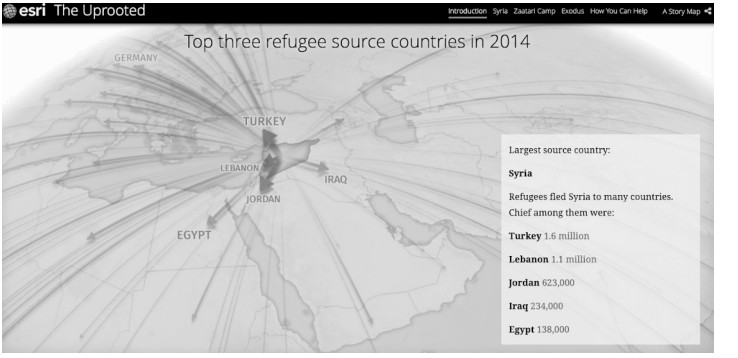


Image source: screenshot from The Uprooted (2016), https://storymaps.esri.com/stories/2017/the-uprooted/.

such as an aerial view by the US State Department which shows the site's crowded landscape from above. There are also family photos of refugee residents and satellite images that depict the camp. You can zoom in and out of the satellite view, and, as you scroll, layers of data are added. For instance, different colors identify schools, hospitals, but also community gathering areas and thoroughfares.

Fig. 21: The map is a satellite image from The Uprooted

Image source: screenshot from The Uprooted (2016), © CNES 2012-2015, Distribution Airbus DS, ESRI.

In *The Uprooted*, Story Maps combines layers of information from different sources including satellite images captured and analyzed by Airbus Defense (a division of Airbus that was funded in 2014 by the European Aeronautic Defence and Space, EADS). This satellite imagery and other geo-referenced data entries (for instance, the locations of Refugee camps) are, in Harun Farocki's parlance, "operational images." (2003) These can be analyzed and re-worked using the ArcGIS system. The concept typically refers to the substitution of the human eye with a form of machine vision, specifically in the realm of military operations (Farocki 2003). As Paglen explains:

> Harun Farocki was one of the first to notice that image-making machines and algorithms were poised to inaugurate a new visual regime. Instead of simply representing things in the world, the machines and their images were starting to "do" things in the world. In fields from marketing to warfare, human eyes were becoming anachronistic. It was, as Farocki would famously call it, the advent of 'operational images.' (2014, n.p.)

Fig. 22: The map was created during the RefuGIS project

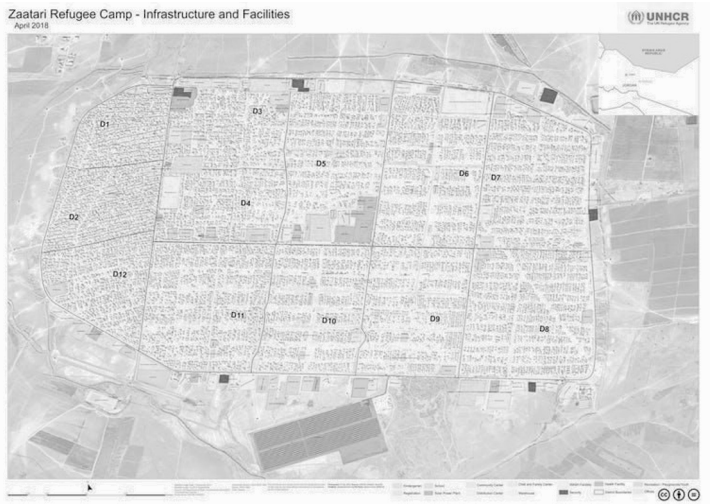


Image source: screnshot from The Uprooted (2016), UNHCR (CC License).

ESRI lead an experiment at Zaatari Refugee Camp in 2018 which made use of these operational images. The UNHCR, along with the Rochester Institute of Technology (RIT) and International Relief and Development (IRD), created Refugee GIS, or RefuGIS, a project which aims to teach Syrian refugees living in Zaatari to learn and build the GIS services necessary to manage and engage the camp's growing community.[11] Some

11 As the project manager of RefuGIS explains, "In early 2019, I spent five weeks in Zaatari camp as part of a sabbatical from the Rochester Institute of Technology. My goal was to teach the refugees of the RefugGIS project how to create stories with Story Maps. It was also fortunate that a 2018 article I'd published in The Conversation had been viewed by Allen Carroll, founder of the Story Maps team. Allen contacted me about the project and generously offered to support the RefugGIS team in creating story maps." (ESRI 2019)

images that the Zaatari produced are similar to those used in *The Uprooted* (fig. 22).[12] These elaborate cartographic images combine different media formats—an aerial view with photographic/textual data collected in camp—but also attest to a collaboration between a proprietary software company and refugees themselves. The latter learn to use GIS software, and in exchange, they provide information and labor to the UNHCR, which collects the maps with their own agenda. The view provided for users scrolling to the bottom of *The Uprooted* is informed by the combination of all these practices, including operational images and their machine vision.

The next chapter of *The Uprooted* focuses on the refugee exodus to Europe, using photos and text to narrate the general route refugees take by land and sea. Users can explore an interactive three-dimensional map. The display uses arrows, and the color violet represents a few main routes and thus the flow of refugees. As with some of the interactive maps aforementioned, the focus is on refugees heading to Europe. Scrolling down, these animations zoom in on specific routes and highlight, using colored bold lines, certain European borders. Rhetorical questions highlight how different "routes" instead of flows have been used. On a window on the left or right, a photo of a fence and a short text explains, for instance, that in "response to the sudden influx of refugees" in 2012, Greece built a fence at its border with Turkey (The Uprooted 2016). The same thing happened in Bulgaria, Macedonia and Hungary. But these countries did not just build material fences, but also what the creators call a "technical fence" (a border which is not exclusively material but also administrative). These fences generate a long wall that goes from the Black Sea to the Adriatic Sea, reminding us of the immaterial limits of so-called Fortress Europe. Here, borders manifest along the Schengen territory, between Denmark and Sweden, Austria and Hungary, and along the Germany's eastern border. Despite the visually documented growth of thicker borders—whether high-tech or material—the next chapter of *The Uprooted* shows photos of happy

12 See also a report that shows in part images created through ArcGIS (Tomaszewski 2018).

refugees starting a new life in Europe. The last chapter is more of an invitation than part of the story itself. It replies to the question "What can I do about it?" and suggests how you might help. With hyperlinks to a few organizations such as the UNHCR, IRC (International Rescue Committee) IOM (International Organization for Migration), Mercy Corps and Missing Maps, we are invited to donate money or volunteer for the cause.

Besides the more well-known UNHCR and IOM, there are other humanitarian organizations cooperating like Mercy Corps. This humanitarian agency was founded in 1979 as a response to the Cambodian conflict and is headquartered in Oregon in the United States. It operates in 40 nation-states across the world and supports, with financial aid, vulnerable people in situations of conflict, famine and natural disasters. The other international organization mentioned is "Missing Maps," whose name already suggests some kind of invisibility. It is not an agency but an institution that, as explained on its website homepage, is defined as "collaborative project in which you can help to map areas where humanitarian organizations are trying to meet the needs of vulnerable people." The OpenStreetMap Team founded it together with the American Red Cross, the British Red Cross and Medécins Sans Frontierès. Among its members it counts the George Washington University in D.C., GIS teams from CartONG (a humanitarian mapping organization), the Geo-informatic Science Institute in Heidelberg, and other teams, groups, and volunteers working with geographical information tools. This project, then, highlights the democratic and participative potential of GIS on the Web. Indeed, humanitarian agencies support open source projects such as OpenStreetMap so as to fulfil their own solidarity agendas:

"Humanitarian organizations use mapped information to plan risk reduction and disaster response activities that save lives" (Missing Maps n.d.). The images produced by such projects as well as software like ArcGIS contribute to a larger database of operational images with a

humanitarian aim. However, these images do not stand alone but they form part of Storymaps' storytelling structure.[13]

For the creators and users of Story Maps, the scrollytelling function in *The Uprooted* is an example of how users might make use of analyzed satellite images and deploy GIS software for a new purpose: the humanitarian cause. The developers of Story Maps outline, for example, four steps to build a story map. Their first recommendation is to aggregate data into, for instance, different countries to help user comprehension, as well as adding flow charts—that is, diagrams that depict a process (a link guides you to the ArcGIS options for implementing flowcharts). Second, they suggest following design principles. Third, they suggest mixing interactive maps with static ones, and allowing users to switch from one to another. The fourth and last recommendation is to *add a donate page*. Giving the example of *The Uprooted* they write: "This map concluded the story with a call to action, so it collaborated with ESRI's nonprofit team to compile a list of organizations with links to 'donate' pages" (ESRI n.d.). ESRI's commitment to social change is clearly strong; they wish to take action and help solve world problems through the power of mapping. It is not uncommon, either, as I have pointed out with regards to other interactive maps, that creators use an additional button with a link that redirects users to a humanitarian organization's donation page. But it is interesting to note that part of what they consider a successful design includes adding a link or a page to encourage donations directly. As a directive, the humanitarian impulse informs the design of stories about migration. Story Maps is an example of software which enables users to create a coherent story by combining not only audio-visual material and text with interactive features, but also operational images, renderings made with GIS software

13 As they further explain: "it follows a typical slideshow format, but incorporates interaction mid-narrative within the confines of each slide. This structure allows the user to further explore particular points of the presentation before moving ahead to the next stage of the story. (..) an interactive slideshow allows for interaction mid-narrative, a more balanced mix of author-driven and reader-driven approaches." (Hegel and Heer 2010, 1146)

merging geo-spatial imagery with other data (gathered through drones, for instance), and statistical data provided by INGOs and governmental sources.

If we turn to another Story Maps creation which uses satellite data, we will see another example of operational images being integrated into a story. Produced by the UNHCR mapping team in Bangladesh, *Rohingya Refugees: Emergency at a Glance* (2018) uses the cascade template and combines it with 3D computational images as well as charts and data visualizations. It was released in 2018, one year after the Rohingya refugees settled into an area of Kutupalong-Balukhali. This area, close to the border with Myanmar, was created as a refugee camp by the Bangladeshi government in 1991. In 2017, facing anti-Islamic persecution in Myanmar, thousands fled the country and settled in and around this location. The Story Map recounts this process of settlement and its implications for the growing population. As the text, part of the story map, explains: "approximately 671,000 Rohingya refugees have fled targeted violence and serious human rights violations in Myanmar since August 2017." (Rohingya Refugee Emergency at a Glance 2018)

The story develops via the scrolling function, issues are highlighted with short blocks of text, and animating maps display data about the settlement. A simple map that traces the borders of different camps within the location shows, in shades of blue, the presence of shelters as well their distribution and density. If the user scrolls down, the same map becomes a "heat map," thus a visualization which uses different shades of red to emphasize the congested nature of the shelters, which—as the text next to the chart explains—does not conform to the UNHCR's basic living requirements. These images were produced using a combination of drone imagery and statistics, and they show how operational images can become part of narratives that aim to make a social impact. Indeed, they show us how such images operate: "images not only have expressive or illustrative, representational of referential functions, but also augment and create significant events. In all cases they are crucial factors within the dynamics of political conflicts" (Eder and Clonk 2016, Introduction).

Fig. 23: Rohingya Refugee: Emergency at a Glance: a heat map of congestion

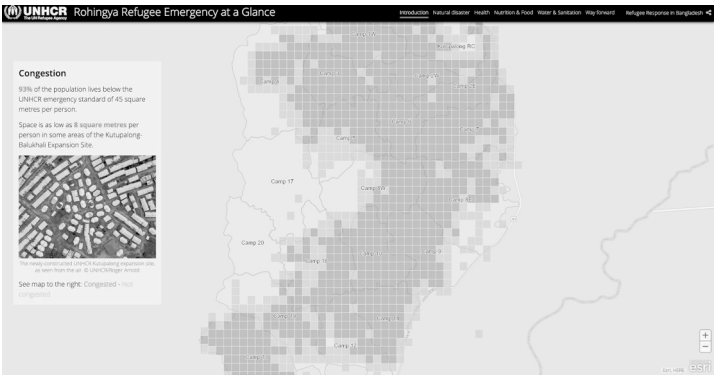


Image source: screenshot from Rohingya Refugee: Emergency at a Glance (2018), © ESRI, Gere, Garmin, USGS.

The use of drone and satellite imagery has become more and more common. This is especially true for regions in the world where ground-level documentation is difficult to acquire (when there is a lack of government urban planning, for example). These alternative forms of vision supply, in short time, the required information in the case of an emergency. They are operational images that form part of a humanitarian operation.

The story of the precarious settlement is narrated in a similar manner to *The Uprooted*, using a combination of different sources of data, imagery and text. It uses the same template for scrollytelling and views from above. Some of the images are collected by international agencies, such as UNOSAT. UNOSAT (or UNITAR) is a UN agency that "provides high-quality geo-spatial information to UN decision makers, member states, international organizations and non-governmental organizations."(UNITAR n.d.)[14] In other words, their experts enable

14 They also add "Our mission is to deliver integrated satellite-based solutions for human security, peace and socio-economic development, in keeping with the

information from the GIS system to be easily accessible to UN agencies and workers worldwide. The team that worked on *Rohingya Refugees Emergence at a Glance* is composed of the mapping unit of the UNHCR and local Bangladesh UNHCR workers. Thanks to data sources obtained by the UNHCR, the Asian Disaster Preparedness Center (ADPC), IOM, Inter Sector Coordination Group (ISCG), REACH Initiative and WHO, they were able to create a series of maps that shows danger within the settlements: for instance, issues related to health and hygiene, the probability of natural disasters and potential destruction of property due to unsafe construction methods. They even created a 3D simulation which is navigable using the cursor, and that shows the areas where sudden floods could create dangerous situations (fig. 24). The model is a combination of imagery, data and statistical predictions.

Fig. 24: Rohingya Refugee: Emergency at a Glance : a 3D model of the Rohingya settlements in Kutupalong-Balukhali

Image source: *screenshot from* Rohingya Refugee: Emergency at a Glance (2018), © UNHCR.

mandate given to UNITAR by the UN General Assembly since 1963." (UNITAR n.d.)

The Story Map ends again with a donate button, and some links to the UNHCR website that manages the emergency in Bangladesh. For instance, we are redirected to a page of statistics that underlines the lack of financial resources, and how much money is still needed to properly manage the situation. The UNHCR argues that for this situation, only around thirty percent of the funding has been received. Next to a pie chart, the website offers reports (from different agencies) to show how critical the situation is: between 4 and 12 July 2017, "709mm of rain fell in parts of the Kutupalong refugee settlement, out of a July average of about 1040mm for Cox's Bazar. A combination of landslides, floods and wind damaged or destroyed hundreds of structures and temporarily displaced thousands of refugees" (IOM 2019). This page is part of a larger website called the "operational portal," which is entirely dedicated to data collected by the UNHCR around the world. It is navigable by country or situation, and the latter are pinned to a Mercator Map and can be accessed through a simple click. Of the 23 so-called "active situations," one is the refugee response in Bangladesh. A second link at the end of the story map brings us instead to the official UNHCR page of the "Rohingya Emergency," which features a YouTube video showing images of the settlement in Bangladesh. Superimposed titles and emphatic background music inform us about the difficult situations faced by the refugees, and ends by inviting us to donate.

ESRI emphasizes the importance of storytelling. Different kinds of data sets can be combined with several other types of imagery—photos, videos, 3D models and charts, as well as maps and graphics—and text to create, using a simple scroll function, the impression of a narrative arc. What the user might experience through all this is a "flow" which, instead of the discrete browsing of pages, creates a flux of animations and floating windows via the simple act of scrolling. This ensures continuity in the constant interchange of images, text, data visualizations etc. Different media formats are combined through this flow into a form of linearity that instead of travelling in unidirectional fashion, can be easily pulled back—by scrolling up—to switch between, say, data visualizations, so as to better understand what they depict or highlight. It

feels more like browsing pages than watching a video. But is this flow and the continuity that it creates storytelling?

At least, this is what the developers of Story Maps think. They created the first version with this "cascade" template as an easy form that would be accessible to mobile platforms. Scrolling down on our smartphones to check news, social media, etc. is a daily activity for most, but this does not necessarily translate to reading or browsing a story. From scrollying to scrollytelling, a certain coherence is necessary. In Story Maps the red thread, as we might call it, is most certainly the lines of text in between sections, which organize and connect the diverse materials presented. Story Maps's aim, it seems, is to arrange such information using storytelling strategies so as to address a wider audience, composed not only of decision makers, but also the general public. As for BI software like Tableau, the impetus behind creating a platform which combines different data sources to tell a story highlights how important it has become to make data legible to a large audience.

Data collected by the UNHCR and other agencies often has a creative commons license, and can therefore be easily shared to produce interactive maps, infographics, data visualizations and, of course, story maps. In 2014 HDX, the Center of Humanitarian Data, was funded as a service offered by the OCHA, and share much of this data.[15] Its mission "is focused on increasing the use and impact of data in the humanitarian sector." The persuasive rhetoric shaped by this view from above, which results from "phantom" positioning, as Farocki calls it (2004), is moved by a unambiguous "humanitarian impulse," (Rangan 2007).

15 As the website explains: "We define humanitarian data as: data about the context in which a humanitarian crisis is occurring (e.g., baseline/development data, damage assessments, geospatial data), data about the people affected by the crisis and their needs, data about the response by organizations and people seeking to help those who need assistance." (HDX n.d.)

4.4 Scaling, Simplifying, Governmentalizing. Viewing from Above

I argued at the beginning of this chapter that interactive maps offer us a distant perspective. I claimed that maps as interactive practices about migration construct a specific "scopic regime." (Jay 1988) Teresa Castro refers to this use of maps in cinema as a "mapping impulse." (2009). She investigates their use in the early cinema of panoramas, atlases and aerial views and wonders if: "early non-fiction film, which brought the 'whole world within reach'(Mélie's' ill-fated Star Film company slogan: 'le monde à portée du regard'), is traversed by a general mapping impulse, associated—but certainly not limited—to the territorializing impulse of nation-states, different imperial projects and other scientific and commercial ventures." (Ibid.)

The visual regime of interactive maps is nevertheless a way of viewing which requires interaction, and an exploration of the map itself. Looking at interactive practices as "cultural artifacts" forces us to look at their dynamic context, and to analyze how they are embedded in specific cultural, social and material infrastructures. Maps use prior interpretations of data and they entail the use of other practices for gathering data and visualizing it.

In interactive maps, this data helps illuminate a crisis situation, and an emergency that is in need of—prompt or continuous—financial support and direct humanitarian aid. The narratives, then, are a form of persuasive rhetoric. Hulman and Diakopoulos discuss "visualization rhetoric," and argue that certain common design techniques influence the reading of data visualizations (2011, 2231). They investigate different visual strategies for the display of data sets and show how omissions in data, fixed comparisons and visual cues may also generate connotations which exceed the intent of the designers. In this sense, designers and creators of data visualizations must not only follow rules to create beautiful visualizations, but they also bear the responsibility of considering "the unintended effects their choices may have." (Ibid. 2239) As Hulman and Diakopulous note, "how data is framed—they claim—or presented can significantly affect interpretation" (ibid.). Bruno Latour,

in turn, has argued that once maps are established and accepted, they become immutable, mobile, reproducible, re-combinable and scalable, and thus tools for control (1990, 19-68). As Latour argues: "the great man is a little man looking at a good map." (Ibid., 56)

This practice of data collecting and map creation itself responds to a modality of rationalization that started with early modernity (the first data visualizations also belong to that time).[16] James C. Scott refers to these practices of rationalization in his book *Seeing Like a State* (1998), in which he claims that maps, surveys, registers, and data collections represent a form of legibility and simplification that attempts to overcome the opacity of the world. For him, it implies a "viewer whose place is central and whose vision is synoptic (…) a view not afforded to those without authority" (ibid., 79). Humanitarian organizations make use of satellite images and other data gathered from repositories of governmental and international agencies, software corporations like ESRI, but also from other sources like Google Maps or OpenStreetMap. And with software such as Tableau and Story Maps, professionals can let this information become part of the story.

