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Visual Expansions in Narrating Contemporary Conflicts and History

The Possibilities of Virtual Reality (VR) Films

Abstract

This article focuses on Virtual Reality films depicting contemporary conflicts, with an emphasis on building viewer-screen relations and considering the cinematographic elements establishing the emotional reaction to the films. Analyzing the visual and narrative architecture of chosen Virtual Reality productions, the author explains correlations between the level of immersion and the viewer's experience from the perspective of film and media studies. Furthermore, the author uses multimodal critical theory as the primary methodological tool to focus on modes experienced through different sensual channels during the 360° screenings. Moreover, it is also analyzed how the discourse applied in chosen examples influences the presentation of historical events in a Virtual Reality environment. The choice of films, underlining the wide specter of thematic areas that can be covered under the term ‚contemporary conflicts,' allows for observing the variety of approaches.

Keywords

contemporary conflicts, VR film, immersion, multimodal theory, digital learning and teaching

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Introduction

In the digital era, audiovisual media are shaping the perception of contemporary conflicts on national and international levels.[1] Understanding contemporary conflicts seems crucial in the process of informed decision-making and developing an insight into global se-

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[1]   A vivid example can be the information war surrounding the Russia-Ukraine war since 2014. More Unwala Azhar and Ghori Shaheen, "Brandishing the Cybered Bear: Information War and the Russia-Ukraine Conflict," *Military Cyber Affairs* 1, no. 1 (2016), art. 7, n. p.

curity issues, which influence not only the economy and social structures but also shape modern art, literature, and popular culture. Among the productions that encourage meditation on the most recent history, virtual reality (VR) films put considerable emphasis on the immersive character of the viewer's experience and the role of embodiment. The dynamics of remembrance and historical reproduction in VR films are established by building the audience's emotional involvement through participation in in-depth observation of the struggles of affected groups. Reconsidering the role of the chosen expanded media in documenting historical events, this paper investigates how VR films about recent conflicts contribute to understanding socio-political contexts and the scope of this contribution. The main aim of this research is to define the potential of VR films beyond storytelling, investigating their possibilities as educational tools and, at the same time, acknowledging the limitations in informing the audience about the political, social and historical complexities.

The concept of immersion, which remains the core of the discussions about the impact of expanded spectacles, has been extensively studied by scholars from different disciplines also before the emergence of VR. The foundation text for further research on immersion and visual expansions was Gene Youngblood's book *Experimental Cinema*, published in 1970.[2] Further, researchers such as Oliver Grau and Philippe Bédard offered critical insights into user experiences within audiovisual spectacles[3] and cinema.[4] After the emergence of VR, immersion was redefined, for example, by Mel Slater, as an objective property of the VR system. The level of immersion, as Slater observed, is determined by the technological capabilities of the used equipment and correlated to the concept of presence, referring to the user's subjective experience of being in the virtual world.[5] Similarly, Nilsson et al. highlighted the importance of sensory response and interactivity in creating immersive experiences.[6] Researchers from several disciplines, such as film studies, psychology, and journalism have further explored these foundational concepts. References to immersion also appeared in the academic discussions about interactive learning interfaces, presented, for example, by Chris Dede.[7]

Referring to selected VR films about contemporary conflicts — from the Syrian Civil War to the immigration crisis on the U.S.-Mexico border, this paper argues that through immersive engagement of senses, VR films can enhance awareness of contemporary conflicts; however, the process of learning must be accompanied by additional explanatory resources, organizing the causes and effects of the conflict. As an emerging technology, VR films have the potential to redefine how audiences engage with complex social and historical issues, blending emotional and intellectual immersion that justifies further explora-

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2) Gene Youngblood, *Expanded Cinema* (New York: P. Dutton & Co., Inc., 1970).
3) Oliver Grau, *Virtual Art: From Illusion to Immersion* (Cambridge: The MIT Press, 2003).
4) Philippe Bédard, "Making Room for Empathy in Contemporary Virtual Reality Cinema," *Studies in Documentary Film* 18, no. 1 (2023), 34–52.
5) Mel Slater, "Immersion and the illusion of presence in virtual reality," *British Journal of Psychology* 109, no. 3 (2018), 431–433.
6) Niels C. Nilsson, Rolf Nordahl, and Stefania Serafin, "Immersion Revisited: A Review of Existing Definitions of Immersion and Their Relation to Different Theories of Presence," *Human Technology* 12, no. 2 (2016), 108–134.
7) Chris Dede, "Immersive Interfaces for Engagement and Learning," *Science* 323, (2009), 66–69.

tion. By analyzing narrative structures, audial and visual presentation, and the specter of presented information about the conflict and viewer experience, this paper aims to address how VR films can serve as communication tools about recent history. Taking into consideration Dooley's approach to creating VR narratives[8] and analyzing the visual architecture of chosen VR productions, I want to explain what modes the viewer experiences through different sensual channels during the VR screening and how the applied discourses influence the presentation of historical events. This paper will also present VR's limitations as a medium. For example, focusing on sensation and emotional engagement, VR tends to underpin social, political, and historical factors, which further leaves the audience with fragmented knowledge or can lead to misunderstanding of the primary intent of the film. It is also worth indicating that while VR experiences' market share remains limited, their impact lies in providing immersive, first-person perspectives that traditional media cannot offer.[9] This proves that research on VR films is feasible from the broader perspective of drawing the contemporary media landscape regardless of the observed limitations.

The complexity of the somatic character of the VR experience, which significantly differs from non-expanded screenings, calls for an extended language of description. Consequently, to explain representational, interactive, compositional, and image-level meanings, not forgetting about aesthetics and virtual mise-en-scene, I will refer to multimodal theory[10] in the expanded context of intermedial and intercultural communication, as applied by Maiorani and Christie.[11] Analyzing VR films through the lenses of multimodal epistemology, it is crucial to draw the model of approaching the digital narratives as a reality that can be described by the set of symbolic multi-means. In the analyzed VR films, a symbol system creates multi-means by juxtaposing the action, commentary, documentary material, and the velocity of an immaterial viewer's body moving through time and space.[12] The applied methodology will allow analyzing how discourse on history and contemporary conflicts is created in chosen productions.

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8) Kath Dooley, *Cinematic Virtual Reality: A Critical Study of 21st Century Approaches and Practices* (Cham: Palgrave Macmillan, 2021), 23–40. Dooley states that the 360-degree surrounding provides a more profound sense of presence and embodiment for the viewer, however, raising questions about new challenges, such as narrative coherency in the context of viewer's agency.

9) Johannes Mütterlein, "The three pillars of virtual reality? Investigating the roles of immersion, presence, and interactivity," *Proceedings of the 51st Hawaii International Conference on System Sciences* (2018), 1407–1415; Michael E. Porter and James E. Heppelmann, "Why every organization needs an augmented reality strategy," *Harvard Business Review* 95, no. 6 (2017), 46–57. Mütterlein, analyzing a quantitative survey he conducted in a VR center with 294 participants, observes that immersion, presence, and interactivity in VR influence user satisfaction and experience with VR content. Porter and Heppelmann further underline the strategies and possibilities of VR implementations in business.

