BEYOND THE SCREEN:
THE INTEGRATION OF XR MEDIA IN TORONTO CULTURAL INSTITUTIONS

CAROLINE KLIMEK

A DISSERTATION SUBMITTED TO
THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFLLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

GRADUATE PROGRAM IN CINEMA AND MEDIA ARTS
YORK UNIVERSITY
TORONTO, ONTARIO

Abstract

The integration of Extended Reality (XR), encompassing Virtual Reality (VR) and Augmented Reality (AR) represents a paradigm shift in contemporary art and media landscapes. While XR permeates sectors ranging from gaming, real estate, advertising to education, its foray into cultural institutions like film festivals and artist-run centres (ARCs) remains an underexplored research area. Furthermore, existing literature often examines the technological facets of XR, overlooking its cultural impact.

Addressing this gap, this dissertation is a comprehensive exploration of how Toronto's cultural institutions are embracing XR, their strategic adaptations to it, the challenges encountered, and the ensuing ramifications on audience dynamics and institutional ethos. Through case studies, my research examines film festivals' use of XR, particularly within TIFF, Hot Docs, and imagineNATIVE, the notable Art Gallery of Ontario, and pivotal ARCs including Trinity Square Video and Inter/Access.

Using a sociocultural framework, this dissertation meets and probes at the nexus of technology, artistry, institutional imperatives, access, and audience interactivity with XR. By offering insights into film festivals' engagement with XR, emphasizing its influence on festival operations, labour and programming. The examination then shifts to the art gallery, with a spotlight on the AGO, unraveling the tensions and trade-offs of blending legacy with XR innovations. The role of ARCs takes center stage as incubators for XR experimentation and platforms for artist empowerment. This dissertation culminates in a critical discussion of the challenges posed by the technological and planned obsolescence of XR artworks in a capitalist market. It advocates for sustainable methodologies to safeguard the longevity and accessibility of

such works and uncovers how artists are addressing the concern of obsolescence within their XR artistic practice.

Beyond mere technological enhancement, the integration of XR by cultural institutions intertwines with complex sociocultural, economic, and artistic nuances. This dissertation highlights the seminal role of cultural institutions in defining XR's trajectory in the arts, making it a critical read for cultural curators, artists, scholars, and policymakers grappling with how to manage the pace of change in the emerging media landscape.

Acknowledgement

I am eternally grateful to my community, for without them, completing this dissertation would not have been possible. The following individuals have been my support system and cheerleaders throughout this journey. This project was supported by the Social Sciences and Humanities Research Council Doctoral Scholarships and other funding from York University, granting me the precious gift of time to dive deep into my research.

To my supervisor Dr. Brenda Longfellow and mentor Dr. Janine Marchessault who championed me from the start, reviewed every draft and revision along the way and could not have been more supportive of me or my work. I extend my heartfelt thanks to my committee members: Dr. Brenda Longfellow, Dr. Janine Marchessault, Dr. Mike Zryd, Dr. Ken Rogers, Dr. May Chew, and Dr. Marissa Largo. Whose questions, comments and critiques made me a better academic and made my project stronger.

My incredible cohort members Lani Akande, Alison Humphrey, Claudia Sicondolfo and Glen Wood, whose relentless drive and high standards constantly inspired me.

I owe a debt of gratitude to my writing group, without whom I would not have written a single word during the pandemic and the ensuing lockdowns. You instilled in me the courage to believe in myself and to complete this project for me. Special thanks to Signy Lynch, Shiraz Biggie, Shalon Webber-Heffernan, Shannon Hughes, Jess Thorp, Julia Matias, Stephanie George, Grace Lao, Rakhee Kewada, Elan Marchinko, Kalle Westerling, and Alison Humphrey for joining me on whereby and summer writing sprints.

I am grateful for the friends I made along the way – Philipe Bedard, Axelle Demus, Aaron Tucker, Michaela Petrychona, Kate Van de Ven, Maddi McGillvray, Katia Houdia, Melanie Wilmnick, and Debbie Ebanks - whose friendship and laughter enriched this journey immeasurably.

To my steadfast friends – Hayley Fuller, Stephen George, Ben Bourgon, Mia Clarkson, Nicole Fillier, and Hyla Nemy – words fall short of expressing my love and appreciation for your support and friendship all these years. Anjo-Mari Gouws, Johannes van der Horst, Anna and Linda, who wouldn't let me quit even on my darkest days.

To my family, whose silent strength and unspoken support have been my pillars. And to my mother and father, to whom I owe everything, your love and support have been my guiding lights.

And to Evan – you moved across the country for this adventure with me, and your support has been unwavering. You've been there through every draft, every presentation, and every moment in between. This project is dedicated to you, my love.

Table of Contents

List of Images

Chapter 1: Introduction

One of the first truly memorable virtual reality (VR) experiences I encountered during my research was the premiere of Lisa Jackson's *Biidaaban: First Light* (2018) at Nathan Phillips Square in September 2018. This remarkable VR piece, co-produced with the National Film Board of Canada, left a lasting impression on me. The premiere took place outside Toronto City Hall, setting the stage for an immersive experience that blended the virtual and real worlds. As I donned the VR headset, I was transported into a post-apocalyptic vision of Toronto, where nature has reclaimed the city's once-concrete infrastructure, and where we hear the Indigenous languages Wendat, Kanien'kehá:ka (Mohawk) and Anishinaabe (Ojibway) that have survived. The vivid imagery created by Mathew Borrett and the utopian storytelling within the VR world left me captivated and completely immersed in this alternative reality where I explored the submerged Osgoode subway station and stood on the roof of towering condominiums overlooking a new Toronto skyline where the local fauna has taken over. However, it was the moment of removing the headset that truly left me awe-struck. As I am leaving the virtual experience, I found myself face to face with the very same Nathan Phillips Square, but in its stolid preapocalyptic form. This powerful juxtaposition of imagery inside and outside the headset showcased the possibilities and impact of how VR could be exhibited to audiences. It blended the boundaries between the digital and physical realities, compelling viewers to rethink their perception of space and the distinction between virtual and actual experiences.

The impact of *Biidaaban: First Light* extended beyond its artistic merits. It was a pivotal example of how VR could be introduced to new audiences, igniting curiosity and sparking conversations about the potential of this medium. The combination of a compelling narrative, cutting-edge technology, and strategic exhibition choices made this experience a seminal

moment in the exploration of VR's potential and its integration into the cultural landscape. As I delved deeper into my dissertation, this encounter with *Biidaaban: First Light* served as a guiding inspiration, propelling me to explore how Canadian cultural institutions are harnessing the power of VR to engage audiences and redefine the boundaries of storytelling and artistic expression. It illuminated the nature of VR as an exhibition medium and left me eager to unearth more examples of innovative extended reality (XR) experiences that push the boundaries of how we can exhibit this work.

My dissertation, titled "Beyond the Screen: The Integration of XR Media in Canadian Cultural Institutions," investigates how cultural institutions located in Toronto are incorporating XR media, analyzing how film festivals, artist-run centres, and legacy institutions such as art galleries and museums, are integrating virtual and augmented reality (AR) into their mandates and exhibition practices. To achieve this, I employ a mixed-method approach that combines cultural policy analysis, film festival studies, expanded cinema scholarship, and ethnographic research by chronicling the introduction of XR in Toronto. By conducting interviews with artists, curators, programmers, staff, and industry executives, I demonstrate that these institutions are grappling with similar questions independently. Additionally, I explore the impact of XR technologies on the labour and creative processes of media production and their implications for diversity, equity, and inclusion in the industry.

My major research questions focus on understanding how these cultural institutions approach the incorporation of XR media into their overall programming and mandates. I analyze their responses to the digital shift and the challenges they encounter when exhibiting XR media. Moreover, I investigate the driving forces behind these changes, whether they stem from artists, management, or audience demand. The three institutions chosen for analysis—film festivals,

artist-run centres, and legacy institutions[1]—serve distinct purposes. Film festivals represent a crucial intersection where XR media can be showcased, while artist-run centres encompass both production and experimentation. Furthermore, the examination of legacy institutions, such as the Art Gallery of Ontario (AGO), offers a comprehensive international perspective on the adoption and integration of XR technologies. This contributes to a broader understanding of global trends and implications of XR technology within well-established cultural establishments.

Throughout my graduate studies, I observed various technologies emerging and fading, from I-docs to VR and AR. For this dissertation, I concentrate on XR media, specifically Augmented Reality (AR) and Virtual Reality (VR), exploring how institutions respond to these advancements. My focus is on their adaptability, resistance, and motivations for change, moving beyond a narrow fixation on the technology itself. By bridging the gaps between these different cultural institutions and sharing best practices and guidelines for exhibiting XR media, my research aims to contribute to a more integrated and comprehensive approach to the incorporation of new media technologies in the Toronto cultural landscape.

Guided by several key questions, my thesis delves into the integration and impact of XR media across several institutions. My research questions include: How are Toronto's cultural institutions incorporating XR media into their programming and mandates, and what strategies are they implementing to navigate the digital transition? What obstacles are encountered when showcasing XR media, and how are these institutions adapting to the shifting landscapes of the

[1] In this dissertation, the term "legacy institution" is employed to refers to a long-established museum or art gallery with significant cultural, historical, and artistic influence within the art community. These institutions typically have a distinguished reputation, extensive collections, and a history of preserving and showcasing cultural heritage. They often face the challenge of balancing tradition and innovation while maintaining their esteemed status in the cultural landscape. The choice to use this terminology aims to provide a more comprehensive perspective, recognizing a broader spectrum of historically significant establishments that have played pivotal roles in cultural preservation, education, and dissemination. This perspective extends beyond the specific focus of GLAM, which predominantly encompasses galleries, libraries, archives, and museums.

XR industry? How does the interplay of power between larger commercial entities, such as the Toronto International Film Festival (TIFF) and the Art Gallery of Ontario (AGO), and smaller, not-for-profit Artist-Run Centres (ARCs) shape their respective strategies for embracing XR media? What objectives are articulated by these institutions in their incorporation of XR media, and who are the principal agents driving these initiatives—is it the artists, the management teams, or perhaps the audiences themselves? In what ways do these organizations align their missions or visions with the introduction of XR technologies, and how do these endeavours reflect their industry interests, especially concerning the promotion of XR technologies? By addressing these questions, I shed light on the processes through which cultural institutions in Toronto are engaging with XR media, highlighting the complexities, challenges, and opportunities that characterize this digital shift.

Positionality Statement

As a white, cisgender, straight and able-bodied woman working in academia, my positionality is deeply rooted in the opportunities I have been afforded to explore my fascination and obsession with the ephemeral yet profound moments that XR media creates within Toronto cultural institutions. This research journey is driven by a relentless curiosity about how audiences, including myself, engage with event cinema and the atmospheric elements that contribute to the captivating allure of XR exhibitions. Acknowledging my position of privilege within the academic sphere, I approach this study with a conscious effort to remain critical and reflexive. My interest lies in understanding the intricacies of these fleeting moments, the coming together of people in shared experiences, and the artistry involved in creating spaces that foster engagement and meaningful discussion. Being an enthusiast of this cutting-edge medium and its potential impact on the cultural landscape, my goal is to explore and celebrate the diversity of

experiences that audiences, including myself, encounter in XR exhibitions. As I observe and participate in these cultural events, I recognize that my subjective lens might influence the interpretation of my analysis presented in this dissertation. In seeking to understand how some of the cultural institutions in Toronto incorporate XR media, I remain committed to recognizing the agency of participants and institutions, while acknowledging the complex socio-cultural contexts that shape these engagements. Throughout this research, I will continually reflect on my position of privilege, striving to approach the subject matter with sensitivity and an openness to diverse perspectives.

Definition of Terms: XR, VR and AR

Throughout this dissertation I will be using the term XR media, a colloquialism that has been used in the technology sector.[2] XR, otherwise known as "Extended Reality," was coined to encompass a range of immersive technologies that includes virtual reality (VR), augmented reality (AR), and mixed reality (MR). The term emerged within the industry as a way to describe the collective concept of these immersive technologies that extend and enhance human perception and interaction with the digital world. The abbreviation "XR" gained popularity in mid-2010s and is a more inclusive and umbrella term to encompass the various immersive technologies, providing a broader framework for discussion and understanding of these evolving field. While in this project, I do not discuss mixed reality, I will be using the term XR to refer to both VR and AR.

My concern with the overarching and broad term of XR is that it homogenizes VR and AR technologies that have their own unique history and contexts. By using the "X" in "XR" the technology industry is trying to remain relevant and inclusive of future technologies – an

[2] By "technology sector" I am referring to Silicon Valley jargon that has been adopted by mainstream culture.

argument I make in Chapter 2 of my dissertation, where I explore the tensions between embracing the "new" while acknowledging the familiarity of the past with regards to film festivals and their inclusion of new media in their festival programming. During my interviews and research, I discovered the significance of the long history behind these technologies such as during my interview with David Plant, Executive Director of Trinity Square Video, where he mentioned that he got his start in Silicon Valley in the 1990's as he would glean virtual reality technology that had been discarded from the military to see how artists could make use of the technology.[3] Such revelations underscored the enduring legacy of these technologies and emphasized their weight in our contemporary landscape. The following section will define virtual and augmented reality and situate these distinct technologies within their own historical context.

Virtual Reality (VR)

Virtual reality refers to an immersive digital experience wherein users are transported to computer-generated environments, typically utilizing head-mounted displays (HMDs) or similar devices. VR technology creates a simulated reality, often with interactive elements, enabling users to engage with and explore artificial environments. The origins of VR can be traced back to pioneering efforts in the 1960s and 1970s, with subsequent advancements leading to its increased accessibility and usability.

Virtual reality has long been considered a futuristic medium, frequently depicted in science fiction films and books. For example, in *Pygmalion's Spectacles* (1935) by American science fiction writer Stanley Weinbaum, the main character explores a fictional world using a

[3] David Plant, interview with Caroline Klimek on Zoom, November 23, 2020.

pair of goggles, foreshadowing the VR concept as we know it today. In their book *Remediation: Understanding New Media,* Jay Bolter and Richard Grusin write,

> For many virtual reality enthusiasts, the computer so far surpasses other technologies in its power to make the world present that the history of earlier media has little relevance. Even those, like Rheingold, who do acknowledge technological precursors (particularly film and television) still emphasize the novelty of virtual reality. Their view is that virtual reality (or digital technology in general) completes and overcomes the history of media.[4]

It is important to remember that VR has historical ties to the United States military, a connection that raises ethical considerations regarding the responsible development and use of this technology in civilian and commercial contexts.

The term "virtual reality" was popularized by Jaronn Larnier in 1987 to best describe the emerging hardware and wider assumptions about virtual world-building. At this time, widespread press and academic publications (e.g., Biocca and Levy 1994, Grau 2003, Heim 1998, Hillis 1999, and Rheingold 1991 provided personal accounts of VR works) discussed VR, and the technology was gearing up for another boom period. However, as VR scholar Paul Roquet notes, "While the accuracy of the 'hype cycle' model remains open to question, VR seems to have been through this cycle several times at least."[5] The VR boom of the 1980s and 1990s never reached full public acceptance, and VR remained on the periphery despite efforts by institutions such as the Banff Arts Centre to support artist experimentation of VR.

Throughout the 2010s, VR was being discussed by practitioners and the industry. A common thread throughout was that each side was telling the audience what virtuality is. VR is a new medium and practitioners are still coming to terms with what it is and are working *with* it. An example of a hardware/software telling practitioners how best to use their software is the

[4] David J. Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, Mass: MIT Press, 1999), 24.
[5] Paul Roquet and Belisle B, "Guest Editors' Introduction: Virtual Reality: Immersion and Empathy," *Journal of Visual Culture* 19, no. 1 (2020): 3-10, doi:10.1177/1470412920906258.

Oculus Best Practices Guide.[6] The 2010s marked the beginning of VR's integration into mainstream culture with the release of highly anticipated headsets. For instance, in 2010, the first prototype of the Oculus Rift headset was designed, and the company was later acquired by Facebook in 2014 for $2 billion.[7] In the same year, Google launched Google Cardboard, a more affordable cardboard head mount that can quickly turn a smartphone into a VR device. Samsung also launched the Gear VR headset, and HTC and Valve developed the HTC Vive headset.

The current narratives surrounding VR have also encompassed its trajectory into film. Chris Milk's Ted Talk from 2015 popularized the idea that "VR is an empathy machine," exemplified by his VR documentary film *Clouds Over Sidra* (2015) where users could seemingly experience life in a refugee camp. Today, there is a spectrum of VR with distinct projects and concerns. For instance, documentary 360° VR projects have been criticized by Lisa Nakamura as "toxic empathy" where VR created by privileged makers representing marginalized groups invades personal or private spaces to convince viewers they have experienced authentic empathy for others.[8] In addition, VR developers reinforce the "tourist gaze" at the expense of relationships as described by Alfio Leotta and Miriam Ross.[9]

This brief summary of the history of VR shows that it is important to understand the context and discourse that has shaped VR over the years. Throughout this dissertation you'll see these small historical moments pop up and under the term "XR" they would be deemed

---

[6] Oculus Best Practices Guide, accessed April 30, 2018, https://www.cs.sjtu.edu.cn/~shengbin/course/vr/misc/oculus_bestpractices.pdf.
[7] Stuart Dredge, "Facebook closes its $2bn Oculus Rift acquisition. What next?" *The Guardian,* July 22, 2014, https://www.theguardian.com/technology/2014/jul/22/facebook-oculus-rift-acquisition-virtual-reality.
[8] Nakamura examines the problematic nature of statements such as "VR helped me grasp the life of a transgender wheelchair user" where Nakamura examines the problematic nature of such statements. Lisa Nakamura, "Feeling good about feeling bad: virtuous virtual reality and the automation of racial empathy," *Journal of Visual Culture* 19, no. 1, (2020), https://doi.org/10.1177/1470412920906259.
[9] Alfio Leotta and Miriam Ross, "Touring the 'World Picture': Virtual Reality and the tourist gaze," *Studies in Documentary Film Issue 2: Virtually Real: Exploring VR Documentary* 12, (2018), https://doi.org/10.1080/17503280.2018.1503859.

inconsequential, but the history of VR is important to understand to combat this concept of "emerging" and avoid the "periodic bouts of historical amnesia" [10] that Michael Goddard sees with the narrative of VR. Goddard writes, "VR, and the dreams of total presence it sustains, is especially prone to periodic bouts of historical amnesia, so much so that reading contemporary "practical" accounts of VR it is as if it had no history."[11]

Augmented Reality (AR)

Augmented reality involves the overlay of computer-generated content onto the real world, blending digital elements with the user's physical environment. AR enhances the perception of reality by providing additional information, interactive features, or contextual details through various devices, such as smartphones, tablets, or smart glasses. The term AR was coined in the early 1990s, with notable developments occurring in subsequent decades, including the widespread adoption of AR applications and tools.

Although many believe that Pokémon Go's launch in 2016 marked the first use of AR, it was merely one of the most popular uptakes of AR, with a staggering 45 million users in August 2016.[12] However, that marked the adoption of AR by mainstream culture. Augmented reality technology dates back to 1968 when Ivan Sutherland's developed the first head-mounted display system called *The Sword of Damocles*. In 1974, Myron Kruger, a computer researcher and artists, built a laboratory at the University of Connecticut called "Videoplace" that was dedicated to artificial reality. Project and camera technology was used to emit onscreen silhouettes which

[10] Michael N Goddard, "Genealogies of Immersive Media and Virtual Reality (VR) as Practical Aesthetic Machines," in *Practical Aesthetics*, ed. Bernd Herzogenrath (London: Bloomsbury Academic, 2020), 171.
[11] Goddard, "Genealogies of Immersive Media and Virtual Reality (VR) as Practical Aesthetic Machines."
[12] Sarah Griffiths, "Has Pokémon Go's bubble burst?" *WIRED*, August 24, 2016, https://www.wired.co.uk/article/pokemon-go-numbers-falling.

surrounded users for an interactive experience. However, the term 'augmented reality' wasn't coined until 1990 by Boeing researcher Tim Caudell.

In the 1990s, AR transitioned out of university labs and into various industries. In 1992, Louis Rosenburg, a researcher in the USAF Armstrong's Research Lab, created *Virtual Fixtures*, which was one of the first fully functional augmented reality systems.[13] Additionally, in 1994, Julie Martin, a writer and producer, brought augmented reality to the entertainment industry for the first time with the theater production titled *Dancing in Cyberspace,* featuring acrobats dancing alongside projected virtual objects on the physical stage.[14]

The first recorded commercial use of AR was for BMW in 2008. A German advertising agency designed a printed magazine ad of a model BMW Mini, which, when held in front of a computer's camera, also appeared on the screen. Because the virtual model was connected to markers on the physical ad, a user was able to control the car on the screen and move it around to view different angles. The application was one of the first marketing campaigns that allowed interaction with digital model in real time. Other brands started adopting this idea such as National Geographic in 2011, Coco-Cola in 2013 and Disney in 2011. These examples of AR technology are used to engage customers at events or in public spaces. In the 2010s, other consumer applications emerged, allowing users to try on or test out digital products, such as Apple Watch, Nike, and Ikea. Additionally, AR found its place in tourism and arts and culture.

Throughout this dissertation, I present numerous examples of virtual reality and augmented reality experiences and I rely heavily on promotional material, my field notes, and the experiences and perspectives of my family and friends who attended events with me. It's

[13] "History of Information," accessed June 1, 2023, https://www.historyofinformation.com/detail.php?id=4231.
[14] Raffaele Vertucci, Salvatore D'Onofrio, Stefano Ricciardi, and Maurizio De Nino, "History of Augmented Reality," in *Springer Handbook of Augmented Reality* in, ed. Nee, A.Y.C. and Ong, S.K. (Springer Handbooks. Springer, Cham, 2023).

important to note that I do not attempt to make aesthetic assessments of these VR and AR experiences' quality. Instead, my research is centered on comprehending the creative processes behind their development and how cultural institutions have adapted to this burgeoning industry, sometimes actively resisting its integration. It is worth mentioning that the realm of VR and AR extends far beyond the specific contexts explored in this dissertation. These technologies have seeped into diverse domains such as pornography, video gaming for virtual reality and as mentioned above, advertising for AR. However, given the extensive breadth and depth of these applications, I have made a deliberate choice to narrow the scope of this project. My focus remains specifically on the utilization of AR and VR as forms of artistic expression and their integration into cultural institutions.

Each chapter includes a brief literature review on the discourse surrounding XR and how institutions are adjusting to the digital shift. I discuss what these institutions are focusing on – in the case of film festivals it is audiences and how to exhibit outside the black box, for artist-run centres it is supporting their artists and allowing them the space to experiment and for museums and art galleries it how to reach new audiences and stay relevant. In this vein, the dissertation adopts conceptual frameworks from media industry studies, expanded cinema, and media archaeology to acknowledge the institution's power structures and the historical context surrounding these "emerging" technologies. By embracing this interdisciplinary approach, I aim to shed light on the transformative impact of XR experiences on the contemporary media landscape.

Literature Review

To answer my research questions, I use a mixed-method approach to the study of film festivals (de Valck 2016; Loist 2016; Iordanova & Ragan 2009), expanded cinema (Uroskie

2014; Rees 2011; Paul 2016; Marchessault & Lord 2008), museum studies (Grau 2017; Chew 2015), and media archeology that merges media industry studies (Holt & Perrend 2009) with ethnographic research (Lee 2016; Burgess & Kredell 2016).

Expanded Cinema

Expanded cinema serves as a critical theoretical framework in my dissertation, challenging the conventional, one-directional audience-screen relationship. I utilize expanded cinema to probe exhibition practices beyond the "black box," encompassing art galleries, site-specific installations, and warehouses. Emerging from the avant-garde performance of the 1960s and 1970s, expanded cinema now includes a vast spectrum of multimedia performances that defy and redefine cinematic boundaries.

The term "expanded cinema" not only denotes the diverse range of venues, media, and platforms employed for the production, exhibition, and performance of these works but also emphasizes the immersive qualities of these experiences. Its aim, as highlighted in scholarly discourse, is to facilitate an expansion of consciousness among viewers, engaging them in a more interactive and participatory role. This approach to cinema encourages a reconsideration of what constitutes the cinematic experience and where it can occur – not *what* is cinema but *where* - as explored by scholars such as Gene Youngblood, Andrew Uroskie, A.L. Rees, Janine Marchessault, and Susan Lord.

Furthermore, by situating expanded cinema within the context of my dissertation, I emphasize the historical continuity and innovation that characterize the media arts domain. This framework draws significant parallels between the avant-garde practices of the past and the contemporary technological interventions embodied by VR and AR. Such a perspective is crucial

for challenging the prevailing narratives that often herald VR and AR as novel, emerging technologies devoid of historical precedent. In contrast, my research aims to unveil the rich lineage of experimentation with curation and programming, illustrating that the exploration of immersive and interactive forms of art and media has a deep-rooted history. This perspective challenges the notion of these technologies as unprecedented, instead revealing a longstanding tradition of curatorial and programming experimentation.

In the context of expanded cinema and XR media, the decolonization of virtual spaces becomes a salient and powerful concept. In their book chapter "Call it a vision quest: Machinima in a First Nations context," Elizabeth LaPensée and Jason Edward Lewis' insights into the decolonization of virtual spaces ask us to rethink issues of control, power, and representation in predominantly white, male-dominated tech spaces. LaPensée and Lewis challenge us to reimagine virtual spaces as sovereign territories where indigenous narratives and aesthetics can flourish, free from the confines of colonial digital architectures.

Incorporating XR media in film festivals, art galleries and artist-run centres through a decolonized perspective necessitates an important shift from established exhibition norms. It encourages the creation of immersive experiences that are not only inclusive of but led by indigenous voices and perspectives. These immersive spaces become sites of resistance, countering the homogenization of virtual environments and promoting a multiplicity of worldviews. This book chapter offers a critical lens through which to scrutinize the purported neutrality of virtual spaces underscoring the potential of VR and AR as tools for reclaiming and redefining digital territories. This act of reclamation is not merely symbolic but a form of empowerment that directly confronts the pervasive colonial gaze within digital spaces. LaPensée and Lewis's work underscores the importance of scrutinizing the assumed neutrality of virtual

spaces. VR and AR emerge as powerful tools for reclamation and empowerment, challenging the colonial gaze that pervades digital domains. Their framework calls for an examination of power dynamics in XR media creation and dissemination, questioning whether these technologies democratize or consolidate traditional power hierarchies.

Incorporating their critique into expanded cinema emphasizes the need for a deeper analysis beyond mere technological innovation. It questions who controls narrative construction within XR environments, questioning whether cultural institutions perpetuate colonization or facilitate true decolonization, placing Indigenous narratives at the forefront. By situating machinima as an act of sovereignty and self-representation, LaPensée and Lewis subvert the normative power dynamics that often govern virtual spaces, which are predominantly shaped by white, male perspectives.

LaPensée and Lewis's perspective invites a necessary conversation of who has the power to shape narratives within the XR environment. It prompts a reassessment of how cultural institutions can either serve as conduits for continued colonization of virtual spaces or act as platforms for genuine decolonization, where Indigenous voices and stories are not just included but central to the narrative construction and technological development. The decolonization that LaPensée and Lewis advocate for is not merely about inclusivity but also about dismantling the structures that uphold the dominance of Western, colonial ideologies in technological realms.

Media Industry Studies

Media industry studies has emerged as an important subfield in media studies over the past decade, encompassing a wide range of scholarship that examines the "economic, political,

and cultural dimensions of media production, distribution, and exhibition."[15] This subfield explores various industries, including film, television, video games, music, radio, advertising and telecommunications. Since its emergence in 2009, media industry studies has experienced rapid growth, with scholars recognizing its essential role in understanding the media's wider social, cultural and political and economic significance.[16] Media industry studies now boasts a dedicated peer-reviewed scholarly journal, a standalone international conference, and an introductory and methodology textbook titled *Media Industry Studies* (2020), edited by Daniel Herbet, Amanda D. Lotz, and Aswin Punathambekar. Other esteemed researchers include Timothy Havens, Caetlin Benson-Allott, Jennifer Holt and Alisa Perren, who have made notable contributions to the field.

Caetlin Benson-Allot emphasizes, "Media industry research focuses on the people, institutions, and—to a lesser extent—objects involved in bringing media to their audiences. Media industry scholars also provide important insight into media infrastructures, both administrative and physical, showing how they shape our consumer experience."[17] This methodological framework allows me to focus critically on the industrial structures, processes, and practices within XR media's workings through an interdisciplinary approach that welcomes discursive, ethnographic and conjunctional analysis to chronicle the introduction of XR into Toronto cultural institutions. In my research, I will explore how cultural institutions are adapting to the digital shift with a specific emphasis on the XR industry. Through the examination of case studies, I aim to investigate the strategies and approaches these institutions are employing to integrate XR technologies into their practices, exhibitions, and audience engagements. Overall,

[15] Caetlin Benson-Allott, "Introduction: Material Meditations," *The Stuff of Spectatorship: Material Cultures of Film and Television* (University of California Press, 2021), 8.
[16] Daniel Herbert, Amanda D. Lotz, and Aswin Punathambekar. "Introduction," In *Media Industry Studies* (Newark: Polity Press, 2020), 47.
[17] Benson-Allott, "Introduction: Material Meditations," 9.

media industry studies offer a comprehensive framework for analyzing the complex dynamics of the media landscape, shedding light on the interplay between economic, political, and cultural forces and their influence on media production, distribution, and consumption. By contributing valuable insights into the intricate workings of the XR media industry and its relationship with broader societal forces, my research will add to the existing body of knowledge in this field.