The way this imagery is gathered suggests not a singular perspective, but rather, as MacKenzie and Munster label it, a practice of "invisual" observation. They argue that the use of algorithmic vision employed by drones, for instance, but also, I would add, the use of data sets in visualizations, creates an "omniscient" perspective: "seeing—as a position from a singular mode of observation—has become problematic since many visual elements, techniques, and forms of observing are highly distributed through data practices of collection, analysis and prediction." (MacKenzie and Munster 2019, 3)

This view therefore not only represents migrant trajectories and refugee movements, but it produces an "operational image" as well (Farocki 2003; Paglen 2004). The aim is to simplify, and to make legible in order to govern.

16 See, for instance, the data visualization in John Snow's maps during London's cholera outbreak in 1854 featured in Tufte ([1983] 2001).

Complex human movements are converted into a series of arrows, dots, and histograms. Individual stories of exiled people transform into a collective story of global movement. Often, these visual displays risk reinforcing incorrect assumptions around migration such as "flow," and that migration is a form of incoming invasion. This is especially evident in all those interactive maps that focus on refugee data exclusively vis-à-vis Europe. This ethnocentric view depicts migration as a crisis for Europe, as the continent is shown as the sole recipient of such flows (Adams 2018). This way of looking is not only a view from above, but it is an empowered view from Europe, addressing the user as a European citizen. The visual display of migration through interactive maps and data visualization is therefore a mean of simplifying mobility by scaling migratory movements. Often, it ignores the speed of movement. It offers a perspective over time, using a timeline, but from a European or Western-centered point of view. As Bacon et al. write: "The majority of maps of migration flows give the impression of a territory where social problems, administrative and (geo)political obstacles and distance are not taken into account." (2016, 8)[17]

Motivated by a "humanitarian impulse" (Rangan 2017), humanitarian mappings offer decision makers, but also through storytelling software the wider public, the hope of managing and controlling migration. These practices suggest migration is "a problem to be governed," which requires an urgent response (Tazzioli 2020). It reveals a governmental rationality behind the practice of humanitarianism (Fassin 2012). Data on refugees and displaced peoples acts as rational and empirical evidence, suggesting on the one the world can be known objectively by data; and on the other, a drive to find solutions, assess risks, control, manage and support human beings beyond the borders of individual countries, which fail to protect refugees and migrants. By inverting this rationality, "humanitarian reason" (Fassin 2012) becomes a justification

17 As cartographers underline, it is still a challenge today to map migratory movements. A map that takes into account all flows and countries of origin would need, they argue, around 38,000 arrows. Such a map would be, they claim, not impossible but rather illegible (Bacon et al. 2016).

for governmentality, which looks beyond the subjects of the state and its citizens, and tries instead to render visible those apparently outside the law, and manage and control their mobility.[18]

The "scale" and the proportions of migration on a global level display the measure of movement. Indeed, that is how the Finnish company responsible for Lucify defined their first interactive map: "We clarify the scale of the crisis." This is also why they chose "Lucify:" it is a compound of luce (the latin *Lux*/*lucis*, or light) and the verbalizing suffix "-ify," which means that "lucify" "sheds light" on a phenomenon. Oddly enough, my first association was instead with Lucifer, the fallen angel of late Christianity. But despite this unsuccessful choice of name, their idea of working with data also represents a belief in the potential of digital creation. They declare on their website: "we believe this new medium has vast untapped potential, especially for creating and sharing understanding about important systemic problems with complex dynamics. In our work, we explore, use, and spread knowledge about the potential of the digital medium for that purpose." (Lucify n.d.)

The potential of what they call a "new medium" (again and again, there is this idea of novelty being the savior to our problems), refers to their creations—thus visualizations—that might shed light on "systemic problems with complex dynamics." (Ibid.) As Martina Tazzioli, who studies the nexus between migration and governmentality suggests, rather than focusing on the "violent functioning of border regimes a critique should be pay attention to the knowledge we generate about migration." (2020, 132)

One day, perhaps, as the protagonist of Jorge Luis Borges foresees in "On Exactitude in Science," the map might match the territory. For now, it is not possible. The use of data within maps and its visual display should not simply provide "balance" or "harmony" as some data visualizations designers seem to suggest. Maps, of course, do not—cannot—match the territories they represent, as the belief that the "objec-

18 Referring to the Foucauldian notion of governmentality, Didier Fassin writes: "governamentality includes the institutions, procedures, actions, and reflections, that have populations as object." (Fassin 2011, 214)

tive" use of data will give the "real picture" of a situation is just that: a belief. All data, as Johanna Drucker argues, is capta: "Data are capta, taken not given, constructed as an interpretation of the phenomenal world, not inherent in it." (2014, 128) In other words, data is not objective information—it is also part of the practice of presentation itself. As Krugan points out with regards to "para-empirical data:"

> Data are always translated such that they might be presented. The images, lists, graphs, and maps that represent those data are all interpretations. And there is no such thing as neutral data. Data are always collected for a specific purpose, by a combination of people, technology, money, commerce, and government. The phrase "data visualization," in that sense, is a bit redundant: data are already a visualization. (2013, 35)

Refugees for instance, understood as "dots," only tell us about how a specific country has categorized a human being based on their nationality—but nationality itself is not a given. As Drucker points out, "Nations, genders, populations, and time spans are not self-evident, stable entities that exist a priori." (Ibid. 129) The way we display this data, like flows on maps, also structures our view. As Krugan argues, when looking at geovisualizations it means taking no real perspective or point of view. They construct instead a spatial interpretation and rather a "view from nowhere." (Nagel 1989) What does it mean to view from above? It means reproducing a point of view which is already in place: a cosmopolitan-oriented view, and a humanitarian one. The interactive maps showing flows might be more or less able to tell migration as a story, but they clearly articulate the humanitarian governmentality behind their creation.

Chapter 5 – The Promise of Humanitarianism

> "Humanitarianism, it is by now banal to observe, has become, with its rights and duties to protect, the secular religion of the new millennium."
> *-Laurence McFalls (2010)*

In this chapter I focus on the discourse around migration from a humanitarian perspective, and how this influences and is at the same time shaped by specific interactive media practices. The interactive practices analyzed in this chapter are "humanitarian." Humanitarian communication is underlined by the belief that in front of the "suffering of strangers" (Calhoun 2008), or "the pain of others," we feel solidarity (Sonntag 2003). Lilie Chouliaraki, a scholar who has questioned contemporary humanitarian communication, approaches it "as the rhetorical practices of transnational actors that engage with universal ethical claims, such as common humanity or global civil society, to mobilize action on human suffering" (2010, 107). Humanitarian discourse frames the production of interactive practices and their aesthetics, stories, and forms of circulation. It is sustained by material and institutional infrastructures that ensure that its message will be fulfilled, and that the "vulnerables" will be assisted.[1]

1 There is no juridical definition of "vulnerable", but here I refer to those people that are constructed through a certain rhetoric as "vulnerable subjects." They are subjects represented as being in danger, or as suffering. United Nations employ a "Vulnerability Index" to assess environmental and social risks (Villagrán De 2006).

I argue that interactive practices about migration, by embedding and engaging with humanitarian discourse, often become, as Lilie Chouliaraki writes "post-humanitarian." (2010, 2013) In other words, these media objects are guilty of re-directing the focus to ourselves and generating feelings of well being instead of asking how we can help vulnerable people (2010, 2012, 2013). Put differently, humanitarian discourse is entangled with media-technological innovations and material infrastructures, which support and address a viewer's feelings and their sense of personal morality. I ask how interactivity as a feature of modern technology is mobilized and responds to calls for "action," or a political and social tool for change.

This chapter explores how humanitarian discourse materializes and how it involves a specific political representation of the vulnerable (Hall 1997). Moreover, I am interested in understanding how specific interactive features reorganize and rematerialize around this discourse. If we consider humanitarianism a *discursive formation*, we can then analyze the production of interactive practices and isolate a set of rules that lead to the proliferation of certain premises and ideas around it (Foucault 1970). Indeed, entanglement with material infrastructures turns humanitarianism into a practice of managing, controlling and disciplining migrants. The chapter focuses on the views that interactive practices about migration construct, and proposes to historically contextualize them so as to understand the shift that humanitarianism has taken more recently.

5.1 Call for (Inter)action

In 2015 Chris Milk, a film director best known for creating an interactive music video for the band Arcade Fire, gave a TED talk to introduce his latest project on virtual reality, *Clouds over Sidra* (2015). At the time,

there was real hype concerning the potential of VR.[2] In 2014, Google had released its Google Cardboard, which consisted of head-mounted viewers made of cardboard. It was a low cost version of other VR goggles that launched at the same time like Oculus Rift,[3] whose first kits sold for 399 dollars and exclusively to developers. On this occasion Milk defined VR as the "ultimate empathy machine" (Milk 2015). The emphasis on "empathy" depended largely on the topic of the video: the story of a refugee from Syria. The 360-degree images of *Clouds over Sidra* were recorded with a special multicamera developed by Milk and his team at the company VRSE—later renamed WITHIN. They showed a refugee camp seen through the eyes of a Syrian girl, who was living in one of its tents with her family after having escaped the civil war. The eight-minute long video can be downloaded from a smartphone, and with Google cardboard it can even be enjoyed as a VR experience. The 360-degree video is low definition, and the camera does not move, so users can only turn their heads and look around (but with a strange feeling of being too high above the ground or discovering a black spot where the camera was positioned).

During the talk Milk, using very emphatic rhetoric, explains to a committed audience his inspiration for working on this "ultimate machine:" while working as a traditional filmmaker, he realized that he wanted viewers not to look through any window or screen, but for them to be able to go beyond it, and to be within the frame. Consequently, he turned to virtual reality, where people could also be present in the world shown to them. He argued:

> you are not looking through the window, you are sitting there, and you look on the ground and you sit where [she] sits. And because of that

2 I refer here to the recent "hype" surrounding VR. Of course, its advent can be traced back to the seventies and Ivan Sutherland's first prototype, not to mention the examples of Early Cinema which include stereoscopic vision.

3 Oculus Rift was one of the first commercial VR headsets. It was initially funded by a Kickstarter campaign in October 2012 which raised more than 2 million dollars. The company Oculus VR was later bought by Facebook for 2 billion dollars.

> you feel [her] humanity in a deeper way, you empathize in a deeper way. I think that we can change minds with this machine. Virtual reality has the potential to actually change the world. (Milk 2015)

For Milk, the feeling of being "there" is necessary for the development of a deeper empathic feeling for a refugee girl. Whether this is true or false, this example reveals a complex dynamic.

In 2015 Milk, together with *The New York Times* and VRSE, developed another similar project for the publication's Virtual Reality app. Released in November 2015, the app featured Milk's 360-degree film, *The Displaced*, which is an account of the exile experiences of Choul (in South Sudan), Oleg (in Ukraine) and Hana (escaped from Syria to Lebanon). Since the camera cannot be carried by a cameraperson but must stay in position, the director used some of early cinema's tricks to create the impression of movement: the camera is positioned on moving objects. We can thus move on a boat through swamps, ride on a bicycle or sit on a truck. Sound often draws our attention; the noise of an airplane passing, for example, makes us look in that direction. The subjects of the film are pitiful, innocent, and bear no responsibility for the events that cause them to suffer. Therefore, the dramatic stories of these three young refugees easily elicit empathy.

But how do VR videos or other interactive practices, in which user interaction is necessary, differ from screen video experiences, in fostering our ethical understanding? I would argue that, in a similar way to several other case studies presented here, the promise of adopting the other's perspective is the result of a historically situated and mediated practice. The construction of a subject is always part of a more complex system of representation (Hall 1997). In other words, the construction of the vulnerable (here a refugee girl) also helps to construct the *non*-vulnerable. It is about the *non*-vulnerable wanting to understand what vulnerability means, and through that creating meaning about it.

Humanitarian communication can be understood as the ensemble of media strategies, aesthetics and narratives that aim towards the

communication of solidarity.[4] It uses what Lilie Chouliaraki claims to be a positive representation of refugees and forced migrants, through "photo realistic imagery" and the "attribution of voices." (2012) As Chouliaraki highlights, it underwent a shift after the seventies, turning towards a self-oriented morality (Chouliaraki 2013, 2012, 2011, 2006). This shift connects specifically to the so-called "West." (Hall 1992; Dirlik 2007) Of course, this distribution is geographically imprecise, but it points to a symbolic, economic and political division which has no physical borders. In this vein, Chouliaraki further claims that the UN's established media practices invoke pity, and can be "criticized for de-humanising the vulnerable 'other' and for naturalizing, rather than problematizing, the power relations of humanitarianism between the West and the 'rest'." (2012,. 22) The case studies already analyzed in "A View from Within," although refusing the negative rhetoric of mass-media, often face such paradoxes. These contradictions I argue are strictly tied to their use of technology (and its utopic promise) and the ambivalent relationship they have to the political figure of the refugee or migrant.

The practices that are the object of this chapter's analysis are addressed to a specific audience: a privileged, connected audience that defines itself as non-vulnerable. These *non*-vulnerables are precisely those who might feel it imperative to help people and provide relief in a crisis situation. They are humanitarians. If we return to Chris Milk's Ted Talk and take a look at the audience, this becomes clearer.

The photo above shows Chris Milk standing in front of a picture of people at the World Economic Forum in Geneva watching *Clouds Over Sidra* (fig. 25). He claims that they were affected by the experience of watching the film. What does he mean and who are "those people"? They are the so-called "decision makers." The World Economic Forum (WEF), is an INGO (international non-governmental organization) which aims to facilitate public-private cooperation. In a video, Chief

4 For IOM (International Organization for Migration), "humanitarian communication" means "the collection and dissemination of critical, time sensitive, life-saving information among crisis affected populations and humanitarian agencies, to enable a more effective response to emergencies." (IOM 2017)

Fig. 25: Chris Milk's TED Talk

Image source: screenshot from Ted.com, https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine.

operating Officer Sarita Nayaar explains: "it is a very unique place, it is a place where industry come together to work with governments, to work with NGOs, with Academics, to truly make a difference in the world" (World Economic Forum 2016). Another interviewee—Indra Nooyi from PepsiCo—repeats: "nowhere in the world is there another forum that brings together governments, NGOs, corporate leaders, activists, artists and musicians, to all come together to talk about the biggest issues based in the world" (ibid.). And finally ‚Adeyemi Babington-Ashaye, economist and contributor to the World Economic Forum, who has an MBA from MIT and a Masters in Public Administration for International Cooperation from Harvard, says: "global challenges, very often there is no right answer, there is a best answer, that best solution only comes by engaging diversity of stakeholders." (Ibid.)

So these are the decision makers who need to empathize (through technology), and who can indeed move or facilitate international cooperation projects that might help the vulnerables. The audience is also

Fig. 26: Chris Milk's TED Talk: a shot of the audience

Image source: screenshot from Ted.com, https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine.

the seated public, who appear as a group of white middle-aged people: WASPs, if I had to guess (fig. 26). But this same video (in English) has 1,550,432 views. It is not only thus a question of global decision makers all over the world, but also a "Western" English-speaking viewership that might feel engaged and choose to donate some money to the UN or INGOs working on humanitarian and development projects. The VR goggles, the ultimate empathy machine lie in between. Between us: the decision makers and the vulnerable.

The way to ensure that this message is conveyed is not just by looking at the vulnerable, but the novelty of the device and its technological features that promise to give us empathy. In addition to the participants to the World Economic Forum, Chris Milk is also confident that "his" machine "has the potential to actually change the world." (Milk 2015) Through this machine, he further claims, we can become compassionate, and ultimately "more human". (ibid.) In other words, this machine can make us true humanitarians. Craig Calhoun distinguishes the humanitarian imperative from other efforts to reduce suffering: its

purpose is not only short-term action and helping the vulnerable, but also long, in its mission to improve humanity (2008). Or as Milk seems to argue, this machine not only has a direct impact on the condition of the vulnerable. It acts upon *us*.

One of the peculiarities of VR and other interactive practices is their common technological promise: the user must engage with the media object and act upon it. A consequence of this is an idealized view of interaction. Interactive practices promise the audience a better and deeper engagement, by getting them involved, and transporting them to where they cannot be. Interaction lets us act. But does this mean that we act as humanitarians?

5.2 Media for Change

In New York, the "Games for Change" festival has become a showcase for interactive media which aims to produce a social impact. This renewed, positive vision of the potentiality of technology has also fueled new marketing strategies. On the web, different institutes, associations, non-profit organizations and independent creators label themselves as working with media for change: to quote just a few examples, the website "mediaforchange.org", the "Media Institute for Social change," and the website "Change for Good." Another website is called "Project Empathy" and concerns a VR video made to foster empathy. Even the BBC has had an associate non-profit aid organization called BBC Media action for decades, which now makes use of big data for development.

Changing the world, *building empathy*, *taking action* on a critical situation. This is what interactive practices about migration promise to do. What concerns me is not the "empathy machine" or Milk's multi-camera device, but a certain media discourse on technology that all these interactive practices, not only VR, share and engage with. It is the interrelationship between what is being marketed as a new, "ultimate" technology and its potential impact; a call to action, but also a "belief"

in the connection between virtual agency and real world agency.[5] The idea that technology might improve our ability to empathize and thus change our behavior is a highly deterministic view. Nevertheless, empathy[6] or this idea of a transcendental imagination is not new at all. Adam Smith wrote about sympathy in a similar manner back in the 18th century ([1759] 2010). Sometime later, at the beginning of the 20th century, a few early cinema strategies suggested that the new stereoscopic technology was seen as capable of giving the "sensation of being there" (Uricchio 2011, 11).

Interactive practices that deal with migration and refugees promise change. Although it seems very broad, once it is connected to the question of vulnerability, it immediately becomes a question of reducing suffering. Lilie Chouliaraki criticizes how concepts such as change are mobilized in the contemporary communication of solidarity. She claims that some practices are not able anymore to address long-term political action seeking justice, but instead these practices offer short-term

5 The discourse around VR as an empathy machine and change is not unique. Jane McGonigal, a game designer, gave a talk in 2010 claiming that videogames might change the world. Maybe it is simply the format of TED talks (I found plenty of other TED talks about "changing the world," whether they were discussing VR, videogames or home cooking"). Media for change, videogames and other interactives engage with a discourse of "change" which goes beyond media, and is part of our modern society.

6 Empathy nowadays is often seen as positive, but for some scholars it is a twofold weapon. It might enhance positive behavior, but it also might produce negative reactions. Paul Bloom, a psychologist, understands empathy as the capacity of putting yourself in the shoes of somebody else (2017). He claims that empathy is extremely biased: we might react with a positive or negative feeling, but that depends also on our personal history, disposition, cultural context, political orientation, etc. Empathy is part of our habitus. He agrees with neuroscientists such as Tania Singer who argue that empathy produces cortisol, which is something that our body produces in stressful situations. For Bloom, to really change behavior, empathy is not enough. For sociologists this is agency, understood as our ability to take action, which is conditioned first by social structures but also by other situations and events.

agency, so as to overcome a crisis of pity (Boltanski 1999). For Chouliaraki, this trend in the communication of solidarity is "post-humanitarian" in that it produces narratives that are self-oriented and often engages with stories that make you as a *non*-vulnerable feel good (2011, 2012, 2013). She writes: "In the search to reconcile the competing demands of market, politics and the media the public actor of humanitarian communication has turned the audience in an 'ironic spectator' of the vulnerable others." (2013, 2) In other words, "the pleasure of the self has become the heart of moral action." (Ibid., 4) This recent shift signals an ethic that "no longer aspires to a reflexive engagement with the political conditions of human vulnerability." (Ibid., 4)

The discourse over humanity is a fundamental issue for humanitarian communication, which goes beyond the media object itself, and becomes part of the goal of different international organizations (UN, WEF, etc.) and global communities. How do you elicit not only compassion, but bear witness to pain or misfortune? Do we need a machine to become more human? Probably not, but this idea addresses our deepest feelings and thus captures attention. If we can empathize, we also feel better about ourselves. That's what Chouliaraki critiques: post-humanitarian media does not call into question the political conditions of human vulnerability, but organizations and legacy media such as The New York Times use this rhetoric to legitimate their position as institutions for the practice of solidarity. They do so by "inducing positive warm feelings and motivating longer-term support" in donors or subscribers (Chouliaraki 2016). VR and interactive practices promise that we will be there, act, and change the world, and stimulate a positive feeling in *us*.[7] These interactive media reveal a bias in the communication of solidarity. In the following paragraphs I will explore how this same logic is embedded in two interactives.

7 I suggest that you take another look at Milk's Ted Talk audience and study their reactions while watching the images of *Clouds Over Sidra*.