10) John B. Bateman and Karl-Heinrich Schmidt, *Multimodal film analysis: How film mean* (London: Routledge, 2011).

11) Arianna Maiorani and Christine Christie, *Multimodal Epistemologies: Towards an Integrated Framework* (New York: Routledge, 2014).

12) Even though the architecture of VR films entertains by bending the rules of physics, the viewers are still subject to the constraints of their material bodies outside the virtual world. The banal feeling of exhaustion or restrained movements, when the viewer needs to stay in a safe area marked by the VR controller sensitivity, can significantly impact immersion.

In this article, I focus on chosen VR films depicting contemporary conflicts, concluding the preliminary research conducted between 2017 and 2023. During this period, I have analyzed over 17 VR films[13] labeled as history-related, listed on Youtube, Vimeo, and Oculus TV/Meta Quest TV.[14] The applied keywords featured the variations of approaches to social, cultural and military conflicts, film genres, and aesthetics (for example, 'war documentary VR' or 'VR conflict footage movie'), as well as to chosen contemporary conflicts ('Ukraine,' 'VR black history,' 'VR America conflict'). Among them, I chose examples highlighting different socio-political and geographical contexts. The choice of films, underlining the broad spectrum of thematic areas that can be covered under the term 'contemporary conflicts,' will allow observing the variety of approaches to VR films and through VR films. The choice was also made considering the specific aesthetics and visual solutions applied to the projects, aiming at highlighting possible approaches to conflict depictions. In the selection process, I have chosen films with consistent narratives, recognized by critics and showcased at film festivals. In the selection process, the animated films, experiences created solely with Unreal Engine software, and fragmented projects "in progress" were excluded. The relatively small amount of available contemporary conflict VR films meeting the criteria of the documentary genre and consistency underlines the technological and narrative challenges set by this format.

Literature Review

Incorporating VR into education promises immersive experiences that consider gathering information and emotional involvement as equal parts of the learning process. However, it must be considered that VR films are not simply empathy-building mechanisms. Schlembach et al. underlined that VR, perceived as an "empathy machine," has manipulative potential if we assume, according to the liberal-humanitarian logic, that immersive experiences naturally lead to empathy.[15] Moreover, Raz postulated the revision of the ethics of using VR for empathy enhancement, observing that as the medium manipulates the body of the viewer through multisensory stimulation, the perceptual transformation is a process that can possibly be controlled.[16]

On the other hand, researchers have already debated different types of conflict depictions in digital media, such as games, before the advent of VR technology, providing various observations on the immersive potential of expanded experience. Early literature on VR experiences predominantly focused on gaming, the gamer's perception, and reactions

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13) The list is attached as an appendix. The list includes all films available on the mentioned platforms at the end of 2023.

14) Meta Quest TV contains its own film library, focused exclusively on VR and 3D experiences. The library itself can be accessed without a VR headset through the service's main page: https://www.meta.com/quest/entertainment/.

15) Raphael Schlembach and Nicola Clewer, "'Forced empathy': Manipulation, trauma and affect in virtual reality film," *International Journal of Cultural Studies* 24, no. 5 (2021), 827–843.

16) Gal Raz, "Rage against the empathy machine revisited: The ethics of empathy-related affordances of virtual reality," *Convergence* 28, no. 5 (2022), 1457–1475.

to transgressive narrative solutions.[17] In this context, the ethics of simulating brutal conflict reality and wartime conditions were analyzed by Miguel Sicart,[18] who emphasized the process of transferring values through virtual agencies. Significant analysis was also developed by Philip Sabin, who described the relationships between the players' reactions and the design of digital war and conflict strategy simulations in the context of narrative modeling techniques.[19] Sabin underlined that the level of immersion and satisfaction depends on the level of rationality and probability of role-playing scenarios.[20] Similar issues were tackled by Elliott and Kapell,[21] as well as Hammond and Pötzsch[22] in their publications about war games.

Recent scholarship has expanded beyond the relationships of VR and gaming, exploring applications of this technology in journalism, communication studies and documentary storytelling. For example, Kukkakorpi and Pantti[23] examined how VR journalism creates a sense of place in the context of conflict zones and emotional engagement in complex realities. Furthermore, Rose critically analyzed the rise of VR as a nonfiction platform, exploring both the sensational emotions and the practical implications of VR storytelling in representing trauma. Discussing such VR projects as *Clouds Over Sidra*, focused on the Syrian refugee camp, she looks beyond the opportunities for audience engagement, underlining that VR storytelling raises ethical concerns about voyeurism and emotional manipulation.[24] VR interactive documentaries were also analyzed by Nash[25] in the context of the logic of first-person media and empathy-building processes. The author underlines the importance of ethical storytelling and maintaining historical accuracy in highly immersive formats stimulating sensory experiences. Moreover, she stresses the risk of oversimplifying complex historical events for the sake of user engagement, thus arguing for a re-evaluation of authenticity and audience agency. Other limitations of VR are listed by Bédard,[26] who observed that immersion does not automatically translate to empathetic engagement and understanding of the narratives about conflicts. Moreover, the researchers also undertake attempts to bridge the gaps in understanding applications of XR (Expanded Reality) technologies in STEM learning and teaching, juxtaposing VR with AR

17) Gerald A. Voorhees, Joshua Call, and Katie Whitlock, *Guns, Grenades, and Grunts: First-Person Shooter Games* (New York: Bloomsbury, 2012); Andrew B. R. Elliott and Matthew Wilhelm Kapell, *Playing with the Past: Digital Games and the Simulation of History* (New York: Bloomsbury, 2013).

18) Miguel Sicart, *The Ethics of Computer Games* (Cambridge: The MIT Press, 2009).

19) Philip Sabin, *Simulating War: Studying Conflict through Simulation Games* (New York: Bloomsbury, 2014).

20) However, considering Jeremy Black's review, it must be underlined that Sabin's insight excludes non-Western approaches, thus overlooking Asian ground entirely. Jeremy Black, "Simulating War: Studying Conflict through Simulation Games by Philip Sabin," *Journal of Strategic Studies* 36, no. 5 (2012), 752–753.

21) Elliott and Kapell, *Playing with the Past*, 170–172.

22) Philip Hammond and Holger Pötzsch, *War Game: Memory, Militarism, and the Subject of Play* (New York: Bloomsbury, 2019).

23) Mariia Kukkakorpi and Mervi Pantti, „A Sense of Place: VR Journalism and Emotional Engagement," *Journalism Practice* 15, no. 6 (2020), 785–802.

24) Rose Mandy, "The immersive turn: hype and hope in the emergence of virtual reality as a nonfiction platform," *Studies in Documentary Film* 12, no. 2 (2018), 132–149.