Media Archeology

In the late 2000s, Jussi Parikka and Erkki Huhtamo introduced media archeology as a novel approach to film history. They characterize this new methodology:

> Discontent with "canonized" narratives of media culture and history may be the clearest common driving force. Media archaeologists have concluded that widely endorsed accounts of contemporary media culture and media histories alike often tell only selected parts of the story and not necessarily correct and relevant parts. Much has been left by the roadside out of negligence or ideological bias.[18]

Media archaeology delves into new media by drawing insights from past media, "often with an emphasis on the forgotten, the quirky, the non-obvious apparatuses, practice and inventions."[19] Parikka and Huhtamo emphasize that media archaeology constructs alternate histories of "suppressed, neglected and forgotten media that do not point teleologically to the present media-cultural condition as their "perfection.""[20] Media archaeology moves away from linear history and origins and allows for a focus on "dead ends, losers and inventions that never made it into a material product have important stories to tell."[21] This focus on alternative history or counter-histories[22] allows for a more layered complex understanding of film and new media history. For

[18] Erkki Huhtamo and Jussi Parikka, "Introduction," in *Media Archaeology: Approaches, Applications, and Implications* (Berkeley: University of California Press, 2011), 3.
[19] Jussi Parikka, "Introduction," in *What is Media Archaeology?* (Malden, MA: Polity Press, 2012), 2.
[20] Erkki Huhtamo and Jussi Parikka, "Introduction," in *Media Archaeology: Approaches, Applications, and Implications*, 3.
[21] Erkki Huhtamo and Jussi Parikka, "Introduction," 3.
[22] Thomas Elsaesser, "Introduction," in *Film History as Media Archaeology: Tracking Digital Cinema*, (Amsterdam: Amsterdam University Press, 2016), 53.

Parikka, the author of *What is Media Archaeology?* "Media archaeology sees media cultures as layered, a fold of time and materiality where the past might be suddenly discovered anew, and the new technologies grow obsolete increasingly fast."[23]

Adopting an interdisciplinary nature, media archaeology challenges traditional boundaries and rejects the binary division of old versus new. This makes it challenging to set parameters around a research *methodology* as there is no one method academics have agreed upon.[24] However, common traits exist. Media archaeology is a theoretical approach to film history that seeks to overcome the binary between old vs. new. Thomas Elsaesser in his article "The New Film History as Media Archaeology," calls for an embrace of an archaeology where we avoid the linear mindset of the filmic past, urging instead a re-examination of digital cinema as a vessel for a greater understanding of film as a whole. Using Gunning's "Cinema of Attractions" as a vehicle of interconnectivity, media archaeology becomes a tool for re-edification of what cinema *is* instead of a rupture of what cinema *was*. This approach allows for alternate genealogies of the cinema, including non-entertainment uses of the cinematic apparatus.[25] This allows one to examine an "apparent failure that contained seeds of unrealized possibilities, and thus the importance of factoring into any history of media also those events and elements *that did not happen, but could have happened,* or those events that did happen, but

[23] Parikka, "Introduction," 3.
[24] Huhtamo and Parikka mention early on in *Media Archaeology: Approaches, Applications and Implications* that "no effort will be made to nail down "correct" principles or methodological guidelines or to mark fixed boundaries for a new discipline." Huhtamo and Parikka, "Introduction," 2.
[25] Examples include: Wolfgang Ernst. *Digital Memory and The Archive (*Minneapolis: University of Minnesota Press, 2013); Katherine N. Hayles, *My Mother Was a Computer: Digital Subjects and Literary Texts* (Chicago: U of Chicago Press, 2005); Matthew Kirschenbaum, *Mechanisms: New Media and the Forensic Imagination* (Cambridge: MIT Press, 2008); Brian Larkin, *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria (*Duke University Press, 2008). Jussi Parikka, *Digital Contagions: A Media Archaeology of Computer Viruses*. (New York: Peter Lang Publishing, 2007).

whose impact fades or was subsequently suppressed."[26] Media archaeology allows for a reading against the grain of the chronology of traditional histories of media.

In the context of XR media, understanding the technological history through media archaeology becomes crucial. Exploring forgotten or neglected aspects of XR technologies' development and applications provides valuable insights into its past trajectory and unrealized potential. This approach helps us construct more nuanced and comprehensive narratives of the XR industry's evolution, fostering a deeper understanding of its impact on media culture and society.

There is a growing concern regarding the potential monopolization of XR media by large companies such as Google, Meta and Apple. As this technology continues to advance, there is a fear that powerful corporations might control the narrative of XR experiences, shaping the content and access to these immersive technologies according to their corporate interests. Media archaeology serves as a powerful counterbalance to this apprehension, enabling researchers and scholars to scrutinize the historical development of XR media beyond dominant narratives and explore alternative perspectives such as those created by artist-run centres. By embracing this methodology, we can uncover hidden stories and avenues for XR media that may have otherwise been overshadowed or neglected. This empowers us to challenge the dominance of large corporations and foster a more diverse and inclusive landscape for XR media that reflects the interests and experiences of a broader spectrum of society. Furthermore, the study of failure and outliers in my case studies is essential in shedding light on the diverse experiences within the XR industry.

[26] Lucia Dove, "Film History as Media Archaeology: an Interview with Thomas Elsaesser and Vladimir Lukin," *Amsterdam University Press Website,* August 7, 2018, https://www.aup.nl/nl/articles/film-history-as-media-archaeology-an-interview-with-thomas-elsaesser-and.

Today's XR landscape faces a potential threat from corporate monopolies controlling the narrative and access. Here, media archaeology emerges as an essential tool, providing the means to dissect the past development of XR, moving beyond prevalent narratives and offering insights from grassroots like artist-run centres. This methodological embrace reveals stories that might have remained hidden, challenging corporate hegemony and advocating for a diverse, inclusive XR landscape. The role of outliers and failures in my case studies exemplifies the varied nature of the XR industry, bringing attention to often-marginalized players – artists, film festivals and art galleries – who may not possess the resources or prominence of industry giants such as Meta and Google. Acknowledging and learning from these experiences empowers us to strive for a more inclusive and equitable future for XR media.

Methodology

My dissertation project examines cultural events, exhibitions, film festivals and other experiential and participatory cinema incorporating XR media between the years of 2015 and 2023. While a more conventional approach might have focused solely on the year 2016, citing the "Year in VR" as a starting point, I deliberately chose to extend the scope to include 2015.[27] This decision was driven by the fact that during 2015, film festivals and artist-run centres had already begun early experiments and trials with the integration of XR media, and examining

[27] In Chapters 2 and 4 of this dissertation, I will continue my discussion of why 2016 is referred to as the 'Year of VR.' But for this introduction, the year 2016 marked a significant point in the technology's hype cycle, with expectations that VR would soon become a household staple. 2016 witnessed the commercial release of major headsets such as Oculus Rift, HTC Vive, and PlayStation VR, transitioning VR from niche prototypes to broad consumer availability. Accompanied by major technological advancements, increased investments from tech giants, a proliferation of diverse VR content, and the introduction of affordable options like Samsung Gear VR and Google Cardboard, 2016 saw a substantial boost in public interest and media coverage, solidifying its role as a key year in VR's mainstream emergence. In those chapters, I reference the following articles: Rory Cellan-Jones, "2016: the year when VR goes from virtual to reality," *BBC News*, January 1, 2016, https://www.bbc.com/news/technology-35205783; Chris Morris, "Is 2016 The Year of Virtual Reality?" *Fortune*, December 4, 2015, https://fortune.com/2015/12/04/2016-the-year-of-virtual-reality/.

these pioneering efforts holds significant relevance to understanding the evolution of XR in the cultural landscape. Ending the study with the year 2023 is supported by the *Insider's* obituary to Metaverse, [28] a momentous event that symbolizes the culmination VR's development at Meta (formerly known as Facebook). Published in 2023, the obituary marks the peak and potential decline of the once-prominent concept of the Metaverse, providing significant implications for understanding XR media's trajectory and limitations. Concluding the study with this event offers closure to the narrative, reflecting on XR's evolution within the defined time frame, while also providing valuable insights into industry responses and future possibilities beyond 2023. By employing the time parameters of 2015 to 2023, I ensure comprehensive coverage of the case studies explored in this project, ranging from the early experimentation in 2015 to the latest advancements and innovations in the XR media landscape up until 2023. This timeframe allows me to gain valuable insights into the trajectory of XR adoption and its impact on cultural events, exhibitions, and film festivals over the course of nearly a decade. The focus of this research on Toronto's cultural institutions might initially appear overly specific. However, it is crucial to recognize Toronto's pivotal role in XR research and innovation. As a major Canadian metropolis with significant cultural influence, Toronto hosts prestigious events such as the Toronto International Film Festival (TIFF), drawing global talent and audiences. Beyond film, the city is a nexus for XR, boasting DIY and community spaces like Gamma Space and the now-closed Toronto Media Arts Centre (TMAC), along with Dames Making Games. Toronto is also the base for major commercial XR studios, including Jam3, Dark Slope, Secret Location, Occupied VR, and others. Furthermore, its artist-run centres, galleries, and workshops are constantly innovating, keeping Toronto at the forefront of artistic advancement. This vibrant, dynamic

[28] Ed Zitron, "RIP Metaverse," *Insider*, May 8, 2023, https://www.businessinsider.com/metaverse-dead-obituary-facebook-mark-zuckerberg-tech-fad-ai-chatgpt-2023-5.

ecosystem positions Toronto as a hub for XR research and innovation. Therefore, focusing on Toronto is not a limitation but a strategic decision, recognizing the city's undeniable significance and influence in the global cultural landscape.

This eight-year span allows me to observe the growth, ebbs, and flows as different technologies and strategies emerged and subsided, providing valuable insights into the factors contributing to these developments. For instance, in the summer of 2016, I attended the opening of the TIFF POPX 01 exhibition, which marked the first time a major Canadian film festival exhibited VR. Following its success, I witnessed Cameron Bailey, TIFF's Artistic Director, confirming the inclusion of VR in the 2016 TIFF festival proper. However, the program faced challenges with limited attendance due to financial accessibility issues. Similarly, I closely observed the rise and eventual decline of Hot Docs' DocX program from 2016 to 2020. The program's subsequent omission from festival annual reports and announcements piqued my curiosity, leading me to inquire about its conclusion. Despite reaching out to Hot Docs, I have yet to receive a response, underscoring the need to delve further into the factors that contributed to the program's discontinuation and the implications for future XR initiatives, and perhaps institutional resistance to acknowledge these implications.

Through the chosen timeline of 2015 to 2023, I gain a comprehensive scope for understanding the evolving landscape of virtual and augmented reality in Toronto. This extended period allows me to explore the dynamics of these immersive mediums, analyzing the changing trends in XR incorporation in cultural events such as film festivals. By examining the successes, failures, and adaptations made by various institutions over the years, I can draw valuable insights into the shifting patterns of XR integration, informing recommendations and best practices for future implementation strategies. The chosen timeline provides a comprehensive scope for

understanding the evolving landscape of virtual and augmented reality, allowing me to delve into the dynamics of these immersive mediums and draw valuable insights into the shifting patterns of their incorporation in cultural events such as film festivals.

Since 2015, I have extensively studied the exhibition and incorporation of XR media in various institutions within the City of Toronto, including the Toronto International Film Festival, Hot Docs, imagineNATIVE, Art Gallery of Toronto, Trinity Square Video, and InterAccess. Focusing on one city allows me to compare the scope of three different film festivals, two artist-run-centres, and a gallery, offering valuable insights into their respective approaches to showcasing XR media.[29] Through this analysis, I explore which institutions prioritize XR media, the emphasis placed on specific works, and the artists being featured. I investigate whether these XR programs are merely a novelty or a testament to the commitment of public funding agencies and cultural institutions towards Canadian created new media work. Additionally, I examine how these institutions align their missions and visions with the presentation of these new media forms and how their programs reflect their industry interests, fostering opportunities for the advancement of these innovative technologies.

Over the past seven years, I have meticulously chronicled the emergence of XR media within Toronto's cultural institutions by engaging in participant observation at film festivals, art galleries, and artist-run centres. My attendance at these programs and exhibitions has yielded valuable insights into the development of new media initiatives, enabling me to document the adoption and evolution of XR technologies in these settings. By immersing myself in these

[29] Dipti Gupta and Janine Marchessault, "Film Festivals as Urban Encounter and Cultural Traffic," *Urban Enigmas: Montreal, Toronto, and the Problem of Comparing Cities*, ed. Johanne Sloan *(*Montreal: McGill-Queen's University Press, 2007).

settings for an extended period, I gained an intimate understanding of the underlying tensions within the editorial process. Through my ethnographic research of "being there," a phrase made popular by anthropologist Clifford Geertz, I understood a sense of the tensions underlying the editorial process. By fully immersing myself over an extended period of time I got an intimate understanding of the larger "webs of significance" that shape how programmers and audiences are experiencing these exhibitions.[30] In my research methodology, I draw upon Geertz's term "deep hanging out" as described by Toby Lee as:

> Ethnography is humble work: spending significant amounts of time in a place, with a people, doing what can often seem to be rather insignificant. Sharing a coffee or a meal, making small talk, observing everyday tasks, participating in menial work, common practices, routines – such "microscopic" practice often constitute the day-to-day work of the ethnographer, what Geertz refers to as "deep hanging out."[31]

By adopting this "deep hanging out" perspective, I have been able to witness the trials and tribulations, the lessons learned, and the dynamics of staff turnover within these institutions. Additionally, I have observed the development of a robust network of artists and the showcasing of their works. This in-depth perspective provides the basis for writing thick descriptions, allowing me to offer comprehensive accounts of not only the events themselves but also the inner workings of the institutions and the XR industry as a whole. Emphasizing thick descriptions in my approach allows me to go beyond mere surface-level observations and delve into the intricate details of the events and institutions. It enables me to capture the cultural significance, social interactions, and underlying meanings within these immersive experiences. By immersing myself in the environments over an extended timeframe, I can provide a more profound and comprehensive account of the complexities and transformations shaping the new

[30] Toby Lee, "Being There, Taking Place: Ethnography at the Film Festival," in *Film Festivals History, Theory, Method, Practice*, eds. Marijke de Valck, Brendan Kredell, and Skadi Loist (Abingdon, Oxon: Routledge, 2016), 135.
[31] Toby Lee, "Being There, Taking Place: Ethnography at the Film Festival," 123–124.

media landscape within the context of film festivals, art galleries, and artist-run centres. Ultimately, this approach allows me to offer a more nuanced and insightful analysis of the larger cultural and industry implications of new media programs and exhibitions.

During these events, I attended multiple times, intentionally varying the days and times to gain a comprehensive understanding of the happenings, attendees, and overall context. Whether attending alone or accompanied by a friend or relative, I positioned myself as a participant-observer, closely monitoring and documenting the unfolding of events. This ethnographic approach allowed me to gain valuable insights into the lived experiences of participants, the influence of XR media, and the broader cultural implications of these events. By immersing myself in the inner workings of these institutions, I was able to develop a deeper understanding of the dynamics and nuances that shape the XR media landscape within these cultural settings. By combining participant-observations, interviews, and immersive experiences, my methodology enables a holistic understanding of the interplay between cultural events, the arts industry, and the emerging XR landscape. This approach offers a unique vantage point to explore the complexities and transformations unfolding within the realm of new media exhibitions and programs, shedding light on their significance within broader cultural contexts.

The ephemerality of these cultural events is a significant aspect that shapes their nature and impact. As I conducted my participant observations on various events, I encountered the transient and fleeting nature of these experiences such as the TIFF POPX exhibit that has been scrubbed from the TIFF website. To complement my field notes, I relied on paratextual materials such as festival program guides, curator notes, reviews, promotional interviews, artist talks, and social media campaigns. These materials, while serving marketing purposes for the events, became essential for preserving memories and documenting the essence of these ephemeral

gatherings. They provide insights into how events present themselves to the world and act as mnemonic devices, cueing memories of the events. Film festival scholar Ger Zielinski emphasizes the importance of ephemera in festival studies asserting:

> However, depending on the objective of the research and the nature of the cultural formation at the heart of the study, ephemera may play such an important role that it would be irresponsible for a scholar to overlook them. In the case of certain festivals with low funding and no archives, ephemera might be the sole remaining material evidence of the festival, save interviews with its organizers or participants.[32]

In many instances, these events were either not archived or unavailable online. In others, the archives are no longer housed by the institution, as was the case with Hot Docs, which donated its materials to the Toronto Metropolitan University Library and Archives for their 25th anniversary.[33] Some apps or VR experiences have also been discontinued and are no longer maintained or accessible online. Therefore, the ephemeral nature of these events demands attentive documentation. As ethnographer Daniel Dayan discovered during his study of the Sundance Film festival, print materials became an unexpected but essential aspect of his research. He wrote:

> Observation and interviews were obviously helpful, but the festival's most striking and to me most unexpected feature concerned the role of print […] My principal task as a ethnographer was unexpected. I could not just ignore these masses of paper, reject this unwanted information, nurture the dream of a face-to-face Sundance. […] Being in Park City made no difference: I had to read.[34]

In studying these events, paratextual materials have proven indispensable in capturing the transient essence of cultural gatherings. They serve as valuable resources, enabling researchers

---

[32] Ger Zielinski, "On studying film festival ephemera: the case of queer film festivals and archives of feelings," in *Film Festivals: History, Theory, Method, Practice*, eds. Marijke de Valck, Brendan Kredell, and Skadi Loist (Abingdon, Oxon: Routledge, 2016), 140.
[33] "Hot Docs donates 25 years of festival history to Ryerson," *TorontoMet Today*, March 6, 2018, https://www.torontomu.ca/news-events/news/2018/03/hot-docs-donates-25-years-of-festival-history-to-ryerson/.
[34] Daniel Dayan, "Looking for Sundance: The Social Construction of a Film Festival," in *Moving Images, Culture and the Mind*, ed. Ib Bondebjerg (Luton: University of Luton Press, 2000), 52.

like myself to explore the discursive formations, memories, and self-representations that constitute the fabric of these ephemeral experiences.

In addition to participant observation, I conducted over twenty open and semi-structured interviews with key individuals involved in programming decision-making, management, artists, curators, museum interpretive planners, and others relevant to the field. These interviews played a vital role as they often presented a stark contrast to the rosy picture displayed during the events. Through their perspectives, I gained insight into the pressures and behind-the-scenes anecdotes that the general public does not witness. To ensure a comprehensive and diverse perspective, I took care to maintain a balance in terms of gender and diversity representation among my interviewees. Furthermore, I made a conscious effort not to focus solely on one specific position, engaging with individuals ranging from chief curators to coordinators, programmers, artists and members of the board of directors. This approach enabled me to gain a comprehensive understanding of the multi-level dynamics within organizations involved in cultural production and exhibition of XR.

Moreover, the global pandemic necessitated adjustments to the structure and style of my interviews. Prior to COVID-19, I would typically arrange to meet interviewees at their place of work, allowing for a more informal setting. This often involved a tour of the facility, sharing a cup of coffee, and establishing a rapport before delving into the interview questions. However, with the onset of the pandemic, I had to transition to online interviews conducted via Zoom, in adherence to ethics guidelines set by my institution of study - York University. Conducting interviews online presented its own set of challenges, particularly in terms of adapting my interview style. Without the small moments of personal interaction that naturally occur during in-person interviews, the online format became more formal and direct. The absence of face-to-face

contact reduced the opportunity for casual conversations and building a deeper connection with my interviewees. Consequently, the interviews became more focused and efficient, with a greater emphasis on getting straight to the point. To make interviewees more comfortable, I initiated pre-interview interactions via email, providing a fuller picture of the context, my questions, and reasons for the interview. I also shared a piece of writing beforehand to establish academic integrity and my writing style. In each interview, I began with a brief statement, reminding them of the purpose behind the interview, expressing my admiration for their work in XR, and explaining my interest in the field. I found that sharing stories or anecdotes about exhibits and pieces I had seen created a sense of camaraderie online. Despite these challenges, the pandemic-induced lockdowns did offer some advantages. Many individuals were more available and willing to participate in interviews during this period of restricted mobility. Lockdowns provided a unique window of opportunity to engage with interviewees who had additional time and were often eager for meaningful conversations. This allowed me to conduct a significant portion of my interviews during these periods.

It is important to note that throughout the eight-year duration of my research, many of my interviewees changed jobs multiple times, reflecting the inherent precariousness of the arts and culture industry. Some interviewees moved to larger cultural and for-profit institutions, such as Netflix, while others transitioned to higher education or shifted between not-for-profit and public institutional positions. Despite these shifts, all interviewees shared a common passion for the arts and culture sector, with their work being driven by a genuine love for what they do. However, I am also aware of the potential exploitation that can arise from this passion, as seen in other

industries, such as video games, where extractive working situations have been documented.[35] This element of precariousness became especially tangible during my case study on the imagineNATIVE Film + Media Arts Festival as I relied on interviews with two programmers – Daniel Northway-Frank and Meagan Byrne – who were instrumental in creating and building the Digital Media Art + Cade and the iNDigital Space program. However, with film festival work in particular, contracts end abruptly after the festival is over. Two days after interviewing one individual their contract was not renewed. Neglecting to include this aspect would overlook one of the driving influences affecting job security and precarity in the industry. Additionally, considering the potential for job changes or turnover among interview participants who may be in contract positions, it is crucial to remain adaptable and flexible during the research process. This is important as it allows us to understand the impact of job changes and precarity on individuals within the XR media industry. It raises important questions about the sustainability of XR projects and technologies that rely on the efforts of individuals in contract positions. The abrupt end of contracts and lack of continuous funding from major institutions might hinder the development of cutting-edge XR experiences, potentially limiting innovation and creativity within the field. Hence, examining the implications of job changes and contract positions sheds light on the broader challenges faced by the industry and the potential consequences for the advancement of XR as an art form. However, it should be noted that after employees have

[35] See Mark Deuze's *Media Work* (2007) and David Hesmondhalgh and Sarah Baker's *Creative Labour* (2011) who have investigated the emotional, financial, and physical toll that working a precarious dream job can have on cultural workers.
See also: Skadi Loist, "Precarious Cultural Work: About the Organization of (Queer) Film Festivals," *Screen,* 52, no 2 (2011), 268-273; Liz Czach, "Affective Labor and the Work of Film Festival Programming," *Film Festivals: History, Theory, Method, Practice,* eds Marijke de Valck et al. (Routledge, 2016), 196–208; Mark Deuze, *Media Work* (Cambridge, UK and Malden, MA: Polity, 2007); David Hesmondhalgh and Sarah Baker, "Creative Work and Emotional Labour in the Television Industry," *Theory, Culture & Society* 25, nos. 7–8, 97–118; Joshua Jackson, "A shack, a house, a prison: The Analogy of the shack and videogame production," *First Person Scholar*, February 6, 2019, http://www.firstpersonscholar.com/a-shack-a-house-a-prison/.

departed from their respective companies, they may be limited, contractually, on what they can comment on or say. Some former employees may offer clues on where to find relevant information in publicly available records, such as reports, or suggest alternative interviewees, which can help mitigate this limitation.

After conducting the interviews, I embarked on a meticulous coding process spanning several months to identify themes, affect, and distinctions between different locations for all twenty interviews conducted over the eight-year period. In her book *Constructing Grounded Theory* (2006), researcher Kathy Charmaz writes, "Coding is the pivotal link between collecting data and developing an emergent theory to explain these data. Through coding, you define what is happening in the data and begin to grapple with what it means."[36] I coded each interview line-by-line, making note of emotions, themes, language and interactions between myself and the interviewee. By taking each interview as a separate segment of data, I made a note of first impressions, the narratives that were being built throughout the interview and how that compared to my field notes.[37] As I delved deeper into the coding process, it became apparent that trends were forming, signaling a significant shift in the priorities of cultural institutions towards digital engagement and virtual experiences. By closely analyzing the interview data and juxtaposing it with my field notes from events and exhibitions, I was able to discern subtle nuances in the language and emotions expressed by participants before and after the pandemic. This pointed to a significant transformation in how the XR industry and cultural institutions approached technological adoption and community engagement.

---

[36] Kathy Charmaz, *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis* (London: SAGE, 2006), 46.

[37] For more on the important of Field Notes as part of an ethnographic methodological approach see: Robert M. Emerson, Rachel I. Fretz, and Linda L. Shaw, *Writing Ethnographic Fieldnotes* (Chicago: University of Chicago Press, 1995); Barrie Thorne, "You Still Takin' Notes'? Fieldwork and Problems of Informed Consent," *Social Problems* 27 (1980): 284–297.

A Note about COVID-19 and the Global Pandemic

It is challenging to convey the profound impact the global pandemic had on me as a researcher, educator, and as a human being. On March 17, 2020 the Ontario government declared a lockdown where life as we know it changed. In Toronto, arts and culture came to a standstill. My partner and I moved in with my family as we desperately needed support and structure as we both faced multiple cancelled work contracts with no return date. As Dr. Mary Elizabeth Luka writes, "The sometimes seemingly endless COVID-19 pandemic moment was marked by rapid shifts in daily habits, deep data-seeking dives followed by long, emotional – sometimes boring; sometimes thrilling – processing periods."[38] The days blurred into one another, a repetitive cycle of uncertainty and adaptation, reflecting Luka's observation and emphasizing how the pandemic reshaped our perception of time and the rhythm of our lives.

In March 2021, I hosted a graduate student workshop for Archive/Counter-Archive (A/CA) on how COVID had affected their research and writing. I asked the question of how my panellists were thinking about how they were going to include COVID-19 in their project. I wondered if this time would be a footnote in their research or would they need more space to make sense of how the pandemic has affected them. A/CA Postdoctoral fellow Dr. Schem Rogerson Bader commented that the global pandemic caused an existential crisis and affected their way of thinking and interacting with the world. Now more than two years later I am still trying to find the words to unpack how the global pandemic has affected me. I can easily describe how my dissertation plan was blown up (interviews, events and case studies cancelled overnight) all the while my graduate student funding clock did not stop. It was a time of intense

[38] Mary Elizabeth Luka, "Making Video Glitter in the Time of COVID-19," *Qualitative Inquiry* 27, no. 7 (2021): 878.

periods of stillness while also watching days, weeks and months go by. My family surrounded me with support as I physically tied myself to my desk chair to write. My writing during this time was forced, as there was no inspiration, spark or adrenalin that I had previously relied on. In my writing group I frequently used the metaphor of feeling like a glass ketchup bottle and I was using all my strength and energy to push out the last little bit of ketchup. However, no matter how much time or energy I used, the words did not flow. This period also marked a time of returning to hobbies and finding ways to fill time. We baked bread, made pasta from scratch and made a cake almost every week. We went for long walks (when parks and trails were not closed) and drank mulled wine with friends on their front patios in -20 degrees in February. I started writing letters and postcards because I was so tired of zoom and screens and wanted to connect with my friends and family.

The COVID-19 pandemic laid bare the precarious nature of the arts and culture industry. Many of my interviewees were laid off, events were cancelled, and organizations teetered on the brink of bankruptcy. It was an interesting moment to watch how the general population responding to the XR industry. What was assumed to be a boom period for virtual reality, as people had time and money to buy headsets, turned out to be the opposite. There was a lack of content readily available on the headsets and as was observed, people were reluctant to share headsets as they were hyper-aware of hygiene concerns. Moreover, many people did not want to spend more time online. As vaccinations became available, galleries and artist-run centres started incorporating augmented reality into exhibitions to encourage people to return. This marked an intriguing moment, as I eagerly desired to return to physical events, and wanting to share the experience with others, while friends were only willing to join if the gatherings took place outdoors.

This was my lived experience as I/we navigated the global pandemic during the research and writing of my dissertation and through our lives. COVID-19 became a thread woven throughout this project as the global pandemic extended my research timeline and writing process. Consequently, it necessitated an expansion of my project parameters to ensure that my research remained relevant. By embracing this fluidity and acknowledging the transformative effects of COVID-19, my research sought to offer insights into the resilience and adaptability of the arts and culture sector in the face of unprecedented disruption. Recognizing that each of us experienced the global pandemic I share my own experience as a way to open up an understanding of the implications and hardships that, though different across contextual situations, is one that we can all relate to.