5.3 Ironic Spectators

In the serious game *Against All Odds* which I introduced in "A View from Within," the home page welcomes users with a headline: "Against All Odds: The game that lets you experience what it is like to be a refugee."

Fig. 27: Against All Odds: the opening sequence

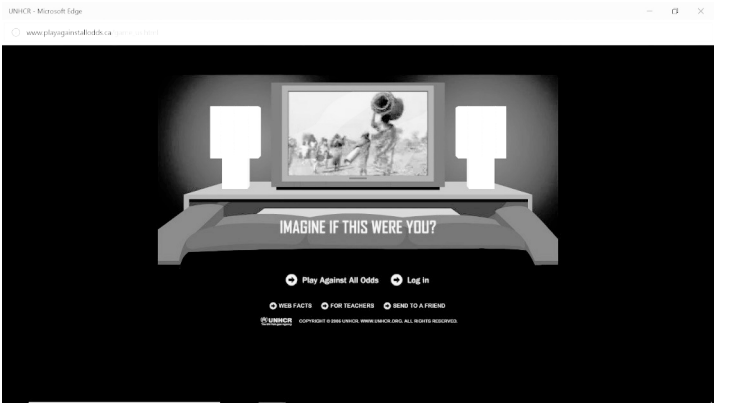


Image source: screenshot from Against All Odds (2005), © UNHCR.

In the background, we can see an illustrated image: a scared young girl holding a backpack. The following sequence is more revealing. It is a view from a couch facing a television, which is projecting random scenes of supposed refugees from a mainstream media source. The titles run: "*People you see every day, but you don't really see them*. Imagine if this were you?" This sentence, along with the short animation sequence, immediately outlines the premise of this serious game. First, we are in a comfortable position, on a couch and watching TV. Second, we see people—on television but also just in every day circumstances—and yet we *do not* really see them. This "invisibility" is driven by a lack of attention, or perhaps an exhaustion of attention. We see them perhaps every day on the news—there were no ubiquitous social networks in 2005—but

we do not really know enough about them. The moving image in this scene looks like a random crowd of supposed refugees, and can be interpreted as a "negative" and de-individualizing image of an anonymous group of people. The feeling of not doing enough, as evidenced by the sentence "but you don't really see them" interests me. How is our agency in the real world connected to an experience in a virtual world? How can a game and its promise of immersion and interaction bring us so close as to actually act? I expect this game to give me an answer. I expect it to give me sufficient agency to feel immersed and interact as a refugee would.

Chouliaraki argues how the communication of solidarity after the seventies went through a process of instrumentalization, combining a retreat from grand narratives with increasing technologization. *Against All Odds*'s opening remarks, as well as Milk's talk, and arguably every sort of consumerist act, invoke our wish to be excused from not caring enough. Think of our daily activities: we might buy something only because we know that a part of our money will go to charity. In all these acts, and especially as it relates to the development of interactive practices about migration, there is a profound need to justify our well-being while not forgetting the vulnerable lives of those we see every day. We interact instead of acting, and see through instead of look at. However, these media, instead of encouraging us to act upon the vulnerable and change their condition, asks us to interact with the game. This ambivalence affects the way humanitarian communication addresses change, and obscures fundamental questions. Chouliaraki stresses that to address this paradox of humanitarian communication a new morality is needed, one that re-addresses not only our perspective on the vulnerable, but also leaves open a space for a critique. The problem lies, then not exclusively in the way that communication is constructed but how its premises are posed. There is indeed a collapsing of the distinction between action and "interaction." But the user needs to do more than play or watch.

Another example might shed light on the same rhetoric that informs interactive practices about migration. *Bury Me My Love* (2017) is an interactive text-adventure based on real-life accounts, available on the ARTE

website, on gaming platforms, and as an app for Android and IOS systems. Here, interactivity is mostly text-based. Indeed, as in text-adventures, you can choose between options but they do not always lead to a change in the narrative action. Drawings often stand in place of photographs. You play the new husband of Nour, a Syrian nurse that decides, after losing part of her family in Homs, to leave the country. You stay in Syria and text message her. You can choose different speeds for the game. For example, for a more convincing effect, you can choose for it to be slow. That way, you receive push notifications on your smartphone when Nour messages, and you can chat with her during the day, as you would normally do with your real friends or relatives. The app is based on a simple WhatsApp chat, and you exchange funny and romantic texts with your wife and support her in her journey by offering advice from time to time (pre-made text messages), pictures (pre-made drawings) and voice-messages. You cannot really help her, although you might warn her to make less risky decisions when she has to find smugglers and decide where to go next. But mostly what you experience is a feeling of helplessness. This is what the creators wanted to achieve. Your choices will not determine whether she succeeds—we cannot save her. All that you will receive is a sad voice message that is hard to listen to. But she may also live and succeed. There are 19 possible endings and most of them are neither good nor bad, but something in between. Here you are not asked to make a journey in first person, instead you are an emotional witness to Nour's long exile. You relate to her story because the way you exchange messages feels similar to other daily interactions you might have. But in the end, after the game, what is your commitment? Interactivity here informs your ability to choose between options during the game. At some point you cannot really be there, support Nour or see the situation with your own eyes. You see only through her texts or snapshots. Does this feeling of helplessness merely transform us into Lilie Chouliaraki's "ironic spectators" (2013)?

Many players have commented on the game on the Google Play platform. They like it, but note some bugs (which I also experienced). One player argues that the game "develops your empathy towards the others

Fig. 28: Bury Me My Love: mobile app version.

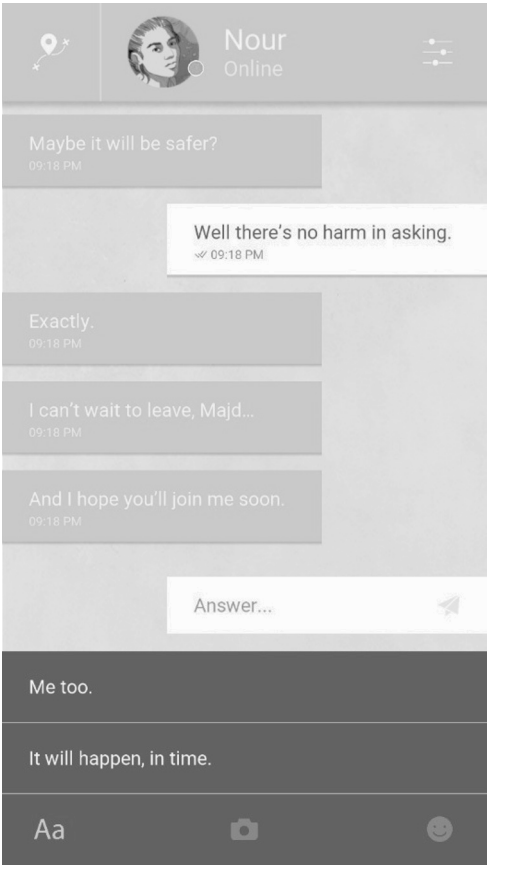


Image source: Bury Me my Love (2017), © The Pixel Hunt, Figs and ARTE France.

and makes you feel happy with what you have." (Google Play n.d.) This is an ambivalent statement.

You feel sorrow for their condition but the effect is that you feel happier about your own privilege. I (personally) liked the game but did not think of my own privilege. That said, I did feel sorrow and helplessness. This one comment synthesizes the position of serious games and other interactive practices about migration, and their complex reception. What is certain is that this game seeks to address our emotional attitude towards the vulnerable.

Next, I would like to investigate how interactive practices and their way of addressing emotions might encourage a certain political rationality about migration, engaging viewers with an ethic of empathy.

5.4 From Pity to Irony, to an Ethic of Empathy?

Are emotions being employed and solicited in political discourse? That is what Didier Fassin thinks when he argues that "moral sentiments have become an essential force in contemporary politics: they nourish its discourses and legitimize its practices, particularly where these discourses and practices are focused on the disadvantaged and the dominated" (2012, 1). The consequence of this general trend is compassion fatigue (Moeller 2002). In other words, exposure to continuous images that address our sense of morality and compassion risks producing ambivalence, indifference—or worse, hostility.

For instance, the issue of asylum seekers generates contradictory responses. It suffices only to mention recent events that happened on the coast of Italy. In the summer of 2018, Italy's rightwing-populist interior minister publicly denied entry to a rescue ship (Aquarius), filled with hundreds of refugees that had been saved by NGOs in the Mediterranean.[8] In August of the same year, another ship, (Diciotti) was ini-

8 The Aquarius is a vessel-ship chartered by different NGOs such as medecins sans frontieres with the aim of rescuing migrants crossing the Mediterranean Sea. The ship collected around 600 migrants in the summer of 2018, and asked authorities to help resolve the issue. However, both the Italian and Maltese governments denied the ship entry, so it eventually docked in Spain. Nevertheless, the ship's authorities were denied entry to Valencia, due to the health condi-

tially refused entry by the Italian government. It was only after days of protests by activists and NGOs that migrants could disembark from the vessel and enter Italy. This event triggered a public debate, and in that same year people took to social networks to discredit and question the rescue of a female refugee in particular. The dispute concerned another photo of the refugee in question with painted fingernails. A series of viral threads on social networks accused NGOs of staging a *mise-en-scène* of her vulnerabilty.[9] This rise in hate not only targeted refugees themselves but also addressed the humanitarian organizations who supported them; it demonstrates a failure to adequately communicate vulnerability and is an example of "compassion fatigue" (Moeller 2002). But it is also an outcome of a collective distrust of non-governmental authorities, European political institutions, and the state, which has failed to preserve the well being of its own citizens following the economic crisis of 2008. Compassion fatigue means that even images of women or children in extreme danger no longer elicit pity. The validity of their suffering is called into question, as there is a suspicion that photos are staged in order to allow migrants to benefit from the European social system.

This distrust not only manifests on social media, but also in bureaucratic practice. An ex French aid doctor that worked for Médicins Sans Frontières, Didier Fassin, explores this in his book *The Humanitarian Reason*, which focuses on the discourse of humanitarianism through practices in the medical field. He explains that in France, as the number of asylum requests has increased, the rate of acceptance has dropped drastically. What he observes is that there is an increasing distrust of

---

tions of the migrants, so they asked to disembark to an Italian port. The interior minister Salvini once again denied the ship entry, so the migrant were brought by 3 other smaller ships to Valencia, where they were medically treated. (Agren and Holpuch 2018)

9 The authorities in fact explained that aid workers had painted her fingernails after she was rescued to make her feel comfortable. The migrant was shocked after having survived on a shipwreck with another woman and a child who were already dead when they were found (Il fatto quotidiano, 2018).

refugees' claims and accounts of persecution, and that only medical/legal certifications can prove the truthfulness of their accounts and thus help them succeed in their asylum applications. This demonstrates a morality behind politics and state-run practices, which Fassin calls "humanitarian reason" (2012). This reason, he claims, is built upon clear structures of power-knowledge, where only the state apparatus can determine the veracity of vulnerability, and thus the lives—sometimes in a biological sense—of others.

Humanitarian government functions today, not only in the realm of international aid but, claims Fassin, as a "form of political theology" that exemplifies an inequality of power (2012, 251). He explains it as the paradox of "a politics of compassion that feeds Western morality," which he sees as a new form of government, understood in terms of a set of different procedures or actions to "manage, regulate, and support the existence of human beings." (Ibid., 1) Thus, I would add, in terms of "governmentality:"

> On the one hand, moral sentiments are focused mainly on the poorest, most unfortunate, most vulnerable individuals: the politics of compassion is a politics of inequality. On the other hand, the condition of possibility of moral sentiments is generally the recognition of others as fellows: the politics of compassion is a politics of solidarity. This tension between inequality and solidarity, between a relation of domination and a relation of assistance, is constitutive of all humanitarian government. (ibid., 3)

On the other side of the coin Fassin's close critique suggests that this same humanitarian reason is used by governments to justify more questionable practices such as armed interventions, as for example, in Kosovo (Pandolfi and Corbet 2011). It is this ambiguity that makes humanitarianism a tool not only for solidarity but an instrument that justifies other, often more dubious, practices.

Drawing on the concept of pity, Luc Boltanski, a French sociologist who works on the idea of "distant suffering," investigated the different ways that the spectacle of suffering is mediated. In his opinion, a "politics of pity" (1999) can lead to action, provided that there is specific

distance between spectator and sufferer, which nonetheless maintains some aspects of a "face to face encounter." (Boltanski 1999) This politics of pity prevails over justice in situations of urgency.[10] For Boltanski, action might be taken by offering financial assistance to those in need, or by speaking—thus through public opinion. For this mechanism to work, though, a certain distance is necessary: the closer sufferers get, geographically and politically, the greater the likelihood of "compassion fatigue" (Moeller 2002). But for Chouliaraki, contemporary, technologically mediated constructions of vulnerability create an "improper distance" that shifts focus from solidarity towards self-oriented morality (2011). She argues that this represents a transition from a "politics of pity" to a "politics of irony," referring to Rorty's figure of the 'liberal ironist.' This figure, she adds

> best exemplifies this complacent use of self-distance in the morality of neo-liberalism. Much like the post-humanitarian activist who expresses solidarity with distant others from the comfort of her living room, the liberal ironist treats, what Rorty calls, the 'vocabulary of justice' as a private matter, which enables the ironist both to remain skeptical of any claims as to the justification of solidarity and, simultaneously, to engage in solidary action towards vulnerable others as part of her own project of moral self-fulfilment. (ibid., 370)

And here lies the paradox: the situation of migrants crossing the sea, or the European border by land often does not inspire pity due to a perceived distance in culture and identity. However, addressing this distance via the post-humanitarian discourse of solidarity, only works to shift the focus upon ourselves. In fact, Chouliaraki not only accuses

10 In her book *On Revolution*, Hannah Arendt explains how compassion became the driving force of every uprising since the French revolution, and is understood as the "capacity to suffer with the 'immense class of the poor'" (1963, 75). Pity is key to the logic of humanitarian communication. Arendt separates those who suffer from those that might be considered fortunate and that merely watch the "spectacle of suffering". For Arendt, pity is thus just a sentiment, while solidarity is a principle "that can inspire and guide action." (Ibid.)

implicates technology, but also celebrity advocacy and the spectacle of others "like us." Here I refer to the stories of refugees that "speak our language," like our TV series, etc. For example, there is the story of Nujeen Mustafa, a disabled Syrian girl, that came to Germany and, as the *Telegraph* writes, already loves German food, and learned perfect English by watching American soap operas (Smith 2016).[11] Stories like Mustafa's attempt to overcome distance by highlighting things we have in common. But what happens with all the others that are not like us at all?

For all the rest, vulnerability addresses our moral sentiments and triggers empathy. Strategic empathy finds an almost natural outlet in modern technology—just think of Chris Milk's "the ultimate empathy" machine, or "emergent" storytelling techniques on the web which aim to offer a closer look. But what is empathy? It is typically described, as a sentiment, a feeling: "our colloquial usage of the term empathy suggests that it involves 'feeling another's pain' or 'stepping into another person's shoes,' but the original definition of empathy suggested that it involved "feeling with" another person" (Oxley 2011, 4).

The notion of stepping "into another's shoes" is exactly the aim of *Against All Odds*, *The Migrant Trail*, and other text-adventures previously discussed. However, Julianna Oxley suggests, in fact, that what we usually consider to be empathy might be misleading. She quotes empirical research by psychologists that shows the more one is able to identify with another person, the more likely she/he is to empathize or to feel *for* this person. But the possibility of identification is higher for those who come from an environment closer to the empathizing person (family members, friends, etc.), or someone that is suffering in front of them. This is empirical proof of what Boltanski discussed. Empathy might help us reflect on someone else's point of view, but by itself does not lead to good moral actions. It might only be an instrument to fulfil a certain ethic. Empathy arrives after compassion fatigue and a crisis of

11 Besides being touted as the "new Malala Yousafzai" (a young Pakistani activist who was shot while giving a talk, and now studies at Oxford University. She is still a supporter and activist for human and especially women's rights), Nujeen also gave a TEDx talk in Exeter about her journey.

pity (Moeller 2002; Boltanski 1999). When there is urgency. And more importantly, when the vulnerables are far away.

Departing from this definition and returning to our definitions of pity and compassion, what we are witnessing is not a politics of irony but an "ethic of empathy." This ethic wants to simulate the point of view of the other or offer a way of becoming closer to them. From this perspective, it is interesting to recall Chris Milk's Ted Talk, and compare it with Adam Smith's description of "sympathy:"

> By the imagination we place ourselves in his situation, we conceive ourselves enduring all the same torments, we enter as it were into his body, and become in some measure the same person with him, and thence form some idea of his sensations, and even feel some-thing which, though weaker in degree, is not altogether unlike them. (Smith [1759] 2010, 8)

Smith talks about imagination, while Milk discusses his "machine." One talks about sympathy, the other about empathy. And yet, the discourse stays the same. The promise of technology sustains a belief that empathy can overcome a crisis in humanitarian communication.

To understand humanitarianism today, I offer next a short historical overview of its origins. Through this, I demonstrate how its moral imperative transformed and became the basis of institutions and infrastructures across the globe.

5.5 Humanitarianism in Perspective: the "Emergency Imaginary" in Interactive Maps

As the sociologist Craig Calhoun explains, humanitarianism first took root not as a response to incoming emergencies but as a belief in the power of sympathy and our responsibility to others, which aimed to change the world by alleviating suffering (2008). The concept and the discourse of humanitarianism has nevertheless changed: it is no longer simply an extension of the Christian concept of charity and the cosmopolitan practice of philanthropy, but also a way of responding to

emergencies. Behind this effort there was of course a belief in a universal concept of humanity:

> That human beings intrinsically have ethical obligations to one another as such requires a notion of transcending kinship, nationality, even acquaintance, and a notion of "bare life" dissociable from specific cultures and webs of relationships. (…) These universalistic notions bear the marks not only of a philosophical history of thinking about self and ethics but also of specific religious traditions, of the growth of modern markets and contract relations, They also underpin the notions of humanitarian obligations and human rights. (Calhoun 2008, 78)

Humanitarianism focuses on relief rather than justice with regards to human rights, but both concepts originated in the modern world. Samuel Moyn claims that "human rights" came from an idealized notion of equality in the late 18th century, which itself appeared after the American and French Revolutions. He explains that it was then that a just and global society was dreamed of, where equality would be of "intrinsic moral importance." (Moyn 2018, 20) Equality meant having equal rights as citizens. However, after the *Declaration of the Rights of Man and the Citizen* was signed in France in 1793, the question moved from this broader notion to "a vision of basic sufficiency." (Ibid., 22) This meant that societies only aimed to provide "basic needs" instead of economic and social equality. This failure of the aspirations of the earlier transnational egalitarian view left space for a global-scale charity program (ibid.). In other words, the ideal of creating equality transformed into the urgency of humanitarian aid to bring relief on a global level (ibid.). During the 19th century, the cosmopolitan idea of humanitarianism materialized in international efforts to create a network to provide aid and alleviate suffering. In 1863, for instance, the International Committee of the Red Cross was founded, and more and more efforts were made to alleviate the consequences of spreading civil wars across the world.

As a consequence of this cosmopolitan view, many other organizations were founded. The United National High Commission for

Refugees was created in 1921 by the League of Nations (a proto United Nations). At that time, their concern was for displaced people fleeing the Russian Revolution, but it later extended to other refugees.[12] Its founder, Fridtjof Nansen, developed a special passport that would allow stateless people (or refugees that could not request one from their country of origin) to travel across countries (Clapham 2007). It is under these conditions that humanitarianism began to be associated with the concept of mitigating the effects of war on civilians, to respond not only to human suffering but also to suffering as "displacement" (Calhoun 2008). But the concept of human rights was, with the exception of the efforts of Nansen, still tied to national citizenship. Hannah Arendt called for an extension of these basic rights beyond national citizenship. She called this the "End of the Nation-state" in her seminal book *The Origins of Totalitarianism*: "true freedom, true emancipation, and true popular sovereignty could be attained only with full national emancipation, that people without their own national government were deprived of human rights." (Arendt 1951, 272)

In the 1948 Declaration of Human Rights, the concept of "human rights" was defined in the way we understand it today, while the ideal of transnational equality died, or was limited to the national citizenship status.[13] Human rights, as defined by the 1948 Declaration, included the French Revolution principle that every human is born equal and has the same rights. Also, every individual is declared free to move between states or to reside in one state, and has the right of a citizenship. There is no mention of nationality. Although the declaration was signed at

12 In 1930, it was renamed "Nansen" after Fridtjof Nansen, head of the commission for Russian Refugees who died that year.