25) Kate Nash, *Interactive Documentary: Theory and Debate* (London and New York: Routledge, 2021), 102–120.

26) Philippe Bédard, "Making Room for Empathy in Contemporary Virtual Reality Cinema," *Studies in Documentary Film* 18, no. 1 (2023), 34–52.

(Augmented Reality) and MR (Mixed Reality). For example, Beams and Crofton-Sleigh, in their edited monograph, collected insights into haptic feedback technologies, providing a theoretical framework and case studies helping to implement XR into teaching curricula.[27]

The scope of available literature provides multiangled insight into the development of perception of the new technology in the context of non-fictional audiovisual spectacles. As stated above, the research gaps and highlighted limitations call for revising the approaches in different disciplines, such as film studies.

Methodology: VR Technology and Somatic Modalities

The origins of visual expansions, understood as the attempts to cross the restrictions of a flat screen, can be traced back to 1911 Soviet Russia, where the so-called 'electro-theatre' Tanagra in St. Petersburg displayed unique Kinemakolor pictures based on Oskar Messer's patent. The stereoscopic films were soon shown in New York in 1915.[28] Further experiments were conducted again in 1950 and later by visionary filmmakers like Morton Heiling[29] and technological companies, including NASA.[30] Early virtual expansions aimed at crossing traditional notions of film art or experimenting with new forms of displays focused on immersive experiences.[31] The dream of the highly immersive spectacle is finally disseminated in VR films and digital games,[32] which are no longer determined to be watched on a screen and strive to engage as many senses as possible. In VR films, the boundary between a viewer and a screen, separated from each other in 2D cinema, is replaced by the importance of an interactive 'viewer-screen' relationship.[33] The transgression from flat to palpable spectacle establishes the critical moment to analyze the discourse-creating practices in digitally expanded media and, thus, their influence on viewers' perceptions.

In the abovementioned context, the multimodal theory provides methodological tools for presenting a thorough analysis of the discourse in VR films. The studies on multimodality and film were focused, so far, on classic genre cinema, featuring mostly westerns, melodramas, dramas, and thrillers, mentioning other genres and currents only as possible

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27) Brian Beams and Lissa Crofton-Sleigh, eds., *Past and Future Presence: Approaches for Implementing XR Technology in Humanities and Art Education* (Amherst: Amherst College Press, 2024).

28) Nikolai Mayorov, "A first in cinema…stereoscopic films in Russia and the Soviet Union," *Studies in Russian and Soviet Cinema* 6, no. 2 (2012), 218.

29) Morton L. Heilig, "Simulator for generating and displaying dynamic imagery," (U.S. Patent No. 3,050,870, filed January 10, 1961 and issued August 28, 1962), https://patents.google.com/patent/US3050870 A/en.

30) Scott S. Fisher, "The NASA Ames VIEWlab Project—A Brief History," *Presence: Teleoperators and Virtual Environments* 25, no. 4 (2016), 339–348.

31) The term 'expanded cinema' appeared in the 1960s. It was explained by an avant-garde theorist and artist Malcolm Le Grice as a "general move by artists to break old artistic boundaries, explore cross-media fusions, experiment with new technologies but, most importantly, to challenge the constraints of existing art discourses." Grice Le Malcolm, *Experimental Cinema in the Digital Age* (London: Palgrave, 2001), 273–274.

32) Digital games are considered as the next stage of possible research on the subject.

33) Luke Hockley, *Somatic Cinema: The relationship between body and screen — a Jungian perspective* (New York: Routledge, 2014), 1–5.

fields to introduce new research perspectives.[34] According to multimodal theory, distinct semiotic modes of audiovisual material are carried by different sensory channels (sound, visual, and aural) designed to adequately represent the needed information set. According to multimodal theory, initially developed by linguists such as Bateman[35] and Van Leeuwen,[36] the field of discourse, mode of discourse, and tenor of discourse build the message of the audiovisual material. These elements are constituted by a set of meanings mentioned in the introduction. Therefore, multimodal film theory emphasizes how elements such as genre, image, characters, and sound create the complete discourse.[37]

Using the multimodal theory in the research focused on VR films allows for consideration of the influence of film techniques on audiences' emotional engagement, thus observing the phenomenon of shaping approaches and opinions through direct participation. As Gillian Rose observes in *Visual Methodologies*, visual representation depends both on technology and social practice, which further defines the affective experience of the image. "Vision is as cultural as corporeal," she writes, thus drawing the approach to VR films that multimodal theory will further embody.[38] Multimodal critical theory allows for the analysis of semiotics and modes with linguistic precision, recognizing the film as a text communicating about the sources of power at a particular time and in the selected area. The primary aim of multimodal theory, as Michał Post observes, is to explain how the combinations of visual, sound, and language elements build the story.[39] The sound and language, as well as somatic modalities, support visual patterns, creating the wholeness of the film composition. According to this, it can be concluded that multimodal analysis is based on determining the narrative-compositional segments and semiotic visual structures responsible for delivering messages to the viewer. Subsequently, the application of multimodal analysis to the research on VR films explains the interactions between the semiotic structures creating the meanings of the film and the body considered as the processor of information.[40]

Discussion: Experiencing History in VR

Similarly to genre designations in cinema, a rapid increase in VR film production has led to categorization according to their purposes and thematic areas. However, such divisions

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34) Michał Post, *Film jako tekst multimodalny: Założenia i narzędzia jego analizy* [Film as multimodal text. Terms of reference and tools to analyze it] (Wroclaw: WWSF, 2017); Sigrid Norris, *Multimodality in Practice: Investigating Theory-in-Practice-through-Methodology* (New York: Routledge, 2012); Ruth Page, *New Perspectives on Narrative and Multimodality* (New York: Routledge, 2010).

35) Bateman and Schmidt, *Multimodal film analysis*; John B. Bateman, "Multimodality and Film," in *The Encyclopedia of Applied Linguistics*, vol. 7, ed. Carol A. Chapelle (London: Blackwell, 2013), 4030–4033.

36) Theo van Leeuwen, "Critical Analysis of Multimodal Discourse," in *The Encyclopedia of Applied Linguistics*, ed. Chapelle, 4002–4006.

37) Xu Bo, "Multimodal Discourse Analysis of the Movie Argo," *English Language Teaching* 11, no. 4 (2018), 132.

38) Gillian Rose, *Visual Methodologies: An Introduction to Researching with Visual Materials*, 4th edition (London: SAGE Publications Ltd, 2016), 9.

39) Post, *Film jako tekst multimodalny*, 147.

40) Mark B. Hansen, *New Philosophy for a New Media* (Cambridge: The MIT Press, 2004), 21–22.

do not follow well-established notions of cinematic genres; instead, the films are classified by keywords and hashtags based on social media nomenclature. Among the main types of VR productions generally accepted across platforms or repositories are travel and adventure films, educational VR (including VR used in museums and theatre spectacles recorded in VR technology), VR entertainment films (i. e., horror films), and history/conflict VR films considered in this article.