Chapter Breakdown

Chapter 2: Film Festivals: Sites of Facilitation

In my first chapter, the focus is on the incorporation of XR media in film festivals. Film festivals are relational, intersectional spaces of tension, where their operation, space and programming practices are shaped by an ideological and political shift (Loist 2016). They serve as a critical site of intersection between culture and economic agendas, marking tensions between cultural and national identity, and between culture and business development and industry. This chapter investigates three prominent Toronto-based film festivals: Toronto International Film Festival (TIFF), Hot Docs Canadian International Documentary Festival (Hot Docs), and imagineNATIVE Film + Media Arts Festival (imagineNATIVE). Additionally, the chapter concludes with an exploration of a small community-based film festival in which I was personally involved as a VR programmer in 2017. The aim of this chapter is to understand how film festivals strive to either maintain or adapt the "cinematic experience" for their audiences in

the context of XR media. It examines the approaches taken by global, genre-specific, and community-based festivals, considering how their programming XR media aligns with their festival mandates and the experimental aspects of exhibition formats within the realm of XR media. Moreover, this chapter delves into the labour-intensive nature of these programs, often driven by a single programmer who may face pushback from festival management due to the challenges it poses to traditional film programming and exhibition. This raises the question of who is driving these XR media programs and how they are influencing festival labour practices.

Chapter 3: Legacy Institutions and the AGO: Sites of Curation

The second chapter shifts the analysis to art galleries and an examination of the response of legacy institutions, with a particular focus on the Art Gallery of Ontario (AGO). The chapter explores the tensions and considerations faced by institutional art galleries as they navigate the incorporation of XR technologies and the digital shift. Legacy institutions often conform to commercial interests and are accountable to boards of directors and funding bodies while striving to meet audience targets. It is within this context that this chapter conducts a global survey of how institutions are responding to the current era of spectacle and the experience economy, focusing specifically on the AGO, the study delves into the institution's integration of XR media, through a detailed analysis of four exhibitions incorporating XR components. The chapter explores the institutional motivations and challenges behind these endeavours.

While much has been written about the inclusion of interactivity within museums (Chew 2015), tensions between the black box and the white cube (Uroskie 2014; Rees 2011), and the development of digital art in museum studies (Paul 2016), there is a notable scarcity of research on the integration of VR and AR within gallery and museum spaces. Museums and art galleries act as cultural gatekeepers, balancing the need to appeal to their membership base for repeat

visits and dealing with issues around attendance. This chapter raises questions about the appropriateness of new media like AR and VR for museum experiences, the potential of virtual and augmented realities in compelling narrative and storytelling, and how museums can manage the pace of change in the emerging media landscape to remain relevant.

Chapter 4: Artist-Run Centres: Sites of Access and Experimentation

The final case study chapter examines the engagement of Canadian artist-run centres (ARCs) with XR media, emphasizing how ARCs serve as alternative and parallel spaces to traditional art galleries, facilitating production, experimentation, and support for emerging XR artists. Focusing on two prominent ARCs in Toronto, Trinity Square Video (TSV) and InterAccess, the chapter presents a comparative analysis of their distinctive communities and approaches, each responding uniquely to the evolving XR industry.

This chapter asserts that ARCs are not just venues for VR and AR art display but essential drivers of innovation and accessibility in the medium. It emphasizes ARCs like TSV's and InterAccess's commitment to advancing XR artistry, improving accessibility, and redefining conventional art exhibition paradigms. It highlights the unique approaches of these ARCs in addressing the needs of emerging artists interested in XR, as well as their role in filling a significant gap in the XR media ecology in Canada. On the one hand, TSV has built an in-house VR infrastructure and collaborated with industry partners, including hosting one of the first VR exhibitions. On the other hand, InterAccess focuses on workshops and guest-curated exhibitions. Both centers have played a crucial role in making XR technology more accessible and supporting artists in their research, creation, and portfolio development. This chapter explores the symbiotic relationship between ARCs and XR art, revealing how these artist-centric institutions contribute to the evolution of artistic expression in the digital era.

Conclusion: Facing Technological Obsolescence with XR Media: "Goodbye Forever"

The conclusion, titled "Facing Technological Obsolescence with XR Media: "Goodbye Forever,"" investigates the impact of technological obsolescence on artistic creation in the realm of virtual reality (VR) and augmented reality (AR), through an examination of case studies from Trinity Square Video and InterAccess, as well as my work as a programmer and educator. Both centres share a focus on technology and media arts but have distinct histories and programming. The chapter explores the challenges faced by artists and cultural institutions in adapting to the rapidly evolving landscape of VR and AR technologies. It examines the influence of major industry players such as Facebook, Samsung, and Google on the longevity of VR and AR experiences. The chapter highlights concerns surrounding the long-term maintenance, sustainability, and accessibility of projects. Given the rapid pace of technological advancement, VR experiences are particularly susceptible to becoming outdated and inaccessible. Furthermore, the ephemerality of AR experiences adds an additional layer of complexity to preserving and archiving these works. The chapter discusses the implications of this obsolescence on the artistic process and the ability to engage with VR and AR creations in the future outside an institutional centre.

Efforts to address these challenges are explored, including archiving initiatives and collaborative endeavours between artists, researchers, and institutions. The chapter emphasizes the importance of innovative approaches to preserve and remember VR and AR projects. My conclusion highlights the urgent need for ongoing dialogue and partnering

among artists, technologists, and archivists to navigate the complex landscape of VR and AR obsolescence. By addressing the challenges of technological advancement, the chapter

advocates for the development of sustainable practices that ensure the longevity, accessibility, and preservation of VR and AR artworks.

Chapter 2: Film Festivals: Sites of Facilitation

Film Festival scholar Marijke de Valck points out that "there is one thing all film festivals have in common: they screen films."[39] But what happens to a film festival when what it screens is no longer considered "film"? What happens to the festival's mandate and programming strategies when cinema leaves the black box? Festivals have been using "new media" as an umbrella term to experiment with programming and exhibiting new technologies, such as virtual reality (VR) and augmented reality (AR) and new platforms, namely interactive documentaries and video games.[40] For festivals, "new media" is a catch-all term that is malleable enough to fit new programming initiatives within their overall mandate and programming schedule. In this way, creating a program that is focused on emerging technology and innovative storytelling allows festivals to remain current and to partner with major technology companies. Thus, film festivals extend 'cultural capital' onto new technologies, which allows certain types of new media, such as games and VR, to make the leap from the traditional gaming community to the film industry.[41] However, the responses of film festivals' operations to stakeholder interests and demands affect programming and exhibition practices.[42] New media works are not

---

[39] Marijke de Valck, "Fostering Art, Adding Value, Cultivating Taste: Film Festivals as Sites of Cultural Legitimization," in *Film Festivals: History, Theory, Method, Practice*, eds. Marijke de Valck, Brendan Kredell, and Skadi Loist (New York: Routledge, 2016), 100.

[40] Christiane Paul describes the difficulty of defining new media art in the introduction to her anthology, *New Media in the White Cube and Beyond: Curatorial Models for Digital Art* (Berkeley: University of California Press, 2008), 3–4. She writes, "A definition of new media art, although the focus of many discussions in physical and virtual space, is an elusive goal, since the technological and conceptual territory occupied by this art form is constantly being reconfigured. The successful evasion of definitions is one of new media art's greatest assets and a main reason why so many artists, curators, and practitioners in general are attracted to this art form. It seems impossible to pin it down and safely categorize, institutionalize, and commodify it; at times, new media art seems more alive than its practitioners want it to be." (3) Within this chapter, I will broadly define "new media" as being related to digital technology, and I will be using Paul's characterization of new media "as process-oriented, time-based, dynamic, and real-time; participatory, collaborative, and performative; modular, variable, generative, and customizable." (4).

[41] De Valck, "Fostering Art," 104–108.

[42] Diane Burgess and Brendan Kredell discuss the use of the term "stakeholder" in-depth in their footnotes, and they discuss its relationship with "shareholder" and management theory. For Burgess and Kredell, "discussing festival stakeholders remains a useful way to identify the various individuals and groups with investment in a festival—from

widely available to the general public and film festivals are their only point-of-access for audiences, who are one of film festivals' major stakeholders.[43]

Film festivals are therefore a starting point for analyzing the connection between exhibition practices and new media.[44] Festivals sit at the nexus of the phases of production, exhibition, and distribution.[45] Film scholar Cindy Wong treats film festivals as "a dynamic system where a specific cultural artifact—cinema—circulates and multiple actors continuously strive to redefine its meaning and place in its immediate environment, a wider film world, and larger socio-economic and political contexts."[46] However, very little has been said about film festival programming practices as they negotiate the space and place of new media within their institutional and exhibition practices. There is something intrinsically difficult about new media's often one-on-one viewing experiences, as they introduce different and challenging modes of address that do not fit naturally within the collective experiences of film festivals.[47]

---

filmmakers to festival organizers to audience to sponsors. Rhyne describes these as the parties with 'particular interests in seeing the [festival] network proliferate.'" While Burgess and Kredell prefer the term "constituency", due to its elasticity and its ability to include people who are indirectly affected by the success of a festival, in my dissertation, I will continue using the term "stakeholder," as it is most consistently used within the field and it relates to finance and policy. See Diane Burgess and Brendan Kredell, "Positionality and Film Festival Research: A Conversation," in *Film Festivals*, eds. De Valck, Kredell, and Loist, 173. For other film festival scholarship that addresses stakeholders, see Dina Idornanova, "The Film Festival as an Industry Node," *Media Industries* 3, no. 1 (2015): 7–11; Ragan Rhyne, "Film Festival Circuits and Stakeholders," in *Film Festival Yearbook 1: The Festival Circuit*, ed. Dina Iordanova and Ragan Rhyne (St Andrews: St Andrews Film Studies, 2009), 9–39.

[43] As of 2016, it was predicted that over 200 million VR headsets would be sold worldwide by 2020. Festivals remain one of the main points of access for interested patrons as prices of VR headsets vary from $20 for Google Cardboard to $600 for an Oculus Rift headset. John Gaudiosi, "Over 200 Million VR Headsets to Be Sold by 2020," *Fortune*, 21 January 2016, https://fortune.com/2016/01/21/200-million-vr-headsets-2020/ (accessed 25 January 2016). As of 2023, sales of VR headsets witnessed a 2% decline, influenced by factors such as rising prices, which makes it inaccessible for many consumers as well as technology delays. Notably, Apple postponed the release of their new headset until the end of 2023.
Jonathan Vanian, "Metaverse off to ominous start after VR headset sales shrank in 2022," *CNBC,* 28 December 2022, https://www.cnbc.com/2022/12/28/metaverse-off-to-ominous-start-after-vr-headset-sales-shrank-in-2022.html (accessed 10 October 2023).

[44] See Skadi Loist, "The Film Festival Circuit: Networks, Hierarchies, and Circulation," in Film Festivals, ed. de Valck, Kredell, and Loist,; and Burgess and Kredell, "Positionality and Film Festival Research."

[45] Idornanova, "The Film Festival as an Industry Node."

[46] Cindy Wong, *Film Festivals: Culture, People, and Power on the Global Screen* (New Brunswick: Rutgers University Press, 2011), 2.

[47] This dilemma is seen with VR, interactive documentaries, and other new media works that rely on a singular computer or tablet for the user to interact with.

However, the unique characteristic of film festivals, celebrated for their immersive "eventness" and collective celebration of cinema, stands in contrast to the often one-on-one viewing experiences that are intrinsic to new media, presenting unique and challenging modes of engagement. Film festivals hold a special place in the realm of cinema, renowned for their immersive quality, transforming the act of film viewing into a collective celebration and ritual. André Bazin, in his writings about the Cannes Film Festival, likened the festival experience to engaging with a religious order, highlighting its ritualistic essence.[48] Skadi Loist further suggests that "the festival is a performance, in the anthropological sense of a ritual; or an act of performance in the theatrical sense of the term with a focus on the transient, ephemeral, live event, which hinges on bodily presence of various actors."[49] In the context of VR and AR, these technologies might introduce new dimensions of performance and presence, enabling festival-goers to engage with content in a more interactive and participatory manner. However, this also raises questions about how to maintain the communal and collective aspects of festivals when some attendees are engaged in virtual or augmented worlds.

For scholars Ylenia Olibet and Alanna Thain, the festival experience is characterized by the cyclical nature of anticipation, preparation, and desire, punctuating the annual timeline where, "at the same time, they create a suspension of the regular and habitual, carving out eventness from the every day."[50] Building on this, Janet Harbord describes film festivals as operating on their own temporal domain: "film festivals are commonly understood as offering on the one hand 'intense temporal happenings' formed of unique unrepeatable moments, while on

---

[48] André Bazin, *The Festival Viewed as a Religious Order*, trans. Emilie Bickerton, in *Dekalog 03: On Film Festivals*, ed. Richard Porton (London: Wallflower Press, 2009), 13–19.
[49] Skadi Loist, *Queer Film Culture: Performative Aspects of LGBT/Q Film Festivals* (Hamburg: University of Hamburg, 2014), 40.
[50] Ylenia Olibet and Alanna Thain, "Vidéo de Femmes Dans le Parc: Feminist Rhythms and Festival Times Under Covid," in *Rethinking Film Festivals in the Pandemic Era and After*, ed. Marijke de Valck and Antoine Damiens (London: Palgrave Macmillan, 2023), 160.

the other hand operating as 'events tied to place, part of the calendar of local rituals that perform and enact the specific nature and appeal of a location for both inhabitants and visitors.'"[51] The period of a festival is characterized by a distinctive energy often referred to as the 'festival buzz' or, as Andrew Sarris coined it, the "cinematic virus."[52] This phenomenon draws our attention to the idea that festivals serve as recurring spaces for cinematic experiences, where elements of value creation, ritual, and community come into play, allowing the audience to refine their cinematic perspective through a festive relationship with cinema. When considering the integration of virtual reality into film festivals, this chapter's research question returns: how can these immersive technologies be seamlessly incorporated into the festival environment, given their one-on-one and isolated nature, making it challenging for attendees to experience them collectively, while still aligning with the distinctive energy and temporal rhythm that defines the film festival atmosphere?

By including new media projects in their programs, film festivals are breaking away from the traditional cinema setting: these new works are forcing festivals to experiment with new exhibition spaces, including galleries, museums, and alternative locations. However, there is an inherent tension between the white cube and the black box that film festivals are now confronting by showcasing new media works.[53] They both strive to create a shared experience for audience members through an individual activity and a quest for a sense of immersion within

[51] Janet Harbord, "Contingency, Time, and Event," in *Film Festivals: History, Theory, Method, Practice*, 70.
[52] Andrew Sarris, "Catch as Catch Cannes: The Moles and the Moths," *The Village Voice* (12 June 1978): 39-–40.
[53] See Brian O'Doherty, *Inside the White Cube: The Ideology of the Gallery Space* (Berkeley: University of California Press, 1999); Tanya Leighton, *Art and the Moving Image: A Critical Reader* (London: Tate Publishing, 2008); Maeve Connolly, *The Place of Artists' Cinema: Space, Site and Screen* (Chicago: Intellect, 2009); A.L. Rees, Duncan White, Steven Ball, and David Curtis, ed., *Expanded Cinema: Art, Performance, Film* (London: Tate Gallery Publisher, 2011); Tamara Trodd, ed., *Screen/Space: The Projected Image in Contemporary Art* (New York: Manchester University Press, 2011); Andrew V. Uroskie, *Between the Black Box and the White Cube: Expanded Cinema and Postwar Art* (Chicago: The University of Chicago Press, 2014); Christiane Paul, ed., *A Companion to Digital Art* (Malden, MA: John Wiley & Sons, 2016).

a curated experience. Film festivals are relational, intersectional spaces of tension, where operations, spaces, and programming practices are all shaped by an ideological and political shift.[54] Film festivals act as critical sites of intersection between culture and economic agendas, cultural and national identities, and between arts and culture and business development and industry. Film festivals operate as vital culture sites where experimentation and education take center stage. They serve as platforms that not only showcase VR media but also provide a space for audiences to explore and learn how to interact with these immersive experiences. By curating VR content and facilitating audience engagement, film festivals contribute to the development of a shared language and understanding of VR. In essence, they become laboratories where creators, audiences, and the VR industry itself can experiment and teach one another how to navigate and appreciate this emerging new media.

In the ever-evolving landscape of media, the term "new media" has been both a source of excitement and contention. Wendy Chun interrogates the ways that we tend to understand this newness, suggesting that:

> To call X "new" is to categorize it, to describe and prescribe it, while at the same time to insist that X is wonderful, singular, without opposite or precedent. This insistence more often than not erases X's previous existence (case in point, the "discovery" of the "new world").[55]

Chun's critique highlights the complex relationship between novelty and categorization when we label something as "new." This notion becomes particularly relevant when examining Erkki Huhtamo and Jussi Parikka's definition of "new media," which encompasses a wide array of phenomena, including the Internet, digital television, interactive multimedia, virtual reality,

[54] Loist, "The Film Festival Circuit," 49.
[55] Wendy Hui Kyong Chun "Introduction: Did Somebody Say New Media?" *New Media, Old Media: A History and Theory Reader*, eds. Wendy Hui Kyong Chun, and Thomas Keenan (New York: Routledge, 2006), 3.

mobile communication, and video games.[56] By embracing such a broad spectrum of technologies, Huhtamo and Parikka's definition invites us to consider the multiplicity and evolution of "new media," alluding to Chun's argument that the mere act of labeling something as "new" often involves categorization and the erasure of its previous iterations, framing it as singular and unprecedented. However, this overarching term has its limitations, Chun argues: because "the term 'new media' was not accommodating: it portrayed other media as old or dead; it converged rather than multiplied; it did not efface itself in favour of a happy if redundant plurality."[57]

Indeed, "new media" is not a standalone entity, but instead a dynamic and interconnected network of technologies that continuously reshape and respond to each other. As Jay Bolter and Richard Grusin put it:

> No medium today, and certainly no single media event, seems to do its cultural work in isolation from other media, any more than it works in isolation from other social and economic forces. What is new about new media comes from the particular ways in which they refashion older media and the ways in which older media refashion themselves to answer the challenges of new media.[58]

It is this constant interplay that gives rise to new forms of storytelling, engagement, and audience interaction, which find their way into film festivals, reshaping the very fabric of cinematic experiences.

Film festivals, which are often seen as bastions of tradition, have embraced the concept of "new media" as a powerful marketing tool. The allure of the "bright, shiny, and new" serves as an advertisement, drawing in new audiences and showcasing novel experiences to demonstrate

---

[56] Erkki Huhtamo and Jussi Parikka, "Introduction," *Media Archaeology: Approaches, Applications, and Implications* (Berkeley: University of California Press, 2011), 1.
[57] Wendy Hui Kyong Chun, "Introduction: Did Somebody Say New Media?" 1.
[58] David J. Bolter and Richard Grusin, "Introduction: The Double Logic of Remediation," in *Remediation: Understanding New Media* (Cambridge, Mass: MIT Press, 1999), 15.

festivals' continued relevance and adaptability. However, the notion of the "new" raises important questions about the underlying forces that drive its emergence and the impact it has on other fields. As Chun wisely argues, we must shift our focus from a mere obsession with what is "new" and instead analyze the work that the "new" accomplishes and its implications for existing media landscapes.[59] In the context of my investigation into VR within film festivals, Chun's perspective becomes particularly pertinent. We must go beyond the surface allure of VR as "new media" and delve into the deeper implications it holds for the festival landscape. How does the adoption of VR impact the festival's traditional role as a platform for cinematic experiences? What challenges and solutions emerge as festivals navigate this shift? By considering Chun's argument, we can critically examine the dynamics at play within the VR-film festival nexus, recognizing that the 'new' should prompt not just excitement but also thoughtful analysis of its transformative potential within established cinematic contexts.

To delve more deeply into the complex world of new media and its influence on film festivals, I draw upon a range of scholarly works, such as Lev Manovich's exploration in *The Language of New Media*, Jay Bolter and Richard Grusin's insights in *Remediation: Understanding New Media*, Lisa Gitelman and Geoffrey B. Pingree's examination of *New Media 1740-1915,* and Noah Wardrip-Fruin and Nick Montfort's collection, *The New Media Reader*. Through these scholarly lenses, I investigate how new media is being programmed and exhibited in film festivals, examining the interplay between old and new and its implications for storytelling, audience engagement, and the ever-evolving cinematic experience.

[59] Wendy Hui Kyong Chun, "Introduction: Did Somebody Say New Media?" 4.

Much has been written about the exhibition and curation of new media art within gallery and museum spaces, which are often referred to as "expanded cinema."[60] Like "new media," "expanded cinema" has a porous definition and, as A.L. Rees says, it is "an elastic name for many sorts of film and projection events."[61] For the purposes of this chapter, however, we shift our focus to the "expanded" cinematic space, "a range of moving-image technologies that are encompassed by the phenomenology of cinema."[62] Unlike the theoretical frame of "new media," exploring expanded cinema allows us to concentrate on the situational perspective, emphasizing not what constitutes cinema, but rather where the cinematic experience takes place:

> The expanded cinema might be understood as precipitating an analogous change of venue for the motion picture experience. It was comparatively easy to make different kinds of films, but much more difficult to change the way in which films were seen. The expanded cinema recognized that it was no longer sufficient to change the form of cinema: one needed to change the total situation within which the moving image was exhibited and seen as well as the context within which it was understood.[63]

Expanded cinema brought about a fundamental shift in the motion picture experience, and it emerged out of a recognition of the necessity of transforming not only the form of cinema but also the entire context within which the moving image was exhibited and understood.[64] By changing the situational and contextual aspects of cinema, this shift presented challenges, but it

---

[60] See Brian O'Doherty, *Inside the White Cube: The Ideology of the Gallery Space* (Berkeley: University of California Press, 1999); Tanya Leighton, *Art and the Moving Image: A Critical Reader* (London: Tate Publishing, 2008); Maeve Connolly, *The Place of Artists' Cinema: Space, Site and Screen* (Chicago: Intellect, 2009); A.L. Rees, Duncan White, Steven Ball, and David Curtis, ed., *Expanded Cinema: Art, Performance, Film* (London: Tate Gallery Publisher, 2011); Tamara Trodd, ed., *Screen/Space: The Projected Image in Contemporary Art* (New York: Manchester University Press, 2011); Andrew V. Uroskie, *Between the Black Box and the White Cube: Expanded Cinema and Postwar Art* (Chicago: The University of Chicago Press, 2014); Christiane Paul, ed., *A Companion to Digital Art* (Malden, MA: John Wiley & Sons, 2016).
[61] A.L. Rees, "Expanded Cinema and Narrative: A Troubled History," in Rees, White, Ball, and Curtis, *Expanded Cinema*, 12.
[62] Janine Marchessault, "Multi-screens and Future Cinema: The Labyrinth Project at Expo 67," in *Fluid Screens, Expanded Cinema*, ed. Janine Marchessault and Susan Lord (Toronto: University of Toronto Press, 2007), 7.
[63] Uroskie, *Between the Black Box*, 12.
[64] A.L. Rees, "Expanded Cinema and Narrative: A Troubled History," in Rees, White, Ball, and Curtis, *Expanded Cinema*.

also acknowledged the historical phenomenon of experimental media cultures that emerged during the 1960s, driven by experimental and avant-garde filmmakers seeking to expand and transform film and video art. While the realization of Gene Youngblood's utopian goals as expressed in *Expanded Cinema* may not have fully materialized, this era produced valuable insights into the potential value and significance of new media. Janine Marchessault adds to this discourse by emphasizing that the interconnectedness includes how new media were connected to a larger network beyond the scope of artistic practice:

> Media histories are located across a variety of artistic and industrial practices, institutions, and technologies. One aspect of this includes the history of an attitude towards media, and more specifically towards what makes them new and meaningful. As both Marshall McLuhan and Raymond Williams have shown us, the evolution of media forms does not arise suddenly out of nowhere but is connected to a social, economic, and cultural network of conditions, grammars, and contiguities that support their development.[65]

This "history of an attitude"[66] towards media encompasses a methodological focus, moving away from the technical aspects of new media and directing attention towards the intersections of and experimentation within artistic and corporate cultures. In light of these historical and methodological insights, the emergence of new media, including video games, virtual reality, and augmented reality, introduces complexities to the traditional notion of a collective experience at film festivals. Historically centered around communal film screenings, when they introduce

[65] Janine Marchessault, "Multi-screens and Future Cinema: The Labyrinth Project at Expo 67," 30.
[66] See Peter Weibel, "Expanded Cinema, Video and Virtual Environments," in *Future Cinema: The Cinematic Imaginary after Film*, ed. Jeff Shaw and Peter Weibel (Cambridge, MA: MIT Press, 2003); Matthew Fuller, *Media Ecologies: Materialist Energies in Art and Technoculture* (Cambridge, MA: MIT Press, 2005); Barbara Klinger, *Beyond the Multiplex: Cinema, New Technologies, and the Home* (Berkeley: University of California Press, 2006); Steve Dixon, *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation* (Cambridge, MA: MIT Press, 2007); Dan Adler, Janine Marchessault, and Sanja Obra-dovic, eds., *3D Cinema and Beyond* (Toronto: Public Books, 2013); Monika Kin Gagnon and Janine Marchessault, eds., *Reimagining Cinema: Film at Expo 67* (Montreal: McGill-Queen's University Press, 2014); Gloria Sutton, *The Experience Machine: Stan VanDerBeek's MovieDrome and Expanded Cinema* (Cambridge, MA: MIT Press, 2015).

viewings of new media, film festivals must grapple with the challenges and opportunities presented by these immersive and interactive new media forms.

To better understand these intersections, I examine four film festivals as case studies in this chapter. The first considers the announcement by the **Toronto International Film Festival** (TIFF)—one of North America's largest film festivals—of a three-part virtual reality and immersive media pop-up installation series in the summer of 2016. For one weekend each in June, July, and August, TIFF focused on a specific theme related to VR, such as art, empathy, and experimentation. This marked the first time that a major Canadian film festival had showcased VR through partnerships with VR technology companies, such as Oculus, HTC, and Sony. This allowed TIFF to introduce to the public VR equipment and content not yet commercially available. This sold-out installation received rave reviews and was followed by the inclusion of POP VR in the 2016 festival, where five VR experiences were shown simultaneously at the TIFF Bell Lightbox cinema building.

Second, the **Hot Docs Canadian International Film Festival** (Hot Docs), the largest documentary festival in North America, was one of the first festivals in Canada to introduce an interactive media program, DocX, as part of their programming. In 2015, DocX was introduced and marketed as "an interdisciplinary section of the festival celebrating documentary work that lives *outside* of the traditional format."[67] By comparison with other international documentary festivals such as the International Documentary Film Festival Amsterdam (IDFA), Hot Docs hesitated to add new media works to their programming schedule because they did not know

[67] Hot Docs Canadian International Documentary Festival, Industry Guide, http://assets.hotdocs.ca/doc/HD17_Industry_Guide.pdf, accessed 6 July 2018, 3 (emphasis added).

how to showcase them properly.[68] Over the years, Hot Docs has continued experimenting with new ways of programming for their collective audience through separate curated sites dedicated to new technology and festival experiences.

Third, ImagineNATIVE Film + Media Arts Festival, Canada's largest presenter of Indigenous screen content, has consistently programmed alternative works such as radio, video, games, and VR into their festival to support Indigenous artists since the festival's founding in 2000. In October 2015, imagineNATIVE introduced digital media works through their Digital Media Art+Cade exhibition (DMAC). This exhibit emulated a nostalgic 1980s arcade and showcased leading Indigenous-created digital media works, retro-inspired and industry-driven gaming, digital apps, and VR experiences. This inclusion of new media aligns with the festival's mission to serve and promote Indigenous artists. In 2018, DMAC underwent a rebranding process and became the iNDigital Space, demonstrating the festival's commitment to showcasing new media.

Last, the Fabulous Festival of Fringe Film (Fab Film Fest) is a small community-based festival in West Grey, Ontario, started by the Grey Zone Collective in 2002. This festival focuses on presenting independent and experimental media art from around the world. I was invited to present a VR showcase over two weekends in July 2017, which represented an entry point to VR for the Durham and Saugeen First Nation communities. For this showcase, I presented a range of VR experiences made by Canadian Indigenous creators. I curated, set up, and facilitated the exhibition at the Festival Feast at Saugeen First Nation and in the Durham Public Library. This

[68] In 2007, IDFA introduced the IDFA DocLab, a festival program for new media. The mission of IDFA DocLab is "to showcase interactive documentaries and other new digital art forms that successfully push the boundaries of documentary storytelling in the age of the interface. Projects are curated and presented online, as well as during live cinema events, exhibitions, workshops and industry panels." "About Us," IDFA DocLab, accessed 5 May 2016, https://www.doclab.org/about/.
Sarafina DiFelice (Hot Docs Associate Director of Programming), interview by the author by phone, 27 May 2016.

exhibition allowed me to practice and apply what I had learned as a participant observer at the festivals mentioned above over the previous three years. It also allowed me to think through questions of access that arise when introducing new audiences to VR.

By looking at these four programs, I use a curatorial perspective to explore the presentation of new media works within film festivals. This chapter explores answers to several research questions that shed light on the challenges and implications of programming singular experiential new media for audiences accustomed to collective experiences. Moreover, I explore how these virtual reality programs challenge the traditional notion of "cinema" within evolving media ecologies, and I investigate how these programs are reshaping exhibition practices and how festivals are considering accessibility issues. Furthermore, I examine how programmers and festival management are adapting to the introduction of new technologies and the ways in which these innovations challenge previous understandings of festival labour. By addressing these research questions, we gain a more comprehensive understanding of the significance and impact of new media programs within the context of film festivals and insight into the future of cinematic experiences and how festivals can navigate the ever-changing landscape of media and technology.