13 Moyn thus distinguishes what he calls an "ethos of equality," which calls for a just moral order that depends on everybody having the same amount of the "good things in life" such as material goods but also political power, and an "ethos of sufficiency" that makes sure that every individual meets some minimal requirements of human rights. Today, when we talk about protecting the rights of refugees and migrants we are usually referring to an ethos of sufficiency, because what is clear is that they have been deprived even of these basic rights (2018).

a time when welfare States were becoming popular, this international agreement that aimed to extend beyond the borders of nation-states and highlight a global issue did not include the broader ideal of economic and social equality sought by the French and American revolutions.[14]

In *Against All Odds*, the narrative reinforces inequality by exemplifying the gap between who is an economic migrant and who is eligible to be (recognised as) a refugee. There is no space in the game for the stateless, or the internally displaced. One part asks the player to choose between becoming an economic migrant or refugee. However, since the game was developed around 2005, some refugees in the game would now be considered economic migrants. For instance, Afghans, whose country, according to the latest European policies, is not one from which you have to flee (Constable 2018). The concept of "refugee" is therefore strictly bound to international and national policies, and is based primarily on a juridical definition that can be understood differently by different countries in different times. Humanitarianism, then, aims not to deliver justice but relief, and does not intercede into national politics or transnational conflicts.

Today, the notion of bringing relief to victims of war has been extended to other causes, like climate-based disasters. The definition of a refugee is stated as follows by the UNHCR website:

> someone who has been forced to flee his or her country because of persecution, war or violence. A refugee has a well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership in a particular social group. Most likely, they cannot return home or are afraid to do so. War and ethnic, tribal and religious violence are leading causes of refugees fleeing their countries. (UNHCR 2020a)

14 Still, although everyone might be born equal, rising inequality nowadays suggests the contrary. Although the declaration stressed the necessity of a right to work and a "basic sufficiency," there is no mention of the ideal of income and political equality of which Moyn talks (and which also resembles Arendt's concept of "isonomia").

Those that can become refugees need to be recognized first as vulnerable others. Today, the UNHCR does not only care for refugees—they also identify "stateless" persons, as those who hold no citizenship, and "asylum seekers," thus refugees in a foreign country who await asylum. Moreover, a large part of refugees are defined as "internally displaced persons," thus people that were forced to flee but never crossed an international border. The juridical complexity shows a shift in the practice of humanitarianism, which is no longer concerned merely with refugees but with different categories of displacement. Indeed, the discourse has shifted from talking about refugees to talking about displaced persons, or to the new concept of "persons of concern" or simply PoCs (UNHCR Philippines n.d.). These include refugees, asylum seekers, internally displaced people and returnees (those that have returned home after being displaced). These categories are what humanitarian agencies consider as *vulnerable*.

Noticing the ongoing trend of displacement and exile, the UN met in September 2016 for a summit in New York. During the meeting, leaders and UN officers proposed to sign a new declaration, which included a plan to address large movements of refugees and migrants. The amendment expanded the definition of refugees to include those fleeing countries due to climate change and natural disaster. On that occasion, UN members also addressed the rising problem of human trafficking, the need to combat gender-based violence, and the importance of offering prompt education services—especially to children and youth. Perhaps the most relevant development was that the International Organization for Migration—which deals exclusively with internationally large movements of migrants—was part of the discussion, and joined the Declaration. It is now not only refugees, but migrants that are part of the agreement.

Today, the question of protecting the vulnerable has turned the basic idea of humanitarianism into a dynamic, organized system that prevents and alleviates different emergency situations. Humanitarianism informs a complex set of international organizations, institutions and laws that aim to frame the vulnerable. Individuals thus become subjects

of and to a global infrastructure that regulates humanity and ensures order. As Calhoun argues:

> The term 'emergency' became a sort of counterpoint to the idea of global order. Things usually worked well, it was implied, but occasionally went wrong. Emergencies were the result, and they posed demands for immediate action. Neither calamities nor population displacements were new, but this way of understanding their human consequences and ethical implications was. Taking hold of these events as emergencies involved a specific way of understanding them- what I have called the 'emergency imaginary.' This is the complement of growth of humanitarian intervention on a new scale. (Calhoun 2008, 85)

This trend, highlights Calhoun, started in the aftermath of World War II, and gained popularity in the 1980s. It brought with it an implicit need for better management and governance on a global scale. The ethical obligation of humanitarianism, then, is also a consequence of an ongoing process of globalization. As Calhoun underlines, this belief informs a specific vision, or what he calls a "distanced view" of the global system—a point of view from which "distant troubles appear as emergencies." (2008, 86) This thought is echoed by some interactive practices that engage with this distant form of viewing, or what I call "A View from Above." Despite deploying a different rhetoric to serious games, virtual reality and interactive text-adventures, interactive maps also demonstrate this same humanitarian impulse (Rangan 2017). As I investigated in the fourth chapter, mapping migration practices not only aim at defining a certain cartographic practice, but they also make use of humanitarian data to provoke immediate action.

I would like to highlight this shift in humanitarianism by looking at a further example of data visualization in Al Jazeera's interactive documentary, *Life on Hold* (2015). The game presents a collection of stories of Syrian refugees (or shall we say PoCs?). The first image you see once you land on the documentary website is a map. This shows Syria and its neighbouring countries, while an animated, rapidly increasing number depicts the amount of refugees that left Syria starting in 2011.

Fig. 29: Al Jazeera's Life on Hold: introductory sequence

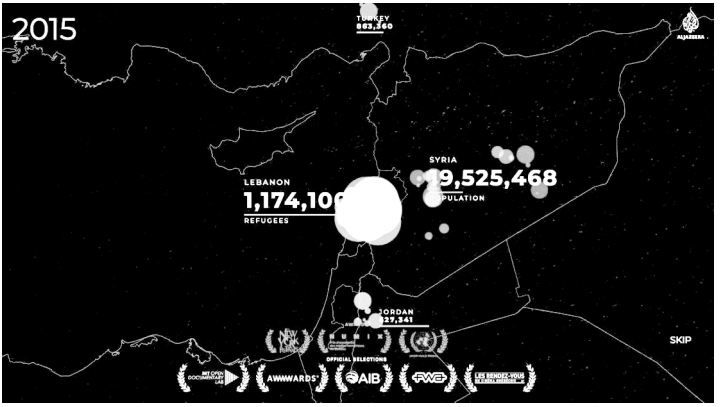


Image source: *Life on Hold* (2015), http://lifeonhold.aljazeera.com.

In the visualization, you also notice that while Syria's population decreases, refugee numbers increase, as well as the population of neighbouring countries like Lebanon and Turkey (fig. 29).

This map/data visualization and others like it, made using data collected by the UNHCR, clearly exemplifies a shift in the subject of humanitarian discourse towards a so-called "state of emergency." Similarly, in *The Refugee Project*, the state of emergency is clearly global and spreads over a long time period. The timeline starts in the 1970s and continues to the present day. It suggests a state of constant emergency, where crisis, although localized, is a global concern. These maps build an image of global vulnerability, for a cosmopolitan humanitarian audience. The use of data visualizations like those found in *Life on Hold* shifts the attention not toward the singular experience of individuals but towards a collective experience of exile that echoes internationally.

Here, our attention is called to act upon emergency situations which are global and widespread. As Calhoun argues about humanitarianism today: "we see not one large emergency dismissed as an exception, but

Fig. 30: Refugee Project: data visualization before September 2018

Image source: screenshot by author.

innumerable smaller ones still treated as exceptions to an imaginary norm but repeatedly so frequently as to be normalized." (Calhoun 2008, 87)

These maps are sometimes used to complement other interactive practices, such as, for instance, video material (as is the case with *Life on Hold*). In other cases, such as *The Refugee Project*, they are themselves complemented by historical information which displays a flow of migrants moving between an origin and destination country. The emergency imaginary is therefore connected to the politics of compassion or pity. On the one hand, "humanitarian reason" informs individual stories; on the other, the global perspective of collected data conveys a cosmopolitan urgency and interest in restoring supposed order (Fassin 2012). This distanced view of a world with no order that can be re-established through the coordinated aid of humanitarian agencies, exemplifies an *episteme* (Foucault 1970):

> The same discourse, characteristic of the way of thinking or the state of knowledge at any one time (what Foucault called the episteme), will appear across a range of texts, and as forms of conduct, at a number of different institutional sites within society. However, whenever these discursive events 'refer to the same object, share the same style and [...] support a strategy [...] a common institutional, administrative or political drift and pattern' (Cousins and Hussain, 1984, pp. 84–5), then they are said by Foucault to belong to the same discursive formation. (Hall 1997, 29)

For Foucault, the episteme—or a discursive formation—has no fixed meaning, but changes over time in different historical situations. Viewed through this lens, humanitarianism today has become not only a moral imperative but an integrated global response to vulnerability. In a liberal and globalized world:

> humanitarian action has become the province of large scale organizations, donors with demands for evidence of efficacy and efficiency, and a profession with its own standards of good performance. Against the "value-rational" sources that have given much impetus to humanitarianism there is a growing instrumental orientation. Reconciling moral self justification and instrumental assessment is difficult. (Calhoun 2008, 32).

Humanitarian aid is today a 10 billion dollar industry, which has dedicated trade fairs and a global infrastructure. Indeed, humanitarian agencies are established institutions that work in a global environment of permanent risk, where the extraordinary becomes routine. At least, this is what the underlying discourse suggests: emergency is not the exception but the norm. If interactive practices, as part of the trend of humanitarian communication, still focus on incoming emergencies, the truth is that this crisis is quotidian. Today, humanitarianism's goal is not limited to helping the vulnerable and the progress of humanity, also the corporate purpose of saving as many lives as possible. As Calhoun explains:

> Efficient aid saves more lives. Nor is it a problem that humanitarianism and emergency assistance are becoming increasingly professionalized fields of work—whether for the state or for NGOs and multilateral organizations. But each of these developments raises questions about how to understand humanitarian action as part of the contemporary global order (or disorder). It cannot be understood adequately simply as an ethical response to suffering. (2008, 23)

Interactive practices, especially interactive maps, address the urgency of a humanitarian response. They contribute to complex, coordinated industry that, beyond any border, tries to reshape the order of things. The trust we have in the effectiveness of humanitarian aid is not made explicit in these media, but it is implicitly addressed through their depiction of actual material infrastructures. Data on refugees is only one of the outcomes of these infrastructures. This global network of aid also holds a promise. I will explore these specific infrastructures in the following paragraphs.

5.6 The Promise behind Humanitarian Logistics and Infrastructures

Interactive practices about migration might move us to donate or support international aid agencies. This means that we believe in and trust such organizations to provide immediate help and relief to the vulnerable. Why? I argue that there is another promise that such interactives carry, which derives from another form of technology: the humanitarian material infrastructure. This infrastructure gathers not only the agencies and institutions that represent or provide humanitarian aid, but also their logistical infrastructures which aim to respond efficiently in the case of emergencies. The humanitarian infrastructure is part of a broader notion of "migration infrastructure," which Xiang and Lindquist define as the "systematically interlinked technologies, institutions, and actors that facilitate and condition mobility." (2014, 124)

The system of humanitarian relief is a globalized network of infrastructures and actors that needs to be efficiently coordinated. The OCHA, for example, (United Nations Office for the Coordination of Humanitarian Affairs) is responsible for "bringing together humanitarian actors to ensure a coherent response to emergencies." (OCHA n.d.) This organ shows how complex the management of humanitarian relief has become on a global scale. And in many interactive practices about migration, it is not only refugees and migrants we see in camps but also humanitarian aid workers and the supply chains that support the settlement of refugees and migrants. This material and human infrastructure facilitates the flow of goods, people and ideas and their mutual exchange.

Brian Larkin, an anthropologist, argues infrastructures not only allow practices of exchange and circulation, but they also highlight how certain practices of government are organized. Consequently, there is a belief that they might enact change or progress. For example, the construction of certain roads between places facilitate the increasing mobility of goods and peoples—but also ideas. The Internet, too, facilitates the circulation of ideas over social networks, and it allows geographically disparate people to communicate on almost the same timeframe. What Larkin argues is that infrastructures not only enable connections, circulation, and exchange—enhancing economic and scientific progress—but they also operate on the level of "fantasy and desire." (2013, 333) He says that in this sense, they

> encode the dreams of individuals and societies and are the vehicles whereby those fantasies are transmitted and made emotionally real. Benjamin similarly argued that for those who grew up with the railway, […] They were embodiments of objective historical forces, but they simultaneously enter into our unconscious and hold sway over the imagination. They form us as subjects not just on a technopolitical level but also through this mobilization of affect and the senses of desire, pride, and frustration, feelings which can be deeply political. (ibid., 333)

The promise of the humanitarian infrastructure is therefore a promise to provide the required care, save lives and better the world.

I would like to return to an example of an interactive to highlight this promise. At a certain point in *Refugee Republic* (2014), there is a map of the Domiz camp in Iraq. It highlights the actual infrastructures and structures around which the site was chosen, which has now become an almost permanent settlement. When we click on the camp's interactive map, we can choose different routes which take us to certain streets, and we view them from a first-person perspective. Along these paths, we recognize goods and materials provided through the supply chain of international aid (especially the UNHCR). These will contribute to the construction of tents and temporary buildings, but also the welcome packages that each family receives upon arrival, along with their tent. The artist Jan Rothuizen documented the different kind of constructions he found in the refugee camp in *Refugee Republic*. For instance, he illustrates how from a basic tent, residents started to improve their UNHCR- provided units with different goods and materials. People in the camp started building steel or wooden structures to help sustain a plastic tent or to cover plates. Later on, due to the perishable nature of wood and plastic, they began to work with more durable materials such as brick. We can also navigate through the premade routes around the camp and discover how residents were able to re-create living spaces within the frames and structures provided by the UN and NGOs. We can see a photo of a "kitchen set," which contains tools for cooking, eating, cleaning etc. We even find out on the "money route" that people started creating businesses within the camp in order to provide residents with goods not offered by the UNCHR; some even went into business in money transfer logistics, restaurants and as expert mechanics. Last, in the camp, there is also a school where teachers were recruited from the resident population (although, as they explain, they were not paid for many months)[15].

15 In another case study, *Refugees* (2014), we are able to see the humanitarian aid supply chain in different refugee camps. For instance, in Nepal, some refugees relied on the food provided by UNHCR but unfortunately had no space to farm.

The way interactive practices narrate infrastructures also connects to the non-linear (infra)structure of the story[16]. In both *Refugee Republic* and *Refugees*, we can navigate through the intricate routes and streets of the camp in the same way that we navigate the interactive structure of the newsgame. From video testimonies, we also understand how people in these camps, especially those established most recently, rely on the UN and NGOs to obtain medical care, a working permit and all the supplies they need to sustain a decent life. But this is often is extremely different to the lives they had before. These interactives narrate a certain promise that humanitarian infrastructures carry within them. The kind of infrastructures that become visible in the examples above are only part of the migration and humanitarian infrastructure, which include also other sort of technological structures such as all the machinery needed to map and document, register, count, etc.

In the chapter "A View from Above" I highlighted how interactive maps make use of data gathered and distributed by the UNHCR and other organizations to create a harmonious visual aesthetic. In Story Maps, for instance, we saw how data on over population is gathered through governments and NGOs and is combined with satellite data, statistics and algorithmic modelling to prepare for future scenarios. As I already argued, these images are "operational," and outline humanitarian efforts towards what is called risk assessment (Farocki 2004). OCHA's 2019 annual report explains that humanitarian aid aims not only to relieve, but also to prevent. Since 2019, they also employ new parameters to assess risk:

> INFORM is a global, open-source risk assessment for humanitarian crises and disasters. During 2019, it expanded its analysis to the hu-

---

However, as most of the refugees were former farmers, they were not able to pursue another job or work as they had been trained. Consequently, they sometimes ended up in a spiral of depression and substance abuse. In Beirut, a camp that was established in 1947 has become a district of the city where residents are not recognized as citizens and can only work within the decadent and unregulated space of the "camp."

16 I refer here to the concept of non-linearity by Aarseth (1994).

> manitarian community. It developed and added two products to its portfolio – a Severity Index to measure the severity of existing crises globally, and a tool to collate early warning information. Since 2013 INFORM has published a global Risk Index, which is now a well-established indicator that influences the resource allocation processes of agencies and donors. With these three products, INFORM will support decision-making across the crisis-management cycle, from prevention to preparedness and response. (OCHA 2019, 42)

In the same report they discuss "anticipatory approaches" as one of OCHA's priorities after "traditional responses" have been exhausted (OCHA 2019, 48). The gathering of imagery to prevent disasters forms part of these anticipatory approaches; for example, the Story Maps-produced 3-D-map in *Rohingya Refugees: Emergencies at a Glance*. Cartographers created this 3D-simulation to provide information on and prevent a flood within the refugee camp in Bangladesh. The UNHCR also employs cartographers and scientists to gather data they collect in camps as well as a network of satellites and drones to mitigate risk. Its satellite infrastructure is called UNOSAT. Part of UNITAR, the United Nations Institute for Training and Research, UNOSAT delivers satellite analysis and applied research. Their mission is a "response" to "the increase in the occurrences of natural disasters and the high numbers of victims of conflicts are urgent issues that require effective and rapid action." (UNITAR 2019)

The coordination of several organizations and the common use of data sets need to respect certain format and standards. The United Nations and in particular the UNHCR share data as Creative Commons. These can be easily shared and gathered to produce infographics, data visualizations and of course story maps to raise awareness on the situation and target so-called decision makers. OCHA's HDX website, an open platform for sharing data in the humanitarian context, collects data from everywhere in the world and provides tools to share it.[17] Its

17 "We define humanitarian data as: data about the context in which a humanitarian crisis is occurring (e.g., baseline/development data, damage assessments, geospatial data), data about the people affected by the crisis and their needs,

mission "is focused on increasing the use and impact of data in the humanitarian sector" (OCHA Centre for Humanitarian Data n.d.). Therefore, they focus on four areas, of data use: data services, data literacy, data policy and predictive analytics. As they explain, the point of "predictive analytics" is "to be more anticipatory, to predict what is about to happen and to trigger the response earlier." (Ibid.)

As Brian Larkin suggests, infrastructures are interesting because they "reveal forms of political rationalities" and they carry with them a technological promise (2013). Data is not only used to create visualizations, but it is also a tool with which to perform the humanitarian agenda. And, as Larkin would argue, this demonstrates certain political rationality behind it. This rationality not only aims at collecting, managing and simplifying operations concerning a given population's movements. It also wants to predict any emergency event. The infrastructure, which we see and which is visualized by interactive practices, carries this promise or a belief in humanitarian rationality to create a better world. But at the same time it is self-fulfilling, because humanitarianism determines the emergencies it then seeks to mitigate or prevent.

Humanitarian communication today exemplifies, as Lilie Chouliaraki argues, a post-humanitarian trend—a morality that instead of calling for pity or compassion, aims to provide viewers with an immersive and realistic experience that promises that they will get closer and understand more. It is also a form of governmental rationality. As Didier Fassin writes vis-à-vis bureaucracratic process, humanitarian reason is a moral imperative, and its images of vulnerable people address us as compassionate, empathetic individuals. Our empathy encourages us to be charitable with strangers and make donations, but we can only do so if we believe that the humanitarian system is functioning.