As with travel and adventure VR films, historical VR films establish the connection between the viewer and the surrounding environment. This can be processed in several ways, from the most extreme close-ups possible (i. e., the viewer is part of an action) to distant observation. In both cases, the viewer can be immersed in the places and times she will never visit. Moreover, no matter how close the observation is and how deeply the viewer is involved in the action, the surrounding is presented from unnatural camera angles, building the experience of floating above the ground or being too short compared to the virtual characters around. The rapid movement and sudden changes in the viewing perspective create the feeling of transgressing the body — making a viewer a body-less, immaterial observer. This perspective often appears in VR films focused on distant past events, such as Napoleon's battle reconstructions,[41] where the virtual body of the viewer is floating above the marching troops. The observer is not entirely fitted to the other characters' positions. Instead, she is a passive observer of the struggle, not participating fully in the event.[42]

VR films that commemorate historical events put considerable emphasis on the viewer's emotions through experiencing visual representations of terror. Using its immersive potential, affecting emotions such as shame, guilt, or fear, films provide a digital narrative-based vision of history — built upon the viewer's identification with the characters, places, events, and ideologies. Here, immersive learning expected by the creators[43] is based on the continuum of emotional engagement, varying from interest to, ideally, total immersion.[44] Similarly, as in digital games, VR film immersion can be divided into three categories: actional immersion (the viewer can experience actions impossible in the real world), symbolic immersion (the content of the film is built around psychological and semantic associations), and sensory immersion (haptic feedback).[45] In VR films about historical events, these should be connected to create a discourse on the past and broader ideological considerations. The abovementioned categories of immersion will serve as the organ-

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41) BLACK DOT FILMS VR, National Geographic, *360° Battle of Waterloo* (2017). All short VR films mentioned in this article can be seen on Youtube, Vimeo or Meta TV.

42) Here should be explained the term 'participation' in connection to VR. When discussing VR films, the appearance of the viewer balances between participation and observation, depending on the narrative and technological design of a particular picture. While the observation is related to keeping distance, participation in VR film starts when the viewer reaches close proximity to the action or other characters and the film's design requires her reaction — for example, encouraging the movements of her head.

43) Immersive learning is defined by Chris Dede as one based on "subjective impression that one is participating in a comprehensive, realistic experience." Dede, "Immersive Interfaces for Engagement and Learning," 66–69.

44) Stefaan Ternier, Roland Klemke, Marco Kalz, Patricia Van Ulzen, and Marcus Specht, "ARLearn: Augmented Reality Meets Augmented Virtuality," *Journal of Universal Computer Science* 18, no. 15, (2012), 2144–2145.

45) Ternier, Klemke, Kalz, Van Ulzen and Specht, "ARLearn," 2145; Ayoka Chenzira, "Haptic cinema: An art practice on the interactive digital media tabletop" (Unpublished PhD dissertation, Atlanta, Georgia Institute of Technology, 2011), 8.

izing method for further findings concentrating on the following chosen exemplars and their analyses.

Distant Observation and Storytelling

Welcome to Aleppo (2015) was the first VR film made from footage recorded in a war zone. The film takes the viewer to the streets of Aleppo, destroyed during the war in Syria. This conflict involved civil disagreement and multiple international interventions, beginning with the Syrian Civil War in 2011 after protests against President Bashar al-Assad's government, fueled by people's demands for political freedom, economic transformation, and an end to government corruption and repressions. Inspired by the wave of the Arab Spring, where citizens across the Middle East called for democratic reforms, Syrians initially held peaceful demonstrations. However, the government's violent crackdown on protestors, including arrests, torture, and killings, escalated the situation, leading to widespread unrest and, eventually, the civil war. This war has drawn in multiple actors, including regional and global powers like Russia, the U.S., Turkey, and various local armed groups, creating a complex arena of power struggles. The situation has led to significant humanitarian crises, destabilization of the region, and debates around sovereignty, intervention, and human rights.[46]

 Welcome to Aleppo was created by war journalist Christian Stephen, with the help of the production company RYOT. The narrative is built around the testimony of a woman survivor, who introduces the observer to the background of the conflict and its influence on the city's destruction. The virtual mise-en-scene is created from the images of destroyed Aleppo, juxtaposed with its former glory — intact buildings from before the conflict and daily gatherings of the inhabitants. Such a comparison is designed to influence the empathy of the viewer, who is exposed to dynamically changing pictures of the ruins (symbolizing the present) and the hustle of overcrowded bazaars (representing the past). The sudden changes in surroundings create a virtual nostalgia for the peaceful state, deepened by the knowledge that the presented footage comes from the war zone, not the digital reconstruction. However, the viewer's position defines their role as a distant observer of the terror. *Welcome to Aleppo* is created without consideration of the virtual presence of the observer. The camera angles do not leave a place for the virtual body, as the shots are often presented from a frog's perspective or high above the ground. This aesthetic choice may result from technological limitations while shooting with 360° cameras in a war zone. The camera is placed at ground level or on the high floor of the building, which makes it easier to stabilize in extreme conditions. Observing the war zone is the film's main point, and there is no opportunity for closer exploration of the surroundings as a virtual avatar.

 Most of the action depicted in *Welcome to Aleppo* happens behind the screen. Usually, the viewer can only observe the static frames of ruins and hear shooting sounds without identifying their sources. It underlines the significance of sound in this production; through the inability to locate the danger, the viewer can feel the same uncertainty as the

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46) Christopher Phillips, *The Battle for Syria: International Rivalry in the New Middle East* (New Haven: Yale University Press, 2016).

refugees — warfare is everywhere, and there is no place to hide. However, deprived of a recognizable and controllable virtual body, the viewer remains outside the reference system, which brings further challenges in full engagement in the experience. Following the findings about the multimodality of meaning-making processes proposed by Majorani and Christie,[47] who pointed out the importance of cultural stances in forming communicative contexts, it can be concluded that the viewer's emotions can be influenced by the lack of an archetypal reference system, as the semiotic reading of the surrounding is distorted by referencing to chosen senses only. Not knowing who is speaking and locating the danger only by the sound of missiles and shooting, without the ability to engage in full-body movement or adjust the visual perspective, the viewer cannot encode the film's social contexts. Moreover, without a well-defined narrative pattern and a lack of historical and political contexts, the emotional and intellectual engagements outside the sensational feeling of danger can be questioned.

The primary purpose of *Welcome to Aleppo* is to commemorate the moments and impressions, not to provide more profound knowledge about the causes and political contexts. The function of this film is to remind about the conflict and bring the worldwide community's attention to the fate of thousands of refugees forced from their homes.[48] Significantly, the narrative, through understatements and contextual gaps, is created without highlighting the blame of the sides of the conflict. Instead, the story underlines the impact of war on ordinary people, the state's disintegration, and the demolition of national monuments, which serve as symbols of the final destruction of society.