Niv Fux highlights in his *NECUS* article "VR on the film festival circuit: IDFA & IFFR 2017-2019," that in 2014, only a few film festivals were exhibiting virtual reality as part of their regular programming. However, in 2020, "the festival submission platform *FilmFreeway* listed no less than 1,249 festivals that include VR in their programs."[69] In this section, I examine which major film festivals in the United States and Europe started incorporating VR, providing a reference to my Canadian case studies below. I examined these film festivals' program guides,

[69] Niv Fux, "VR on the film festival circuit: IDFA & IFFR 2017-2019," *NECSUS* 9, no 1 (Spring 2020): 307–314, https://necsus-ejms.org/vr-on-the-film-festival-circuit-idfa-iffr-2017-2019/.

websites, and social media to examine the types of VR programs included, the promotional language used by the festivals to showcase their exhibitions, and the VR creators and experiences that were selected for inclusion.

In the United States, the Sundance Film Festival was one of the earliest film festivals to program virtual reality. Back in 2012, Sundance premiered Nonny de la Peña's *Hunger in Los Angeles* (2012) as part of its New Frontier program, delving into issues of hunger and food insecurity in the city through a VR experience that immersed viewers in the narrative, creating a heightened sense of empathy and understanding. This innovative storytelling approach garnered recognition and an award at the 2012 Sundance Film Festival, solidifying the festival's early recognition of VR's potential for artistic expression and storytelling. Sundance had established its New Frontier Program in 2007, which was dedicated to showcasing experimental and innovative projects involving new media and technology, including VR. Over the years, Sundance has continued featuring VR projects in its New Frontier Program, providing creators with a platform for presenting their immersive and interactive works to a wider audience.

The festival's launch of the New Frontier Lab program helped to support the development of projects in new media that would then be screened at the festival. However, over the years, the New Frontier Program faced criticism for its perceived commercialization, as major tech companies like Google and Intel would scout talent and content at the festival, which was at odds with the festival's overall indie feel.[70] The most prominent example is Chris Milk, who has presented 13 projects at the New Frontier program over the years, and, in October 2021, Meta announced their acquisition of Milk's VR production company, Within, for over $400

[70] Eric Kohn, "Sundance Helped Launch the Metaverse Industry, but Isn't Thrilled About the Future of the Business," *IndieWire*, January 22, 2022, https://www.indiewire.com/features/general/sundance-metaverse-industry-1234692627/.

million.[71] As of 2023, Sundance has cancelled its New Frontier Program. New Frontier's Chief Curator, Shari Frilot, commented, "We want to let you know that New Frontier is presently choosing to take time to reflect upon the rich learnings gained over the past two years as we evaluate the shifts in the media landscape to understand how best to serve our community of artists and our audiences."[72] This situation underscores the evolving dynamics between independent artistic innovation and the allure of technological commercialization. The acquisition of Chris Milk's VR company by Meta for a staggering sum symbolizes the culmination of the New Frontier Program's journey from a bastion of indie creativity to a platform where such innovations could be co-opted by tech giants. This pivotal event may have contributed to Sundance's decision to pause and reassess the New Frontier Program, as it seeks to realign its mission with the changing media landscape and the original indie ethos that defined its inception. The festival has kept the door open to future reinventions of the program as, for fifteen years, the Sundance New Frontier Program had been an important launching pad for VR in the film festival space.

While the New Frontier program at Sundance has played a vital role in launching virtual reality in the film festival landscape, other American film festivals have also embraced the medium, creating new media programs of their own. Some notable examples include the Tribeca Film Festival's Tribeca Immersive, SXSW's Virtual Cinema program, the New York Film Festival's (NYFF's) Convergence section, the Seattle International Film Festival's (SIFF's) VR Zone, and the Miami Film Festival's Virtual Reality Portal. Each of these programs contributes

[71] Eric Kohn, "Sundance Helped Launch the Metaverse Industry, but Isn't Thrilled About the Future of the Business," and Scott Stein, "Meta Completes Acquisition of VR Fitness Company Within," *CNET,* February 8, 2023, https://www.cnet.com/tech/computing/meta-completes-acquisition-of-vr-fitness-company-within/.
[72] Eric Kohn, "Sundance Film Festival Cancels Plans for New Frontier Program in 2023."

to the growing presence of VR in the film festival circuit and provides creators with opportunities to show their innovative works to diverse audiences.

In Europe, major film festivals such as Cannes, the Venice Film Festival, and the Berlinale have embraced virtual reality since 2016. The Berlin International Film Festival, also known as the Berlinale, made its foray into VR content in 2016 by introducing a dedicated section called "Berlinale Virtual Reality" in partnership with the European Film Market. The inaugural edition of Berlinale Virtual Reality took place in 2018 with a curated selection of VR experiences and immersive storytelling projects for festival attendees. Since then, the Berlinale has continued to incorporate VR programming as part of its annual event, providing a platform for VR filmmakers and artists to showcase their innovative works to a wider audience.

Similarly, in 2016, Cannes included virtual reality in their NEXT program, which is dedicated to the future of cinema. Curated by Michel Reilhac, the former head of film at Arte, the festival screened 35 VR films from around the world, including *Notes on Blindness: Into Darkness* (2016) and Pierre Zandrowicz's *I, Philip* (2016). Cannes aimed to present VR films as a collective experience, offering a space where they could be showcased in a market environment, not just as individual experiences. [73] The festival's commitment to immersive technologies and cinematographic content continued in 2019 with the introduction of Cannes XR, the Marché du Film's industry program dedicated to immersive technologies.[74]

The International Documentary Film Festival Amsterdam (IDFA) has been exploring interactive and immersive non-fiction through its new media program, DocLab, since 2007. Over the years, IDFA DocLab has become a leading platform for interactive documentary art and

[73] James R, "Cannes 2016 embraces virtual reality," *Vodzilla.co*, May 4, 2016, https://vodzilla.co/blog/vod-news/cannes-embraces-virtual-reality/.
[74] Cineuropa, "Industry Report: New Media – Cannes' Marché du Film announces the launch of Cannes XR," *Cineuropa*, https://cineuropa.org/en/dossiernewsdetail/3108/368912/.

storytelling, featuring an interactive conference, Live Cinema Events, and the IDFA Forum. In 2019, IDFA DocLab introduced the IDFA DocLab Forum, a complete cross-media market where projects that were presented could find new partnerships, receive in-depth feedback, and explore new ways of moving forward.

Throughout much of my research, due to the ongoing COVID-19 pandemic, attending these global film festivals in-person was not feasible. However, during the pandemic, some of these festivals collaborated with the Museum of Other Realities (MOR), which provided them with an opportunity to showcase their VR programs through the HTC Vive platform. To participate in the 2022 Tribeca Festival, I acquired an online Virtual Arcade Pass for $6, which granted me access to the Tribeca Immersive Virtual Exhibition. To fully participate in this online event, I visited York University's Betaspace to use the necessary equipment. These international platforms served as vital benchmarks, demonstrating VR's growing influence in the art world and its ability to transcend geographical boundaries. However, it is equally important to pivot our focus back to the Canadian festivals, where we can explore how these global trends and experiences have influenced the local VR art scene and contributed to its development within the Canadian context.

TIFF POPX + POP VR

In the summer of 2016, TIFF announced a three-part virtual reality and immersive media pop-up installation series. Over one weekend each in June, July, and August, TIFF hosted a VR exhibition in the HSBC Gallery at the TIFF Bell Lightbox. The series covered three themes related to VR: art and music, documentary, and experimental cinema, with different curatorial partners: FADER, The Verge, and the National Film Board of Canada. The series included **POP 01: VR + Music + Art** from June 24 to 26, 2016; **POP 02: VR + Empathy + Real-World**

Storytelling from July 15 to 17, 2016 and, **POP 03: VR + Experimental Film** from August 19 to 21, 2016. Curated by TIFF Digital Studio, this pop-up installation marked the first time that a major Canadian film festival had curated a VR exhibition. It coincided with the "Year of VR," as designated by such news outlets as BBC, Fortune, and Forbes[75] (this is further discussed in Chapter 3). Following the lead of major film festivals such as Cannes, Tribeca, and IDFA, TIFF was venturing into programming VR. Jody Sugrue, Director of the TIFF Digital Studio, stated that, "We are excited to present these works like the pieces of cinematic and artistic expression they are." She further added, "Most VR demonstrations take place at technology conferences and industry events. TIFF is doing something else: preparing a curated collection of projects so the public can experience the wonder, delight, and curiosity at this intersection of story and technology."[76] This exhibition was focused on creating a custom-designed VR environment at TIFF's gallery space, showcasing VR as art.

This exhibition had been proposed by the TIFF Digital Studio, a department focused on finding new formats of storytelling, building digital platforms, and creating TIFF's visual aesthetic.[77] The Digital Studio was responsible for TIFF's social media, initiating the Official Portrait Studio, running TIFF's Instagram Shorts Festival and providing live coverage of the festival. The Digital Studio aimed to organize a significant virtual reality exhibition—"something that wasn't done before"—for which it enlisted Henry Faber as an independent contractor to design, build, and curate POPX. Faber, who had over twenty years' experience in design and production execution and had worked with numerous video game studios, was the

[75] Year of VR see: Rory Cellan-Jones, "2016: the year when VR goes from virtual to reality," *BBC NEWS*, January 1, 2016, https://www.bbc.com/news/technology-35205783; Chris Morris, "Is 2016 The Year of Virtual Reality?" *Fortune*, December 4, 2015, https://fortune.com/2015/12/04/2016-the-year-of-virtual-reality/.
[76] TIFF POPX Press Release.
[77] Malcolm Gilderdale, "Creating TIFF Digital Studio," https://www.malcolmgilderdale.com/work/tiff-digital-studio.

president of the Toronto Media Arts Centre (TMAC) and the founder of Gamma Space Collaborative Studio. Through his industry connections with tech companies and VR creators, Faber brought hardware and content that was not yet commercially available to the pop-up series. Moreover, Faber secured most of the equipment, including expensive hardware like PS VR and HTC VIVE, through a combination of donations and free contributions. Some tech companies happily provided equipment for free out of their excitement for TIFF hosting the event, while others made donations, though it was not clear what they expected in return. During our interview, Faber expressed that his industry contacts had been thrilled that TIFF was hosting this exhibition: they considered it a milestone that indicated that VR had finally made it. He said, "It was easy to deal with TIFF's name and more importantly, the fact that they were going to give this beautiful space […] and present it as art."[78] Faber's mention of TIFF providing a 'beautiful space' and presenting VR as art underscores the importance of the venue and the curatorial approach. This suggests that the exhibition wasn't just a technical showcase; it was being treated as a form of artistic expression. Therefore, Faber's quote signifies that, through its association with TIFF, the VR exhibition gained both legitimacy and artistic credibility, which was a noteworthy development within the VR industry at that time.

While programming this series, TIFF handled all non-interactive and 360° videos and Faber handled all other aspects of the exhibition series. Faber implemented policies to actively involve artists and secured additional funding to support students in polishing their projects for a showcase at POPX. In Faber's opinion, these student projects could hold their own and be "shoulder to shoulder" with works by larger companies, such as Felix & Paul and the NFB Digital Studio.[79] Additionally, Faber ensured that all artists were paid, or, at the very least, that

[78] Henry Faber (POPX Programmer), interview with Caroline Klimek on Zoom, August 21, 2020.
[79] Faber, interview with Caroline Klimek.

their room and board expenses were covered. He believed that it was crucial for the creators to receive a stipend and be physically present at the exhibit to discuss their projects throughout each weekend. This commitment to equitable compensation not only recognized the value of emerging artists' work but also fostered an inclusive and professional environment where artists of all backgrounds could contribute meaningfully to the exhibition. Alongside the creators, Faber and TIFF hired several facilitators for the exhibit, ensuring that each project had a dedicated facilitator. Faber developed a facilitator guide and a training process to provide the necessary context when introducing these projects to attendees. He also trained facilitator captains to organize the facilitators on the day, so that creators would not have to stay with their projects for the entire time. The presence of facilitators also helped to bridge the gap between the technical aspects of VR projects and the understanding of visitors, making the exhibition more accessible and enjoyable for a broader audience. This approach to accessibility, facilitated by trained personnel, ensured that attendees, regardless of their familiarity with VR technology, could fully engage with and appreciate the immersive experiences on display.

POPX used the entire HSBC Gallery in TIFF Bell Lightbox's lobby, maintaining a consistent setup each weekend to avoid technology issues, especially with numerous room-scale projects. TIFF had both the space and resources to curate an impressive program. Decals that offered a brief description of each project and listed their creator and significant partners were placed on the walls. The gallery's entrance featured prominent POPX marketing, including a changing giant mural dedicated to promoting each themed weekend. The POPX setup illustrates the meticulous planning and commitment to a seamless visitor experience that defined POPX's approach. By maintaining a consistent setup, they ensured the technical aspects of the exhibition ran smoothly, enhancing the audience's ability to engage with the immersive room-scale projects

without interruptions or glitches. Moreover, the prominent placement of project descriptions and partner information via decals on the walls and the dynamic marketing mural at the entrance demonstrates POPX's dedication to not only showcasing cutting-edge projects but also providing essential context and recognition to the creators and collaborators. This strategic setup at TIFF Bell Lightbox's HSBC Gallery underscores the thoughtfulness behind POPX's presentation and its ability to leverage the resources available to them for a successful and engaging exhibition.

The event generated a lot of hype and excitement. Tickets were priced at $22.75 for the public and $16 for TIFF Members, but the pop-up installations sold out in ticket pre-sales and received rave reviews.[80] Given this, tickets were in high demand, resulting in long queues during designated time slots. In fact, managing the flow of attendees and ensuring that everyone had the opportunity to experience the projects was one of the major logistical challenges that Faber faced. As a result, he implemented timed tickets, allowing people to see as many projects as possible within a two-hour window. However, due to the overwhelming attendance, one could only experience four or five projects, which felt like barely scratching the surface, given the sheer quantity and variety of projects in that space. Attending this exhibition required carefully choosing which VR pieces to see. Despite the constraints, ticket holders were excited to be there, which created an atmosphere of enthusiasm.

By hosting this event, TIFF acknowledged virtual reality as a cinematic medium, accepting that what was primarily associated with the gaming world could be considered art and exhibited at major film festivals. Curiosity surrounded the event, as people were eager to witness the creative possibilities of VR. The energy surrounding the exhibition was infectious, which

[80] Simon Houpt, "What's the future of virtual reality? TIFF looks for answers," *The Globe and Mail*, September 15, 2016, https://www.theglobeandmail.com/arts/awards-and-festivals/tiff/whats-the-future-of-virtual-reality-tiff-looks-for-answers/article31907515/;;.

was evident from the moment one stepped into the TIFF lobby and encountered the vibrant marketing that promoted the event. Engaging with other attendees, facilitators, and creators became an integral part of being there. Although VR is an individual experience, Faber's setup encouraged conversations and interactions among those waiting in line, allowing attendees to ask questions and engage with the facilitators or creators at each station. Visitors could observe others using Tilt Brush, their creations showcased on a large screen behind them. Furthermore, the exhibition prompted attendees to inquire about and discuss the projects with everyone in the room. While attending, I witnessed several captivating experiences. For instance, for *In the Eyes of the Animal* by creative collective Marshmallow Laser Feast, I put on a bespoke headset (see Figure 1) as I viewed the creators' artistic interpretation of the sensory perspectives of three different species that inhabit British forests—and attendees could watch the projection of what I was viewing inside the headset.

Figure 1: A friend donning the headset for In the Eyes of the Animal (2015) at TIFF POPX 01. Photo Credit: Caroline Klimek, 2016.

POPX's marketing and branding set high expectations for attendees. Unlike other festivals where new media programs are free, such as Hot Docs DocX program and imagineNATIVE's Media Art+Cade and iNDigital Space, entry to POPX required paid tickets. While the event successfully attracted audiences and showcased cutting-edge virtual reality experiences, its journey within TIFF was not without challenges and internal struggles. According to Faber, behind closed doors at TIFF, internal politics affected how VR was viewed by festival executives. VR's unconventionality as a cinematic medium challenged the traditional exhibition model of film, leading to executives' resistance to accepting it as a legitimate form of cinema. This resistance was evident in TIFF's reluctance to grant Faber the title of Co-curator, as they wanted to maintain control and ensure that the installation fell under TIFF's brand umbrella. Despite these challenges, POPX was a groundbreaking event that showcased VR as an art form.

It received positive reviews and generated excitement among attendees, and it set a precedent for other film festivals interested in programming VR, demonstrating how to create a collective experience for festivalgoers and integrate immersive storytelling into the festival landscape.

POPX's success and impact extended well beyond its runtime, inspiring other festivals to explore the potential of virtual reality as a storytelling medium. As film festivals continue to adapt to evolving media ecologies, the inclusion of VR experiences can provide audiences with new and innovative ways to engage with narratives and creative expression. Embracing emerging technologies and challenging traditional notions of cinema, film festivals have an opportunity to foster a more inclusive and diverse future of storytelling and visual arts. By championing immersive experiences and supporting the growth of VR, festivals can play a crucial role in shaping the landscape of cinematic experiences.

TIFF POP VR

Following the success of POPX, TIFF introduced the POP VR program to their 2016 festival. According to TIFF Artistic Director Cameron Bailey, "POP VR continues this tradition with immersive journeys that travel beyond the frame into the interactive world of virtual reality. With POP VR, the festival shines the spotlight on visionary artists who are creating groundbreaking new narrative forms."[81] The purpose of this VR program was "to create intimate immersive experiences" with five projects that "celebrate the evolution of storytelling through innovated and visionary works."[82] There was no overarching theme[83] to organize the

[81] Amy Grief, "TIFF to screen virtual reality films at 2016 festival," *blogTO*, June 28, 2016, https://www.blogto.com/film/2016/06/tiff_to_screen_virtual_reality_films_at_2016_festival/.
[82] "Announcing the Remaining TIFF 16 Films and Talks, POP VR, TIFF Kids, and More," TIFF (Toronto International Film Festival), accessed July 1, 2019, https://www.tiff.net/the-review/announcing-the-remaining-tiff-16-films-and-talks-pop-vr-tiff-kids-and/.
[83] Other than premiere status for the following projects: Ch'aak' S'aagi (Eagle Bone)," Tracy Rector, USA, International Premiere: "Invasion!," Maureen Fan, Eric Darnell, Michael Hutchinson, USA, Canadian Premiere:

programming choices, which included *Ch'aak' S'aagi (Eagle Bone)* by Tracy Rector, *Invasion!* by Maureen Fan, Eric Darnell, and Michael Hutchinson, *Jafri* from Michael Beets, *KÀ The Battle Within* by Félix Lajeunesse, Paul Raphaël, and François Blouin, and *Right to Pray* by Khushboo Ranka. The absence of an overarching theme underscores the spontaneous inclusion of this VR program in contrast to the meticulously curated POP X exhibit.

Bailey commented that virtual reality is something that "a lot of people at the leading edge of film entertainment and also film art has been exploring" and the festival started hearing from people earlier in 2016 who were interested in seeing VR programming at TIFF. To address why TIFF was including VR in their main festival Bailey commented, "Filmmakers, artists, content creators, they all knew that this is an area that was expanding and so they've been coming to us."[84] This quote highlights the growing interest and exploration of virtual reality within the film entertainment and art community. It underscores how filmmakers, artists, and content creators recognized the expanding potential of VR and actively approached festivals like TIFF to incorporate VR programming into their main events. This demonstrates that the inclusion of VR in TIFF's main festival was not a passive decision but a response to the enthusiastic engagement of those at the forefront of film and artistic innovation. This proactive involvement of key industry players speaks to the evolving landscape of cinematic storytelling and the festival's role in adapting to these changing dynamics.

Compared to the success of POPX, POP VR was subdued, with fewer works, and available only during the festival's last three days. Tickets also cost an additional $50, a high fee that was to be added to a TIFF Industry pass (ranging from $300 to $1000) and to the costs of

"Jafri," Michael Beets, Australia, North American Premiere: "KÀ The Battle Within," Felix & Paul Studios/Cirque du Soleil Media, Canada World Premiere: "Right to Pray," Memesys Culture Lab, India, World Premiere

[84] Linda Barnard, "TIFF to spotlight VR films for fest," *The Toronto Star*, July 1, 2016, https://www.thestar.com/entertainment/movies/2016/07/01/tiff-to-spotlight-vr-films-for-fest.html.

TIFF members' passes. Ten people were allowed to see the films at a time and they would simultaneously watch all five projects on Samsung Gear headsets. The five films were played back-to-back, so attendees experienced no customization or personalization. Exhibiting the films in this way aimed to recreate a collective experience so that everyone could "watch" the films together. When I inquired about tickets at the Industry Office, I was told only that only two seats were taken, yet I was not allowed to rush this program, even with a student industry pass priced at $250. This starkly contrasted the accessibility and enthusiasm surrounding the POPX exhibition, where students were invited to press screenings and were included in the weekend exhibitions. The reasons behind TIFF's decision to host the POP VR program and its limited accessibility are unclear.

Faber was disappointed in POP VR after POPX's success, and he had not been asked to be involved with the VR program or technical setup. In an interview with *The Toronto Star,* Bailey said, "We don't know where this is going any more than anyone else does. We all just want to explore together."[85] POP VR marked the first and last time that TIFF offered VR as part of their main festival programming, and any mention of POPX has been scrubbed from the festival's online archive (see Figure 2). The TIFF Library has no information or collection related to TIFF POPX. These two VR exhibitions are ephemeral: my own archive of exhibition leaflets, bookmarked newspaper articles, and my fieldnotes are all that remains of TIFF POPX and TIFF VR. For Faber, it is "upsetting for curators who are so proud of this project seeing all documentation destroyed."[86] TIFF Digital Studio's team members have not responded to my interview requests. The lack of response and the missing archive of these two exhibitions suggests that TIFF no longer wants to be associated with this pop-up installation. This is at odds

[85] Linda Barnard, "TIFF to spotlight VR films for fest."
[86] Henry Faber (POPX Programmer), interview with Caroline Klimek on Zoom, August 21, 2020.

with a festival that, in 2016, had an active digiPlaySpace for their TIFF Kids Festival, a successful POPX summer series, and was about to embark on a Canada150 VR project with other local film festivals entitled *2167* (this project is written about in detail below as part of imagineNATIVE). In numerous interviews with VR exhibitors, POPX, in particular, is often cited as a model for exhibiting VR effectively, thanks to its emphasis on creating a collective experience rather than a solitary one. It serves as an inspiration for film festivals that are grappling with incorporating new media works, as it showcased VR's potential as an art form.

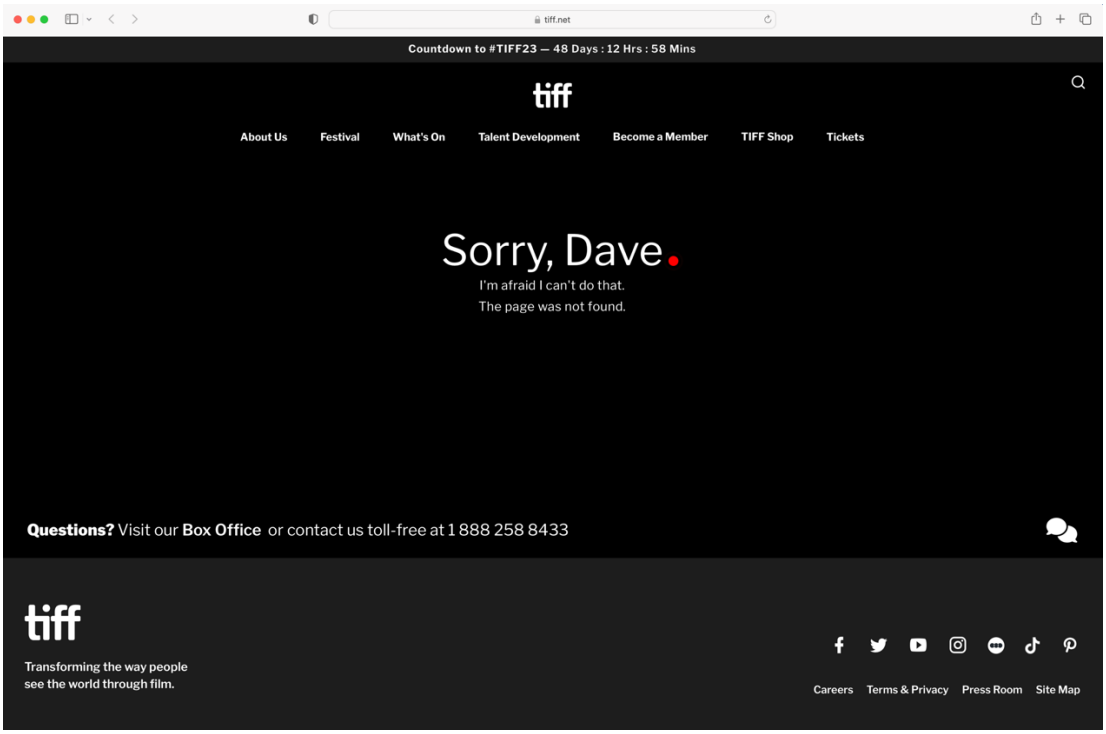


Figure 2: The blank page resulting from accessing the https://tiff.net/pop URL.

TIFF's venture into virtual reality programming showcased both successes and challenges. While POPX demonstrated the festival's commitment to VR as an art form, the subsequent POP VR program received mixed responses and lacked TIFF's support. These experiences shed light on the complexities that film festivals encounter when embracing new

technologies and media formats. The POPX pop-up installation nevertheless stands as an important precedent that sparked discussions within the VR community, as it was the first time that VR was presented as art at a major Canadian film festival, featuring a curated exhibition aimed at creating a more collective experience, moving away from the conventional individual swivel chair setup. POPX continues to inspire, yet also serves as a case study of the challenges that film festivals face in incorporating new media works, highlighting the need for technological readiness, partnerships, and the investment of sufficient time for VR's successful integration.

Hot Docs International Film Festival and Their DocX Program

Hot Docs, the largest documentary film festival in North America, is renowned for programming exceptional and outspoken documentaries. Held annually in late April and early May in Toronto, its mission is to advance and celebrate the art of documentary filmmaking while providing production opportunities for filmmakers.[87] Locally, Hot Docs stands out among the 90+ film festivals in Toronto. Internationally, it is often compared to esteemed festivals like the International Documentary Film Festival Amsterdam (IDFA), the Sheffield Doc/Fest, and the American Film Institute Documentary Festival (AFI Docs), which is held in Silver Spring, Maryland and Washington, D.C.

Hot Docs programs a broad spectrum of documentaries that are usually intended for television broadcast or theatrical distribution. Lyell Davies notes that the festival "programs a heterogenous array of documentaries in a range of film categories, from serious social documentaries or observational-style studies of individuals or institutions to quirky autobiography works."[88] As a charitable organization, Hot Docs relies on ticket sales,

[87] "About Us" Hot Docs. Accessed October 1, 2018. https://www.hotdocs.ca/u/about-us
[88] Lyell Davies, "Documentary Film Festivals as Ideological Transactions: Film Screening Sites at Hot Docs." *Canadian Journal of Film Studies* 25, no. 1 (2016): 88–110, pg. 90.

sponsorships, and government funding. The festival is noted for having a very loyal and robust local audience who attend in record numbers: over 228,000 members attended Hot Docs screenings in 2019, marking a historic high in attendance rates to date.[89] The annual industry market complements the film festival's general audience, as "over 2,600 delegates from around the world" attend "a series of passive and active networking opportunities to connect potential funding and creative partners."[12] Delegates who buy industry-level passes can attend networking events, workshops, and talks on the newest trends in documentary filmmaking at the Industry Conference. They can also pitch their film ideas to international broadcasters at the Hot Docs Forum.

In 2015, DocX was not a formal section or submission of the main Hot Docs Film Festival, but rather a test balloon to see how Hot Docs could include non-traditional documentary formats in their festival line-up. According to Associate Director of Programming Sarafina DiFelice, Hot Docs wanted to know if their audience was interested in this kind of programming and, more importantly, how they could include non-traditional DocX content within their main festival program.[90] For Hot Docs, this was an important opportunity to tie together the industry focus on VR with "transmedia" documentary workshops, and pitch and conference sessions with exhibition and programming.[91]

---

[89] "Hot Docs 2019 Annual Report," Hot Docs, accessed June 1, 2020, http://assets.hotdocs.ca/doc/HD19_Annual-Report.pdf, 2.
[90] Sarafina DiFelice (Associate Director of Programming), interview with Caroline Klimek by Phone, May 27, 2016.
[91] The industry effect on new media production can best be seen in the production timeline of *The World in Ten Blocks*, which was exhibited in the 2016 DocX program. The production of *The World in Ten Blocks* was made possible in large part due to support from the Doc Institute's 2013 Break-through Program (then called the OMDC Doc Toronto Mentorship at Hot Docs), the first transmedia and co-direction project to be included in the program, and by winning The Cuban Hat's Connect the Docs Transmedia Pitch Event at Hot Docs in April 2013. The timeline is available at "A Case Study: Bell Fund Web Documentary Programme," Bell Fund, http://bellfund.ca/ case-studies/world-ten-blocks-interactive-documentary/, accessed 17 March 2015.