Calhoun contends that the emergency imaginary "reinforce[s] the tendency—already long established—to approach humanitarian action

---

data about the response by organizations and people seeking to help those who need assistance." (OCHA Centre for Humanitarian Data n.d.)

as 'value rational,' an end in itself and intrinsically self-justifying[..]." (2006, 97) But at the same time, because of its large global scale of operations, it also encourages a form of governmentality with instrumental concerns (Foucault [1978] 2008). The infrastructures of humanitarianism carry this hope and they point towards a future of order, where events perceived as emergencies might even be predicted. Humanitarianism has become a new sort of secular religion, and a force which drives politics, economics and society, by addressing our most human feelings. It, has become, as interactive practices about migration demonstrate, a "potent force of our world." (Fassin 2012, xi)

Conclusions

This work of media excavation has now come to an end. For me this is not the first time, but it marks a process of learning from the past. When I was studying medieval archaeology and preparing my final bachelor's thesis, I became fed up with my object of study. I was analyzing, studying and drawing models of pottery fragments I found during excavations. I sarcastically nicknamed my thesis a "shovelful of sherd" (sherd is a technical name given to the fragments of pottery usually found in archaeological sites), to ironize my growing disinterest in pottery. These "sherds" were originally a regional product that was widespread during the late medieval period. Their design and structure suggested that an anterior production style and material had come back in fashion: namely a raw, ubiquitous and cheap ceramic mixture. It had done so because the pottery was produced within a local context of circulation. My thoughts during those long hours of measuring and recomposing sherds of pottery into single products, however, went to imagining a future archaeologist analyzing today's IKEA glasses. They might be found, I conjectured, in a north-Italian site and would be consistent with the European period of Late Capitalism. It sounded discouraging. Of course, I was aware that the medieval sherd's production process was different to that found today, or in Late Antiquity and the Classic roman period, where a standardized and centralized production process means materials and forms have global reach. Ultimately, I realized that the IKEA glass—as well medieval earthenware—may be artistically uninteresting, but it is valuable in another way. All was not lost. My archeological experience had helped

me to consider a contemporary artifact and its production process, and this would go on to inform, ironically, how I approached interactive practices. Like other scholars before me, I agonized over how to study them properly in the face of their constantly changing natures, and diversity in form and appearance. To overcome these difficulties, I realized I had to think like an archaeologist when analyzing material findings: that is, I viewed them as "cultural artifacts" or media objects within a media ecology, or fragments within a record that might assist us in the study of the broader and dynamic configuration of the site.

In March 2021, I conducted a brief check on the Internet through Chrome to trace the availability of some case studies I had the opportunity to analyze in this work. They were all released no earlier than 15 years ago. The newsgame *Refugees*, for instance, is no longer available. There is now a page on the website which lets us know that there was once a game there, but it is currently offline. The serious game *Last Exit Flucht*, which is the German version of *Against All Odds*, is also not accessible. The Austrian website hosting it still owns the page domain where it now says: "after longer than a decade and the end of Adobe Flash Player, the game goes to its well deserved retirement" (Last Exit Flucht, n.d.). The English version of *Against All Odds* redirects us to another page, whose domain has now been bought by a non-profit organisation. The game *The Migrant Trail* can be found on the website of the transmedia project *The Undocumented*. Yet, my request to download the latest version of Adobe Player was refused. Instead, the documentary film, part of the same project and released one year before, is available on Vimeo on demand for $1.99.

In the meantime, some users have uploaded gameplay videos on YouTube, while others have written about it on blogs and journals—a quick Google image search retrieves plenty of screenshots. This book is a documentation of these media as well. These interactives are no longer accessible in their entirety, but some pieces have been left. These fragments tell us a story of media that is rapidly fading away. These remains bring me back to the words that archeologists Colin Renfrew and Paul Bahn use to define the scope of their discipline, thus indicating

the study of a process that determines over time "what is left and what is gone forever." (2004, 53)

In this work, I identified interactive practices as "cultural artifacts" and approached them through a heuristic methodology, which performed a sort of "archeological excavation." I started from the object itself and looked "around, above and in front of it," as the Italian archeologist Andrea Carandini encourages us to do (2017, Premessa). To frame interactive practices about migration as "cultural artifacts" allowed me to explore both their digital materiality as objects of material production, and the broader conditions of their circulation. I unearthed the ways in which these same objects frame social, cultural and economic practices and form a complex media ecology.

I have demonstrated that when we look at interactive practices' materiality and frame them as goods in a market, their subjection to economic dynamics becomes clear. Interactive practices do not seek to standardize but instead follow change and aim to innovate. This media production is not purely new: it also invokes the experimentality of early cinema and amateur production, and film formats which rapidly faded away. The use of certain web formats and the choice to let them circulate primarily on the web shows how important it has been for producers to reach an online audience. In the second chapter, I explored their context of circulation, the Web, and digital formats. This revealed that TV broadcasters and legacy media also typically adopt a strategy of innovation, as they are attempting to keep up with technological trends within an environment of new media giants. At the same time, the use of specific formats like Adobe Flash shows that despite its decade-long success, economic and technological factors can accelerate a format's demise. The format opened the world of animation and interactive media to amateur practitioners. It was disseminated quickly and easily over the Internet, and its obsolescence, therefore, heralds the end of a certain kind of creative production. As a consequence of its deprecation, some interactives developed over the last decade have become what Paul Grainge calls "ephemeral media" (2011). Software or web-encoding (such as API) deprecation is the largest contributing factor to the ephemerality of interactive practices. On the one hand, these techno-

logical features enable a simpler creation and implementation of maps, links to social media, and interactivity; but on the other, they condemn producers to financing the perpetual maintenance of media objects so as to keep them accessible in their entirety.

As I found out during my visits to the Sound and Vision Institute in Hilversum and the National Film Board of Canada in Montréal, national institutions are already trying to preserve some of these interactives. Archiving and preservation solutions for interactives suggest a new form of thinking about the archive as a fluid and shifting entity. Indeed, the preservation of interactives, similar to interactive media art, requires archiving not just the final product, but the preservation of every component of the work in its formative stages. Further, the fact that a work can be migrated to or emulated on different software or operating systems does not always mean that these practices are necessary or (economically) feasible. In the latter case, documentation helps to prevent definitive loss, or disappearance into mere source code. Studying interactive practices' digital materiality demonstrates how important the study of format is to determine which economic and technological forces contribute to digital obsolescence, circulation, and a specific software's success. What this all means is that we must shift our understanding of the archive itself. Archivists, broadcasters, producers and creators need to be more aware of what formats they choose, and they should already be thinking about preservation before they begin to create. If we want to preserve digital media, innovation should not just mean producing something new, but also something durable and sustainable. The archive, in this configuration, would become a repository not just of what is left behind, but what might be reused, recomposed, and reactivated in different forms and formats in the future.

After looking at the digital materiality of interactive practices, I proceeded with what an archaeologist might call a "morphological analysis," or an analysis of the form of an artifact. This meant looking more closely at case studies, and exploring the way the story of migration engages with the specific features of interactivity. In the third and fourth chapter I outlined two scopic regimes (Jay 1988) which often define interactive practices about migration. The chapter "A View

from Within" explored serious games, text-adventures, interactive documentaries and newsgames, which place the user in the position of a migrant or a refugee, or ask them to travel to a refugee camp. In adopting this view, the user interacts with the world of refugees and migrants. Some of the case studies reconstruct the experience of crossing the border, and by doing so they also replicate its inevitability. In other words, these media can be understood as "simulations"; we look at them as reproductions of a certain system instead of focusing on their narrative (Frasca 2003).

In asking us to get closer to the condition of migrants and refugees oppressed by border regimes, they also address our deepest emotions. Through what I call an "ethic of empathy" such interactive practices mobilize our compassion towards "vulnerables." By adopting this empathic view which encourages us to feel compassion for the vulnerables, we maintain a comfortable position as "ironic spectators." (Chouliaraki 2013) In other words, we do not feel the urge to change a situation, but instead look at and passively accept the causes of the present situation as inevitable. Approaching these interactive practices as simulations helps us to see how creators and practitioners can think about migration in other ways. Instead of reproducing and replicating border regimes, simulations offer an opportunity to propose alternative views: "we are so used to see the world through the narrative lenses that it is hard for us to imagine an alternative" (Frasca 2003, 224). Interactive practices about migration, this work argues, can become a utopian field in which to experiment and reimagine a world without borders, where migrants and refugee are neither oppressed nor a problem to be managed.

In the fourth chapter "A View from Above," I explored interactive maps and data visualizations. These media objects offer an empowered view. This standpoint suggests the need to scale migration and by doing so it reframes it as a global problem. These interactives often represent migrants and refugees as dots or arrows, simplifying the complexity of human trajectories. By following design rules and their objective to produce beautiful and harmonic visualizations, interactive maps often risk producing an image of migration—especially of trajectories over

time—which emphasizes the steady flow of peoples, or an incoming invasion. This reinforces an understanding of migration as an emergency which requires a prompt and coordinated response. On the other hand, this image represents the process of governmentalizing migration for humanitarian reasons (Fassin 2013). In other words, these interactive practices represent a (humanitarian) need to make refugees and migrants legible, scalable and manageable. Their perspective on migration is one of statecraft (Scott 1998). This way of looking involves the use of certain data collections by humanitarian and governmental agencies, and a complex infrastructure of vision, which employs satellite, drones and other technologies of non-human vision to create "operational images." (Farocki 2003) This complex apparatus suggests a new "invisual" form of looking, or "platform seeing." (Mckenzie and Munster 2019)

In the last chapter, "The Promise of Humanitarianism," I explored humanitarianism as a discursive formation in order to understand how it shapes the way stories of migration are narrated on the web (Foucault [1978] 2008). It made clear how specific technological features influence how stories of migration are told. This "View from Within" conveys an "ethic of empathy," where our moral compulsions are supported by a technology which aims to bring the user virtually closer to migrants and refugees and understand their suffering. In so doing, it offers a humanitarian solution. At the same time, this use of interactivity and simulations risks reproducing a self-directed morality, which seeks to bring relief to the user rather than to the migrant subject(s) of interactives. In other words, virtual interaction replaces real action. This model is a marketing strategy: a way to disburden oneself of moral concerns.

Moreover, interactive practices show how humanitarianism is enacted by the display of its material infrastructures. In refugee camps, the actual material infrastructures and the supply chain is rendered visible. Humanitarian infrastructures, which form part of a broader infrastructure of migration, not only carry a message of progress and development, but, as Brian Larkin argues, they have a certain poetic value (2013). Following Larkin, infrastructures also work at the level of "fantasy and desire" by "encoding dreams." They might also function as "embodiments of objective historical forces." (Ibid., 333) This view of

humanitarian aid offers a cosmopolitan perspective: on the one hand it wants to bring relief and alleviate suffering, while on the other, it makes the whole world more "human."

I agree with Didier Fassin in his contention that humanitarianism has become a force and a secular religion which helps overcome the fear of a crumbling world lacking solidarity and order. That is, humanitarianism bespeaks a belief in a fundamentally ordered world which is placed in danger by constant emergencies. This empowered and omniscient position suggests that migration is, as Martina Tazzioli contends, "a problem to be governed." (2020). I argue that these heuristic operations of collecting in A View from Within and a View from Above, clarify the way in which contemporary humanitarian discourse constructs a specific political rationality. This "is not pure, neutral knowledge"—as Thomas Lemke argues—which simply represents the governed reality. It is an element of government itself, which helps to create "a discursive field in which exercising power is rational." (2002, 8) Both scopic regimes generate a "humanitarian affect" (Ross 2020): on the one hand as a form of "humanitarian reason" (Fassin 2011) that feeds our moral sentiments, and on the other by describing migration as an urgent problem. The close reading of these two perspectives shows how broadcasters produce these media objects in order to obtain an online audience. It also shows how creators and other institutions develop interactives as "useful" media, which leverage and support solidarity and hopefully gain donors for humanitarian agencies. It demonstrates how important humanitarianism has become in this present historical moment. The timeframe in which they were produced—the beginning of the conflict in Syria and the subsequent peak in international migration towards Europe—suggests a time in which producers felt the need to emphasize emotion, and to use data as a way of combatting the oversaturated media environment concerning migration. Still, the fact that they continue to be produced and were made before the time in question, also shows that the topic of migration is not exclusively historical, but also part a broader humanitarian discourse.

In this regard, interactives address our deepest feelings, our wish to overthrow a general crisis of pity (Boltanski 1999), and compassion

fatigue (Moeller 2002). We see grief, pain, injustice everywhere and we ask ourselves what we can do about it. However, we do not ask how to stop systematic suffering, for the world is too complex to find root causes. Humanitarianism never views economic globalization as a cause; nevertheless, its global, empowered perspective is precisely a product of such a historic transformation. For Zygmunt Bauman, however, globalization is at the root of "liquid modernity," a system which is divided into those who rule and "move and act faster," and the rest (2000, 119). Bauman famously argues that "refugees, the displaced, asylum seekers, migrants, the sans papiers…are the waste of globalization." (2013, 58) The effort of humanitarianism and its renewed "platform seeing" tells us that it follows a capitalistic imperative of efficiency (McKenzie and Munster 2019). It has created a global, complex, and coordinated infrastructure that aims not only to provide immediate help, but also to prevent vulnerability. By presenting migrants and refugees as "vulnerables" we not only increase our understanding of them, but we come to view ourselves as the *non*-vulnerables. This is similar to what Edward Said termed "Orientalism:" the idea that the West, during the previous centuries, had actively built the Orient (1979). In so doing, Europeans' perception of themselves also changed; the West became what the Orient was not. Following the same line of thinking, in this work, interactive practices about migration create an image of our humanitarian and global institutions as compassionate saviors. If Orientalism has contributed to the acceptance of European ruling and its management and administering of the Orient, then humanitarianism is not only a force that elicits compassion, but also acts as a form of power-knowledge that forces the acceptance of certain social practices (Foucault 1980). In short, the humanitarian vision justifies how we manage, administer and rule the lives of migrants and refugees.

This work has not offered a general definition of humanitarianism, but instead provides a contemporary analysis of it through the study of interactive practices of the last 15 years. Although media outlets continue to discuss a migrant or refugee "crisis," some scholars have suggested that this may in fact point to a "crisis of humanitarianism" itself. Adopting this view, my analysis asks if migrants and refugees are re-

ally the source of the crisis. We might instead turn to the narratives of interactive practices, and wonder if a story about migration "flows" reaching Europe instead indicates an inner crisis of Europe (Nail 2020). In the same fashion, we might ask if the story of migrants crossing the border from Mexico to US represents a crisis of democratic institutions in the United States. Further, we may wonder if our interest in learning through innovative technological means about the vulnerables instead discloses a *non*-vulnerable, humanitarian will to dominate. To be clear, I am not claiming that people working for humanitarian aid organization are doing wrong—this is not the point. Humanitarian workers alleviate suffering. It suffices to reflect on how exactly, during this timeframe, European migration policies (for instance the agreement with Turkey in March 2016) have been implemented in order to control migration at "external" borders. Matthias Thiele demonstrated a similar outcome in his analysis of German television productions about migration during the nineties, and how negative images of migrant "flow" supported a sharpening of immigrations laws in Germany (2005).

I hope this work makes us reflect on how humanitarianism as a "discursive formation" reflects the imperatives of a globalized world separated into those who have and those who have not. This ambiguity explains what Kaarina Nikunen calls the "the paradox of media solidarity." (2019, 4) She argues that some "representations and expressions of solidarities that seems inspiring, may be part of oppressive practices: there is no absolute, inherent purity or goodness in media solidarities." (Ibid., 4) The case studies I have explored in this work present this same ambiguity. Studying these media within their context, thus within their respective infrastructures, reveals these paradoxes.

I hope this work is just the beginning of a sustained practice of media digging. Studying interactive practices about migration as "cultural artifacts" can broaden our understanding of contemporary media production on the web. I explored how interactive practices engage with the topic of migration. But as the media landscape becomes ever more complex, this methodology can be applied to other media ecologies, topics, and discursive formations. This work is a singular excavation—the report from my fieldwork. It demonstrates how the media landscape has

transformed—and continues to transform—while "migrating" through the Web. And in that sense it reminds us that our film and media history is not only made up of "progressive", standardized, and long-lasting artistic productions. Indeed, our film and media history does not have to respond to or correspond to a certain canon, or to binaries such a "fiction" and "nonfiction". Interactive practices about migration show us that there is also an in-between. As media archaeologists and scholars of utility cinema have demonstrated before, film can be made in ephemeral, useful and non-mainstream formats. Such media objects deserve to be uncovered and studied, in order to understand a media culture which is in continuous transformation.

Bibliography

Aarseth, Espen. 1994. "Non linearity and Literary Theory." In *Hyper/Text/Theory*, edited by George P. Landow, 51-86. Baltimore, MD: John Hopkins University Press.

———. 2003. "Nonlinearity and Literary Theory." In The New Media Reader, edited by Noah Wardrip-Fruin, and Nick Monfort, 62–780. Boston, MA: MIT Press.

Abt, Clark C. 1970. *Serious Games*. New York: Viking Press.

Acland, Charles R., ed. 2007. *Residual media*. Minneapolis: University of Minnesota Press.

Acland, Charles R., and Haidee Wasson. 2011. *Useful Cinema*. Durham, NC: Duke University Press.

Adams, Douglas. 2017. *The Hitchihiker´s Guide to The Galaxy*. London: Pan Macmillan.

Adams, Ernest. 2014. *Fundamentals of Adventure Game Design*. Berkley, CA: Peachpit Press.

Adams, Francis M., and Charles E. Osgood. 1973. "A Cross-cultural Study of the Affective Meanings of Color." *Journal of cross-cultural psychology*, 4(2): 135-156. https://doi.org/10.1177/002202217300400201.

Adams, Paul C. 2018. "Migration Maps and the Performance of Europeanness." In *Migrants, Refugees, and the Media: The New Reality of Open Societies*, edited by Sai Felicia Krishna-Hensel, 13-41. New York: Routledge.

Adobe. 2020. "Adobe Flash Player EOL General Information Page." Accessed November 5, 2020. https://www.adobe.com/products/flashplayer/end-of-life.html.

"Against All Odds aka. 'dem FLÜCHTLINGSSIMULATOR' - Review/Walkthrough." 2016. YouTube video. Posted by "Nyah P," January 12. https://www.youtube.com/watch?v=EETpo9dWq6g.

Agamben, Giorgio. 1995. *Homo sacer. Il potere sovrano e la nuda vita*. Torino: Einaudi.

Agren, David, and Amanda Holpuch. 2018. "Where is he Migrant Caravan from – and What Will Happen to it at the Border?" *The Guardian*. October 24. https://www.theguardian.com/us-news/2018/oct/24/caravan-migrants-what-is-it-where-from-guatemala-honduras-immigrants-mexico.

Al-Jazeera. 2020. "Our Story is Telling." *Al Jazeera Media Network*. Accessed November 5, 2020. https://network.aljazeera.net/about-us/timeline.

Arendt, Hannah. 1943. "We Refugees." *Menorah Journal* 31, no. 1 (January): 69-77.

———. [1963]1984. *On Revolution*. New York: Penguin Books.

Arnheim, Art and Visual Perception: A Psychology of the Creative Eye. Berkeley, CA: University of California Press.

ARTE. 2014. "ARTE lance un appel à projets bimédia pour un rendez-vous sur l'innovation." Accessed July 2, 2020. http://pro.arte.tv/archives/12281.

———. 2017. *Editorial Guidelines 2017*. HTML version of the file. Accessed July 8, 2020. https://www.arte.tv/sites/en/corporate/files/editorial_guidelines_en.pdf.

Asimov, Isaac. 1951. *Foundation*. New York: Gnome Press.

Aston, Judith, and Sandra Gaudenzi. 2012. "Interactive Documentary: Setting the Field." *Studies in Documentary Film*, 6(2): 125-139.

Aston, Judith, Gaudenzi, Sandra and Mandy Rose, eds. 2017. *I-docs. The Evolving Practices of Interactive Documentary.* New York: Columbia University Press.

Aston, Judith, and Stefano Odorico 2018. "I-Docs as Intervention: The Poetics and Politics of Polyphony. Editorial." *Alphaville: Journal of Film and Screen Media*, no. 15 (Summer): 1–8. www.alphavillejournal.com/Issue15/EditorialAstonOdorico.pdf.

Appadurai, Arjun. 1986. *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge: Cambridge University Press.

———. 1990. "Disjuncture and Difference in the Global Cultural Economy." *Theory, culture & society*, 7(2-3): 295-310.

———. 2013. *The Future as a Cultural Fact*. London and New York: Verso.

Bacon, Lucie, et al. 2016. "Mapping the Migratory Movements." *Revue europeenne des migrations internationales* 32, no. 3 – 4: 1-27. doi: https://doi.org/10.4000/remi.8803.

Bahoken, Françoise, Nicholas Lambert, and Philippe Rekacewicz. 2019. "Probing the Maps: Reason and Affecitivity." In *The Atlas of Migration in Europe. A Critical Geography of Migration Policies*, edited by Olivier Clochard (Migreurop), 20 -21. New York: Routledge.