Distant observation was also applied as a primary tool of designed immersion in the film *Dnipro — outpost of Ukraine* (2022), created by Yevhen Titarenko with the support of the Ukrainian Cultural Foundation and the Dnipropetrovsk National History Museum. This audiovisual work is not a VR film *per se*, as it is presented as a series of conventional 2D videos projected and mixed in virtual reality. It doesn't use the immersive footage of conflict, instead proposing another form of expanded visuality. In this perspective, juxtaposing this work with fully immersive VR films in this paper provides an additional perspective on applying VR technology to discussing modern history.

In the contextual layer, the film is a documentary response to disinformation surrounding the conflict in Ukraine; thus, the discourse is presented from a Ukraine-centered perspective. The roots of the Russo-Ukrainian War are heavily tied to Russia's desire to prevent Ukraine from aligning with Western institutions, including NATO.[49] Besides perceiving connections to the West as a threat, Russia's actions are underpinned by a long-standing belief that Ukraine and Russia share deep historical and cultural ties, which, in Russia's perception, justify the sphere of influence over Ukraine.[50] The conflict resulted in a humanitarian crisis, with millions of Ukrainians fleeing their country.[51]

47) Maiorani and Christie, *Multimodal Epistemologies*.

48) Similar themes were covered in such VR films about contemporary conflict as *The Fight for Falluja* (2016) created by The New York Times or *Refugees 360 VR documentary* (2015) by Scopic company. See: Appendix.

49) See more: Rajan Menon and Eugene Rumer, *Conflict in Ukraine: The Unwinding of the Post–Cold War Order* (Cambridge: The MIT Press, 2018).

50) Richard Sakwa, *Frontline Ukraine: Crisis in the Borderlands* (London: I. B. Tauris, 2015), 120–147.

51) UNHCR, *Ukraine Refugee Situation*, 2022, accessed October 15, 2024, https://www.unhcr.org/enus/ukraine-emergency.html.

Titarenko's film focuses on the most recent military struggles against Russian occupation. It starts with footage depicting the development of pre-war Ukrainian cities and a brief history of the country in the 20th and 21st centuries. The viewer learns about the origins of the war by listening to a narrator, witnesses, and soldiers and visiting places of conflict—with a focus on the surroundings of the Eastern Ukrainian city of Donetsk. The narrative layer juxtaposes scenes of warfare, commentary, historical archives, animated backgrounds, and infographics. The additional resources aim to introduce the elements of the historical accuracy of the presented material, communicating that the knowledge about the conflict is obtained by comparing various perspectives and cannot be based solely on testimonies. Still, the essential parts of the film are the encounters with Ukrainian people — soldiers and inhabitants of the occupied lands. While the off-screen narrator organizes the flow of testimonies and guides the viewer, the Ukrainians in the film complement the commentary through personalized insights. Moreover, found footage fragments build the film's aesthetics and symbolic layer. Shaking camera in the guerilla-filmmaking style creates a feeling of participation for the audience. The fragmentation of visual material and sudden jumps between screens, even though they require deep focus, still follow a narrative pattern of creating and recollecting memories.

On the other hand, the plethora of the displayed resources influences the viewer's participation in the experience, situating her, similarly to *Welcome to Aleppo*, as an observer. The sudden disconnection from immersion is applied by the visual architecture of *Dnipro*, which encloses the viewer in a virtual cubicle divided into six spaces — four screens, floor, and ceiling. From this position, the scenes are experienced through head movement only, which allows for concentrating on different screens. The virtual displays, especially those recognized as a floor and ceiling, change their structure — they pretend to be grass, concrete, or part of the action, showing close-ups of chosen objects. The multi-screen projection allows a visual comparison between several places, juxtaposing peaceful scenes with warfare or listening to several testimonies simultaneously. As many screens create different semiotic systems at once, the multimodality unfolds here through overlayed communique, providing several patterns of reception.

The experience in *Dnipro* is also built by animated techniques based on bringing palpable danger through sequences positioned close to the viewer's virtual body. The observer is licked by the fire coming out from the screen, or suddenly, she is in the middle of shooting, experiencing the bullets going through all the screens around. The film tries to gamify the political and historical information by using game-derived dynamics, primarily applied by threatening the viewer's personal space. This is a popular solution for VR films labeled as entertainment, overloaded with data and based on cubicle-like visual architecture, establishing a surrounding made of virtual screens instead of 3D-animated backgrounds.

It is worth underlining that the meaning of *Dnipro* is highly representational, with attempts to create interactivity through storytelling practices. On the other hand, the feeling of being in a cage made from screens aligns with the aim and central theme of the film, underlining that there is no escape from modern warfare, as the media pictures will follow the viewer even after leaving the danger zone.

Learning Through Immersion and Controlled Trauma

Emmy-nominated documentary VR film *Traveling while Black* (2019) by Roger Ross Williams[52] recreates the experiences of the Black American community and the problems of traveling in America during the Jim Crow era. During the late 19th century to the mid-20th century, mainly in the Southern US states, racial segregation and discrimination of Black Americans included systemic exclusion from accommodations, restaurants, and other public spaces, affecting freedom and safety in daily lives and while traveling.[53] Uncomfortable and often dangerous situations related to stopping for a meal or searching for a place to rest resulted in the necessity of distributing Black travelers-oriented guides, such as the famous *The Negro Motorist Green Book*.[54] Williams's film had its Internet premiere a year after Peter Farrelly's Oscar-winning film *Green Book* (2018), continuing the postmodern deconstruction of nostalgic visions of the socio-political history of the middle 20th century.

This VR experience aims to expand the popular notions of the subject by allowing the viewer to face the witnesses of those times.[55] At the narrative level, the viewer joins a group of people sitting in Ben's Chili Bowl diner[56] and listens to their recollections of past events. The experience is supplemented (or, somehow, interrupted) by historical footage of the history of the black community in America since before World War II and commentary by an off-screen narrator. The audience experiences the supplementary material through sudden changes of perspective and places of action — the historical footage is depicted on a car cinema-like screen. After the interruption, the viewer is transferred back to the diner; however, it is transferred to a different table with different speakers. In a few retrospective scenes, the viewer is also suddenly transposed to a moving vehicle, observing the recreated surroundings of the 1960s while continuing to listen to the speakers' stories from the diner. In this case, the viewer is simultaneously in multiple locations, building her understanding through experiencing both direct and indirect participation.

A significant aspect of the stories told by the witnesses is left to the observer's imagination, underlining the crucial point of *Travelling while Black*, which is, similarly to *Dnipro*, the process of learning history through the testimonies of the witnesses. The experience of *Travelling while Black* is controlled and shaped by the documentary style of the film, with such disruptions as non-diegetic music and the off-screen guiding voice. The additional data provided by the narrator highlights the context of the film but, at the same time, deepens the distance between the observer and the story. The expository documentary

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52) Roger Ross Williams is also known for *Music by Prudence*, which won an Oscar in 2009 for Best Documentary Short Film, and *God Loves Uganda* (2014).