Director of Programming Charlotte Cook introduced DocX as a small pilot program in the 2015 festival. It included four virtual reality experiences and a one-night-only live performance of the National Film Board's (NFB) final segment of *Highrise: Universe Within* (2015). DocX was introduced as a new program that focused on "innovative documentary storytelling through new technologies and original experiences."[92] It was originally marketed as an opportunity for festival audiences to "witness the future creative and technical possibilities of documentary cinema" and to "immerse [themselves] in unforgettable documentary experiences"[93] at the DocX Virtual Reality Showcase and watch four short films[94] on "revolutionary" technology, such as Oculus Rift and Samsung Gear headsets. This marketing strategy emphasized this technology's uniqueness and "newness" with a clear focus on festival attendees' experience and technology.

The Hot Docs Industry Conference complemented the festival and DocX program with talks and workshops, guiding documentary filmmakers in exploring virtual reality's potential and its distinctions from gaming and traditional film. [95] Elizabeth Radshaw, the Hot Docs Industry Programs Director, stated, "Technology development has increased the number of access points for VR, so we're exposing creators to VR through guided experiences so they can learn how it's different from gaming and film, and how it lends itself to documentary."[96] This approach aligns with the earlier discussion of TIFF's initial interest into VR, illustrating a broader industry trend

[92] Hot Docs, "2015 Screening Schedule," 23 April – 5 May 2015, 5.
[93] Hot Docs, "2015 Screening Schedule," 5.
[94] Four VR films included *Polar Sea 360* (D: Thomas Wallner), *Herders* (D: Felix Lajeunesse, Paul Raphael), *Songs of Freedom* (D: Thomas Wallner), and *Strangers with Patrick Watson* (D: Felix Lajeunesse, Paul Raphael, Chris Lavis, Maciek Szczerbowski).
[95] For example, some Hot Docs Industry events and workshops included an Open Mic at the Canadian Film Centre's (CFC) Media Lab's VR Lounge with founding director Ana Serrano, who also hosted an open-mic town hall on VR and documentary. There was also a highly publicized "Hot Docs Puts VR on Trial," with defense (Jessica Brillhart, Google), prosecution (Ana Serrano, CFC), and judge (AJ Schnack, Field of Vision).
[96] Jennie Punter, "Hot Docs Festival Taps into Virtual Reality," *Boston Herald*, 25 April 2015, https://www.bostonherald.com/2015/04/25/hot-docs-festival-taps-into-virtual-reality/, accessed 1 February 2017.

where festivals are actively engaging filmmakers to explore the unique potential of virtual reality for immersive storytelling. The Industry Conference plays a vital role of the Hot Docs festival, as it serves as a networking, market, and educational site for documentary filmmakers. With DocX, Hot Docs carved out a niche market for themselves by tying together programming and industry and making a cinematic claim to VR. By supporting filmmakers through the development, production, and exhibition of artworks, Hot Docs put itself at the forefront of VR by becoming the first point-of-contact for not only the general public, but also filmmakers and funders who were engaging with this new technology. As DocX continued developing, Hot Docs aimed to become a comprehensive one-stop shop for all things VR, encompassing funding, partnerships, production, and exhibition.

In examining how Hot Docs used its new programming space, I will focus on how each exhibition venue showcases the evolving needs of creators and the festival, especially as the DocX program expands. Hot Docs' strategic use of space not only reflects their institutional priorities, but also serves as a crucial indicator of their prioritization of the DocX program within the festival setting. Analyzing their choice of location, including its proximity to main festival venues and its integration into significant areas like business centers, provides insights into Hot Docs' commitment to fostering cutting-edge documentary experiences and innovative storytelling. As this section delves into the evolution of Hot Docs' DocX program from 2015 to 2020, Janet Harbord's perspective becomes relevant. She states that, "If the physical features of a city are read as ideological, that is, as signifying a set of semi-conscious political values, the reading of location extends to a logic of the exhibitionary venues and the films themselves."[97] This highlights the critical role that exhibition spaces play in conveying underlying political

[97] Janet Harbord, *Film Cultures*, (London: SAGE Publications Ltd, 2002), 67.

values and messages through documentary films. By delving into the selection of exhibition venues and considering their changes over the years, we gain profound insights into how the festival's vision aligns with its commitment to pushing boundaries and creating meaningful VR experiences for creators and audiences alike. It sheds light on how these spatial decisions are not merely logistical choices but represent the festival's ideological and political values, ultimately contributing to our comprehensive understanding of Hot Docs' DocX program evolution.

DocX at Hot Docs House

In 2016 Hot Docs expanded its DocX program and integrated it into its main programming, giving it its own label, submission process, and schedule. The "X" in DocX was defined as "an X-factor, an unknown, it's documentary but also how it's represented *outside* the traditional theatre experience."[98] For the 2016 festival, DocX was marketed as "an interdisciplinary section of the festival celebrating documentary work that lives outside of the traditional format" to distinguish it from the festival's other programs.[99] This approach provided broad parameters for the programming team to experiment with exhibition formats, including a range of projects that fell under the umbrella of "interdisciplinary" and "outside the traditional format." Examples of such projects included live performances of the *Brothers in the Kitchen* by Cyrus Sundar Singh and *Brent Green and Sam Green: Live Cinema*; screenings such as Matt Johnson's *Operation Avalanche* (2016); interactive installations like *The World in Ten Blocks* (2015) and *Digital Me* (2015); as well as sixteen VR and 360° videos available for free viewing

[98] Sarafina DiFelice (Associate Director of Programming), interview with Caroline Klimek by Phone, May 27, 2016 (emphasis added).
[99] Hot Docs Canadian International Documentary Festival, 2016 Screening Schedule, 20.

at Hot Docs House and select pop-up venues.[100] To accompany this new program's official premiere and as a promotional tool, Hot Docs volunteers encouraged festivalgoers to try VR while in line at theatres. These volunteers played an important role in audience outreach by educating audiences and generating awareness about and interest for the festival's newest addition.

Establishing a dedicated location for DocX called Hot Docs House was an important component of the 2016 DocX program. Hot Docs House was a separate site that was curated by Associate Director of Programming Sarafina DiFelice. It was situated in Markham House on Markham Street, just south of Bloor Street West, near the Bloor Hot Docs Theatre. When conceptualizing this space for DocX, DiFelice drew inspiration from other festivals' new media programs, such as IDFA's DocLab, Tribeca's Virtual Arcade, and Sundance's New Frontier programs. Rather than partner with a gallery space, however, DiFelice decided to consolidate all of the VR and interactive installations under one roof, following the model of international film festivals that designate a dedicated building for new media works. DiFelice explained, "the house setting felt like a really nice way to feel inclusive. Making it something comfortable to experience. The house felt manageable in terms of size, accessible enough and had the added benefit of being tied to the box office."[101] The main floor of Hot Docs House was the CraveTV Box Office and the second floor was dedicated solely to DocX. This dual-purpose arrangement

[100] VR experiences included *Across the Line* (Nonny de la Pena, Jeff Fitzsimmons, Brad Lichtenstein), *Ascent: Eagle Island* (Mobio Interactive/CFC Media Lab Co-production), *Cardboard Crash* (Vincent McCurley, NFB Digital Studio), *The Exhumation* (Ryan Suffern), *For My Son* (Chris Temple, Zach Ingrasci), *A History of Cuban Dance* (Lucy Walker), *Inside the Box of Kurios* (Felix & Paul Studios), *Lovr* (Aaron Bradbury), *My Mother's Wing* (Gabo Arora, Ari Palitz), *Nomads: Maasi* (Felix & Paul Studios), *Nomads: Sea Gypsies* (Felix & Paul Studios), *Offshore VR* (Brenda Longfellow, Mike Robbins, Helios Design Labs), *Surviving Solitary* (The Globe and Mail), *TimeTraveller Guided Virtual Reality Tours* (IIF, CFC Media Lab co-production), *Tiny Desk 360* (RYOT Films, NPR), and *Waves of Grace* (Gabo Arora, Chris Milk). Hot Docs, "2016 Screening Schedule," 28 April – 8 May 2016, 20–21.

[101] Sarafina DiFelice (Associate Director of Programming), interview with Caroline Klimek by phone, May 27, 2016.

made the Hot Docs House a convenient introduction site, while minimizing the festival's financial risk. Festivalgoers visiting the Hot Docs House collected their tickets at the CraveTV Box Office and could then explore DocX, since regular screenings did not take place at this location.

Figure 3: My husband experiencing the NFB's Cardboard Crash VR (2015) at Hot Docs House. Photo credit: Caroline Klimek, 2016.

The DocX floor consisted of two rooms. The first room featured an NFB-hosted virtual reality station called *Cardboard Crash* (2015) (see Figure 3). It included a living room setup, in which attendees could watch the interactive documentary *The World in Ten Blocks* on iPads. Adjacent to it was a table sponsored by CFC that displayed two computers showcasing *Zen Eagle* and *Timetraveller Guided Virtual Reality Tours*. The second room served as a viewing station for VR films. One corner hosted Brenda Longfellow's project *Offshore VR,* while the

other featured *The Globe and Mail*'s piece *Solitary Confinement.* Samsung sponsored a corner known as the "Samsung Gear corner," which was composed of six stations equipped with Samsung Gear headsets, where attendees could choose from a selection of eight VR films. Each sponsored experience had a volunteer, referred to as a Virtual Reality Facilitator, available to assist users. These volunteers set up users' selections and instructed them on how to set up the Samsung Gear headset, including focus, wearing, pausing/playing, and volume adjustments. Users sat in an office chair that allowed them to spin the full 360 degrees to more fully immerse themselves in the VR experience. However, users remained aware of their surroundings, as they could hear people chatting and occasionally bumped into one another while in line. Participants were also tethered to cables attached to the wall so that they were not fully autonomous during their VR experiences. At Hot Docs House, it seemed important for representatives of the sponsored experiences, such as the NFB and CFC, to be hands-on to ensure the quality of festivalgoers' experiences and prevent technical glitches. This shift from them participating programming partners to sponsors highlighted the key stakeholders that were interested in promoting technology through DocX.

For DiFelice, curating the virtual reality experiences at Hot Docs House raised additional concerns not typically associated with festivals, including liability related to potential audience health problems such as nausea, headaches, and dizziness caused by VR. Upon entering Hot Docs House, festivalgoers were required to read health warnings about VR and sign waivers before proceeding. Those new to VR were strongly advised to try something mild like the NFB's *Cardboard Crash* to get their "VR legs" before transitioning to a more advanced program such as the CFC's *Eagle Eye*, for which users must move their heads up and down as well as side to side to control the bird's motions. Another important aspect of this "art space" was that it created

in between micro-level para-cinematic "experiences" for festival attendees. Building on this, Hot Docs House offered opportunities for people to discuss their new media experiences. While standing in line, people would share recommendations (e.g., if you are claustrophobic, avoid trying *Solitary Confinement*), and other festival anecdotes. This created a communal space for audiences to gather and discuss what they were seeing, and for a continuation of the new media experience once the headset came off.

While Hot Docs Programming Director Shane Smith acknowledged that "these interactive docs and hybrid forms of doc are the way of the future,"[102] he also underscored the importance of maintaining the festival experience:

> I think there are opportunities outside of the festival experience to enhance the brand and to work with other platforms, and explore other platforms as opportunities for doc filmmakers. I'm really interested in whatever we can do to enhance the *audience experience* and grow the Hot Docs audience, but also to provide a platform and opportunities for doc filmmakers. […] *The festival experience will never die*.[103]

The introduction of Hot Docs House and the integration of the DocX program into the main festival programming marked a significant milestone for Hot Docs. It provided a dedicated space for immersive and interdisciplinary documentary works, allowing audiences to explore new forms of storytelling and exhibition formats. This commitment to DocX demonstrated Hot Docs' dedication to pushing the boundaries of documentary filmmaking and creating inclusive spaces for innovative storytelling. Sarafina DiFelice's role in curating Hot Docs House showcased her vision and contribution to the festival's expansion. As she left after this festival, her significant efforts in fostering a communal and festival atmosphere played a pivotal role in shaping the legacy of Hot Docs House and its impact on the festival's future. As Hot Docs Programming

[102] Manori Ravindran, "Hot Docs' Shane Smith on shorts, VR and world premieres," *Realscreen*, August 21, 2015. https://realscreen.com/2015/08/21/hot-docs-shane-smith-on-shorts-vr-and-world-premieres/
[103] Manori Ravindran, "Hot Docs' Shane Smith on shorts, VR and world premieres."

Director Shane Smith highlighted, while exploring opportunities beyond the festival experience is crucial, the festival experience itself will always hold its unique value as a gathering place for filmmakers, industry professionals, and audiences to come together, fostering dialogue, and showcasing the power of documentary storytelling. Hot Docs House reflects Hot Docs' commitment to the festival experience and its openness to new platforms and formats that enrich the audience's journey and support documentary filmmakers.

DocX at Brookfield Place

In 2017, the DocX program found its new home at Brookfield Place, a prominent office complex in downtown Toronto's Financial District. This relocation, although convenient for corporate workers and professionals, presented challenges for festival attendees. Situated further away from the festival's main theater venues,[104] visiting DocX now required deliberate effort, making it difficult for casual drop-ins before or after screenings. Furthermore, Brookfield Place is a large office complex that connects two large corporate buildings—the TD Canada Trust Tower and the Bay Wellington Tower—and is proximate to major tourist destinations such as the Hockey Hall of Fame. DocX itself was situated within this complex near the Allen Lambert Galleria in Brookfield Place, also known as "the crystal cathedral of commerce,"[105] a high pedestrian thoroughfare for corporate workers, bankers, and lawyers. This partnership deal with Brookfield Place seemed incongruous for Hot Docs, as the building's overall aesthetic was not aligned with the atmosphere that Hot Docs had cultivated. As Lyell Davies explains in his article

[104] In their festival program book, Hot Docs includes a festival map to illustrate the locations of all the theatres and venues throughout the festival. These venues are typically situated in proximity to their central headquarters, the Hot Docs Ted Rogers Cinema, and within the entertainment district along King Street West. The Brookfield Place location was relatively distant from this central hub and located within the financial district on Bay Street.
[105] "Alberto Giuliani: Surviving Humanity," Brookfield Properties, accessed August 1, 2023, https://www.brookfieldproperties.com/en/our-approach/events/alberto-giuliani-surviving-humanity-74.html.

"Documentary Film Festivals as Ideological Transactions: Film Screening Sites at Hot Docs," Hot Docs "establishe[d] the festival experience as an *erudite, serious activity*, rather than one based in frivolous consumption."[106] He explained that this experience has reverberated through their choice of venues, including Bloor Hot Docs Cinema, the Isabel Bader Theatre, and the theatre at the Royal Ontario Museum (ROM):

> The character of these venues establishes the serious nature of the festival and the documentaries included in its program, linking the act of attending the festival with the act of museum attendance or art cinema viewership while segregating festivalgoers from the masses attending the city's commercial cinemas or multiplexes.[107]

It became clear that Brookfield Place was a new partnership for Hot Docs. Gabor Petric, the DocX Programmer, candidly admitted that "we kind of had to put something there to be honest. There was no way around it. So, I was like okay, we'll play."[108] With the aim of capitalizing on foot traffic, Petric hoped to entice one-time visitors to experience VR. For Petric one of the biggest challenges with DocX has been confirming a venue because it is a free program. This added to the difficulty of finding sponsors who were interested in hosting a small, low-budget, experimental, and ultimately non-revenue-earning program.[109]

[106] Lyell Davies, "Documentary Film Festivals as Ideological Transactions: Film Screening Sites at Hot Docs," *Canadian Journal of Film Studies* 51, no. 1 (March 2016), 91.
[107] Lyell Davies, "Documentary Film Festivals as Ideological Transactions: Film Screening Sites at Hot Docs," 96.
[108] Gabor Petric (Programmer), interview with Caroline Klimek in Person at coffee shop, March 3, 2020.
[109] Petric, Interview with Caroline Klimek.

Figure 4: DocX at Brookfield Place at the 2017 Hot Docs Film Festival. Photo Credit: Caroline Klimek, 2017.

At Brookfield Place, DocX was set up as a booth with a small stage where people would line up to try headsets (see Figure 4). The virtual reality showcase included 10 VR projects for audiences to experience on Samsung Gear headsets.[110] Attendees would line up and get to try one experience at a time on stage and then get back in line if they wanted to try another. When I visited DocX on April 29, 2017, I stayed for two hours, watching one VR project at a time and then immediately getting back in line. I did this numerous times. While waiting my turn, I learned from one Hot Docs volunteer who was tracking attendees that most people stayed for only one or two experiences before leaving. Nevertheless, according to Hot Doc's *2016/2017 Highlight* document the DocX program "attract[ed] nearly 2,000 participants, who enjoyed 2,500

[110] VR experiences include: *Chasing Coral: The VR Experience* (Jeff Orlowski, USA); *Drams of 'O'* (Félix Lajeunnese and Paul Raphaël); *The Fastest Ride* (Jessica Edwards); *This is what the future looked like* (Sam Green and Gary Hustwit); *Fistful of Stars* (Eliza McNitt); *A Tribe Called Red: Indian City 360* (Jon Riera); *The People's House: Inside the White House with Barack and Michelle Obama* (Félix Lajeunnese and Paul Raphaël); *Unrest VR* (Jennifer Brea); *Polarman* (Ryan Olvier and Polarman); *Welcome to Wacken* (Sam Dunn).

viewings of VR experiences."[111] However, the change in attendee behaviour holds particular significance when we consider the inherent immersive potential of VR storytelling contrasted with the relatively brief engagement observed among festival-goers. The noteworthy pattern, where attendees sampled only one or two experiences, underscores the dynamic nature of DocX and the difficulties in effectively engaging audiences with VR.

Placing DocX in a corporate environment like Brookfield Place, where it was also far removed from the festival's core activities, gave the impression that it was disconnected from the eventness of Hot Docs. This caused it to resemble more a tech show than an integral part of the film festival. This perception was reinforced by DocX's limited engagement with the Industry Conference, with only one walkthrough for the program was scheduled. These observations underscore the ongoing challenge faced by Hot Docs in defining DocX's rightful place and space within the larger festival framework. DiFelice's departure from Hot Docs after the festival, where she transitioned to a position at Netflix, and the subsequent transfer of responsibilities to Gabor Petric as the new DocX Programmer, raised questions about Doc's future prominence.[112] This transition indicates that Hot Docs was in the process of re-evaluating the role and positioning of DocX within the festival.

In conclusion, DocX's relocation to Brookfield Place presented both challenges and opportunities for Hot Docs. While the corporate setting and distance from other festival activities may have seemed incongruent with the festival's approach to its content, these features also provided DocX with a chance to engage with a different audience and leverage foot traffic. However, the program's placement and limited engagement raised questions about its integration

[111] Hot Docs 2016/2017 Festival Highlights, 8, https://issuu.com/hotdocsfestival/docs/hd17_hi-lite-broch_4web_fa-.
[112] Daniele Alcinii, "Hot Docs' Sarafina DiFelice jumps to Netflix," *Playback*, September 22, 2017, https://playbackonline.ca/2017/09/22/hot-docs-sarafina-difelice-jumps-to-netflix/.

with and identity in relation to the festival. The departure of key personnel, such as DeFelice who was the driving force behind DocX, further emphasized the need for Hot Docs to more clearly define DocX's space and role within the festival. As Hot Docs continues to navigate these challenges, it is essential that they strategize and find ways of cultivating DocX as an integral and meaningful component of the festival experience.

DocX at Autodesk @ MaRS

The 2018 edition of Hot Docs marked the festival's 25th anniversary, a significant milestone in its growth and evolution as a leading advocate for documentary filmmaking. That year, Hot Docs showed a record 246 films in 2018,[113] and it proudly announced gender parity in its programming, distinguishing itself from other festivals that were reducing the number of programs and films screened.

During the 2018 festival, DocX found itself divided between two locations: Brookfield Place and a new venue, the Autodesk @ MaRS building at College St. and University Ave. in downtown Toronto. Once again, both sites were separate from the main festival sites. However, the MaRS building better aligned with the program's aesthetics, given its association with start-ups and technology companies, such as Facebook Canada and AirBnB. Described as a "state-of-the-art and amenity-rich" space, the MaRS building serves as North America's largest urban innovation hub, housing 120 tenants, including research labs and global tech companies.[114] For Petric, the "MaRS space was not as close to where we wanted, but in terms of functionality it was the right space for us."[115] This choice signifies the importance of functionality over location

[113] Barry Hertz, "Toronto's Hot Docs festival reaches gender parity with 2018 lineup," *The Globe and Mail*, March 20, 2018, https://www.theglobeandmail.com/arts/film/article-torontos-hot-docs-festival-reaches-gender-parity-with-2018-lineup/.
[114] "About MaRS," MaRS Discovery District, accessed June 1, 2022, https://www.marsdd.com/about/.
[115] Petric, Interview with Caroline Klimek.

and highlights Hot Docs' commitment to adapting and optimizing DocX's physical presence to enhance the audience's experience and underscores the evolving role of the program within the festival.

Additionally, DocX forged a partnership with Contraverse, a Toronto-based virtual reality production and distribution company, to support the program. Contraverse positioned itself as experts in VR and cinematic storytelling, seeking innovative ways to utilize VR for inspiration, innovation, and engagement.[116] The details of their attachment to DocX remain somewhat unclear, but Petric explained that Contraverse assisted with facilitating the program:

> In the last year, we developed a partnership with the team called Contraverse and they are essentially the ones that help us facilitate the whole program. I'll program the pieces and logistically they are the ones that are kind of putting it all together […] They are really solid in terms of trying to build a schedule of how things work and operate.[117]

The involvement of Contraverse allowed Hot Docs to present more technically complex and immersive experiences, moving beyond showing 360° videos and VR projects that had been solely on Samsung Gear headsets. Contraverse set up more complicated experiences, such as *The Third Wheel* (2017) (see Figure 5), in which users sat in a wheelchair that moves 360° and a photo installation for CFC's *Made This Way: Redefining Masculinity* (2018) and room-scale experience for *Tree* (2017).[118] They also set up a timed ticket system for DocX. This logistical support expanded DocX's scope, so that it featured technologically advanced projects and lent the program a more serious and immersive atmosphere.

[116] "About Contraverse," Contraverse, accessed June 1, 2022, https://www.contraverse.co/about.
[117] Petric, Interview with Caroline Klimek.
[118] Jen Vitale, "Tree VR: A Virtual Reality Experience," Jen Vitale's Portfolio, accessed July 20, 2022, https://www.jenvitale.com/tree-vr.

Figure 5: The display for André Roy's The Third Wheel (2017) at MaRs Building during the 2018 Hot Docs Film Festival. Photo Credit: Caroline Klimek, 2018.

DocX's 2018 program featured 14 virtual reality and interactive exhibits, a video installation presented in partnership with the Goethe-Institut Toronto, and a special live performance.[119] The same year, Hot Docs introduced a new prize dedicated to DocX: the coveted Audience Award, awarded to the DocX project with the highest rating in an audience poll.[120] This award aligned with similar initiatives seen in other festivals worldwide, such as the Venice Lion for Best Immersive Story at the Venice Immersive.[121] DocX's Audience Award winner in 2018 was *Tree*, directed by Milica Zec and Winslow Turner Porter III. With this virtual reality project, the viewer was transformed into a rainforest tree. As its description read: "With your

[119] "Hot Docs 2018 Screening Schedule," Hot Docs, accessed April 26, 2019, http://assets.hotdocs.ca/doc/HD18_Screening-Schedule.pdf, 24–26.
[120] "Hot Docs 2019 Annual Report," Hot Docs, accessed June 1, 2020, http://assets.hotdocs.ca/doc/HD19_Annual-Report.pdf, 82.
[121] By 2018 other film festivals with VR or immersive new media programs include VR @ EFM Berlinale, Cannes XR Development Showcase and NEXT program, Sundance New Frontier, Tribeca Immersive, Sheffield Doc/Fest and Vancouver International Film Festival Immersive Program.

arms as branches and your body as the trunk, you'll experience the tree's growth from a seedling into its fullest form and witness its fate firsthand."[122] *Tree* was a large room-scale immersive experience, and one of the most technologically advanced projects that DocX had hosted. The tickets for this experience sold out rapidly, and the website advertised a three-hour wait time. My own attempts to secure advance tickets and my repeated attempts at the rush line on various days attested to the project's popularity. What set *Tree* apart was its pioneering integration of VR and physicality. Attendees truly felt like they embodied the tree during the experience, creating a powerful and transformative encounter. The overwhelming visitor testimonials, lengthy line-ups, and extensive press coverage demonstrated to Hot Docs DocX's potential and the audience's growing expectations for immersive and transformative projects. Similarly, *Tree*'s success and demand indicated the direction that DocX could take and highlighted the audience's increasing appetite for captivating and experiential works within its programming.

In 2019, DocX was exclusively located in the MaRS building, occupying the main floor. The program encompassed 19 events/projects, including live performances, video installations, feature films, and 16 VR projects.[123] According to Hot Docs' *2018/2019 Highlight*, Hot Docs saw the partnership with Autodesk as "the perfect location in which to connect audiences,

---

[122] "Tree Official," accessed July 1, 2021, https://www.treeofficial.com/.

[123] Live Event – *Supreme Law* (D: Katerina Cizek | Canada | 90 min). Video Installation – *Touching From a Distance II: Transmediations in the Digital Age* (Curator: Tina Sauerlaender | Germany Canada, UK); Screening – *The Infiltrators* (D: Alex Rivera, Cristina Ibarra | USA | 94 min). Virtual Reality and Interactive: *Anthropocene: Carrara* (D: Nicholas de Pencier, Jennifer Baichwal, Edward Burtynsky | Canada | 9 min); *Anthropocene: Dandora* (D: Nicholas de Pencier, Jennifer Baichwal, Edward Burtynsky | Canada | 7 min); *Anthropocene: Ivory Burn* (D: Nicholas de Pencier, Jennifer Baichwal, Edward Burtynsky | Canada | 7 min); *Authentically Us* (D: Jesse Ayala | USA | 21 min); *Awavena* (D: Lynette Wallworth | Australia, Brazil, USA | 17 min); *Denoise* (D: Georgio Ferrero, Federico Biasin | Italy | 13 min); *The Evolution of Testicles* (D: Ryan Hartsell | USA | 9 min); *The Hidden* (D: Lindsay Branham | USA, India | 10 min); *Home After War* (D: Gayatri Parameswaran | USA, Germany, Iraq | 20 min); *In Bakassi* (D: Joel 'Kachi Benson | Nigeria | 5 min); *Meeting a Monster* (D: Gabriela Arp | USA | 9 min); *Swampscapes* (D: Elizabeth Miller, Kim Grinfeder, Juan Carlos Zaldivar | Canada, USA | 13 min); *They Should Be Flowers* (D: Karen Chapman | Canada | 3 min); *Through the Masks of Luzia* (D: Francois Blouin, Félix Lajeunesse, Paul Raphaël | Canada | 13 min); *Traveling While Black* (D: Roger Ross Williams, Ayesha Nadarajah, Félix Lajeunesse, Paul Raphaël |Canada | 21 min); *What Goes Up // Must Come Down* (D: Kel O'Neill, Eline Jongsma | Taiwan, Canada, USA | 10 min).

technology and new forms of documentary storytelling."[124] This document also states Hot Docs' priorities for DocX, which include "assess[ing] options within budget to improve DocX planning and presentation, including a clarification of roles and responsibilities and improved cross-departmental collaboration."[125] They commented that their partnership with Contraverse "provided a booking system, as well as a simplified user interface for presenting VR experiences. This required less staffing of the front-of-house operation and allowed for volunteers to take over the facilitation role."[126] Hot Docs deemed its partnership with Autodesk as providing it with the ideal location for connecting audiences, technology, and new forms of documentary storytelling. The festival highlighted its commitment to improving DocX's planning and presentation, emphasizing the need for role clarification, enhanced cross-departmental collaboration, and exploring budget options.

During this period, however, DocX was no longer maintained as an official submission category. Instead, Petric primarily sought submissions through his contacts and connections with other festivals, marking a significant shift in the program's curation strategy.[127] Due to limited funds available for artist's fees, travel, and accommodation, the focus also shifted towards spotlighting local artists, providing them with an opportunity to showcase their VR works. This shift in the submission process is significant because it signifies a departure from the established and possibly more formal way of curating content for the program. Previously, submissions may have been open to a wider pool of applicants through an official category, but now the curation process has become more selective and dependent on personal connections. This shift can have

[124] "Hot Docs 2019 Annual Report," Hot Docs, accessed June 1, 2020, http://assets.hotdocs.ca/doc/HD19_Annual-Report.pdf, 7.
[125] "Hot Docs 2019 Annual Report," 45.
[126] "Hot Docs 2019 Annual Report," 45.
[127] Petric, Interview with Caroline Klimek.

several implications for the type of content featured in DocX, as it may become more influenced by personal networks and relationships. The Hot Docs Audience Award for DocX went to the Canadian VR experience *Traveling While Black* (2019), which was directed by Felix and Paul Studios with Roger Ross Williams and Ayesha Nadarajah. This VR project was created by renowned VR powerhouse[128] Felix & Paul Studios, marking a noteworthy shift in award recognition from emerging and independent filmmakers to a major studio with a track record of producing VR works in partnership with figures such as President Barack Obama and organizations like Cirque de Soleil, Time Studios and the International Space Station.