Bal, Mieke. 2013. "Lexicon for Cultural Analysis." In *Die Lust an der Kulturtheorie. Transdisciplinäre Interventionen für Wolfgang Müller-Funk*, edited by Anna Babka, Daniela Finzi and Clemens Ruthner, 49-81. Berlin and Vienna: Turia und Kant.

Banerjee, Subhajit. 2018. "How the BBC and Guardian Tell Stories on Mobile." *Medium.com*, February 1. Accessed July 12, 2020. https://medium.com/global-editors-network/how-the-bbc-and-guardian-tell-stories-on-mobile-db96eb10d143.

Barthes, Roland. 1967. "The Death of the Author." *Aspen: The Magazine in a Box. 5+6*. As presented at UbuWeb: http://www.ubu.com/aspen/aspen5and6/index.html.

Bauman, Zygmunt. 2000. *Liquid Modernity*. New York: John Wiley & Sons.

———. 2007. *Consuming Life*. Cambridge, UK: Polity Press.

———. 2013. *Wasted lives: Modernity and its Outcasts*. New York: John Wiley & Sons.

BBC. 2019. "Digital Wellbeing." *Bbc.co.uk*. Accessed November 8, 2019. https://www.bbc.co.uk/rd/projects/digital-wellbeing.

Becker, Stephàne. 2016. Interview by Nicole Braida. Personal Interview, Skype meeting, April 11, 2016.

Berry, David M. 2016. "The Post-archival Constellation: The Archive under the Technical Conditions of Computational Media." In *Memory*

in Motion, edited by Ina Blom, Trond Lundemo and Eivind Røssaak, 103-125. Amsterdam: Amsterdam University Press.

Blank, Grant, and Bianca C. Reisdorf. 2012. "The Participatory Web: A User Perspective on Web 2.0." *Information, Communication & Society*, 15(4): 537-554.

Bogost, Ian. 2007. *Persuasive Games: The Expressive Power of Videogames*. Cambridge, MA: MIT Press.

Bogost, Ian, Simon Ferrari, and Bobby Schweizer. 2010. *Newsgames: Journalism at Play*. Cambridge, MA: MIT Press.

Bolsen, Matt. 2017. "How to Profit From the Online Data Boom." *Seeking Alpha Blog*. Accessed 10 November 2020. https://seekingalpha.com/article/4107936-how-to-profit-from-online-data-boom.

Boltanski, Luc. 1999. *Distant Suffering: Morality, Media and Politics*. Cambridge: Cambridge University Press.

Bordina, Alessandro, Sonia Campanini, and Andrea Mariani. 2012. *The Archive*. Udine: Forum.

Bordina, Alessandro. 2015. "Technological Change and Audiovisual Content Archivability. Migration and Emulation Processes." In *The Archives: Post-Cinema and Video Game Between Memory and the Image of the Present*, edited by Federico Giordano and Bernard Perron, 97-109. Milano: Mimesis.

Bottomore, Stephen. 2001. "Rediscovering Early non-fiction Film." In *Film History*, 13: 160-173.

Bourdon, Jérôme, Mette Buchman, and Peter Kaufman. 2019. "Editorial: Public Service Broadcasting in the Digital Age." *VIEW Journal of European Television History and Culture*, 8(16): 1–4. doi: http://doi.org/10.18146/2213-0969.2019.jethc170.

Braida, Nicole. 2016. "Flucht ins Netz. Ein Vergleich von REFUGEES (Arte, 2014) und REFUGEE REPUBLIC (Submarine Channel, 2014)." *AugenBlick. Konstanzer Hefte zur Medienwissenschaft*, (65/66): 78-95.

———. 2018. "What if I Were a Refugee? How Game Structures Frame Refugee Stories." In *Migrants, Refugees, and the Media: The New Reality of Open Societies*. edited by Sai Felicia Krishna-Hensel, 42-58. New York: Routledge.

Brecht, Bertold. 1964. *Brecht on Theatre: The Development of an Aesthetic*. New York: Hill and Wang.

Broudoux, Evelyn. 2011. "Le documentaire élargi au web". *Les Enjeux de l'information et de la communication*, Dossier 2011: 1-17.

Brown, Bill. 2015. "The Obsolescence of the Human." In *Cultures of Obsolescence: History, Materiality, and the Digital Age*, edited by Babette Tischleder and Sarah Wasserman, 19-40. Berlin: Springer.

Brownwen, Thomas. 2016. *Narrative: The Basics*. New York: Routledge.

Bruzzi, Stella. 2006. *New Documentary*. New York: Routledge.

Calhoun, Craig. 2008. "The Imperative to Reduce Suffering: Charity, Progress, and Emergencies in the Field of Humanitarian Action." In *Humanitarianism in Question: Politics, Power, Ethics*, edited by Michael Barnett and Thomas G. Weiss, 73-97. Ithaca, NY: Cornell University Press.

———. 2010. "The Idea of Emergency: Humanitarian Action and Global (dis) order." In *Contemporary States of Emergency. The Politics of Military and Humanitarian Interventions*, edited by Didier Fassin and Mariella Pandolfi, 29-58. Brooklyn, NY: Zone Books.

Carandini, Andrea. 2017. *La forza del contesto*. Bari: Gius. Laterza & Figli Spa.

Castro, Teresa. 2009. "Cinema's Mapping Impulse: Questioning Visual Culture." *The Cartographic Journal*, 46(1): 9-15. doi: https://doi.org/10.1179/000870409X415598.

Cavallotti, Diego, and Simone Dotto. 2018. "Notizie dagli scavi: altre prospettive per l'archeologia dei media." In *Archeologia dei media. Temporalità, materia, tecnologia*, edited by Giusppe Fidotta and Andrea Mariani, 27-41. Milano: Meltemi editore.

Cellini, Paolo. 2015. *Economia digitale: l'industria e i mercati di internet e dei nuovi media*. Roma: LUISS University Press.

Chouliaraki, Lilie. 2006. *Spectatorship of Suffering*. London: Sage Publishing.

———. 2010. "Post-humanitarianism: Humanitarian Communication beyond a Politics of Pity." In *International Journal of Cultural Studies 13.2*: 107-126.

———. 2011. " 'Improper Distance': Towards a Critical Account of Solidarity as Irony." In *International Journal of Cultural Studies*, 14 (4): 363-381.

———. 2012. "Between Pity and Irony: Paradigms of Refugee Representation in Humanitarian Discourse." In *Migrations and the Media. Global Crises and the Media*, edited by Moore, Kerry, Gross, Bernhard and Terry Threadgold, 13-31. New York: Peter Lang.

———. 2013. *The Ironic Spectator: Solidarity in the Age of Post-humanitarianism*. Cambridge: Polity Press.

———. 2016. "Solidarity and Spectatorship." *Questions de communication*, (2): 359-372.

Chun, Wendy H. K. 2008. "The Enduring Ephemeral, or the Future is a Memory." *Critical Inquiry*, 35(1): 148-171.

———. 2016. *Updating to Remain the Same: Habitual New Media*. Cambridge, MA: MIT Press.

Clapham, Andrew. 2007. *Human Rights. A Very Short Introduction*. Oxford, UK: Oxford University Press.

CloudMosa. 2019. *CloudMosa Inc. Website*. Accessed November 10, 2020. https://www.cloudmosa.com/.

Collins Dictionary. 2020, s.v. "Sans-papiers," accessed November 1, 2020. https://www.collinsdictionary.com/dictionary/french-english/sans-papiers.

Conifer, n.d. "Conifer. Collect and Revisit Web Pages." Accessed July 13, 2020. https://conifer.rhizome.org/.

Consalvo, Mia. 2009. "There is No Magic Circle." *Games and Culture 4 (4)*: 408-417.

Constable, Pamela. 2018. "Returned to a Land of War and Want." *Washington Post online*, May 25. https://www.washingtonpost.com/news/world/wp/2018/05/25/feature/europe-is-rejecting-thousands-of-afghan-asylum-seekers-a-year-but-what-awaits-them-back-home/?noredirect=on&utm_term=.957f4a0cff91.

Coopmans, Catelijne, et al., eds. 2014. *Representation in Scientific Practice Revisited*. Cambridge, MA: MIT Press.

Corsello, Jason. 2018. "What is the Difference Between an Application and a Platform and Why it Matters?" *Medium.com*, August 8. https:/

/medium.com/acadian-insights/what-is-the-difference-between-an-application-and-a-platform-and-why-it-matters-b7e0c351ba97.

Cosgrove, Denis. 2007. "Epistemology, Geography, and Cartography: Matthew Edney on Brian Harley's Cartographic Theories." *Annals of the Association of American Geographers*, 97(1): 202-209.

Crampton, Jeremy W. 2001. "Maps as Social Constructions: Power, Communication and Visualization." *Progress in Human Geography*, 25(2): 235-252.

Crawley, Heaven, and Katharine Jones. 2020. "Beyond Here and There: (Re) Conceptualising Migrant Journeys and the 'In-between'." *Journal of Ethnic and Migration Studies*: 1-17.

Day, Suzanne. 2019. "Welcoming Francesca Panetta, XR Creative Director in the MIT Center for Advanced Virtuality" *MIT Open Learning*. August 26. https://openlearning.mit.edu/news/welcoming-francesca-panetta-xr-creative-director-mit-center-advanced-virtuality.

D'Aloia, Adriano. 2018. "Virtually Present, Physically Invisible. Virtual Reality Immersion and Emersion in Alejandro González Iñárritu's 'Carne y Arena'." *Senses of Cinema*, no. 87 (June). http://sensesofcinema.com/2018/feature-articles/virtually-present-physically-invisible-virtual-reality-immersion-and-emersion-in-alejandro-gonzalez-inarritus-carne-y-arena/.

Darveau, Valerie. 2014. "An Insider's Look at the NFB Interactive Studio in Montreal." *NFB Blog*, September 18. https://blog.nfb.ca/blog/2014/09/18/interactive-studio-montreal/.

Del Casino, Vincent J. and Stephen P. Hanna. 2006. "Beyond the 'Binaries': A Methodological Intervention for Interrogating Maps as Representational Practices." *ACME: An International E-Journal for Critical Geographies*, 4(1): 34-56.

Deleuze, Gilles 1992. "Postscript on the Societies of Control." *October* 59: 3-7.

De Rosa, Miriam, and Vinzenz Hediger. 2016. "Post-what? Post-when? A Conversation on the 'Posts' of Post-media and Post-cinema." *Cinéma et Cie* 16.26/27: 9-20.

Deterding, Sebastian, et al. 2011. "Gamification. Using Game-design Elements in Non-gaming Contexts." *CHI'11 Extended Abstracts on Human Factors in Computing Systems*: 2425-2428.

Dirlik, Arif. 2007. "Global South: Predicament and Promise." *The Global South 1.1* : 12-23.

Doane, Mary Ann. 2002. *The Emergence of Cinematic Time: Modernity, Contingency, the Archive*. Cambridge, MA: Harvard University Press.

Domokos, John. 2016. Interview by Nicole Braida. Personal Interview, email exchange, October 17, 2016.

Doyle, Gillian. 2013. *Understanding Media Economics*. London: Sage Publishing.

Drucker, Johanna. 2014. *Graphesis: Visual Forms of Knowledge Production*. Cambridge, MA: Harvard University Press.

Dunne, Daniel J. 2014. "Brechtian Alienation in Videogames." *Press Start, 1(1)*: 79-99.

EarthTime, n.d. "About EarthTime." *Earthtime.org*, accessed November 10, 2020. https://earthtime.org/#.

———. 2015. *Global Refugee Crisis. The Big Picture*. Interactive Map/Website. Created by Carnegie Mellon University CREATE Lab. https://earthtime.org/stories/global_refugee_crisis_the_big_picture.

Edney, Matthew H. 1993. "Cartography without Progress: Reinterpreting the Nature and Historical Development of Mapmaking." *Cartographica: The International Journal for Geographic Information and Geovisualization*, 30(2-3): 54-68.

———. 2005. *The Origins and Development of JB Harley's Cartographic Theories*. Cartographica Monograph 54. Cartographica 40, nos. 1-2. Toronto: University of Toronto Press.

Ernst, Wolfgang. 2013. *Digital Memory and the Archive*. Minneapolis: University of Minnesota Press.

———. 2017. "Tempor (e) alities and Archive-textures of Media-connected Memory." In *Digital Memory Studies. Media Pasts in Transition*, edited by Hoskins, Andrew, 155-167. New York: Routledge.

ESRI. 2019. "Helping Syrian Refugees Share Their Stories With Esri Story Maps." *ArcGIS blog*, August 22. https://www.esri.com/arcgis-

blog/products/story-maps/sharing-collaboration/helping-syrian-refugees-share-their-stories-with-esri-story-maps/.

———. n.d. "Maps we Love. The Uprooted" Accessed November 10, 2020. https://www.esri.com/en-us/maps-we-love/gallery/uprooted.

European Commission, n.d. "Country Responsible for Asylum Application (Dublin)." *European Commission. Migration and Home Affairs*, accessed on November 1, 2020. https://ec.europa.eu/home-affairs/what-we-do/policies/asylum/examination-of-applicants_en.

Farchy, Joëlle, Mathilde Gansemer, and Heritiana Ranaivoson. 2013. "Public Television Channels in France and Digital Innovation." *Les Enjeux de l'information et de la communication*, (2): 161-184.

Farocki, Harun. 2003. *Eye/Machine III*. Video (double projection), Germany 2003.

———. 2004. "Phantom images." *Public 29*: 13-22.

Fassin, Didier. 2011. "Policing Borders, Producing Boundaries. The Governamentality of Immigration in Dark Times." *Annual Review of Anthropology*, 40: 213-26.

———. 2012. *Humanitarian Reason: A Moral History of the Present*. Berkeley, CA: University of California Press.

Fassin, Didier, and Mariella Pandolfi. 2010. *Contemporary States of Emergency. The Politics of Military and Humanitarian Interventions*. Brooklyn, NY: Zone Books.

Fidotta, Giuseppe, and Andrea Mariani, eds. 2018. *Archeologia dei media. Temporalità, materia, tecnologia*. Milano: Meltemi editore.

Fotopoulos, Stergios, and Margarita Kaimaklioti. 2016. "Media Discourse on the Refugee Crisis: on What Have the Greek, German and British Press Focused?" *European View 15.2*: 265-279.

Foucault, Michel. [1969]1972. "Authorship: What is an Author?" *Screen, 20(1)*: 13-34.

———. 1970. *The Order of Things*. London: Tavistock.

———. 1972. *The Archaeology of Knowledge*. Edited and translated by Albert M. Sheridan Smith. New York: Pantheon Books.

———. [1978] 2008. *The Birth of Biopolitics: Lectures at the Collège de France, 1978-1979*. Edited by Michel Senellart. Berlin: Springer.

Frasca, Gonzalo. 2001. "Rethinking Agency and Immersion: Video Games as a Means of Consciousness-raising." *Digital Creativity*, 12(3): 167-174.

———. 2003. "Simulation vs. Narrative: Introduction to Ludology." In *The Video Game Theory Reader*, edited by Mark J.P. Wolf and Bernard Perron, 221 -235. New York: Routledge.

Frosh, Paul, and Amir Pinchevski, eds. 2008. *Media Witnessing: Testimony in the Age of Mass Communication*. Berlin: Springer.

Fuller, Matthew. 2005. *Media Ecologies: Materialist Energies in Art and Technoculture*. Cambridge, MA: MIT Press.

Galloway, Alexander R. 2003. *Protocol: How Control Exists after Decentralization*. Cambridge: MIT Press.

———. 2013. *The Interface Effect*. Cambridge: Polity Press.

Games for Change. 2020. "About us." Accessed November 10, 2020. https://www.gamesforchange.org/who-we-are/about-us/.

Gardner, Eriq. 2019. "Netflix's 'Black Mirror: Bandersnatch' Leads to "Choose Your Own Adventure" Trademark Lawsuit." *The Hollywood Reporter.* January 11. https://www.hollywoodreporter.com/thr-esq/netflix-sued-exploiting-choose-your-own-adventure-black-mirror-bandersnatch-1175428.

Gaudenzi, Sandra. 2013. *The Living Documentary: from Representing Reality to Co-creating Reality in Digital Interactive Documentary*. Doctoral dissertation, Goldsmiths University of London. http://research.gold.ac.uk/7997/1/Cultural_thesis_Gaudenzi.pdf.

———. 2012. "Strategies of Participation: the Who, What and When of Collaborative Documentaries." In *New Documentary Ecologies. Emerging Platforms, Practices and Discourses*, edited by Kate Nash, Craig Hight and Catherine Summerhayes, 129-148. New York: Palgrave Macmillan.

———. 2017. "The Ups and Downs of Interactive Factuals. Interactive Factual." *I-docs.org*. 13 March. Last accessed on 02.07. http://i-docs.org/2017/03/13/the-ups-and-down-of-interactive-factuals/.

———. 2019. "The WHAT IF IT Process: Moving from Story-Telling to Story Experiencing." *Alphaville: Journal of Film and Screen Media*, no. 17: 111-127. doi: https://doi.org/10.33178/alpha.17.07.

Geertz, Clifford. [1973]2008. "Thick Description: Toward an Interpretive Theory of Culture." In *The Cultural Geography Reader,* edited by Timothy Oakes and Patricia L. Price, 41-51. London: Routledge.

Gibbs, Samuel. 2015. "Facebook Calls the End of Flash as Firefox Blocks it over Hacking Holes." *The Guardian*, July 14. https://www.theguardian.com/technology/2015/jul/14/facebook-end-adobe-flash-firefox-blocks-hacking.

Gifreu-Castells, Arnau. 2011. "The Interactive Documentary. Definition Proposal and Basic Features of the Emerging Genre." McLuhan Galaxy Conference Proceedings, edited by Matteo Ciastellardi, Cristina Miranda de Almeida and Carlos A. Scolari, 354-365. Barcelona: Collection Sehen, Editorial Universidad Oberta de Catalunya.

———. 2014. "Mapping Trends in Interactive Non-fiction through the Lenses of Interactive Documentary." *International Conference on Interactive Digital Storytelling*, 156-163. Berlin: Springer.

Gigantic Mechanic. 2017. "About Us." Last modified May 17, 2017. http://www.giganticmechanic.com/about-us/.

Gillman, Ollie 2015. "BBC Bosses Blasted for Making Syrian Journey Computer Game about Refugees Fleeing the War-torn Country." *Daily Mail Online*. April 6. https://www.dailymail.co.uk/news/article-3027174/BBC-bosses-blasted-making-computer-game-called-Syria-Journey-refugees-fleeing-war-torn-country.html.

Giordano, Federico, and Bernard Perron, eds. 2014 *The Archives: Post-Cinema and Video Game Between Memory and the Image of the Present*. Milano: Mimesis International.

Google Play, n.d. *Google Play Store*. Accessed September 19, 2021. https://play.google.com/store/apps/details?id=com.plug_in_digital.emma.

Grainge, Paul. 2011. *Ephemeral Media: Transitory Screen Culture from Television to YouTube*. London: British Film Institute.

Granata, Paolo. 2015. *Ecologia dei media. Protagonisti, scuole, concetti chiave*. Milano: Franco Angeli Editore.

Gregory, Sam. 2016. "Human Rights in an Age of Distant Witnesses: Remixed Lives, Reincarnated Images and Live-streamed Co-pres-

ence." In *Image Operations*, edited by Jens Eder and Charlotte Klonk, 184-196. Manchester, UK: Manchester University Press.

Grierson, John. [1946]1971. *Grierson on Documentary*. Edited by Forsith Hardy. Berkeley, CA: University of California Press.

Gunning, Tom. 1990. "The Cinema of Attraction: Early Film, its Spectator, and the Avant-garde." In *Early Cinema: Space, Frame, Narrative*, edited by Thomas Elsaesser and Adam Barker, 50-62. London: BFI Publishing.

Hall, Stuart. 1992. "The West and the Rest: Discourse and Power…" In *Formations of Modernity*, edited by Stuart Hall and B. Gieben, 275-331. Cambridge: Polity Press.

———. 1997. "The Work of Representation." *Representation: Cultural Representations and Signifying Practices* 2: 13-74.

Halpern, Orit. 2014. *Beautiful Data: A History of Vision and Reason since 1945*. Durham, NC: Duke University Press.