53) Jerrold M. Packard, *American Nightmare: The History of Jim Crow* (New York: St. Martin's Press, 2002).

54) Gretchen Sorin, *Driving While Black: African American Travel and the Road to Civil Rights* (New York: Liveright, 2019).

55) However, it is worth underlining that this film was created as a part of a non-commercial start-up grant offered by the NEH Digital Development program. See Roger R. Williams, "Traveling While Black," Independent Feature Project (Report), accessed November 12, 2014, https://doi.org/10.17613/M6MH18.

56) Ben's Chili Bowl is a landmark in Washington, D. C., opened in 1958 and still operating today. It was an essential shelter for the American black community during the 1968 riots and served as a community cultural hub.

form and lack of integration of the viewer's virtual character presence into the narrative disturb the viewer's sensorial channels, stepping against the multimodal possibilities of VR technology. Further to this, the soundtrack is interrupted by the archival documentary footage interjecting with the stories and fragmenting the narrative. On the other hand, it must be observed that this film's specific architecture helps control the immersion level, which serves educational purposes. Williams' film could be easily approached by younger viewers and presented in parts, being included in the classroom environment if supplemented by other media, such as lectures and documentary films, allowing the expansion of the topic of systemic discrimination in the U.S. The film does not contain explicit footage or jump-scares as in *Dnipro*. It also does not operate on putting the viewer in a traumatic situation; instead, it narrates the memories.

Searching for more examples of the connections between VR and building an understanding of contemporary conflicts through immersive experience, it is worth mentioning Alejandro G. Iñárritu's film *Carne y Arena* (2017).[57] This mixed-reality installation connects VR film with scenography, engaging all senses in experiencing moments from the lives of Mexican refugees who try to cross the border between Central and North America illegally.[58] The main objectives of the film were inspired by the crisis at the US-Mexico border, which involves thousands of Mexican and Central American refugees fleeing violence, poverty, and political instability in their home countries. During the risky journey in case to seek asylum in the United States,[59] the immigrants are exposed to human trafficking, exploitation, extreme environmental conditions, and long bureaucratic processes when they finally reach the US.[60]

The seven-minute *Carne y Arena* covers the dramatic sequence in which the migrants are spotted, caught, and arrested by the border authorities. The experience starts before the VR film screening with a short introduction displaying the situation on the United States' southern border. The viewer then proceeds to the next room, arranged as a holding area for people captured when crossing the desert illegally. The place is filled with real objects lost by migrants escaping through the desert. Observing this little museum of artifacts before entering the main room makes the experience more authentic and almost palpable, engaging the sense of touch, primarily addressed in VR films through controllers' vibrations. In this case, the director connects the perceptual systems of vision and touch, referring to the haptic experience more than to the leading function of the gaze. As Majorani and Christie observe, posture and proxemics often coincide in the act of everyday human interactions, deeply influencing the process of meaning-making. In this case, engaging more senses is closer to the mood of contemporary events, setting the context for the

57) Made in collaboration with film operator Emmanuel Lubezki and ILMxLab studio. See: LACMA, "Alejandro G. Iñárritu: CARNE y ARENA (Virtually present, Physically invisible)," *Los Angeles County Museum of Art Webpage*, 2017, accessed September 15, 2023, https://www.lacma.org/art/exhibition/alejandro-g-inarritu-carne-y-arena-virtually-present-physically-invisible.

58) Joost Raessens, "Virtually Present, Physically Invisible: Alejandro G. Iñárritu's Mixed Reality Installation Carne y Arena," *Television & New Media* 20, no. 6 (2019), 634–635.

59) Douglas S. Massey and Karen A. Pren, "Unintended Consequences of US Immigration Policy: Explaining the Post-1965 Surge from Latin America," *Population and Development Review* 38, no. 1 (2012), 1–29.

60) Jason De León, *The Land of Open Graves: Living and Dying on the Migrant Trail* (Oakland: University of California Press, 2015).

spectacle.[61] At the entrance to the installation, the viewer is also supplied with a backpack that represents the burden of their escape and emphasizes the material connection between the observer and the spectacle.

Iñárritu indicated that his film is designed to experiment with the medium's possibilities by "break[ing] the dictatorship of the frame."[62] Disseminating this vision, the director transferred the screening to a vast room with a floor covered with sand, which became a tangible part of the experience. The viewers were expected to enter barefoot — enhancing the reception of the installation. Moreover, the VR set cables range is not limited to the defined area, as the technical staff follows the viewer, carrying the lengthened cables behind her. Such a movement pattern design allows the observer to employ a natural body reaction to the danger and removes the limitations of the equipment — it is even possible to run, jump, or lay down — following the orders of the virtual border guards.

While creating the installation, actual refugees were interviewed to reconstruct the experiences depicted later in the film.[63] Rebecca A. Adelman describes Iñárritu's approach to creating a VR experience based on real stories as 'immersion and immiseration,' underlining the emphatic response of the viewer exposed to unnatural, traumatic conditions[64]. Analyzing the viewer's experience of Carne y Arena further, Iñárritu points out that "by taking part [in the spectacle], a participant virtually surrenders his security."[65] This process symbolically starts when the visitor removes his shoes and leaves all his belongings before reaching the main room. Entering the arena barefoot, the observer automatically takes an inferior position, becoming one of the immigrants who fight for life and against the law (represented by the guards). Moreover, even though the visitor knows what will happen initially, she voluntarily exposes herself to borderline emotions.

In the visual layer of the installation, the viewer is surrounded by a crowd of people who cross the border with her. The plethora of native and official languages from Central America that are heard authenticates the experience. Being a part of the migrating group, the viewer is also considered a trespasser and spotted by the guards, who point guns into her face and scream directly at her, which makes it impossible to keep a distance from the narrative or choose a passive observer position. Even though the viewer can freely move around the room, the experience's design is based on milestones activated at specified points. In this case, when the viewer decides to step back from the group and only watch the scene, she will finally be spotted by the guard, and the group will be gathered around anyway. Also, the ongoing narrative of the film will activate regardless of the viewer's position. One of the significant, almost symbolic parts of the experience features sudden bumping into one of the guards and, for a brief moment, experiencing a dreamlike state of a ghost that can penetrate animate and inanimate objects. From this perspective, it is pos-

61) Maiorani and Christie, *Multimodal Epistemologies*, 232.
62) Liliana Torpey, "CARNE y ARENA (Virtually present, Physically invisible) — Review," *Nacla*, 2023, accessed December 20, 2023, https://nacla.org/carne-y-arena-virtually-present-physically-invisible-review.
63) Jenna Pirog, "Carne y Arena: Art and Technology," *YouTube*, 2018, accessed January 15, 2024, https://www.youtube.com/watch?v=-XcvJ6lUTwI.
64) Rebecca A. Adelman, "Immersion and Immiseration: Alejandro González Iñárritu's Carne y Arena," *American Quarterly*, no. 71 (2019), 1093–1109.
65) Pirog, "Carne y Arena: Art and Technology."

sible to observe the internal organs of the guard while being inside his body. Even though this scene crosses the notions of a documentary approach, it creates a discursive attempt to humanize the other part of the conflict. The viewer experiences a universal message of the fears and struggles of displaced people. Yet, the design of Iñárritu's installation reinforces empathy towards both sides — not only towards the refugees but also undertakes a problematic issue of compassion towards the guards.