Hot Docs 2020: What's Next?

Over the course of five years, Hot Docs made significant strides in incorporating virtual reality into its documentary film festival through its DocX program. From its early days of showcasing 360° videos on Samsung Gear headsets to embracing more immersive and technically complex VR experiences, Hot Docs has demonstrated a commitment to pushing the boundaries of documentary storytelling. Hot Docs' partnership with Contraverse in 2018 marked a turning point, enabling the program to present VR projects that went beyond mere visual spectacles. Contraverse's involvement provided the festival with logistical support and facilitated the inclusion of more immersive and transformative experiences, such as room-scale VR and physically interactive installations. With this collaboration, the responsibility for technical support shifted from Hot Docs' staff to Contraverse, both leading up to and during the festival. However, this move also meant that the responsibility for technical support shifted from festival staff to an external partner. The introduction of the Audience Award for DocX in the same year

[128] Jessica Vomiero, "Montreal-Based VR Film Studio Felix & Paul Raises $6.8 million Series A," *betakit,* June 16, 2016, https://betakit.com/montreal-based-vr-film-studio-felix-paul-raises-6-8-million-series-a/.

(2018) showcased Hot Docs' recognition of the growing demand for VR experiences within the documentary genre. By incorporating audience participation and feedback, the festival not only celebrated exceptional projects, but it also gained insights into audience preferences and expectations. This audience-centric approach further solidified Hot Docs' position as a leading advocate for documentary VR. Over the years, Hot Docs has demonstrated a commitment to adapting and collaboration through its venue choices. Moving from Brookfield Place to the aesthetically suitable Autodesk @ MaRS building demonstrated a conscious effort to align the program with cutting-edge technology spaces, fostering an environment conducive to exploring new forms of storytelling. The potential partnership with TIFF for utilizing gallery space further reinforces Hot Docs' commitment to integrating DocX into the festival's core offerings.

In 2020, due to the COVID-19 pandemic, Hot Docs canceled its in-person festival and shifted to online screenings through partnerships with CBC Gem and its streaming site. [129] In an interview conducted before the pandemic, Petric revealed the original plans for the 2020 festival, which included an impressive DocX program featuring VR projects from countries previously unrepresented at Hot Docs, such as Nigeria. DocX was to feature 12 projects[130] from South Africa, Canada, Nigeria, France and co-productions experiences from Australia/USA/UK/Kenya/Indonesia/Malaysia and Chad/Kenya/Zimbabwe.[131] During my interview with Petric on March 3, 2020, Hot Docs was in the process of finalizing their festival

[129] Norman Wilner, "Hot Docs 2020 is turning into a digital film festival," *Now Magazine,* May 5, 2020, https://nowtoronto.com/movies/hot-docs-online-festival-2020-streaming.
[130] These 12 virtual reality projects includedincludedincluded: *Azibuye – The Occupation* (D: Dylan Valley | South Africa | 11 min); *The Book of Distance* (D: Randall Okita | Canada | 20 min); *Breathe* (unknown); *The Curious Life of Bill Mont* (D: Andrea Patino Contreras & Katrina Sorrentino | Canada | 9 min); *Daughter of Chibok* (D: Joel 'Kachi Benson | Nigeria | 11 min); *Ecosphere* (D: Joseph Purdam | Australia, USA, UK, Kenya, Indonesia, Malaysia | 45 min); *Fragments of Jerusalem* (D: Michal Conford | Canada | 18 min); *Lagos at Large* (D: Jumoke Sanwo | Nigeria | 10 min); *Le Lac* (D: Nyasha Kadandara | Chad, Kenya, Zimbabwe | 10 min); *Mother of the Forest* (D: Kylie Caraway | Canada, USA | 17 min); *Performing Lives* (Canada); *Rebuilding Notre Dame* (D: Chloé Rochereuil | France | 17 min).
[131] Hot Docs Press Release, "Interdisciplinary Storytelling Takes Centre Stage in DocX Program."

and preparing to unveil their full program. The discussion centered around the 2020 festival, with the assumption that it would proceed as an in-person event. Hot Docs was also exploring a multi-year partnership at the time with TIFF to use their gallery space for DocX, further integrating it under the festival film umbrella. [132] For Petric this gallery space represented "more room to play with" and, after seeing what imagineNATIVE did with the space in 2019, he said that "it's part of the reason why we wanted it."[133] This space would allow DocX to include more immersive, full-scale projects and expand their programming further beyond Samsung Gear headsets. However, DocX was withheld from the online festival, with Hot Docs indicating that it would be presented physically at a later time in-person.[134] Unfortunately, DocX never returned in-person and was quietly cancelled by Hot Docs, following the precedent set by TIFF after the 2016 film festival.[135]

imagineNATIVE Film + Media Art Festival

imagineNATIVE Film + Media Art Festival (imagineNATIVE) is the largest Indigenous film festival in Canada, setting itself apart from prestigious counterparts like TIFF and Hot Docs. Unlike those festivals, imagineNATIVE thrives as a community-based event, drawing Indigenous filmmakers, media artists, storytellers, and audiences from across the globe every October for a ten-day celebration. Affectionately known in the community as "Indigenous Christmas," imagineNATIVE holds a special place in community members' hearts as a highly

[132] Petric, Interview with Caroline Klimek.
[133] Petric, Interview with Caroline Klimek.
[134] Norman Wilner, "Hot Docs 2020 is turning into a digital film festival," *Now Magazine,* May 5, 2020, https://nowtoronto.com/movies/hot-docs-online-festival-2020-streaming.
[135] The Festival has not answered interview or email requests for a comment on why the DocX program was cancelled.

anticipated annual gathering. It has become an integral part of the year, bringing everyone together to celebrate Indigenous storytelling and creative expression.

imagineNATIVE has encouraged alternative new media by experimenting and showcasing groundbreaking new works, whether they are sound works, video, and now digital media. Over the years, we have seen key staff and executive members driving these new media programs, starting with Daniel Northway-Frank, Jason Edward Lewis, and Meagan Byrne. For staff members, exhibiting new media works at the festival is a labour of love. However, there is a tension at the heart of their approach: a film and media art festival is trying to incorporate video games and virtual reality, but executives have had trouble understanding the difference in language in how artists/programmers/festival management talk about creating and exhibiting visual art, film, and digital art. We see this in specific struggles that staff members have encountered when advocating for more resources and time, as they strive to strike the right balance and create meaningful experiences for their audiences.

Digital Media Art+Cade (2015-2017)

imagineNATIVE introduced its Digital Media Art+Cade (DMAC) in 2015 so that they could include more digital art in the festival. This immersive digital media "playground" ran from 2015 to 2017 and featured Indigenous gaming, virtual reality demonstrations, and interactive work, and it showcased fewer than 10 projects per year.[136] DMAC was located on the second floor of the TIFF Bell Lightbox in the Green Room. Unlike Hot Docs, the hope was that placing DMAC in the pathway of festivalgoers would entice them to enter this new space. The location was viewed as an opportunity to engage with audiences outside of the traditional screening venue, which was echoed throughout the festival with the introduction of their new

[136] 2015 (8 projects), 2016 (8 projects) and 2017 (9) projects.

app and commissioned web series, *The Aroha Project* (2014). Throughout the festival, volunteers gave VR demonstrations using Google Cardboard to attendees standing in line. This enabled them to introduce the Digital Media Art+Cade into the cinematic space, similar to what Hot Doc's did in introducing DocX to audiences in 2015.

Manager of Festival Initiatives, Daniel Northway-Frank,[137] was responsible for programming and curating the DMAC for three years. An avid fan and promoter of virtual reality (yet self-described VR 'neophyte'), Northway-Frank wanted to curate a space dedicated to new media art that was separate and physically separated from the black box. There was a need to think about how to exhibit this work as according to Northway-Frank, digital media had the highest submission rate for the 2015 festival.[138] The increased number of submissions made evident the need to promote and exhibit new work by Indigenous artists, an important part of imagineNATIVE's mandate.[139]

For this same festival (2015), the DMAC exhibition space consisted of three computers, two iPads, a VR demonstration, two arcade kiosks, and two projection screens around the edge of the room. This setup was replicated for the next two years. The DMAC was set up in so that the furniture created a circular path for patrons to navigate the space. Viewers could visit with each work for as long as they wanted, but patrons unfamiliar with new media depended on a facilitator for details about how to interact with and use each device. Facilitators provided

---

[137] Titles have changed from 2015 to present.

[138] Daniel Northway-Frank (Manager of Festival Initiatives), interview with Caroline Klimek, in-person at imagineNATIVE office, January 8, 2016.
There are three submission categories for imagineNATIVE: Film+Video, Audio, and Digital Media.

[139] Northway-Frank, Interview with Caroline Klimek.
imagineNATIVE's mandate states, "imagineNATIVE presents new and innovative film, video, audio, and digital media works. Programming includes annual retrospectives, curated programs, community screenings, and presentations of ground-breaking and legacy works to a wide audience." This festival focuses on both heritage and new work. See "Vision + Mission + Mandate," imagineNATIVE, https://imaginenative.org/mandate/, accessed 1 February 2017.

instructions, demonstrations, and tours and were similar to gallery attendants insofar as they offered their own interpretations of the new media work. Similar to TIFF's POPX, the DMAC's facilitators were proactive and approached users with useful information and demonstrated how to interact with the works.

One question that Northway-Frank had to answer when curating the DMAC, however, was how to bring cinema audiences to another medium and keep them engaged. Northway-Frank opted to play with audiences' expectations and use objects that people could relate to: the DMAC used traditional arcade kiosks to host games from Indigicade, such as Meagan Byrne's *Wanisinowin | Lost* (2015) and Tara "Kitty" Renwick's game, *Cheating Perspective* (2015). Indigicade provided mentorship and training for six Indigenous women (aged 13 to 24) to produce their own video games. Presenting these projects on classic arcade cabinets more gently introduced festivalgoers to the new media space as first-time users, as they could relate to the traditional kiosks more than to VR demonstrations and would not require any special instruction. However, technology proved a problem for Northway-Frank and his programming team as they struggled to ensure that all technology remained operational and displayed the works properly. A major consideration for Northway-Frank was how to exhibit these projects for a collective audience rather than creating individual stations. By using large displays and various "sets," such as traditional arcade kiosks, large projection screens, and computers, festivalgoers could interact with each work individually and also watch each other in groups.

Despite these attempts in creating a new space for festivalgoers to experience DMAC, imagineNATIVE is still figuring out how to turn presentations into curated experiences. In my opinion, the Digital Media Art+Cade needs to be more than just a room to come into and more thought should be given to how the room should feel and how to draw people to each individual

project as attendees navigate the space. Like Hot Docs, imagineNATIVE also faced the challenge of finding an affordable location to host the Digital Media Art+Cade. By contrast with the film festival cycle, which lasts between one year and 19 months, the art gallery timeline is set three years in advance. imagineNATIVE frequently partners with local galleries throughout their festival, especially for their Art Crawl, which has been their largest and most popular event for the last three years.[140] However, due to the much longer timeline for art galleries' programming, Northway-Frank could not find a gallery to host the Digital Media Art+Cade and instead turned to new partnerships to find a malleable space that could be reinvented from year to year and project to project. imagineNATIVE partnered with the Canada Media Fund (CMF) to help pay for the space at TIFF. The CMF helps to fund Canadian television and digital media projects through their Convergent (television) and Experimental (digital media) funding streams—an ideal partnership for imagineNATIVE, according to which CMF helped with programming submissions and equipment.[141] To coincide with the introduction of DMAC, imagineNATIVE introduced a new award, the Best Digital Media Award, which included a cash prize of $500 sponsored by the festival. In 2015, Shandiin Woodward won with *Sky Pets* (2015 | Game); in 2016 Tracy Rector won with her VR project *Ch'aak'S'aagi* (Eagle Bone) (2016, USA, VR); and in 2017, DMAC veteran Elizabeth LaPensée won with *Thunderbird Strike* (2017, Canada, Game). Similar to Hot Docs, imagineNATIVE curated Industry talks, such as the Indigenous VR Spotlight, and workshops to complement and promote the Digital Media Art+Cade.

[140] Northway-Frank wants to continue growing imagineNATIVE's relationships with galleries. He views the Art Crawl as an alternative audience-builder that bridges art and cinema audiences. His dream is to create a corridor between 401 Richmond Street and TIFF Bell Lightbox to draw art and cinema audiences back and forth. Northway-Frank, Interview with Caroline Klimek.

[141] According to the Canada Media Fund's (CMF's) website, "the Experimental Stream encourages the development of innovative, interactive digital media content and software applications." See "About Us," Canada Media Fund, https://www.cmf-fmc.ca/about-us, accessed 1 February 2017.

The addition of new Board members, including Jason Edward Lewis (who joined in 2016) and Julie Nagam (who joined in 2020), who are digital artists themselves, marked a significant shift in how imagineNATIVE's executive team prioritized the Digital Media Art+Cade. According to Lewis:

> I was originally asked by the Chair at the time to come on because they needed to sort of step up their game as far as digital media. The concern is that all the board members were people—film and television, and they were making a really good go at incorporating digital media but had been hearing years of critiques from people like me, Skawennati and Archer Pechawis and other digital media artists who felt that they weren't really doing Indigenous digital media artists and art justice.[142]

Recognizing the critiques from Indigenous digital media artists such as Skawenatti and Pechawis regarding the placement and perception of the Digital Media Art+Cade, the festival aimed to address these concerns. It acknowledged that DMAC should not be a mere side attraction, but that it instead needed to be an integral part of the overall film festival experience (including red carpets and giving digital artists themselves a festival experience). In response to the board member comments who are digital media arts and curators, efforts were made to elevate the Digital Media Art+Cade, improve its positioning, and give it the recognition it deserved. Lewis' first priority after joining the Board was hiring a full-time staff member who could coordinate the new media program and better collaborate with his Initiative for Indigenous Futures and create better knowledge-sharing within the Indigenous artistic community.[143]

***2167* (2017)**

[142] Jason Edward Lewis (imagineNATIVE Member of Board of Directors), interview with Caroline Klimek on Zoom, September 10, 2020.
[143] For Lewis it was important for programmers to do more outreach to promote the film festival and the Digital Media Art+ Cade. This would help in finding submissions and creating stronger connections between the community and the festival.

In 2017, alongside the DMAC, imagineNATIVE presented another notable virtual reality exhibition titled *2167*. The project was part of the Canada 150 sesquicentennial celebrations, aiming to provide a counter-narrative to the problematic historical (mis)remembering and celebration of Canada's Confederation. The collaboration involved the imagineNATIVE Film + Media Arts Festival, Toronto International Film Festival (TIFF), the Initiative for Indigenous Futures (IIF), and the Pinnquag media production company. The project aimed to explore VR's possibilities as a medium for Indigenous storytelling and cultural preservation. Drawing inspiration from the year 2167, precisely 150 years after Canada's 150 celebrations, it envisioned a future where Indigenous people have regained their land, languages, and cultures. Through the immersive power of VR, the project transports viewers into this future world and allows them to experience Indigenous stories and perspectives in a deeply personal and engaging way. *2167* was a highly publicized exhibition that premiered at imagineNATIVE and travelled across Canada through imagineNATIVE's Tour Program.[144]

The project commissioned six artists to imagine a future Turtle Island using virtual reality to tell an alternative narrative that emphasized diverse Indigenous storytelling and challenged problematic aspects of the Canada 150 celebrations.[145] The artists included Kent Monkman, with his piece *Honour Dance,* Scott Benesiinaabandan's *Blueberry Pie Under a Martian Sky,* Danis Goulet's *The Hunt*, and the collective Postcommodity's *Each Branch Determined*. These

[144] Visit imagineNATIVE Tour here: https://imaginenative.org/year-round/tour/.
Anderson reported that *2167* travelled for two months and reached over 1000 people in 13 communities across Canada. Duncan Anderson, "Indigenous VR project makes its last stop in Vancouver," *Vancouver is Awesome*, December 20, 2017, https://www.vancouverisawesome.com/events-and-entertainment/indigenous-virtual-reality-vancouver-2147-1935316.

[145] The national celebration was criticized for ignoring the historical injustices and the ongoing struggles faced by Indigenous communities and the government's failure to enact the 94 recommendations from the Truth and Reconciliation Commission.

experiences delve into themes of identity, resilience, and the ongoing relationship between Indigenous communities and the land.

By leveraging virtual reality technology, the project aimed to foster empathy and understanding, to advance dialogue surrounding Indigenous issues, and to contribute to the decolonization of storytelling. imagineNATIVE's Artistic Director, Jason Ryle, stated that, "Often Indigenous people are seen as stuck in the past. In a year that many ways commemorates a very complex history for Indigenous people, this project celebrates the decades to come."[146] The project served as a platform for Indigenous artists to explore new modes of expression and to engage with audiences on a deeper emotional level. It also reflected imagineNATIVE's commitment to supporting Indigenous creatives and providing them with opportunities to showcase their work on Canadian stages.

Indigenous artists have a rich history of embracing new technology. According to scholar and curator Julie Nagam:

> Indigenous artists have a desire to merge both their cultural and traditional knowledge with new and existing technologies and devices. This desire creates a space for flexibility in the production of knowledge and creative practices. Indigenous artists who work within digital and new technologies are not bound by the same tired argument of traditional-versus-contemporary art practices.[147]

Meanwhile, Jason Edward Lewis of the Initiative for Indigenous Futures (IIF) highlighted how "the concept of the future imaginary seeks to capture the ways people imagine the futures of their societies. In Indigenous contexts we often refer to the seventh generation to keep us mindful of how our actions in the present will affect our descendants."[148] Lewis continued by explaining

---

[146] Elyse Skura, "2167: Indigenous artists to use virtual reality to imagine Canada's future," *CBC NEWS*, June 23, 2016, https://www.cbc.ca/news/canada/north/2167-indigenous-virtual-reality-art-project-1.3647580.
[147] Julie Nagam, "Indigenism: Aboriginal World View as Global Protocol," 82.
[148] Jason Edward Lewis, "A Brief (Media) History of the Indigenous Future," in *Indigenous Art: New Media and the Digital*, PUBLIC 54, ed. Heather Igloliorte, Julie Nagam, and Carla Taunton, 37.

that his research group turns to science fiction because, "it allows us to dream, concretely, about the what the future might hold for our children, communities and our species." By reclaiming what has been historically a white genre,[149] he commented, "we are now turning towards claiming territory in the future imaginary, or better yet, creating our own."[150] *2167* project created a platform and space for five Indigenous artists to reclaim the colonial narrative of Canada150 through VR technology.

Danis Goulet's VR piece, *The Hunt* exemplifies this reclaiming of the future imaginary within her six-minute VR piece, in which we watch a family fight a fleet of law enforcement orbs and then reprogram them, then rise up to help reclaim the family's land and culture.[151] Goulet's project challenges the imperial and colonial biases inherent in science fiction as a genre. Miriam Ross and Keziah Wall closely read *The Hunt* in their article "Fourth VR: Indigenous virtual reality practice," in which they describe this act of capturing and reprogramming the orbs: "The resistance of colonialism is then emphasized in the narrative which ends by showing that the Mohawk community has been capturing and reprogramming the orbs as a means of resistance."[152] This powerful metaphor for reclaiming cultural identity and challenging dominant narratives imposed on them coincides with Nagam's argument that "Digital technologies can create imagined worlds, new spaces and realities that operate outside the colonial binaries."[153] Much like Lisa Jackson's VR piece, *Biidaaban: First Light*, Goulet employs VR as a tool to

[149] Science fiction writer Nalo Hopkinson comments: "when I read science fictions set in the future, where there are no people of color, I wonder when the race war happened that killed us all of and why has the writer not seen fit to mention something so huge?" Quoted in Lewis, 37 from Nalo Hopkinson, Interview with Paul Kennedy "Ideas, the Coming Zombie apocalypse," *CBC Radio One*, 27 October 2015.
[150] Jason Edward Lewis, "A Brief (Media) History of the Indigenous Future," 37.
[151] For more discussion on *The Hunt*, read Wallis, K., & M. Ross, "Fourth VR: Indigenous virtual reality practice," *Convergence*, 27, no. 2, (2021), 313–329, https://doi.org/10.1177/1354856520943083.
[152] Keziah Wallis and Miriam Ross, "Fourth VR: Indigenous virtual reality practice," *Convergence: The International Journal of Research into New Media Technologies* 27, no. 2 (2021): 313–329, 321.
[153] Julie Nagam, "Indigenism: Aboriginal World View as Global Protocol," 84.

reclaim the science fiction genre. In *The Hunt*, Goulet creates a utopian vision where colonial surveillance technology is subverted and hacked.

The creation of imagined worlds and new spaces is seen in Benesiinaabandan's *Blueberry Pie Under a Martian Sky.* This experimental virtual reality piece reflected on new words, specifically on how the Anishnaabemowin term for "blueberry pie" did not exist until recently. In this VR piece, Bensiinaabandan explores the concept of wormholes and the return of a young boy to the place of origin of the Anishinaabeg people. Benesiinaabandan reflects on the creation of new words to describe evolving technologies and environments while connecting Anishinaabeg stories with scientific theories about time and wormholes.

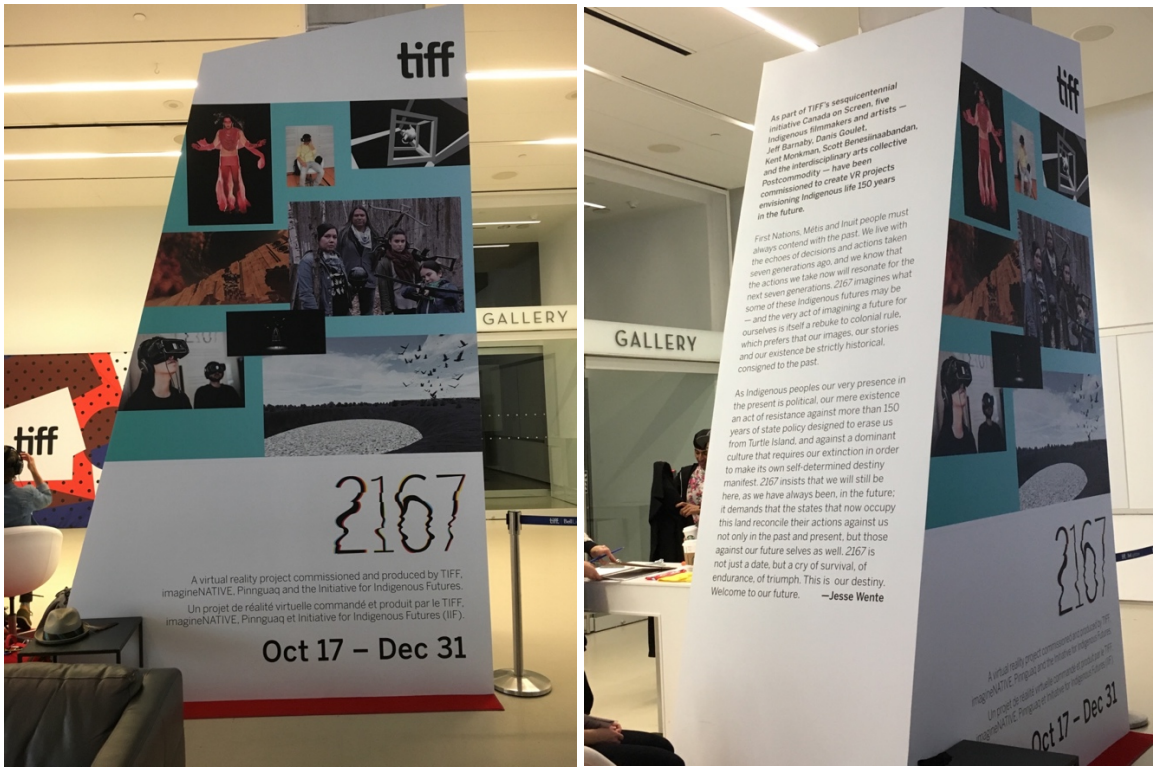


Figure 6: The 2167 project decal displayed in the main lobby of the TIFF Bell Lightbox during the 2017 imagineNATIVE Film + Media Arts Festival. Photo Credit: Caroline Klimek, 2017.

2167 was a highly publicized event that featured prominent Indigenous filmmakers and artists in Canada, which made it an important VR exhibition. During its premiere at imagineNATIVE, *2167* was placed in the TIFF lobby. For this event, the lobby was transformed and included decals on the floors and walls that described each VR piece and promoted the artists and exhibits (see Figure 6). The exhibition included a program note and numerous facilitators to help attendees use the headsets. During the festival, there were consistent lineups to see this exhibition. Unlike DMAC, it was impossible to miss *2167* due to its marketing, promotion, and placement.

As a white settler from an academic institution studying an Indigenous film festival, I am cognizant of my positionality and the need to approach my critique sensitively and respectfully. In doing so, I echo the sentiment expressed by political scientist scholar Wendy Brown, "that critique is not equivalent to rejection or denunciation, that the call to rethink something is not inherently treasonous but can actually be a way of caring for and even renewing the object in question."[154] This perspective is further explored by scholar Amber Richelle Dean's words in her introduction to *Remembering Vancouver's Disappeared Women,* where she highlights the importance of embracing the complexities and contradictions as, "Not to do so potentially does a disservice to those productions and their creators, for critique can be a way of taking their work seriously, of offering interpretations that might strengthen such work in the future."[155] Therefore, it is crucial for me to approach my critique with humility and awareness of the power dynamics at play.

[154] Wendy Brown, *Edgework: Critical Essays on Knowledge and Politics* (Princeton, N.J: Princeton University Press, 2005), x.
[155] Amber Richelle Dean, *Remembering Vancouver's Disappeared Women: Settler Colonialism and the Difficulty of Inheritance* (Toronto: Toronto University Press, 2015), 21.

When comparing DMAC and *2167*, the latter speaks back to the underlying issue of disposability and the differential treatment of filmmakers and artists in terms of visibility and prominence at imagineNATIVE. Whereas *2167* showcased renowned Indigenous filmmakers and new media artists who were provided with funding and a prominent platform at TIFF Bell Lightbox, by contrast, the DMAC featured students and emerging creators and was tucked away on the second floor. During my interviews with Lead Digital + Interactive Coordinator Meagan Byrne, she expressed a heightened awareness of which filmmakers and artists were being given space and a platform at the film festival. As I will elaborate below, she actively sought opportunities to spotlight emerging creators and explore alternative media, such as video games, through the video game premiere event called the Night of Indigenous Devs. *2167*'s presence and prominent placement starkly contrasts with the DMAC.

iNDigital Space (2018-2020)

In 2018, imagineNATIVE revitalized its new media program with the launch of the iNDigital Space, curated by Meagan Byrne, the festival's first Digital + Interactive Coordinator. A game designer from Sheridan College and member of Indigicade, Byrne showcased her games *Wanisinowin*, *Sealskin*, and *Purity + Decay* at DMAC in 2015, 2016, and 2017 respectively. When her games were shown at DMAC, the imagineNATIVE team and Board of Directors would ask her opinion about the program and as she has said, she "complained her way into a job."[156] For example, she felt that the Green Room as the site for the DMAC was disrespectful to the artists being showcased, as their projects were located behind the bathrooms. She also wanted

[156] Meagan Byrne (Lead Digital + Interactive Coordinator), Interview with Caroline Klimek, in person at imagineNATIVE's office, March 5, 2020.

artists' talks to better include new creators, as she felt forgotten each year that one of her games had been showcased.[157] Byrne joined the imagineNATIVE team for the 2018 festival.

During the 2018 festival, Byrne operated with limited resources and considered it a prototype year, during which she focused on essential elements to showcase the works effectively. Byrne's vision for the iNDigital Space was to create a purposeful and inclusive environment for Indigenous game and app designers and digital creatives who often felt overlooked in the Indigenous art world. She viewed that year as a pilot because imagineNATIVE did not have the budget for anything other than the space, and Byrne did not know how much everything was going to cost. As a result, she also had no staff of her own other than volunteers during the festival, a stark difference when compared to TIFF and Hot Docs who had staff and external partners helping to create their VR programs. Byrne has commented that, "I wanted it to be a prototype for the experience for the staff of imagineNATIVE so that we could all have a better understanding of what systems they need in place to support me."[158] Coming from the gaming world, she wanted to create a "minimal viable product" for the iNDigital Space. As she explains:

> It was the bare minimum we can do that gets across everything we need. And we did that. It was a space. There was lighting. It was interesting looking. It was impressive . . . Was it, super slick? No. But you don't need it to be super slick. You just needed to be purposeful. And you need it to be geared towards a particular group, which was game designers and app designers and digital Indigenous creatives.[159]

For Byrne, the driving force behind curating the iNDigital Space was determination to provide a platform for Indigenous creators who often lack visibility. In our interview, she said that, "At the heart of the space is a place that showcases those who I feel don't get enough recognition in the

[157] Byrne, Interview with Caroline Klimek.
[158] Byrne, Interview with Caroline Klimek.
[159] Byrne, Interview with Caroline Klimek.

indigenous art world."[160] This required highlighting Indigenous game creators, particularly young and emerging talents.