Hardt, Michael, and Antonio Negri. 2001. *Empire*. Cambridge, MA: Harvard University Press.

Harley, John B. 1988. "Maps, Knowledge, and Power." In *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*, edited by Denis Cosgrove and Stephen Daniels, 277-310. Cambridge: Cambridge University Press.

———. 1989. "Deconstructing the Map." *Cartographica: The International Journal for Geographic Information and Geovisualization*, 26(2): 1-20.

Hartley, John. 2005. *Creative Industries*. Malden, MA: Blackwell Publishing Ltd.

Hartley, John, Jean Burgess and Axel Bruns, eds. 2013. *A Companion to New Media Dynamics*. Hoboken, NJ: John Wiley & Sons.

HDX, n.d. "Faq. About the Humanitarian Data Exchange." *Humanitarian Data Exchange*. Accessed November 10, 2020. https://data.humdata.org/faq.

Hediger, Vinzenz. 2005. "Dann sind Bilder also nichts!" Vorüberlegungen zur Konstitution des Forschungsfelds "Gebrauchsfilm."" *Montage AV. Zeitschrift für Theorie und Geschichte audiovisueller Kommunikation* 14.2: 11-22.

Hediger, Vinzenz, and Patrick Vonderau, eds. 2009. *Films that Work: Industrial Film and the Productivity of Media*. Amsterdam: Amsterdam University Press.

Heer, Jeffrey and George Robertson. 2007. "Animated Transitions in Statistical Data Graphics". *IEEE Transactions on Visualization and Computer Graphics*. *13*(6): 1240-1247.

Herbert, Daniel. 2016. "The Movie Business as Waste Management Industry." *Media Industries Journal* 3, no. 1: 17-33.

Herrero, Jorge and Arnau Gifreu-Castells. 2019. "Interactive and Transmedia Documentary: Production, Interface, Content and Representation." *Communication: Innovation & Quality*: 113-127.

Huhtamo, Erkki. 1995. "Resurrecting the Technological Past. An Introduction to the Archeology of Media Art" *InterCommunication, 14*.

Huizinga, Johan. [1938] 1950. *Homo Ludens*. Boston, MA: Beacon Press.

Human Rights Watch. 2016. "Q&A: Why the EU-Turkey Migration Deal is No Blueprint." November 14. https://www.hrw.org/news/2016/11/14/qa-why-eu-turkey-migration-deal-no-blueprint.

Husak, Amir. 2018. "Exercising Radical Democracy: The Crisis of Representation and Interactive Documentary as an Agent of Change." *Alphaville: Journal of Film and Screen Media*, no. 15, Summer 2018: 16–32. www.alphavillejournal.com/Issue15/ArticleHusak.pdf.

Hutter, Michael. 2006. "Die Medienwirtschaft in der Neuheitsspirale." In *Ökonomien des Medialen. Tausch, Wert und Zirkulation in den Medien- und Kulturwissenschaften,* edited by Ralf Adelmann, et al., 27-46. Bielefeld: transcript Verlag.

Ibanez-Bueno, Jacques and Allain Sébastien. 2017. "From Documentary Filmmaking to Serious Game: Interactions Model to bring the Real to Learners." *French Journal for Media Research 8*. http//frenchjournalformediaresearch.com/lodel/index.php?id=1363.

IDFA. 2020. "About IDFA Doclab." Accessed November 2, 2020. https://www.idfa.nl/en/info/about-idfa-doclab.

Il Fatto Quotidiano. 2018. "Migranti, la fake news su Josepha: "Ma quale naufragio, ha lo smalto". Non è vero, giornalisti a bordo spiegano perché." 23 July. https://www.ilfattoquotidiano.it/2018/07/23/migra

nti-la-fake-news-su-josepha-ma-quale-naufragio-ha-lo-smalto-non-e-vero-giornalisti-a-bordo-spiegano-perche/4511101/.

International Organization for Migration. 2020. Humanitarian Communications. https://pakistan.iom.int/humanitarian-communications.

Internet Archive. 2020. Classic PC Games. Last modified October 20, 2020. https://archive.org/details/classicpcgames.

IOM. 2017. "Humanitarian Communications." *International Organisation for Migration, Pakistan*. Accessed November 10, 2020. https://pakistan.iom.int/humanitarian-communications.

———2019. "UN Agencies Assist Thousands as Non-stop Rain, Winds Pound Rohingya Refugee Sites in Bangladesh." *Reliefweb.int*, July 15. https://reliefweb.int/report/bangladesh/un-agencies-assist-thousands-non-stop-rain-winds-pound-rohingya-refugee-sites.

Isbister, Katherine. 2016. *How Games Move Us: Emotion by Design*. Cambridge, MA: MIT Press.

Jawort, Adrian. 2019. "Real Native History in a Video Game: An Indigenous take on The Oregon Trail." *Indian Country Today.* March 5. https://indiancountrytoday.com/lifestyle/real-native-history-in-a-video-game-an-indigenous-take-on-the-oregon-trail-toHHVelCrouBAsBE64jumQ/?

Jay, Martin. 1988. "Scopic Regimes of Modernity." In *Vision and Visuality*, edited by Hal Foster, 3-28. Seattle, WA: Bay Press.

——— 2014. "Scopic Regimes of Modernity Revisited." In *The Handbook of Visual Culture*, edited by Ian Heywood and Barry Sandywell. 102-114.

Jenkins, Henry. 2006. *Convergence Culture*. New York: New York University Press.

Joeckel, Sven, Nicholas David Bowman, and Leyla Dogruel. 2012. "Gut or Game? The Influence of Moral Intuitions on Decisions in Video Games." *Media Psychology, 15:4*: 460-485.

Ji, Qihao, and Arthur A. Raney. 2016. "Examining Suspension of Disbelief, Perceived Realism, and Involvement in the Enjoyment of Documentary-Style Fictional Films." *Human Communication Re-*

search. July 3, 2017 : 125-142. doi: http://onlinelibrary.wiley.com/doi/10.1111/hcre.12121/full.

Jobs, Steve. 2010, "Thoughts on Flash." *Apple Inc.* 29 April. https://www.apple.com/hotnews/thoughts-on-flash/.

Juul, Jesper. 2002. "The Open and the Closed: Games of Emergence and Games of Progression." In *Computer Games and Digital Cultures Conference Proceedings*, edited by Frans Mäyrä, 323-329. Tampere: Tampere University Press.

———. 2010. *A Casual Revolution. Reinventing Video Games and Their Players*. Cambridge, MA: MIT Press.

———. 2011. *Half-real: Video Games between Real Rules and Fictional Worlds*. Cambridge, MA: MIT Press.

———. 2019. *Handmade Pixels. Independent Videogames and the Quest for Authenticity*. Cambridge, MA: MIT Press.

Kahana, Jonathan. 2016. The Documentary Film Reader: History, Theory, Criticism. Oxford: Oxford University Press.

Keilbach, Judith, and Markus Stauff. 2011. "Fernsehen als fortwährendes Experiment. Über die permanente Erneuerung eines alten Mediums." In *Blickregime und Dispositive audiovisueller Medien*, edited by Nadia Elia-Borer, Samuel Sieber and Georg C. Tholen, 155-181. Bielefeld: transcript.

Kirk, Andy. 2016. *Data Visualisation: A Handbook for Data Driven Design*. London: Sage Publishing.

Kosara, Robert, and Jock Mackinlay. 2013. "Storytelling: The Next Step for Visualization." *Computer*, 46(5): 44-50.

Kriger, Judith. 2012. *Animated Realism: A Behind the Scenes Look at the Animated Documentary Genre*. London: Taylor & Francis.

Kwan, Mei-Po. 2007. "Affecting Geospatial Technologies: Toward a Feminist Politics of Emotion." *The Professional Geographer*, 59(1): 22-34.

Lakoff, George and Mark Johnson. 1980. *Metaphors we Live by*. Chicago, IL: University of Chicago Press.

Lakoff, George. 2004. *The All New Don't Think of an Elephant!: Know your Values and Frame the Debate. The Essential Guide for Progressives*. New York: Chelsea Green Publishing.

Last Exit Flucht, n.d. *Last Exit Flucht*. Accessed on September 19, 2021. http://lastexitflucht.org/.

Latour, Bruno. 1990. *Drawing Things Together. Representation in Scientific Practice*. Cambridge, MA: MIT Press.

Lee, Christopher A. 2010. "Open Archival Information System (OAIS) Reference Model." *Encyclopedia of Library and Information Sciences* 3: 4020-4030.

Leiner, Barry M., et al. [1997] 2017. "A Brief History of the Internet." *Internet Society*. 13 September. https://www.internetsociety.org/wp-content/uploads/2017/09/ISOC-History-of-the-Internet_1997.pdf.

Lemke, Thomas. 2002. "Foucault, Governmentality, and Critique." Rethinking Marxism, 14 (3): 49-64. https://doi.org/10.1080/08935690210242288.

Leonhardt, David, Jodi Rudoren, Jon Galinsky, Karron Skog, Marc Lacey, Tom Giratikanon and Tyson Evans. 2017. "Journalism that Stands Apart." *The New York Times*, January 1. https://www.nytimes.com/projects/2020-report/index.html.

"[Let's Play] Refugees - Gehen Sie auf Reportage - Arte - Newsgame - Online – Kostenlos" 2016. Youtube Video. Posted by "Ichbinchristorg," January 6. https://www.youtube.com/watch?v=FJE-qjbY8VM.

Lexico, s.v. "Fiction," accessed November 6, 2020, https://www.lexico.com/definition/fiction.

Lin, Holin, and Chuen-Tsai Sun. 2011. "Cash Trade in Free-to-play Online Games." Games and Culture 6.3: 270-287.

Lobato, Ramon. 2016. "Introduction: The New Video Geography". In *Geoblocking and Global Video Culture*, edited by Ramon Lobato and James Meese, 10-22. Amsterdam: Institute of Network Cultures.

Lucify, n.d. "Lucify builds bespoke visual tools for understanding important data and models." *Lucify.com*, accessed November 10, 2020. https://www.lucify.com/.

Lynes, Krista, Tyler Morgenstern, and Ian Alan Paul, eds. 2020. *Moving Images: Mediating Migration as Crisis*, Vol. 64. Bielefeld: transcript Verlag.

Manovich, Lev. 2011. *The Language of New Media*. Cambridge, MA: MIT Press.

Mäyrä, Frans. 2008. *An Introduction to Game Studies*. London: Sage Publishing.

Mbembé, Joseph-Achille. 2003. "Necropolitics." Translated by Libby Meintjes. *Public Culture*, *15*(1): 11-40.

McFalls, Laurence. 2010. "Benevolent Dictatorship: The Formal Logic of Humanitarian Government." In *Contemporary States of Emergency: The Politics of Military and Humanitarian Interventions*, edited by Didier Fassin and Mariella Pandolfi, 317-334. Brooklyn, NY: Zone Books.

MacKenzie, Adrian, and Anna Munster. 2019. "Platform Seeing: Image Ensembles and Their Invisualities." *Theory, Culture & Society. Volume: 36 issue: 5*: 3-22.

Meneghelli, Agata. 2007. *Dentro lo schermo. Immersione e interattività nei god games*. Milano: Unicopli.

Metz, Christian. 1975. "The Imaginary Signifier." *Screen*, 16(2): 14-76.

Mezzadra, Sandro. 2004. "The Right to Escape." *Ephemera*, *4*(3): 267-275.

———. 2020. "Preface." In *Moving Images: Mediating Migration as Crisis*, edited by Krista Lynes, Tyler Morgenstern and Ian Alan Paul, Vol. 64: 11-13 Bielefeld: transcript Verlag.

Mezzadra, Sandro, and Brett Neilson. 2013. *Border as Method, or, the Multiplication of Labor*. Durham, NC: Duke University Press.

"Migrant Trail [played as Migrant successfully] (Game Walkthrough by GirlsGames.com)." YouTube video. Posted by "Girlsgames.com." 21 December 2014. https://www.youtube.com/watch?v=LBuccZ-gl6U.

Milk, Chris. 2020. "Bio." Accessed August 1, 2020. http://milk.co/bio.

———. 2015. *The Ultimate Empathy Machine.* Produced by TED2015. Video of talk, 10:18. March 2015. https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine/.

Missing Maps, n.d. "Putting the World's Vulnerable People on the Map." *Missingmaps.org*, accessed November 10, 2020. https://www.missingmaps.org/.

MIT Open Documentary Lab, n.d. "About." *Opendoclab*. Accessed June 17, 2020. http://opendoclab.mit.edu/about-3/.

MIT Open Learning. 2020. "About. Our Team. Francesca Panetta." *Openlearning*. Accessed November 8, 2020. https://openlearning.mit.edu/about/our-team/francesca-panetta.

Moeller, Susan D. 2002. *Compassion Fatigue: How the Media Sell Disease, Famine, War and Death*. London and New York: Routledge.

Moretti, Franco. 2013. *Distant Reading*. London: Verso Books.

Lynes, Krista, Tyler Morgenstern, and Ian Alan Paul, eds. 2020. *Moving Images: Mediating Migration as Crisis*. Vol. 64. Bielefeld: transcript Verlag.

Moyn, Samuel. 2017. *Not Enough. Equal Rights in an Unequal World*. Cambridge, MA: Harvard University Press.

Murray, Janet. H. 1997. *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Cambridge, MA: MIT Press.

———. 2011. *Inventing the Medium: Principles of Interaction Design as a Cultural Practice*. Cambridge, MA: MIT Press.

Nail, Thomas. 2015a. *The Figure of the Migrant*. Stanford, CA: Stanford University Press.

———. 2015b. "The Figure of the Migrant. An Interview with Thomas Nail." Interview by Eugene Wolters. *Critical-Theory*, December 1. http://www.critical-theory.com/the-figure-of-the-migrant-an-interview-with-thomas-nail.

———. 2015c. "The Hordes are Banging on the Gates of Europe?" *Non.copyriot.com*. October 29. https://non.copyriot.com/the-hordes-are-banging-on-the-gates-of-europe/.

———. 2016. *Theory of the Border*. New York: Oxford University Press.

———. 2018. *Being and Motion*. New York: Oxford University Press.

———. 2020. "Migrant Images." In *Moving Images*, edited by Krista Lynes, Tyler Morgenstern und Ian Alan Paul, 147- 64. transcript Verlag. https://doi.org/10.1515/9783839448274-011.

Nagel, Thomas. 1989. *The View from Nowhere*. New York: Oxford University Press.

Nash, Kate, Craig Hight and Catherine Summerhayes. 2014. *New Documentary Ecologies. Emerging Platforms, Practices and Discourses.* New York: Palgrave Macmillan.

NFB. 2018. "National Film Board of Canada and Rhizome Collaborate to Broaden the Technical Capabilities and Impact of Webrecorder, Rhizome's Leading-edge, Easy-to-use Tool Set for Web Archiving." *Government of Canada*, December 18. https://www.canada.ca/en/national-film-board/news/2018/12/national-film-board-of-canada-and-rhizome-collaborate-to-broaden-the-technical-capabilities-and-impact-of-webrecorder-rhizomes-leading-edge-easy-to.html.

———. 2019. "Atempo and the National Film Board of Canada (NFB) Renew for a Second 10-Year Partnership." *Government of Canada*, April 3. https://www.canada.ca/en/national-film-board/news/2019/04/atempo-and-the-national-film-board-of-canada-nfb-renew-for-a-second-10-year-partnership.html.

Nichols, Bill. 1976. "Documentary Theory and Practice." *Screen*, *17*(4): 34-48.

———. 2001. *Introduction to Documentary*. Bloomington, IN: Indiana University Press.

Nikunen, Kaarina. 2018. *Media Solidarities: Emotions, Power and Justice in the Digital Age*. London: Sage Publications Limited.

Noordegraaf, Julia, Saba, Cosetta G., Le Maître, Barbara, and Vinzenz Hediger, eds. 2013. *Preserving and Exhibiting Media Art*. Amsterdam: Amsterdam University Press.

OCHA, n.d. "History of OCHA." *Unocha.org*, accessed November 10, 2020. https://www.unocha.org/about-ocha/history-ocha

———. 2019. "Annual Report 2019." *Unocha.org*, accessed August 1, 2020. https://www.unocha.org/sites/unocha/files/2019OCHAannualreport.pdf.

OCHA Centre for Humanitarian Data, n.d. "What We Do." Centre.humdata.org, accessed November 10, 2020. https://centre.humdata.org/what-we-do/#.

OCHCR. 2018. "OCHCR Management Plan 2018-2021." Ohchr.org, accessed August 1, 2020. https://www2.ohchr.org/english/ohchrreport2018_2021/OHCHRManagementPlan2018-2021.pdf.

Odin, Roger. [1984]1998. „Dokumentarischer Film–dokumentarisierende Lektüre". In *Bilder des Wirklichen. Texte zur Theorie des Dokumentarfilms*, edited by Eva Hohenberger, 259-275. Berlin: Vorwerk 8.

———. 2000. *De la fiction*. Louvain-la-Neuve: De Boeck Supérieur.

———. 2011. *Les Espaces de communication: Introduction à la sémio-pragmatique*. Grenoble: Presses universitaires de Grenoble.

O'Flynn, Siobhan. 2012. "Documentary's Metamorphic Form: Webdoc, Interactive, Transmedia, Participatory and beyond." *Studies in Documentary Film*, 6(2): 141-157.

Oracle. 2020. "How and When To Deprecate APIs." *Docs.oracle.com*, accessed November 11, 2020. https://docs.oracle.com/javase/7/docs/technotes/guides/javadoc/deprecation/deprecation.html.

O'Reilly, T. 2007. "What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software." *Communications & Strategies*, (1), 17. http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html.

Oyama, Tadasu, Yasumasa Tanaka, and Yoshio Chiba. 1962. "Affective Dimensions of Colors." *Japanese Psychological Research*, 4(2): 78-91.

Oxley, Julinna. 2011. *The Moral Dimensions of Empathy: Limits and Applications in Ethical Theory and Practice*. Berlin: Springer.

Paglen, Trevor. 2014. "Operational images." *E-flux 59*: 1-3. https://www.e-flux.com/journal/59/61130/operational-images/.

Parks, Lisa. 2005 . *Cultures in orbit: Satellites and the Televisual*. Durham, NC: Duke University Press.

———. 2009. "Digging into Google Earth: An Analysis of 'Crisis in Darfur'." *Geoforum*, 40(4): 535-545.

Parks, Lisa, and Nicole Starosielski. Eds. 2015. *Signal traffic: Critical Studies of Media Infrastructures*. Chicago, IL: University of Illinois Press.

Papacharissi, Zizi and Maria de Fatima Oliveira. 2012. "Affective News and Networked Publics: The Rhythms of News Storytelling on #Egypt." *Journal of Communication, 62(2)*, 266-282.

Peluso, Nancy L. 1995. "Whose Woods are These? Counter-mapping Forest Territories in Kalimantan, Indonesia." *Antipode*, *27*(4): 383-406.

Peters, John D. 2008. "Witnessing." In *Media Witnessing*, edited by Paul Frosh and Amit Pichevski, 23-48 London: Palgrave Macmillan. 23-48.

———. 2015a. *The Marvelous Cloud: Toward a Philosophy of Elemental Media*. Chicago, IL: University of Chicago Press.

———. 2015b. "Proliferation and Obsolescence of the Historical Record in the Digital Era." In *Cultures of Obsolescence*, edited by Babette Tischleder and Sarah Wasserman, 79-96. New York: Palgrave Macmillan.

Piccini, Angela A. 2015. "Media-Archaeologies. An Invitation." Journal of Contemporary Archaeology, 2(1): 1-8.

Pickles, John. 1992. "Text, Hermeneutics, and Propaganda Maps." In *Writing Worlds: Discourse, Text, and Metaphor in the Representations of Landscape*, edited by Trevor J. Barnes and James S. Duncan, 193-230. New York: Routledge.

———.2012. *A History of Spaces: Cartographic Reason, Mapping and the Geocoded World*. New York: Routledge.

Quiggin, John. 2013. "The Economics of New Media." In *A Companion to New Media Dynamics*, edited by John Hartley, Jean Burgess and Axel Bruns, 90-103. Hoboken, NJ: John Wiley & Sons. 90-103.

Raessens, Jost. 2006. "Reality play: Documentary Computer Games beyond Fact and Fiction." *Popular communication 4.3*: 213-224.