The challenge of illegal immigration in Iñárritu's film is communicated using modes focused on the relations of power, ideology, and social conditions. However, the center of the installation is the viewer's body, which, together with its virtual avatar, complements the design of the experience. Through design practices, *Carne y Arena* connects contemporary audiovisual art and the newest technologies, creating new immersive exhibition cultures. The viewer, the emotions, and the applied multimodality become integral parts of the work of art.

Conclusion

The provided discussion featured examples of history and contemporary conflict VR films and evidenced various approaches to recording and sharing experiences through new media. Taking into consideration the analyzed films and the research findings, it can be concluded that VR films addressing history are noticeably constrained in the scope of information they can convey. The knowledge they provide is limited in nature, emphasizing embodied and immersive experiences that prioritize visual engagement and sensational approach. As a result, their capacity to address complex political and social concerns is significantly restricted by the creators' inability to provide clear connections between the immersion and dissemination of contextual meanings. VR proves not to be entirely adequate as an educational tool for conveying political, historical, or social contexts, particularly in relation to violent conflicts, which are often presented from the emotional and one-sided point of view. This limitation influences the effectiveness of VR as a learning tool. Nonetheless, VR can offer valuable contributions when integrated with traditional forms of communication, such as reading or additional, extradiegetic commentary. The possibilities of VR films in exploring dialogues on political and social concerns (i. e., poverty, migration, law, or warfare) provide the opportunity to design reception patterns with consideration of the accompanying resources and tutorials.

On the other hand, the engagement of various senses provided by diverse VR experiences and the entertaining purpose of most productions redefines the boundaries of possible visual and discursive expansions. In VR films about contemporary conflicts and modern history, immersion is created by accentuating an individual experience of the virtual environment. A significant role is also assigned to such additional elements as the off-screen commentary or scenography that introduce the narrative and educate through emotional impact. Also, it is worth observing that these contemporary conflict VR films do not depend on transgressive content and explicit violence. Instead, they often utilize philosophical reflections on universal values. This shift is related to the models of distribution and general perception of VR experience as entertainment — the high costs and

relatively sophisticated process of implementing the artistic vision into the final product result in adjusting the level of transgression to the expectations of the viewers and film production economy.

Data availability
All films mentioned in this article are available on publicly accessible websites or through services (Meta TV). The access information (links) or names of services are provided in the appendix.

Bibliography

Adelman, Rebecca A. "Immersion and Immiseration: Alejandro González Iñárritu's *Carne y Arena*," *American Quarterly*, no. 71 (2019), 1093–1109.

Bateman, John B. "Multimodality and Film," in *The Encyclopedia of Applied Linguistics*, vol. 7, ed. Carol A. Chapelle (London: Blackwell, 2013), 4030–4033.

Bateman, John B., and Karl-Heinrich Schmidt. *Multimodal film analysis: How film mean* (London: Routledge, 2011).

Beams, Brian, and Lissa Crofton-Sleigh, eds. *Past and Future Presence: Approaches for Implementing XR Technology in Humanities and Art Education* (Amherst: Amherst College Press, 2024).

Bédard, Philippe. "Making Room for Empathy in Contemporary Virtual Reality Cinema," *Studies in Documentary Film* 18, no. 1 (2023), 34–52.

Black, Jeremy. "Simulating War: Studying Conflict through Simulation Games by Philip Sabin," *Journal of Strategic Studies* 36, no. 5 (2012), 752–753.

Bo, Xu. "Multimodal Discourse Analysis of the Movie *Argo*," *English Language Teaching* 11, no. 4 (2018), 132–137.

Bucher, John. *Storytelling for Virtual Reality: Methods and Principles for Crafting Immersive Narratives* (New York: Routledge, 2017).

Checa, David, and Andres Bustillo. "Advantages and limits of virtual reality in learning processes: Briviesca in the fifteenth century," *Virtual Reality* 24, no. 4 (2020), 151–161.

Chenzira, Ayoka. "Haptic cinema: An art practice on the interactive digital media tabletop" (Unpublished PhD dissertation, Atlanta, Georgia Institute of Technology, 2011).

Dede, Chris. "Immersive Interfaces for Engagement and Learning," *Science*, no. 323 (2009), 66–69.

De León, Jason. *The Land of Open Graves: Living and Dying on the Migrant Trail* (Oakland: University of California Press, 2015).

Di Blas, Nicoletta, and Caterina Poggi. "European virtual classrooms: building effective 'virtual' educational experiences," *Virtual Reality*, no. 11 (2007), 129–143.

Dooley, Kath. *Cinematic Virtual Reality: A Critical Study of 21st Century Approaches and Practices* (Cham: Palgrave Macmillan, 2021).

Elliott, Andrew B. R., and Matthew Wilhelm Kapell. *Playing with the Past: Digital Games and the Simulation of History* (New York: Bloomsbury, 2013).

Fisher, Scott S. "The NASA Ames VIEWlab Project — A Brief History," *Presence: Teleoperators and Virtual Environments* 25, no. 4 (2016), 339–348.

Foucault, Michel. "Des Espace Autres," *Architecture, Mouvement, Continuité*, no. 5 (1984), 46–49.

Grau, Oliver. *Virtual Art: From Illusion to Immersion* (Cambridge: The MIT Press, 2003).

Grice Le, Malcolm. *Experimental Cinema in the Digital Age* (London: Palgrave, 2001).

Hammond, Philip, and Holger Pötzsch. *War Game: Memory, Militarism, and the Subject of Play* (New York: Bloomsbury, 2019).

Hansen, Mark B. *New Philosophy for a New Media* (Cambridge: The MIT Press, 2004).

Heilig, Morton L. "Simulator for generating and displaying dynamic imagery," (U.S. Patent No. 3,050,870, filed January 10, 1961 and issued August 28, 1962), https://patents.google.com/patent/US3050870 A/en.

Hockley, Luke. *Somatic Cinema: The relationship between body and screen — a Jungian perspective* (New York: Routledge, 2014).

Hsin, Li-Jen, Yi-Ping Chao, Hai-Hua Chuang, Terry B. J. Kuo, Cheryl C. H. Yang, Chung-Guei Huang and Chung-Jan Kang, et al. "Mild simulator sickness can alter heart rate variability, mental workload, and learning outcomes in a 360° virtual reality application for medical education: a post hoc analysis of a randomized controlled trial," *Virtual Reality*, no. 27 (2022), 3345–3361.