In 2018, Byrne programmed nine games, six web series, five virtual reality projects and nine audio works. The selection included VR works by experienced artists, such as Lisa Jackson's *Biidaaban* and Amie Batalibasi's *Aeasi,* as well as games created by students, like Nathan Powless-Lynes' *SwapBox* from Sheridan College and Clarity Smoke's *Run Forest Run*—Smoke was a student at First Nations School in Toronto. imagineNATIVE also introduced a new award in this festival year, the Best Interactive Work, sponsored by Unifor, with a $500 cash prize. The digital and interactive jury consisted of XR creator Nyla Innuksuk, Tara Miller (Byrne's partner on the video game *Sealskin*, which showed at imagineNATIVE 2016), and digital artist Archer Pechawis. These elements collectively underscore the significance of Byrne's programming choices and the introduction of the Best Interactive Work award, as they mirror the festival's and board members' dedication to embracing a wide range of voices and experiences in the realm of Indigenous interactive storytelling.

In 2019, imagineNATIVE marked a significant milestone, as it celebrated its 20th anniversary. That year, it expanded, with more staff, programs, films, and film festival and industry events. Byrne relocated the iNDigital Space to the HSBC Gallery in the TIFF Bell Lightbox's lobby. Byrne and her Digital + Interactive Assistant, Kaitlynn Tomaselli, hired set designer Andy Moro from Article 11 to create a bigger and more technologically advanced iNDigital Space. With these changes from the previous year, Byrne aimed to establish a sustainable infrastructure for the program and allocated a significant portion of the budget to

[160] Byrne, Interview with Caroline Klimek.

creating a versatile set that could be adapted annually. For this purpose, Moro created a design space resembling ice cubes.

Figure 7: View of the iNDigital Space as seen from the lobby of the TIFF Bell Lightbox during the 2019 imagineNATIVE Film + Media Arts Festival. Photo Credit: Caroline Klimek, 2019.

The entrance to the gallery was fashioned to mimic ice, housing a camera that captured the space and its occupants (see Figure 7). Along the two walls, games were arranged with sizeable transparent blocks around each piece, for people to sit and play at (see Figure 9). At the back of the room, a circle denoted the designated space for artists' talks. A separate room was created specifically for virtual reality experiences, emphasizing privacy (see Figure 8). A distinct approach emerged at imagineNATIVE, notably in contrast to the practices of TIFF and Hot Docs. Byrne's commitment to ensuring viewers' comfort and privacy in the VR space stood out as a significant departure from the standard festival setup. As she articulated, "I have a very particular belief system when it comes to VR, which is essentially that people using the VR should feel as comfortable as possible. And usually, that means privacy. So, we did make the VR

space much more private."[161] It serves as a striking example of how imagineNATIVE is redefining the boundaries and expectations of VR experiences, fostering inclusive and considerate spaces for their audiences. Byrne intended the iNDigital Space to be accessible to users and easy to engage with. But Byrne also "want[ed] the artists feeling special because then it's easy for people to just jump in and play on these things and then they can watch people playing on their games."[162] However, the rest of the exhibition space was open so that people could watch each other playing games, listening to audio works and gathering for the daily artist talks that covered every medium showcased: VR, audio works, games and Web shows.

Figure 8: The dedicated VR room within the iNDigital Space during the 2019 imagineNATIVE Film + Media Arts Festival. Photo Credit: Caroline Klimek, 2019.

[161] Byrne, Interview with Caroline Klimek.
[162] Byrne, Interview with Caroline Klimek.

Figure 9: Individual viewing stations at the iNDigital Space during the 2019 imagineNATIVE Film + Media Arts Festival. Photo Credit: Caroline Klimek, 2019.

The festival tried to incorporate the iNDigital Space into its overall programming. A separate jury, known as the Water Jury, was established to adjudicate the following awards for Digital or Interactive Work and Emerging Digital or Interactive Work. This jury featured Gabrielle Hughes, Lindsay Nixon, and Iskwe, who also served as moderators for festival events and the industry conference. In addition to the iNDigital Space, imagineNATIVE offered various engaging talks and panels. One such discussion was "Worn Trails/New Trails: Footsteps," which featured "an interactive and intergenerational discussion of the unique experiences of each visual storyteller within the history of the development of Indigenous cinema"[163] with speakers Zoe Hopkins, Lisa Jackson, Zacharias Kunuk, Victor Masayesva, Jr., and Alanis Obomsawin. The Indigenous art world was represented by the panel "From the Reel to the Digital" with Dr. Julia

[163] imagineNATIVE 2019 Festival Catalogue, "imagineNATIVE's Art Talks," https://issuu.com/imaginenative/docs/in_catalogue_2018_, 35.

Nagam, Cheryl L'Hirondelle, Shelley Niro, Rachael Rakena, Lisa Reihana and Jolene Rickard. This panel was marketed as a "dialogue [that was] situated within their cutting edge and distinct practices that have a long-lasting impact within the digital and media-based realm."[164] Indigenous game creators were featured on the "Indigenous Learning Goes Interactive" with panellists Kahentawaks Tiewishaw, Mylene Haus, Elizabeth LaPensée, Bri Alexander, Carl Petersen, and LeeAnne Ireland, who discussed the question: "How are Indigenous creatives taking education to the next level with their games?"[165] These events successfully incorporated the iNDigital Space by showcasing works and artists within the TIFF gallery. Attendees were encouraged to revisit the space to further explore the featured installations and engage with its interactive experiences.

Of that year's new media events, Byrne is most proud of the inclusion in the festival's programming of Night of the Indigenous Devs, which occurred on Friday, October 25th. During this event, six video game creators presented their games on the imagineNATIVE stage while audience members played them at the TIFF cinema.[166] Unlike most iNDigital Space events which were free, tickets for Night of Indigenous Devs were sold for $15 and the audience was invited to actively engage by volunteering as players and stepping up onto the stage to play the games while the creators talked about their games. The event was designed to foster interaction, with members of the audience actively encouraged to ask the creators questions. This engaging showcase generated substantial interest and effectively highlighted the extraordinary work of these predominantly young and emerging creators.

---

[164] imagineNATIVE 2019 Festival Catalogue, "imagineNATIVE's Art Talks."
[165] imagineNATIVE 2019 Festival Catalogue, "imagineNATIVE's Art Talks."
[166] Games represented include: *DON'T WAKE THE NIGHT* by Brujería @ Werk; *Terra Nova* by SlipCycle; *When Rivers Were Trails Indian Land* by Tenure Foundation & Games for Entertainment and Learning Lab; *Full of Birds* by Ashlee Bird & Sarah Biscarra Dilley; *Hold My Hand* by Nathan Powless-Lynes; and Wao Kanaka Ka Lei Milika'a *Collective*.

Figure 10: Night of the Indigenous Devs at imagineNATIVE event at the 2019 imagineNATIVE Film + Media Arts Festival. Photo Credit: Caroline Klimek, 2019.

As I sat in the theatre during this event, I noticed that I did not recognize anyone from film screenings over the last four days. Byrne acknowledged that her department did not actively track the attendance patterns of the iNDigital Space. Nevertheless, she observed a stark lack of crossover between the iNDigital Space and the rest of the festival. This observation indicated challenges and considerations, leading Byrne to reflect on the division between gaming and film audiences.[167] She remarked on these, saying,

> Maybe that's part of problem and what's going on with the understanding of my department at the festival. We don't have a lot of crossover in the audience. People who come to iNDigital space for the most part, don't seem to be going to the films and vice versa. When I talk to people, they're like, 'Oh, I just came for this.' And the Night of the Indigenous Devs was the same thing. Nobody that I knew who came to that had actually come to the festival, they weren't interested in the films. They just want to come and see the games. And I think that makes sense to me. It is a totally different medium. People who are into film and television the way I see people into games—those two groups don't

[167] Byrne, Interview with Caroline Klimek.

> usually cross over so much. The people who want to go to E3 don't really want to go to TIFF. So, I think that's kind of what we're starting to touch on.[168]

This evident division between gaming and film audiences raises significant questions about the representation of other forms of new media. Unlike imagineNATIVE, neither TIFF nor Hot Docs traditionally showcase games, highlighting the distinctive nature of the iNDigital Space and the value that it brings to its audience. Nevertheless, Night of the Indigenous Devs succeeded in providing gamers with a festival experience that included the allure of the red carpet. Drawing on de Valck, who emphasizes "the main capital in these niches is symbolic: Prestige, honor, and recognition,"[169] the iNDigital Space was a powerful platform for "cultural legitimization" for video games and other new media. Those games selected to be shown by imagineNATIVE received this cultural recognition—a benefit extended also to their creators—a hallmark of quality and significance in the realm of gaming.[170]

Throughout her time at imagineNATIVE, Byrne has said that there was much miscommunication and even tension between her department and the rest of the festival team and Board of Directors. This was partly due to the different lexicon that she uses as a game designer, as compared with the language predominantly used by the film-focused festival's other staff and executives. She often had to justify her program, especially surrounding additional expenses associated with hiring Set Designer Andy Moro. Byrne's dual role as an artist and programmer was also a source of tension. She explained, "It's been this weird place where I want to work on my own stuff and I haven't submitted to imagineNATIVE for the two years that I've been working here. And part of that is not being totally clear on what is appropriate."[171] As the Lead

---

[168] Byrne, Interview with Caroline Klimek.
[169] Marijke de Valck, "Fostering art, adding value, cultivating taste: Film festivals as sites of cultural legitimization," in *Film Festivals: History, Theory, Method, Practice*, eds. Marijke de Valck, Brendan Kredell and Skadi Loist (London: Routledge 2016), 105.
[170] de Valck, "Fostering art, adding value, cultivating taste: Film festivals as sites of cultural legitimization," 105.
[171] Byrne, Interview with Caroline Klimek.

Programmer for the iNDigital Space, she also navigated tensions with creators from the film, art, and gaming worlds. For instance, Byrne found that many people who were awarded imagineNATIVE commissions to create VR projects came from the art world and did not have a tech perspective, which is very important for VR. Byrne emphasized that they showed what the creators sent, and she stressed the importance of this disclaimer: "So one of the things I tell the creators, and we really hammer it home now, is what you send us that's what we're showing. If it breaks, it breaks."[172] Byrne also expressed frustration over the limited budget, which prevented her from affording to bring the artists to the event and from hiring additional technicians to assist at each station. This facilitation and interaction with the artists and/or technicians was necessary to guide people through both the equipment *and* the experience, supports that would have further validated the program.

In late 2019, imagineNATIVE experienced significant management changes, including the departure of Executive Director Jason Ryle and the introduction of Naomi Johnson in his place. Kerry Swanson's term as Chair of the Board of Directors came to an end in the same year, and Kona Goulet assumed the position. Then, in March 2020, the contracts of Daniel Northway-Frank and Meagan Byrne were not renewed, signaling a shift in priorities under the new management. The departure of key personnel and the appointment of new leadership suggest a potential shift in the festival's priorities and its approach to VR programming.

Amidst these transitions, imagineNATIVE adapted to the challenges posed by the global pandemic. In response to these unprecedented circumstances, imagineNATIVE 2020 embraced an online format, with their festival scheduled from October 20 to 25, 2020. The iNDigital Space successfully transitioned to a digital platform, with a new iNDigital Space staff, including

[172] Byrne, Interview with Caroline Klimek.

Melissa Johns, the Digital + Interactive Coordinator, who was supported by Justin Bull, the Digital + Interactive Web Build. The program book declared that, "this year's online shift is centred around accessibility and the reduction of barriers, creating the space to imagine new futures and creative possibilities, bringing innovative forms of media to new audiences and allowing Indigenous perspectives to impact emerging platforms."[173] The program featured twelve VR and AR works, three video games and two interactive websites, all of which could be accessed online. Johns acknowledges in her programming note that, "cutting edge does not mean cut-throat. Instead, we approach technology and media as keys to connecting both within and across nations. They allow us to stay inspired, to flourish in contemporary dialogues, and to build collaboratively towards our imagined futures. It is with these tools and a flexible, open-hearted approach that we engage with tradition, shaping it to meet us where we are at, and to carry forward."[174]

[173] imagineNATIVE 2020 Festival Catalogue. "Official Selection Digital + Interactive," https://issuu.com/imaginenative/docs/artbook_14.0wcovers-for-web-1, 79.
[174] imagineNATIVE 2020 Festival Catalogue. "Official Selection Digital + Interactive."

Figure 11: Opening online page screenshot of the iNDigital Space from the imagineNATIVE 2020 program book.

As imagineNATIVE ventured into the virtual realm and continued exploring the frontiers of Indigenous storytelling, it demonstrated resilience and adaptability, proving that the spirit of innovation is deeply ingrained in its core. imagineNATIVE's commitment to creating inclusive spaces and amplifying Indigenous voices through various media positions it among the vanguard in the global cultural landscape. By navigating uncharted territories and embracing technology as a conduit for artistic expression, imagineNATIVE remains dedicated to shaping narratives, envisioning new horizons, and fostering meaningful dialogues for generations to come. imagineNATIVE continues to include VR in the festival's iNDigital Space programming. For the most recent festival in 2023, ten virtual reality works were featuring alongside audio works,

AR, video games and screen installations. Additionally, the festival introduced two iNDigital days dedicated specifically to this program, which included industry talks and networking events, signalling imagineNATIVE's continued commitment to supporting digital artists.[175]

Fabulous Festival of Fringe Film

In 2018, I curated a virtual reality program for the Fabulous Festival of Fringe Film (Fab Film Fest). My program's primary objective was to introduce VR to the communities of Durham, Ontario, and the Saugeen First Nation. For this purpose, I carefully selected VR pieces created by Indigenous artists, aiming to support cultural representation and foster audience appreciation. I showcased my VR program at the public library and during the festival's opening feast at Saugeen First Nation, ensuring accessibility and engagement for a diverse audience. The Fabulous Festival of Fringe Film, which has been organized by The Grey Zone Collective since 2002, is a unique event held on the traditional territory of Saugeen Ojibway Nation and Durham, West Grey, Ontario. This rural festival stands out for its focus on independent and experimental media art, welcoming Canadian and international artists. Due to the absence of a traditional theatre, the festival embraces alternative exhibition spaces, such as working farms, hockey arenas, and the local drive-in.

Between 2017 and 2020, I was involved in programming for this festival. It started in 2017, when I served as a student programmer; then, in 2018, I curated a dedicated VR section and have continued to volunteer and program for the Fab Film Fest. Throughout, I have encountered challenges related to accessibility and VR. Drawing on insights that I have gained

[175] imagineNATIVE 2023 Festival Catalogue. "iNDigital Space," https://issuu.com/imaginenative/docs/2535_in_catalog_9.6, 93-105.

from prominent festivals like TIFF, Hot Docs, and imagineNATIVE, with this case study, I share my learnings and how I applied them to my own VR program. It offers a curatorial perspective on approaches to effectively incorporating VR into a film festival, showcasing how I navigated this task as a one-woman VR programmer and facilitator.

For this project, I was granted a budget of $2,000, a notable amount considering that it exceeded Hot Docs' expenditure on DocX. The allocated funds went towards compensating the artists, although many of the featured pieces were produced with grants and were required to be exhibited for free. My programming selection included works like Danis Goulet's *The Hunt* (2017), Scott Benesiinaabandan's *Blueberry Pie Under a Martian Sky* (2017), Lisa Jackson's *Highway of Tears* (2016), Jon Riera's *A Tribe Called Red: Indian City 360* (2017) music video, Ryan Oliver's *Polarman* (2017), and the interactive documentary *The World in Ten Blocks* (2017) by Marc Serpa Francoeur and Robinder Uppal. (See Appendix for my programme note).

For curators venturing into the realm of VR for the first time, the technology can be overwhelming. As VR programmer Ina Neddermeyer points out,

> VR work places new demands on art education especially. To be confronted with VR installations for the first time raises simple questions such as: How do I put on a VR-HMD? What about my belongings, if I cannot see (and hear) what is happening right next to me? Do I have to sit down while watching VR videos? The supervisory staff is now no longer solely responsible for guarding the exhibits but must also provide support as a VR sitter. They have to pay attention so that the visitors do not get tangled up or stumble over a cable while they are travelling through virtual worlds.[176]

As I curated my first VR program for the Fab Film Fest, I found myself entangled in the logistical and technical aspects of the endeavour. Similar to Neddermeyer, I had numerous questions racing through my mind. I had to determine which headsets to use, where to obtain

[176] Ina Neddermeyer, "I Want to See How You See: Curatorial Practices of Exhibiting Virtual Reality," *Mage – Action – Space: Situating the Screen in Visual Practice*, eds. Luisa Feiersinger, Kathrin Friedrich, and Moritz Queisner (Berlin, Boston: De Gruyter, 2018), 207.

them, and what the associated costs would be. Loading the selected projects onto the headsets was another challenge. Additionally, as I travelled to multiple locations over a two-week period, I had to consider various necessities like extension cords, power bars, headphones, and disinfecting wipes. Setting everything up was a labour-intensive process, and, with the assistance of my partner—who is an experienced film editor with extensive technical expertise—we spent six hours the night before the event ensuring that the headsets were properly configured and all of the content was pre-downloaded to prepare for limited Wi-Fi access. Repeated testing was necessary to ensure that there were no technical glitches, as such issues could quickly alienate audience members.

Figure 12: My VR technology setup during the Opening Feast at Saugeen First Nation for the Fabulous Festival of Fringe Film. Photo Credit: Caroline Klimek, 2018.

During the first weekend at Saugeen First Nation, I provided six headsets and chairs during the opening feast. The majority of individuals using the headsets were under 15 years old,

and they eagerly watched every film—some even rewatching them. These young participants were willing to sit for hours, deeply immersed in the virtual experiences. However, I observed that none of the elders approached to try the headsets, and it was a challenge to convince some parents to give them a try. This raised questions about their reluctance: was it due to unfamiliarity, concerns about being unaware of their surroundings, or simply perceiving it as a distraction for the children?

Figure 13: My VR exhibition during the Opening Feast at Saugeen First Nation. Photo Credit: Caroline Klimek, 2018.

By contrast, my second location at the Durham Public Library drew a consistent lineup of people eager to try the headsets. However, I encountered accessibility issues when two individuals in wheelchairs were present, and there was limited space for people to move in and out comfortably.

Figure 14: My VR setup in the back of the Durham Public Library for the Fabulous Festival of Fringe Film. Photo Credit: Caroline Klimek, 2018.

I quickly made on-the-spot accommodations by using Oculus Go headsets with built-in speakers. This allowed one of the wheelchair user's fathers to hold the headset while his son immersed himself in the VR experiences. Despite these last-minute solutions, I recognized that they did not address the broader issue of disability access. Leah Lakshmi Piepzna-Samarasinha, a queer disabled femme writer, organizer, performance artist, educator, and the author of *Care Work: Dreaming Disability Justice*, writes:

> Access is a guilt-ridden afterthought, when it's thought of at all, and it's usually only thought of when disabled people ask about accessibility. This request is usually responded to with guilt, with defensiveness, with surprise, with bad or nonexistent or last-minute scrambles for access, or with simply abled tears. Because, as Qwo-Li Driskill says, one way ableism works is that disabled people "are not even present within the imaginations of a supposedly radical future."[177]

[177] Leah Lakshmi Piepzna-Samarasinha, *Care Work: Dreaming Disability Justice* (Vancouver, BC: Arsenal Pulp Press, 2018), 151.

In hindsight, my solutions were inadequate quick fixes, failing to prioritize true accessibility. Ironically, the very purpose of my program was to bring VR and accessible experiences to these communities. Yet I became overwhelmed by the technology, leaving the responsibility of accessibility and disability accommodation to festival organizers, trusting them to provide an inclusive space. This experience shed light on the barriers that VR as a medium inherently presents, from the expense of headsets to the limited availability of and access to high-quality content. While my intentions were noble, the challenging practicalities of implementing accessibility warrant further attention and consideration in the context of film festivals and VR exhibitions.

Disability justice activist Mia Mingus writes, "We must, however, move beyond access by itself. We cannot allow the liberation of disabled people to be boiled down to logistics. We must understand and practice accessibility that moves us closer to justice, not just inclusion or diversity."[178] But how do we navigate the challenges posed by community-based film festivals with limited budgets and resources? When I raised these concerns with festival programmers and executives, they pointed to the Oculus Quest as a game-changer in terms of accessibility, as it offers untethered VR experiences. However, the Quest's price tag of $600 is a significant barrier for many potential users. For my initial program, I begged and borrowed equipment from Dr. Janine Marchessault and Dames Making Games, an organization committed to addressing access issues and providing these technologies to those who wish to use and learn from them.

Mia Mingus urges us: "As organizers, we need to think of access with an understanding of disability justice, moving away from an equality-based model of sameness and 'we are just

[178] Mia Mingus, "Changing the Framework: Disability Justice: How our communities can move beyond access to wholeness," *RESIST Newsletter*, November 2010, accessed February 12, 2011, https://leavingevidence.wordpress.com/2011/02/12/changing-the-framework-disability-justice/.

like you' to a model of disability that embraces difference, confronts privilege and challenges what is considered 'normal' on every front."[179] In the realm of VR, the notion of normalcy requires several prerequisites for participation. For instance, users must be physically capable of wearing and supporting the headset on their head, and many headsets do not accommodate glasses, requiring users to have excellent vision. Moreover, some VR experiences involve physical movement to fully engage with the virtual world, thereby favouring able-bodied individuals or those capable of taking a few steps in different directions. Certain experiences might also induce vertigo-like sensations through simulated movements, making VR unsuitable for individuals with epilepsy, among others.

Video game scholar Rebeccah Redden writes, "VR is designed and implemented in a way that assumes the user is able-bodied, which means frustration, pain, and disappointment if you're not. If VR doesn't change, it will continue to be non-inclusive, inaccessible, and isolate people from a cultural experience."[180] These questions of VR's accessibility in the gaming community and game studies are not new. Redden writes:

> If we're not careful and attentive, we run the risk of leaving behind people in the virtual revolution. A fun virtual reality experience should not require an unimpaired sense of motion and balance. It should not require a height level. VR should not have an implication that the user is able-bodied. This isn't a revolutionary concept.[181]

Disabled gamers and advocates have long advocated for change to make VR more inclusive and accessible. For example, in 2016, the Disability Visibility Project® and Lucasfilm ILMxLAB launched "The VR Accessibility Survey for People with Disabilities."[182] It aimed to better understand VR's accessibility issues and to collect recommendations from participants

---

[179] Mia Mingus, "Changing the Framework: Disability Justice."
[180] Rebeccah Redden, "VR: An Altered Reality for Disabled Players," *First Person Scholar*, April 11, 2018, http://www.firstpersonscholar.com/vr-altered-reality/.
[181] Rebeccah Redden, "VR: An Altered Reality for Disabled Players."
[182] Alice Wong, et al., "VR Accessibility Survey for People with Disabilities," *The Disability Visibility Project*, Disability Visibility Project and ILMxLAB, Jan 2017, disabilityvisibilityproject.com/2017/01/03/vr/.

based on their experiences. It should, however, be noted that the survey's respondents were white American males. Of these, 79 respondents discussed adjustments that they would need made to VR experiences to be able to enjoy VR. Multiple respondents mentioned the difficulties of using a power chair and having to push it around while engaging with the VR equipment. They also outlined how difficult VR is to use without full arm mobility and how the headsets pose problems by not always being compatible with hearing aids. Respondents also discussed having seizures induced by cognitive stress and overload. Additionally, visually-impaired users expressed how small fonts negatively impacted their experiences, especially when they tried to move closer to the object in question and it would vanish from view. This is only a small sample of the issues enumerated in survey responses. These accessibility issues are still very relevant, and these responses emphasize how important it is to have differently abled bodies in the room from the beginning when developing VR projects and film festivals' programs. Many disability game scholars discuss creating their own controllers and accessories to be able to physically play these VR games as a way of combatting the hardware accessibility issues. VR has not yet embraced a comparable DIY ethos that has been instrumental in addressing accessibility challenges within the video game industry. This lack of adaptation suggests a potential avenue for improvement in the VR field, where individuals with disabilities and their unique perspectives could play a central role in shaping more inclusive VR experiences.

Beyond games, some VR filmmakers have voiced their concerns about ways that new technologies exclude certain cultures and experiences. Olivia McGilchrist, for example, points out that VR headsets often fail to account for voluminous hair, leading to discomfort for users with Black hair types. She said, "I've only dug into that recently, but because of my heritage I'm

constantly questioning why there's this sense of white male supremacy in tech."[183] In response, McGilchrist created a wooden structure for her VR experience to provide a sense of security and comfort to participants so they can lean back and have their back protected, allowing them to immerse themselves fully without fear of intrusion. McGilchrist says, "I really feel that both the software and hardware will benefit from being developed outside of the western context, I hope that will generate a very different form of engagement and results both commercially and artistically."[184] Film festivals should think beyond the confines of swivel chairs and explore the diversity of VR applications. This includes room-scale VR, where participants can physically move within a virtual environment, fostering a deeper sense of presence and interaction. Additionally, festivals can consider location-based VR experiences that merge physical and virtual spaces, creating unique, site-specific encounters that captivate audiences.

After exploring accessibility issues discussed by game scholars and VR creators, one must consider the curator's role in addressing these concerns. Turning to the insights on accessibility shared by Leah Lakshmi Piepzna-Samarasinha, she writes:

> When I think about access, I think about love. […] I mean that we reach for each other and make the most access possible, it is a radical act of love. When access is centralized at the beginning dream of every action or event, that is radical love. I mean that access is far more to me than a checklist of accessibility needs—though checklists are needed and necessary. I mean that without deep love and care for each other, for our crip bodyminds, an event can have all the fragrance-free soap and interpreters and thirty-six-inch-wide doorways in the world. And it can still be empty. I've been asked to do disability and access trainings by well-meaning organizations that want the checklists, the ten things they can do to make things accessible. I know that if they do those things, without changing their internal worlds that see disabled people as sad and stupid, or refuse to see those of us already in their lives, they can have all the ASL and ramps in the world, and we won't come where we're not loved, needed, and understood as leaders, not just people they must begrudgingly provide services for.[185]

---

[183] Olivia McGilchrist quoted in Will Furtado's "Olivia McGilchrist: The Artist Recreating a Jamaican Tradition in VR," *SLEEK*, October 26, 2017, https://www.sleek-mag.com/article/olivia-mcgilchrist-jonkunnu-jamaica-vr/.
[184] Will Furtado, "Olivia McGilchrist: The Artist Recreating a Jamaican Tradition in VR." *SLEEK*, October 26, 2017, https://www.sleek-mag.com/article/olivia-mcgilchrist-jonkunnu-jamaica-vr/.
[185] Piepzna-Samarasinha, *Care Work: Dreaming Disability Justice*, 76.

For any future VR programs, I want to experiment and incorporate access and disability considerations from the outset. Inspired by Piepzna-Samarasinha's concept of privileging access as an act of love, I aim to move beyond a narrow focus on logistics and embrace a more holistic approach to accessibility in our VR program.

Conclusion

One of the central questions that have emerged from this study on film festivals is: **What are we asking of people when we give them a headset?** At the Fabulous Festival of Fringe Film, the Elders at Saugeen First Nation expressed concerns about trust and safety when it came to VR. They felt uneasy about blacking out their senses and relinquishing control. Similarly, a friend who attended my VR program initially approached VR hesitantly due to their own safety concerns. During their visit to my exhibition, they chose a chair in the far corner to have a clear view of everyone around them, ensuring that no one would approach them from behind unexpectedly. This highlights the significance of trust in the technology, the exhibition space, and the people present. We must acknowledge that not all audiences are comfortable with being unaware of their surroundings, considering the complexities of trauma and embodiment. By acknowledging and discussing these concerns, we can work towards creating more inclusive and accessible VR experiences that prioritize emotional well-being and participant comfort.

The second central question that has emerged is: **What is the role of the docent?** Throughout this chapter, this position has been referred to by many names – docent, virtual reality assistant, translator, facilitator, and volunteer. However, in essence, all these terms describe the same crucial role in helping attendees navigate VR. As demonstrated by the work of Faber at TIFF POPX and Northway-Frank and Byrne at imagineNATIVE, this multifaceted role is indispensable in guiding audience members through their VR experiences. The diverse titles

reflect the varied and dynamic nature of the responsibilities involved in this position, emphasizing its necessity in the effective presentation and navigation of VR environments. During my first VR program, I was a Technology Assistant alongside Erik Ebanks and we were primarily responsible for engaging with the audience, discussing the VR content, and gauging their familiarity with the technology. By having these conversations, we aimed to help our audience to feel comfortable and guide them through the process of using VR, preparing them for what they were about to experience. One user pointed out that everyone requires help with VR, so it is essential to find a way to incorporate docents without making anyone feel singled out or tokenized when trying on VR technology.