———.2010. "A Taste of Life as a Refugee: How Serious Games Frame Refugee Issues." *Changes in Museum Practice. New Media, Refugees and Participation*, edited by Hanne-Lovise Skartveit and Katherine Goodnow, 94-105. New York: Berghahn Books

———.2014. "The Ludification of Culture." In *Rethinking Gamification*, edited by Mathias Fuchs, Sonia Fizek, Paolo Ruffino and Niklas Schrape, 91-114 Lüneburg: Meson press.

———.2015. "Playful Identity Politics: How Refugee Games Affect the Player's Identity." In *Playful identities: The Ludification of Digital Media Cultures*, edited by Michiel de Lange et al, 245-260. Amsterdam: Amsterdam University Press.

Rangan, Pooja. 2017. *Immediations: The Humanitarian Impulse in Documentary*. Durham, NC: Duke University Press.

Ranaivoson, Heritiana, Joëlle Farchy, and Mathilde Gansemer. 2013. "Differentiated Strategies for Digital Innovation on Television: Traditional Channels vs. New Entrants." In *Observatorio (OBS*) Journal, vol.7 – no. 4*: 23-44.

Renfrew, Colin. 1986. "Varna and the Emergence of Wealth in Prehistoric Europe". In *The Social Life of Things: Commodities in Cultural Perspective*, edited by Arjun Appadurai, 141-68.

Renfrew, Colin, and Paul G. Bahn. 2004. *Archaeology: Theories, Methods and Practice*. London: Thames and Hudson.

van't Riet, Jonathan, Annika C. Meeuwes, Laura van der Voorden, and Jeroen Jansz. 2018. "Investigating the Effects of a Persuasive Digital Game on Immersion, Identification, and Willingness to Help." *Basic and Applied Social Psychology, 40(4)*: 180-194.

Rinehart, Richard and Jon Ippolito. 2014. *Re-collection: Art, New Media, and Social Memory*. Cambridge, MA: MIT Press.

Rosling, Hans and Ola Rosling and Anna Rosling Rönnlund. 2018. *Factfulness: Ten Reasons We're Wrong About the World–and Why Things Are Better Than You Think*. New York: Hachette.

Ross, Andrew A. G. 2020. "Mediated Humanitarian Affect." In *Affective Transformations: Politics-Algorithms-Media*, edited by Bernd Bösel and Serjoscha Wiemer, 169-184. Lüneburg: Meson Press.

Rotha, Paul. [2011]1936. *Documentary Film*. London: Averill Press.

Salter, Anastasia and John Murray. 2014. *Flash: Building the Interactive Web*. Cambridge, MA: MIT Press.

Scarry, Elaine. 2011. *Thinking in an Emergency (Norton Global Ethics Series)*. New York: WW Norton & Company.

Schneider, Alexandra. 2004. *Die Stars sind wir: Heimkino als filmische Praxis*. Marburg: Schüren Verlag.

———. 2005. "Videofilme im Aufzug, Projektionen im Flugzeug. Gebrauchsfilme außerhalb des Kinos." *Montage AV. Zeitschrift für Theorie und Geschichte audiovisueller Kommunikation*, 14(2): 142-152.

———. 2016. "Theorie des Amateur- und Gebrauchsfilms." In *Handbuch Filmtheorie*, edited by Bernhard Groß and Thomas Morsch, 1-18. Berlin: Springer.

Schneider, Alexandra and Wanda Strauven. 2013. "Waste: An Introduction." *NECSUS. European Journal of Media Studies*, 2(2): 409-418.

Schulz, Kathryn. 2011. "What is Distant Reading?" *The New York Times*, June 24. https://www.nytimes.com/2011/06/26/books/review/the-mechanic-muse-what-is-distant-reading.html.

Schüttpelz, Erhard. 2009. "Die medientechnische Überlegenheit des Westens. Zur Geschichte und Geographie der immutable mobiles Bruno Latours." *Mediengeographie: Theorie–Analyse–Diskussion*, edited by Jörg Döring and Tristan Thielmann, 67-110. Bielefeld: transcript.

Scott, James C. 1998. *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.

Segel, Edward, and Jeffrey Heer. 2010. "Narrative Visualization: Telling Stories with Data." *IEEE Transactions on Visualization and Computer Graphics*, *16*(6): 1139-1148.

Siegel, Laure. 2015. Interview by Nicole Braida. Personal Interview, Skype meeting, October 23, 2015.

Siegert, Bernhard. 2011. "The Map is the Territory." *Radical Philosophy*. no. 169 (September/October): 13-16.

Silverstone, Roger. 1999. "What's New about New Media? Introduction." New Media & Society, 1(1): 10-12.

Slovic, Paul. 2010. "If I Look at the Mass I Will Never Act: Psychic Numbing and Genocide." In *Emotions and Risky Technologies*, edited by Sabine Roeser, 37-59. Berlin: Springer.

Smite, Rasa., Raitis Smits, and Lev Manovich, eds. 2015. *Data Drift. Archiving Media and Data Art in the 21st Century.* Acoustic Space, Volume No. 14. Riga: RIXC The Center for New Media Culture.

Smith, Adam. [1759]2010. *The Theory of Moral Sentiments*. New York: Penguin.

Smith, Saphora. 2016. "From Syria to Cologne in a wheelchair: Why 17-year-old Nujeen is Malala's new hero." *The Telegraph*. 27 October. https://www.telegraph.co.uk/women/life/from-syria-to-cologne-in-a-wheelchair-why-17-year-old-nujeen-is/.

Sontag, Susan. 2004. *Regarding the Pain of Others*. New York: Farrar, Straus and Giroux.

Sterne, Jonathan. 2006. "The Mp3 as Cultural Artifact." *New Media & Society 8.5*: 825-842. doi:10.1177/1461444806067737.

———. 2007. "Out with the Trash: On the Future of New Media." In *Residual media*, edited by Charles Acland, 16-31. Minneapolis: University of Minnesota Press.

———. 2012. *MP3: The Meaning of a Format*. Durham, NC: Duke University Press.

Stollfuß, Sven. 2019. "German Public Television, Social Media and Audience Engagement." *VIEW Journal of European Television History and Culture*, 8(16): 98–109. doi: http://doi.org/10.18146/2213-0969.2019.jethc178.

"Storytelling with Data." YouTube video. Posted by "Tableau Software." 7 October 2015. https://www.youtube.com/watch?v=IIMHicxQoLY.

Sumner, William Graham. [1907] 2002. *Folkways: A Study of Mores, Manners, Customs and Morals*. Courier Corporation.

Tableau, n.d. "What is Tableau?" *Tableau.com*, accessed March 24, 2020. https://www.tableau.com/products/what-is-tableau#video.

Tazzioli, Martina. 2015. "Which Europe? Migrants' Uneven Geographies and Counter-mapping at the Limits of Representation." *Movements. Journal for Critical Migration and Border Regime Studies 1.2*: 1-20.

———. 2020. *The Making of Migration: The Biopolitics of Mobility at Europe's Borders*. London and New York: Sage.

The Guardian. 2018. "Aquarius: onboard the migrant rescue ship – photographic diary." *The Guardian online*. August 14. https://www.theguardian.com/global-development/2018/aug/14/aquarius-onboard-the-migrant-rescue-ship-photographic-diary-1.

The New Yorker. 1993. *On the Internet Nobody Knows You Are a Dog*. Comic vignette.

The New York Times. 2014. *Innovation Report*. Report 2014. *The New York Times*. Accessed August 1, 2020. https://www.presscouncil.org.au/uploads/52321/ufiles/The_New_York_Times_Innovation_Report_-_March_2014.pdf.

The Refugee Project, n.d. Designed by Hyperakt and Eken Ijeoma. Accessed on September 10, 2017. Interactive map. D3, HTML5, JavaScript, Adobe Illustrator, Adobe Photoshop. http://www.therefugeeproject.org.

Thiele, Matthias. 2005. *Flucht, Asyl und Einwanderung im Fernsehen*. Konstanz: UVK-Verlag.

Thudt, Alice et al. 2018. "Exploration and Explanation in Data-Driven Storytelling." In *Data-Driven Storytelling*, edited by Nathalie Henry Riche et al., 59-83. AK Peters/CRC Press.

Tischleder, Babette and Sarah Wasserman, eds. 2015. *Cultures of Obsolescence*. London: Palgrave Macmillan.

Tomaszewski, Brian. 2019. "Helping Syrian Refugees Share their Stories with Esri Story Maps." *Esri.com*. August 22. https://www.esri.com/arcgis-blog/products/story-maps/sharing-collaboration/helping-syrian-refugees-share-their-stories-with-esri-story-maps/.

———. 2018. "Teaching Refugees How To Map Their World Could Have Huge Benefits." *Smithsonian Magazine*. May 21. https://www.smithsonianmag.com/innovation/teaching-refugees-how-to-map-their-world-could-have-huge-benefits-180969120/.

Torchin, Leshu. 2012. *Creating the Witness: Documenting Genocide on Film, Video, and the Internet*. Minneapolis: University of Minnesota Press.

Tufte, Edward R. ([1983]2001). *The Visual Display of Quantitative Information*. Berkeley: University of California.

———. 1991. *Envisioning Information*. Ann Arbor, MI: University of Michigan.

———. 1997. *Visual explanation. Images and Quantities, Evidence and Narratives*. Nuneaton, UK: Graphic Press.

———. 2006. *Beautiful Evidence*. Nuneaton, UK: Graphics Press.

UNHCR. 1951. *Convention on the Status of Refugee*. Geneva: United Nations. Retrievable under http://www.unhcr.org/3b66c2aa10.

———. 2020a. "What is a Refugee?" *Unrefugees.org*, accessed August 1, 2020. https://www.unrefugees.org/refugee-facts/what-is-a-refugee/.

———. 2020b. "Refugee Data Finder." *Unhcr.org*, accessed August 1, 2020. https://www.unhcr.org/refugee-statistics/.

———. 2020c. "UNHCR Statistical Online Population Database: Sources, Methods and Data Considerations." *Unhcr.org*, accessed November 10, 2020. https://www.unhcr.org/en-lk/statistics/country/45c06c662/unhcr-statistical-online-population-database-sources-methods-data-considerations.html.

———. 2020d. "Mediterranean Situation. Operational Portal." *Unhcr.org*, accessed November 10, 2020. https://data2.unhcr.org/en/situations/Mediterranean.

———. 2020e. "Donors." *Unhcr.org*, accessed November 4, 2020. https://www.unhcr.org/donors.html.

UNHCR Philippines, n.d. "Persons of Concern to UNHCR." Unhcr.org, accessed November 10, 2020. https://www.unhcr.org/ph/persons-concern-unhcr.

UNITAR, n.d. "What We Do." *Old.unitar.org*, accessed November 10, 2020. http://old.unitar.org/unosat/what-we-do.

UNWRA. 2020. "Palestine Refugees." Unrwa.org, accessed March 1, 2020. https://www.unrwa.org/palestine-refugees.

Uricchio, William. 2011. "A 'Proper Point of View': The Panorama and some of its Early Media Iterations." *Early Popular Visual Culture*, 9(3): 225-238.

———. 2015. "Replacement, Displacement, and Obsolescence in the Digital Age." In *Cultures of Obsolescence*, edited by Babette Tischleder and Sarah Wasserman, 97-109. New York: Palgrave Macmillan.

———. 2019. "Re-thinking the Social Documentary." In *The Playful Citizen. Civic Engagement in a Mediatized Culture*, edited by Renè Glas, Sybille Lammes, Michiel de Lange, Jost Raessens, and Imar de Vries, 73-91. Amsterdam: Amsterdam University Press.

Uricchio, William, Sarah Wolozin, Linh N. Bui, Deniz Tortum, and Siobhann Flynn. 2016. *Mapping the Intersection of Two Cultures: Interactive Documentary and Digital Journalism*. Report supported by MacArthur Foundation. MIT Press.

Vázquez-Herrero, Jorge and Arnau Gifreu-Castells. 2019. "Interactive and Transmedia Documentary: Production, Interface, Content and Representation." *Communication: Innovation & Quality*: 113-127.

Verbruggen, Erwin. 2017. "Future Proofing Interactive Works." Beeldengeluid.nl (blog), February 1. https://www.beeldengeluid.nl/en/knowledge/blog/future-proofing-interactive-works.

———. 2018. *Preserving Interactives*. Netherlands Institute for Sound and Vision. https://publications.beeldengeluid.nl/pub/613.

Villagrán De León, Juan Carlos. 2006. *Vulnerability: a Conceptional and Methodological Review*. Paffenholz, Germany: UNU Institute for Environment and Human Security (UNU-EHS).

Volmar, Axel, Marek Jancovic and Alexandra Schneider. 2020. "Format Matters: An Introduction to Format Studies." In *Format Matters: Standards, Practices, and Politics in Media Cultures*, edited by Marek Jancovic, Alexandra Schneider and Axel Volmar, 7-22 Lüneburg: Meson Press.

de Vos, Jesse. 2013. *Preserving Interactives. Preserving Audio-visual Materials in a Post-broadcasting Paradigm*. Master´s Thesis. VU University. https://publications.beeldengeluid.nl/pub/31.

———. 2016. Interview by Nicole Braida. Personal Interview, Skype meeting, April 15, 2016.

"What is the World Economic Forum?" YouTube video. Posted by "World Economic Forum," January 12, 2016. https://www.youtube.com/watch?time_continue=112&v=LWP9kPzaBBo.

"Who are the persons of concern to UNHCR?" YouTube video. Posted by "UNCHR Philippines," August 11, 2017. https://www.youtube.com/watch?v=6OUot70qVgQ.

Wiehl, Anna. 2014. "'One Media – Three Screens' – Convergence and Interactivity at its Full Potential? ARTE: French-German Experiments in 'Crossing the Borders'" *VIEW Journal of European Television History and Culture*, 3(6): 78-94.

———. 2016. "Documentary as co-creative practice: From Challenge for Change to Highrise – Kat Cizek in conversation with Mandy Rose." In *I-docs. The Evolving Practices of Interactive Documentary,* edited by Judith Aston, Sandra Gaudenzi and Mandy Rose. New York: Columbia University Press.

Williams, Raymond. 1980. *Problems in Materialism and Culture*. London: Verso.

Wood, Denis. 1992. *The Power of Maps*. New York: Guilford Press.

Zimmermann, Patricia R. 2018. "Thirty Speculations Toward a Polyphonic Model for New Media Documentary." *Alphaville: Journal of Film and Screen Media*, no. 15, Summer 2018: 9–15. www.alphaville-journal.com/Issue15/ArticleZimmerman.pdf.

———. 2019. *Documentary Across Platforms. Reverse Engineering Media, Place and Politics.* Bloomington, IN: Indiana University Press. Kindle Edition.

Zimmermann, Patricia R., and Helen De Michiel. 2017. *Open Space New Media Documentary: A Toolkit for Theory and Practice.* New York and London: Routledge. Kindle Edition

Zimmermann, Yvonne. 2011. *Schaufenster Schweiz. Dokumentarische Gebrauchsfilme 1896–1964*. Zürich: Limmat Verlag.

Zurmely, David. 2016. Interview by Nicole Braida. Personal Interview, email exchange, May 9, 2016.

———. 2018. Interview by Nicole Braida. Personal Interview, email exchange, April 21, 2018.

List of Interactive and Film References*

Against All Odds. 2005. Produced by UNHCR. Educational Web-based Game. Adobe Flash. http://www.playagainstallodds.ca/. [this version is not accessible anymore, but you can access the German version: Last Exit Flucht, http://lastexitflucht.org/].

A Short History of the Highrise. 2014. Directed by Katerina Cizek, New York Times, National Film Board of Canada. Interactive Documentary. https://www.nytimes.com/projects/2013/high-rise/index.html.

Beyond The Border. 2019. Designed by Kumar Pradeep. Data Visualization. Tableau Public. https://public.tableau.com/profile/pradeepkumar.g#!/vizhome/BeyondTheBorder/Ironviz.

Black Mirror: Bandersnatch. 2018. Interactive Movie. Directed by David Slade. Aired 28 December 2018.

Bury Me My Love. 2017. Developed by The Pixel Hunt and Figs and ARTE. Android App.

Clouds Over Sidra. 2015. Created by Gabo Arora and Chris Milk. UNHCR, VRSE, SAMSUNG. 360 degree Video/VR.

Highrise. 2009 – 2015. Directed by Katerina Cizek. National Film Board of Canada. Multimedia Project. http://highrise.nfb.ca/.

India 2009. 2009. Produced by ARTE. Adobe Flash. Version not accessible anymore.

Global Refugee Crisis. The Big Picture. 2015. Created by EarthTime, Carnegie Mellon University CREATE Lab. https://earthtime.org/stories/global_refugee_crisis_the_big_picture.

Kabul Kaboom. 2002. Developed by Gonzalo Frasca. Web-based game.

Gaza/Sderot. 2008. Created by Susanna Lotz, Joel Ronez and Alex Szalat. ARTE, Upian. Webdoc. http://gaza-sderot.arte.tv/.

Life on Hold. 2015. Produced by Al Jazeera and KNGFU. Interactive Documentary. http://lifeonhold.aljazeera.com.

Morris, Errol, director. 1988. *The Thin Blue Line.* Miramax Films. Documentary 103 minutes.

Prison Valley. 2009. Directed by David Dufresne and Philippe Brault. ARTE, Upian. Webdoc. http://prisonvalley.arte.tv/?lang=en.

Refugees. 2014. Created by ARTE and Method in Madness. Newsgame. Version not accessible anymore.

Refugee Republic. 2014. Created by Jan Rothuizen, Martijn van Tol and Dirk Jan Visser, creators. Submarine Channel. Newsgame/Interactive documentary. https://refugeerepublic.submarinechannel.com/.

Rohingya Refugees Emergence at a Glance. 2018. Created by ESRI Story Maps and UNHCR. Website/Interactive Map. http://unhcr.maps.arcgis.com/apps/Cascade/index.html?appid=5fdca0f47f1a46498002f39894fcd26f.

The Cost of Displacement. 2015. Designed by Lucify. Interactive map/website. Last modified December 7, 2015. https://www.lucify.com/the-cost-of-displacement/.

The Displaced. 2015. Created by Ben C. Solomon and Imraan Ismail. The New York Times, WITHIN. 360 degree Video/VR.

The Flow Towards Europe. 2015. Designed by Lucify. Interactive map/website. Last modified November 12, 2018. https://www.lucify.com/the-flow-towards-europe/.

The Migrant Trail. 2014. Developed by Gigantic Mechanic, ©Marco Williams. Serious game. Adobe Flash. https://theundocumented.com/.

The Oregon Trail. 1974. Developed by Minnesota Educational. Videogame/Text-adventure.

———. 1990. Developed by MEEC (Minnesota Educational Computing Consortium). Emulated version. https://archive.org/details/OregonTrailMacintosh.

The Refugee Challenge. Can you break into Fortress Europe? 2014. Created by John Domokos, Harriet Grant and Guardian Interactive Team. The Guardian. Interactive Text-adventure. https://www.theguardian.com/global-development/ng-interactive/2014/jan/refugee-choices-interactive

The Refugee Project. 2014-2018. Designed by Hyperakt and Eken Ijeoma. Interactive map. D3, HTML5, JavaScript, Adobe Illustrator, Adobe Photoshop. http://www.therefugeeproject.org/#/2018.

The Secret of Monkey Island. 1990. Created by Ron Gilbert. Lucas Arts. Windows.

The Syrian Journey – Choose Your Own Escape Route. 2015. Produced by BBC. Interactive Text-Adventure. https://www.bbc.com/news/world-middle-east-32057601.

The Uprooted. 2016. Created by ESRI Story Map, UNHCR. Website/ Interactive map. http://storymaps.esri.com/stories/2016/the-uprooted/index.html.

Two Billion Miles. 2015. CHANNEL 4. ITN. Interactive Video Story. http://twobillionmiles.com/.

When Rivers Were Trails. 2019. Created by Nichlas Emmons and Elizabeth LaPensée. Indian Land Tenure Foundation, Michigan State University's Games for Entertainment and Learning Lab. Point-and-click text-adventure.

Williams, Marco, director. 2013. *The Undocumented*. Hiptruth Productions, Two Tone Productions, 2013. Documentary 90 min. https://vimeo.com/ondemand/hiptruthproductions/.

* **References of interactives which are part of the corpus of case studies are listed by title-date. Films by director-date.**