Kavanagh, Sam, Andrew Luxton-Reilly, Burkhard Wuensche, and Beryl Plimmer. "A systematic review of Virtual Reality in education," *Themes in Science and Technology Education* 10, no. 2 (2017), 85–119.

Kukkakorpi, Mariia, and Mervi Pantti. "A Sense of Place: VR Journalism and Emotional Engagement," *Journalism Practice* 15, no. 6 (2020), 785–802.

LACMA. "Alejandro G. Iñárritu: CARNE y ARENA (Virtually present, Physically invisible)," Los Angeles County Museum of Art Webpage, 2017, accessed September 15, 2023, https://www.lacma.org/art/exhibition/alejandro-g-inarritu-carne-y-arena-virtually-present-physically-invisible.

Mayorov, Nikolai. "A first in cinema… stereoscopic films in Russia and the Soviet Union," *Studies in Russian and Soviet Cinema* 6, no. 2 (2012), 217–239.

Maiorani, Arianna, and Christine Christie. *Multimodal Epistemologies: Towards an Integrated Framework* (New York: Routledge, 2014).

Massey, Douglas S., and Karen A. Pren. "Unintended Consequences of US Immigration Policy: Explaining the Post-1965 Surge from Latin America," *Population and Development Review* 38, no. 1 (2012), 1–29.

Menon, Rajan, and Eugene Rumer. *Conflict in Ukraine: The Unwinding of the Post–Cold War Order* (Cambridge: The MIT Press, 2018).

Mütterlein, Johannes. "The three pillars of virtual reality? Investigating the roles of immersion, presence, and interactivity," *Proceedings of the 51st Hawaii International Conference on System Sciences* (2018), 1407–1415.

Nash, Kate. *Interactive Documentary: Theory and Debate* (London and New York: Routledge, 2021).

Nilsson, Niels C., Rolf Nordahl, and Stefania Serafin. "Immersion Revisited: A Review of Existing Definitions of Immersion and Their Relation to Different Theories of Presence," *Human Technology* 12, no. 2 (2016), 108–134.

Norris, Sigrid. *Multimodality in Practice: Investigating Theory-in-Practice-through-Methodology* (New York: Routledge, 2012).

Packard, Jerrold M. *American Nightmare: The History of Jim Crow* (New York: St. Martin's Press, 2002).

Page, Ruth. *New Perspectives on Narrative and Multimodality* (New York: Routledge, 2010).

Phillips, Christopher. *The Battle for Syria: International Rivalry in the New Middle East* (New Haven: Yale University Press, 2016).

Phoon, Gar Chi, Muhammad Zaffwan Idris, and Rahina Nugrahani. "Virtual Reality (VR) in 21st. Century Education: The Opportunities and Challenges of Digital Learning in Classroom," *Asian Pendidikan* 1, no. 2 (2021), 105–110.

Pirog, Jenna. "Carne y Arena: Art and Technology," *YouTube*, 2018, accessed January 15, 2024, https://www.youtube.com/watch?v=-XcvJ6lUTwI.

Porter, Michael E., and James E. Heppelmann. "Why every organization needs an augmented reality strategy," *Harvard Business Review* 95, no. 6 (2017), 46–57.

Post, Michał. *Film jako tekst multimodalny: Założenia i narzędzia jego analizy* [Film as multimodal text. Terms of reference and tools to analyze it] (Wroclaw: WWSF, 2017).

Raessens, Joost. "Virtually Present, Physically Invisible: Alejandro G. Iñárritu's Mixed Reality Installation *Carne y Arena*," *Television & New Media* 20, no. 6 (2019), 634–648.

Raz, Gal. "Rage against the empathy machine revisited: The ethics of empathy-related affordances of virtual reality," *Convergence* 28, no. 5 (2022), 1457–1475.

Rose, Gillian. *Visual Methodologies: An Introduction to Researching with Visual Materials*, 4th edition (London: SAGE Publications Ltd, 2016).

Rose, Mandy. "The immersive turn: hype and hope in the emergence of virtual reality as a nonfiction platform," *Studies in Documentary Film* 12, no. 2 (2018), 132–149.

Sabin, Philip. *Simulating War: Studying Conflict through Simulation Games* (New York: Bloomsbury, 2014).

Sakwa, Richard. *Frontline Ukraine: Crisis in the Borderlands* (London: I. B. Tauris, 2015).

Schlembach, Raphael, and Nicola Clewer. "'Forced empathy': Manipulation, trauma and affect in virtual reality film," *International Journal of Cultural Studies* 24, no. 5 (2021), 827–843.

Sicart, Miguel. *The Ethics of Computer Games* (Cambridge: The MIT Press, 2009).

Slater, Mel. "Immersion and the illusion of presence in virtual reality," *British Journal of Psychology* 109, no. 3 (2018), 431–433.

Sorin, Gretchen. *Driving While Black: African American Travel and the Road to Civil Rights* (New York: Liveright, 2019).

Ternier, Stefaan, Roland Klemke, Marco Kalz, Patricia Van Ulzen, and Marcus Specht. "ARLearn: Augmented Reality Meets Augmented Virtuality," *Journal of Universal Computer Science* 18, no. 15 (2012), 2143–2164.

Torpey, Liliana. "CARNE y ARENA (Virtually present, Physically invisible) — Review," *Nacla*, 2023, accessed December 20, 2023, https://nacla.org/carne-y-arena-virtually-present-physically-invisible-review.

UNHCR. *Ukraine Refugee Situation*, 2022, accessed October 15, 2024, https://www.unhcr.org/en-us/ukraine-emergency.html.

Unwala, Azhar, and Ghori Shaheen. "Brandishing the Cybered Bear: Information War and the Russia-Ukraine Conflict," *Military Cyber Affairs* 1, no. 1 (2016), art. 7, n. p.

van Leeuwen, Theo. "Critical Analysis of Multimodal Discourse," in *The Encyclopedia of Applied Linguistics*, vol. 7, ed. Carol A. Chapelle (London: Blackwell, 2013), 4002–4006.

Williams, Roger R. "*Traveling While Black*," Independent Feature Project (Report), accessed November 12, 2014, https://doi.org/10.17613/M6MH18.

Voorhees, Gerald A., Joshua Call, and Katie Whitlock. *Guns, Grenades, and Grunts: First-Person Shooter Games* (New York: Bloomsbury, 2012).

Youngblood, Gene. *Expanded Cinema* (New York: P. Dutton & Co., Inc, 1970).

Filmography

360° Battle of Waterloo (Black Dot Films VR, National Geographic, 2017)

Carne y Arena (Alejandro G. Iñárritu, 2017)

Dnipro — outpost of Ukraine (Yevhen Titarenko, 2022)

Green Book (Peter Farrelly, 2018)

Travelling While Black (Roger Williams, 2019)

Welcome to Aleppo (Christian Stephen, RYOT Company, 2015)

Biography

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