To achieve this, we must focus on virtual reality onboarding and offboarding procedures for users, ensuring that participants receive the support they need throughout the VR experience. For organizations and events displaying VR artworks, developing a best practice guide for VR is essential—one that goes beyond technical and logistical considerations, but that considers the emotional and physical aspects of using VR headsets. Encouraging other VR curators and film festivals to adopt this inclusive approach also requires collaboration and openness to experimentation with the VR space. And it has many benefits: by fostering partnerships between VR curators and filmmakers, we can create experiences that prioritize both the virtual and physical aspects of using VR headsets. Viewing this approach through a broader lens, it benefits not only those with disabilities, but also the wider audience. As Piepzna-Samarsinha writes, "When disabled people get free, everyone gets free. More access makes everything more accessible for everyone."[186] More access and inclusion in VR experiences open up new perspectives and ways of interacting with the technology. Ultimately, striving for a wider

[186] Piepzna-Samarasinha, 78.

audience and more inclusive practices can lead to a richer and more fulfilling VR experience for all participants.

For festivals, however, the future of virtual reality is uncertain. As a result of COVID-19, many film festivals moved online or were cancelled. For instance, originally Hot Docs was programmed for in-person attendance for their 2020 festival, but, when COVID-19 hit, they quickly moved online and left DocX behind. TIFF 2020 offered a hybrid film festival with 50 films at the TIFF Bell Lightbox and drive-in theatres. No XR media was scheduled. Like Hot Docs 2020, imagineNATIVE 2020 was also online-only. Yet, of these, the only Canadian film festival discussed that continues to program VR is imagineNATIVE, which has continued to program their iNDigital Space throughout the pandemic. In terms of the three festivals' programming, however, the pandemic's timing was unfortunate, as Hot Docs and imagineNATIVE were in the process of expanding their new media programs. This interruption has raised important questions about VR and in-person content: is this the end of shared physical presentations? How practical is it to move forward with VR with so many hygiene concerns? Can festivals promote these works online or in other venues for people who own the hardware to be able to experience them? What does a 'new normal' look like for film festivals and new media programs? Due to hygiene concerns of publicly shared VR technology—including headsets and headphones—VR creators are moving to other XR media (such as AR). Moreover, Facebook's recent announcement that operating an Oculus Quest now requires a Facebook account has raised significant concerns among VR creators. This decision not only limits access to VR experiences, but it also poses a potential barrier to entry for users who may not wish to create a Facebook account. Consequently, many VR creators fear that this could signal the beginning of the end for VR as a viable and accessible medium for artistic expression.

Antoine Damiens and Marijke de Valck, in their introduction to *Rethinking Film Festivals in the Pandemic Era and After*, write, "our contributors make clear that the solution chosen by organizers oftentimes do not aim to *transform* their organizations in a definitive manner: they are typically conceived as temporary, makeshift measures that simply aim to recreate some form of festival experience *before* an eventual return to 'normal.'"[187] With regards to Hot Docs, despite attempts to contact them via email, I received no comment or response regarding the DocX program's status. This lack of communication underscores the challenges and uncertainties surrounding the future of such programs within the festival landscape. Furthermore, Hot Docs also provided no press release or official statement about the DocX program, which was absent from the 2022 festival. By contrast, imagineNATIVE moved their iNDigital space online during the global pandemic and it is expected to return in-person with the rest of the festival. Meanwhile, film festivals such as IDFA, Sundance, and Tribeca, which have new media programs, will continue screening XR content.

During the pandemic, the Museum of Other Realities (MOR)[188] played a crucial role in providing global audiences access to virtual reality works from prestigious film festivals like Tribeca Film Festival, Cannes XR, Vancouver International Film Festival, and Kaleidoscope. As an immersive multiplayer art showcase in VR, MOR housed a diverse collection of interactive art and experimental works, ranging from 3D paintings to full-fledged narrative experiences. Moreover, MOR presented "The Canadian Collection," a two-part showcase that ran from December 17, 2021, to March 11, 2022, and again from February 4 to April 29, 2022. It was

[187] Antoine Damiens and Marijke de Valck, "What Happens When Festivals Can't Happen?" in *Rethinking Film Festivals in the Pandemic Era and After*, eds. Marijke de Valck and Antoine Damiens (London: Palgrave Macmillan, 2023), 6.
[188] Museum of Other Realities, "Home - Museum of Other Realities," accessed on July 31, 2023, https://www.museumor.com.

supported by the Creative BC Fund and Canada Media Fund and it featured works from the NFB, including Lisa Jackson's *Biidaaban: First Light* (2018); Yao Wang and Sherry Li's *Hiraeth* (2020); Paisley Smith's *Homestay* (2019); and her later collaboration with Lawrence Paul Yuxweluptun, *Unceded Territories* (2020); Randall Okita's *The Book of Distance* (2020); Ziad Touma's *The Passengers: Her & Him*, *Manic VR* (2018); and Petro Gagliano's *Agence* (2020). Interviews with filmmakers and NFB producers like David Oppenheim were also made available in the online room, enriching the audience's experience. This, however, does not create a festival experience, as we knew before COVID-19, per Damiens and de Valck's observation that film festivals' temporary moves to online platforms are "Imperfect measures, such as the move to a digital format, cannot recapture the communal experience at the very core of festivals."[189]

When film festivals moved online during the pandemic, MOR served as a convenient and accessible platform for audiences to engage with both international and publicly financed Canadian virtual reality content. Nevertheless, in 2022, MOR shifted its focus away from collaborating with film festivals to now concentrating on direct partnerships with artists and their VR projects.[190] This transition may signal a change in how MOR aims to connect with audiences and creators, and it remains to be seen how this shift will impact the future of VR experiences within the festival landscape. As the film festival industry continues navigating the challenges posed by the pandemic and exploring new avenues for presenting VR content, adaptability and innovation will be key to shaping the future of immersive storytelling and artistic expression through new media.

[189] Antoine Damiens and Marijke de Valck, "What Happens When Festivals Can't Happen?" 1.
[190] "Virtual Galleries, Actual Institutions," Museu Sem Paredes (Museum Without Walls), YouTube, September 29, 2022, https://www.youtube.com/watch?v=xmsxmWRePQY.

This research not only sheds light on the immediate reactions and adaptations within the realm of film festivals to emerging technologies like VR but also opens a broader dialogue on the sustainable integration of such technologies in cultural events. Through the lens of the Fabulous Festival of Fringe Film, TIFF, Hot Docs, and imagineNATIVE, I discern a critical intersection of technology, cultural mandate, and audience engagement that beckons a re-evaluation of best practices in curation and art education. The hesitancy around VR technology, as voiced by my interviewees, participants, and stakeholders, underscores the necessity of trust-building and safety protocols, highlighting an essential consideration for festival organizers: the balance between technological innovation and audience comfort. The role of the docent emerges as an integral factor in bridging this gap, suggesting a best practice that combines technological facilitation with human-centred interaction to enhance audience engagement. Furthermore, the pandemic's impact, leading to online transitions and the rethinking of physical spaces, propels us to consider the future of public education and engagement in cultural events. As we navigate through these shifts, the implications for best practices extend beyond mere logistical adjustments, urging a holistic approach that considers accessibility, inclusivity, and the ethical dimensions of technology adoption.

Chapter 3: Legacy Institutions and the Art Gallery of Ontario: Sites of Curation

In October 2019, I travelled to Paris to see L'Atelier des Lumières' new exhibition *Immersive van Gogh*. This for-profit show was an hour-long animation of van Gogh's most famous paintings including *Mangeurs de Pommes de Terre* (The Potato Eaters, 1885), *Nuit Étoilée* (Starry Night, 1889), *Les Tournesols* (Sunflowers, 1888), and *La Chambre à Coucher* (The Bedroom, 1889). Using projection mapping, viewers are asked to "step inside" and experience the post-Impressionist works of van Gogh "like never before" as the 50 speakers and 140 video projectors project over 3000 images.[191] Unlike the Musée D'Orsay where many of the paintings mentioned above are housed, *Immersive van Gogh* provided an interactive environment that omitted tangible objects. In this boundaryless setting, the venue's limitations were solely defined by space and technical requirements. The animated artwork came alive through the musical accompaniment composed by Luca Longobardi, engrossing all of our senses in a captivating symphony of art and sound. In the company of a vast crowd of attendees, I found myself eagerly exploring the expansive space, seeking diverse viewpoints and fresh perspectives. My journey led me along staircases, reflective mirrors, and serene benches and wine barrels. Throughout the hour-long looped animation, the venue buzzed with a continuous flow of people, each absorbed in their immersive encounters, which raised questions about the depth of the artistic appreciation fostered by such an experience. Were the visitors truly connecting with the emotional nuances conveyed by van Gogh's brushstrokes and colours, or were they merely seeking a novel and Instagrammable experience? The advent of immersive experiences in the realm of art poses both exciting opportunities and potential challenges. On one hand, these

[191] "Art Exhibition: A New Ambitious Show," DISKO Agency Blog, accessed July 1, 2022, https://www.disko-agency.com/thoughts/brand-content-blog/art-exhibition-new-ambitious-show/.

innovative exhibitions have the power to attract a more diverse and broader audience to engage with art in a more interactive and accessible manner. By breaking away from traditional museum settings and offering captivating sensory experiences, these exhibitions might be able to bridge the gap between art and the public, inviting individuals who may have previously felt disconnected from the art world to participate and connect with art in new ways.

When this touring spectacle arrived in New York City, it garnered attention and commentary from notable art critics, including Jason Farago of the *New York Times.* Farago described *Immersive van Gogh* as: "Technically, it's ekphrastic art, art that engages with other art. It's also fair to categorize *Immersive van Gogh* as an art attraction: It's not a conventional museum show. It's show business with an art pedigree."[192] Van Gogh's work has had a resurgence in popularity in the last ten years[193] but as Farago writes, "What a few entrepreneurial exhibitionists figured out is that many of us are less attached to van Gogh's paintings than to the mythology that surrounds them. And *that* you can exhibit for cheap."[194] Since its debut, *Immersive van* Gogh has proved to be a resounding success, drawing millions of visitors in cities across Europe and North America.[195] Its widespread acclaim and exposure even earned it a feature in popular cultural texts like Netflix's *Emily in Paris* (2020). The exhibit's creator Massimiliano Siccardo translated van Gogh's artistic vision into an immersive format that

[192] Jason Farago, "Submerged in van Gogh: Would Absinthe Make the Art Grow Fonder?" *New York Times,* June 9, 2021, https://www.nytimes.com/2021/06/09/arts/design/van-gogh-immersive-manhattan.html.
[193] Vincent van Gogh had a resurgence in the 2010s in museums and popular culture. In 2017, the van Gogh Museum had 2.3 million visitors and was the most-visited museum in the Netherlands, and the 23rd-most-visited art museum in the world. In 2019, the van Gogh Museum launched the *Meet Vincent Van Gogh Experience*, a technology-driven "immersive exhibition" on Van Gogh's life and works, which has toured globally. Van Gogh has been featured in the following movies: *Lust for Life* (1956), *Starry Night* (1999), *Vincent and Theo* (2007), *Loving Vincent* (2017), which earned an Oscar nomination, and *At Eternity's Gate* (2018), He's been featured in TV's *Doctor Who* episode "Vincent and the Doctor" where van Gogh is played by Tony Curran. He's also been featured in *Painted with Words* (2010) featuring Benedict Cumberbatch, and BBC's *Power of Art* (2006) with Andy Serkis.
[194] Jason Farago, "Submerged in van Gogh: Would Absinthe Make the Art Grow Fonder?"
[195] Van Gogh Immersive Experience tickets were $50 and is still being seen today in 2022.

resonates with audiences, making the iconic artist's work more accessible and in contemporary times. The overwhelming success of the *Immersive van Gogh* format has been adapted to feature other famous artists whose artworks are also out of copyright, such as Gustav Klimt, Frida Kahlo, and Claude Monet. Additionally, the immersive structure has been expanded beyond fine art to encompass other themes such as a show on King Tut and even a fundraiser for the war in Ukraine, featuring the work of Ukrainian artist Taras Shevchenko called *Immersive Shevchenko: Soul of Ukraine*.[196]

The introduction of extended reality (XR) media fits within our current moment—the age of spectacle—where more immersive experiences are being created for audiences. A prominent instance of this trend emerged in 2016 with the appearance of the Museum of Ice Cream in New York City, a whimsical space "devoted to everything saccharine."[197] It became an overnight sensation and introduced the trend of "Made-for-Instagram" museums, which encourage attendees to capture their encounters through photographs and share them on social media platforms.[198] Jia Jia Fei, the Digital Director of the Jewish Museum in New York, encapsulated this cultural shift in her TED Talk on Art in the Age of Instagram, stating: "In the pre-digital photography era, the message was: This is what I'm seeing. I have seen. And today, the message is: I was there. I came, I saw, and I selfied."[199] This succinctly illustrates the paradigm shift in how many individuals relate to and engage with art in the digital age.

---

[196] Find out more here: https://lighthouseimmersive.com/immersive-shevchenko/.
[197] Sophie Haigney, "The Museums of Instagram," *New Yorker,* September 16, 2018, https://www.newyorker.com/culture/culture-desk/the-museums-of-instagram.
[198] The Ice Cream Museum has locations in Singapore and Austin. Their San Francisco location recently closed as written about Alexandra Wilson and Maggie McGrath in their article "I Scream. You Scream. The Meltdown at the Museum of Ice Cream." *Forbes,* July 2, 2020, https://www.forbes.com/sites/alexandrawilson1/2020/07/02/i-scream-you-scream-the-meltdown-at-the-museum-of-ice-cream/?sh=2b1741cb56c8.
[199] Jia Jia Fei, "Art in the Age of Instagram," Tedx Martha's Vineyard, March 2, 2016, https://www.youtube.com/watch?v=8DLNFDQt8Pc.

Art galleries and museums are increasingly embracing the trend of creating Instagram-worthy moments for their attendees. For instance, the Victoria & Albert Museum's Alice in Wonderland exhibition *Alice: Curiouser & Curiouser* (2021) offered an immersive theatrical show featuring grand installations like the Mad Hatter's Tea Party, while also providing a VR component called *Curious Alice: The VR Experience*, allowing audiences to engage in a game of croquet against the Queen of Hearts.[200] Similarly, other museums are incorporating exhibitions designed to create a momentary immersive experience and generate social media buzz, like the Art Gallery of Ontario's sold-out *Yayoi Kusama: Infinity Mirrors* (2019), where attendees were allotted only 60 seconds to experience each exhibit, just enough time to snap a picture. However, these flashy displays often come at the expense of providing substantial contextual information about the art, artists, and historical background.

The *Immersive Frida Kahlo* iteration faced criticism from arts writer Amil Niazi who chastised the exhibition producers for divorcing Kahlo's artistic practice from her public images asserting that the show was "clearly designed to be the background of a thousand Instagram stories, rather than a meaningful exploration of Kahlo's place in the thorny contemporary battlegrounds of feminism, class and identity."[201] *The Globe and Mail* arts reporter Kate Taylor echoed a similarly harsh concern regarding Toronto's *Immersive van Gogh Exhibit*, remarking:

[200] *Alice: Curiouser and Curiouser* was a major exhibition for the Victoria & Albert Museum in 2021. This exhibition included a cinematic release, VR component and exhibit than ran from May 22 to December 31, 2021. Within this exhibition audiences can explore the origins, adaptions, and reinventions of the work over 157 years: "this immersive and theatrical show charts the evolution of Alice's Adventures in Wonderland from manuscript to a global phenomenon beloved by all ages." Victoria and Albert Museum, "Alice: Curiouser and Curiouser," accessed June 1, 2021, https://www.vam.ac.uk/exhibitions/alice-curiouser-and-curiouser.

[201] Amil Niazi, "Would Frida Kahlo approve of her immersive experience exhibit?" *The Globe and Mail,* April 11, 2022, https://www.theglobeandmail.com/arts/art-and-architecture/article-immersive-frida-kahlo-exhibit-toronto-review/.

"At the core of the new mania for immersive art exhibitions is a basic betrayal of the art."[202] Others have branded *Immersive van Gogh* as gimmicky and anti-art. The other immersive iterations of famous artists have been called hyper-commodification and scrutinized, with Amil Niazi writing: "Like the immersive Van Gogh attraction that came before it, this show takes an artist whose work demands the interrogation of uncomfortable, probing subjects and flattens them to the point of parody."[203] While *Immersive van Gogh* marked the pioneering example of this format, it subsequently opened up van Gogh's work to a broader audience, reaching out to and finding resonance with a younger demographic. Its soaring popularity testifies to its effectiveness in engaging a wider public. Consequently, this successful model has been repeatedly emulated by various immersive exhibits. Nonetheless, Niazi raised an essential point about the potential repercussions of these exhibitions: "In turning a display of such a revolutionary, status-quo-defying artist into an Instagrammable moment, [Kahlo] is reduced to a facsimile."[204] By making the artwork accessible and superficially engaging, there arises the pertinent question: What is the true purpose of these immersive exhibits? Are they primarily meant for entertainment or education? These queries are paramount for understanding the inherent contradictions and tensions present in this contemporary trend of immersive experiences.

As I analyze the following exhibitions that incorporate XR media, it is imperative to explore the complex interplay between their entertainment value and educational potential. The widespread accessibility of these exhibits may indeed flatten the depth and profound significance

[202] Kate Taylor, "Immersive shows like the van Gogh and Monet exhibits betray art's stillness," *The Globe and Mail*, August 13, 2021, https://www.theglobeandmail.com/arts/art-and-architecture/article-the-new-mania-for-immersive-shows-betray-arts-stillness/.
[203] Niazi, "Would Frida Kahlo approve of her immersive experience exhibit?"
[204] Niazi, "Would Frida Kahlo approve of her immersive experience exhibit?"

of the original artworks, compromising their intended impact. Simultaneously, we must acknowledge that the popularity of such exhibits extends art's reach to a more extensive audience, potentially sparking interest and fostering a newfound appreciation for the artists' legacy. By delving into the tensions and contradictions within this trend, we can gain deeper insights into the evolving dynamics among art, technology, accessibility, and education. These critiques raise important questions about the allure of these immersive experiences. What is it people are so engaged with? Is it the technology? What do these technologies teach us and how are we engaged as spectators? Do they make us think and reflect and see the world differently? And what do they say about our current moment?

What is the Future of Museums and Art Galleries?

In 2007, Kathleen McLean posed questions that continue to resonate in the field of museums and art galleries: "Are exhibitions an obsolete medium? Can museums keep pace with the interactions available elsewhere: virtual games, video arcades, jazz clubs, even a good Chinese restaurant? Is the glass half full of optimism or pessimism?"[205] These questions were at the heart of her article titled "Do Museum Exhibitions Have a Future?" published in the 2007 edition of *Curator*. As McLean returned to the first volume of *Curator* from 1958, she discovered a parallel between the debates of the past and the present, showcasing a longstanding lineage of colleagues eager to experiment with the future of museums and their exhibitions. However, she also grappled with the challenge of encouraging public visits and understanding what exhibitions could truly offer their audiences.

McLean's questions retain their relevance to this day, demonstrating that the future of museums and their distinctiveness compared to other forms of entertainment has been an

[205] Kathleen McLean, "Do Museum Exhibitions have a future?" *Curator* 50, no. 1 (2007): 109.

enduring concern for over a century. In *Shivers Down Your Spine,* scholar Alison Griffiths writes:

> It is not without irony, then, that one hundred and sixty years after the heyday of panoramas, IMAX screens and electronic media have assumed an ever-greater presence in museums of science, technology, natural history, and fine arts and are trying to accomplish what the panorama did with extraordinary success: namely, immerse spectators in the represented space and give them a heightened sensation of moving out of the immediate and into the hyper-real.[206]

Connecting the ideas of immersion and history, it becomes evident that the fascination with captivating and engaging audiences through immersive experiences is not a recent phenomenon. Its roots stretch back to the heyday of panoramas and continue to evolve today, as contemporary technologies strive to offer new levels of immersion and interactivity in museums and cultural institutions. The pursuit of immersive storytelling, as witnessed in McLean's questions and Griffiths' astute observations, underscores the ongoing commitment of museums to adapt to changing times while remaining relevant and appealing to diverse audiences. Museums and galleries have long grappled with the delicate balance of being a site of education while also providing an enthralling and entertaining experience.

This longstanding challenge for museums, as expounded by Griffiths in the following quote, is marked by a particular tension:

> Museums of science and natural history have been preoccupied with the problem of striking an *uneasy balance between popular appeal and education rigor.* Responding to what they saw as the fleeting attention span of the urban museum-goer, late-nineteenth-century curators charged with the task of making exhibits more accessible turned to immersive popular entertainments and interactive technologies as ways of continually attracting visitors and competing with for-profit entertainment centers.[207]

[206] Alison Griffiths, *Shivers down Your Spine: Cinema, Museums, and the Immersive View* (New York: Columbia University Press, 2008), 6.
[207] Griffiths, *Shivers down Your Spine*, 5 (emphasis my own).

Historically, museums turned to cinema to "enliven and even sensationalize museum content, or to immerse museum-goers in a kind of wondrous technological sublime."[208] By the 1920s, concerns over museum-goers' attention spans gave rise to the term "museum fatigue," described as "a sensory overload or exhaustion" encompassing "emotional, physical, and intellectual."[209] Edward S. Robinson's pioneering museum studies in the 1930s involved observing visitors' behaviours and measuring their engagement with art, a practice that continues to this day.[210] Surprisingly at the time, "the results indicated that the average museum-goer looked at the average piece of art for about three seconds."[211] Cinema scholar Haidee Wasson found "cinema (and other staged forms of presentation) provided a reprieve from the overwhelming demands – physical and perceptual – made by the museum and its contents. . . . watching films got people off of their feet and into a seat, a physical comfort that was hoped would focus the mind."[212]

However, with the inclusion of cinema created a "the tension between the museum as a site of civic uplift and rational learning versus one of popular amusement and spectacle."[213] This is otherwise known as the issue of education versus entertainment where the museum has grappled with its position as a cultural gatekeeper and as an "institution of moral and social uplift."[214] Within this struggle, Griffiths documents that "few contemporary commentators realize that many of the anxieties plaguing contemporary curators, such as the incursions of popular culture into the museum and the balance between science and spectacle, were rehearsed

[208] Haidee Wasson, "Big, Fast Museums / Small, Slow Movies: Film, Scale, and the Art Museum," in *Useful Cinema* (New York, USA: Duke University Press, 2020), 178–204, 180.
[209] Wasson, "Big, Fast Museums / Small, Slow Movies," 190.
[210] Haidee Wasson goes into more detail about Robinson's report "The Behavior of the Museum Visitor" in her chapter "Big, Fast Museums / Small, Slow Movies: Film, Scale, and the Art Museum," 188.
[211] Wasson, 188.
[212] Wasson, 190, 194.
[213] Griffiths, *Shivers down Your Spine*, 5.
[214] Griffiths, 10.

a very long time ago and that museums have always struggled with how to respond to new display techniques and more popularized modes of exhibiting."[215]

The introduction of immersive, Instagrammable fodder and XR in cultural institutions reflects a long-standing trend of adopting new technology to strike the right balance between entertaining and educating the public. However, this pursuit is not without its challenges, as there is a risk of alienating the audience or falling into the trap of "disneyfication," which can undermine the essence of these institutions. As Griffith notes: "Discursive oppositions between science and spectacle, information and entertainment, immersion and distance, and passive and interactive spectators first articulated in relation to these visual technologies one hundred years ago have repeatedly resurfaced in contemporary debates over multimedia exhibits in public museums."[216]

The digital shift has redefined the discourse around spectacle, information, and entertainment, now encompassed within the concept of the "experience economy."[217] This was defined by B. Joseph Pines II and James H. Gilmore in their 1998 *Harvard Business Review* article, "Welcome to the Experience Economy" as a shift in the marketplace where business focuses on creating and delivering memorable and immersive experiences to customers. This concept emphasizes emotional connections, personal engagement, and unique encounters that enhance customer experiences. Museums and art galleries have endeavoured to embrace this concept by designing exhibitions that leave a lasting impact on their visitors. However, scholar Susan Bennett in her book *Theatre & Museums* warns that the danger of this new "experience

[215] Griffiths, 10.
[216] Griffiths, 6.
[217] The experience economy has been adapted across various industries, including tourism, hospitality, entertainment, retail, and cultural institutions like museums, as businesses seek to differentiate themselves and meet the evolving preferences of modern consumers. B. Joseph Pine II and James H. Gilmore, "Welcome to the Experience Economy," *Harvard Business Review* 76, no. 4 (1998): 97–105.

economy" incorporated by museums is the risk of becoming "one more consumable directed not at any social benefit but towards the instantiation and affirmation of an individual."[218]

By examining the historical and contemporary challenges faced by museums in balancing education and entertainment, we can gain valuable insights into the evolving relationship between audiences and cultural institutions. The integration of XR media in museums and art galleries represents another significant step in the pursuit of immersive storytelling, aiming to bridge the gap between history, culture, and the public's engagement with their past. As this chapter explores the multifaceted world of XR media in cultural settings, its primary goal is to understand how these technological advancements can further enrich the museum experience while preserving the heart of their educational mission.

This chapter sets out to present a new history of these novel, ever-changing technologies within a specific institutional setting. To achieve this, it seeks to answer several key questions: How are museums and art galleries incorporating these emerging technologies into their overall programming? What are the organizational motivations driving the inclusion of digital practices? How do these digital innovations facilitate cross-sector collaborations? How can we comprehend the digitally mediated relationship between expert knowledge, curatorial practice, and museumgoers? Moreover, how are these new technologies shaping the very identity of modern cultural institutions and their place in society? As my major case study, the Art Gallery of Ontario (AGO) serves as a focal point, allowing a detailed examination of four exhibitions from 2016 to 2019 that featured VR and AR experiences. By conducting interviews with museum interpretive planners, curators, and filmmakers, the study aims to unravel how these technologies came to be incorporated and what this tells us about how the AGO is addressing the challenge of

[218] Susan Bennett, *Theatre & Museums* (Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2013), 77.

the digital era. Throughout this investigation, the chapter offers insights into how museums and art galleries navigate the incorporation of XR media in their programming and sheds light on the organizational motivations behind these digital practices. Moreover, by tracing the historical use of cinema and immersive experiences, it aims to understand the evolving relationship between expert knowledge, curatorial practice, and museumgoers. Through the detailed analysis of the AGO case study, the chapter reveals the impact of XR media on the identity and role of modern cultural institutions in society, showcasing their ongoing efforts to evolve and engage with audiences in innovative ways.

XR in Museums/Art Galleries: Threat or Opportunity?

One of the first uses of AR in a gallery setting was an "art invasion" in 2010 where artists Sander Veenhof and Mark Skwarek created "WeARinMoMA," an unauthorized digital takeover of the Museum of Modern Art (MoMA) in New York City. The purpose of this AR installation was to question the impact of AR in our public and private spaces and to create an institutional critique. Building on this effort, the artists later established Manifest AR in 2011, an important new-media art collective that sought to challenge institutions and world events through critical AR interventions at museums and geopolitical sites. In 2019, a collective of eight artists called "MoMAR" created an unauthorized gallery in the recently-reopened MoMA on the fifth floor. By using the Jackson Pollock paintings as AR triggers, they provided users with an app that unveiled new works superimposed onto the existing paintings, offering a secret secondary exhibition. This audacious act of artistic intervention has since evolved into its third iteration highlighting the dynamic and ever-changing nature of AR experiences.

In the commercialized sphere, Snapchat teamed up with Jeff Koons in 2017 to launch an augmented reality art exhibition known as ART. In this collaboration, digital artwork and

sculptures were geo-tagged in popular physical locations across the world, such as Central Park in New York City, allowing viewers to experience the pieces through the Snapchat app's "Lens" feature. However, this commercial venture sparked controversy when New York artist Sebastian Errazuriz and his studio Cross Lab protested and digitally vandalized a version of Jeff Koons' AR *Balloon Dog*, raising questions about the ownership of physical-digital locations and the boundaries of digital art in public spaces. This incident illustrates the tension between the commercialization of AR and the potential for acts of protest or subversion by artists, as they challenge the power dynamics inherent in the technology's integration with capitalism.

Today, AR is used in galleries to recreate historical moments (The National Museum of Natural History's *Revivre*), to showcase a digitized object, and to add a 21st-century lens to older artworks (Art Gallery of Ontario's *ReBlink*). Its presence in galleries is set to endure, as institutions show reluctance to invest in technology-heavy virtual reality alternatives, which come with complex logistical challenges, particularly in light of COVID and hygiene protocols. One of the key advantages of AR lies in its ability to meet audiences where their attention lies—through their smartphones. Moreover, unlike virtual reality, AR can be a collective experience in a gallery, with attendees able to share their encounters and observe one another's interactions with the augmented environment. This communal aspect enhances the sense of engagement and participation among visitors, further setting AR apart from other immersive technologies in a cultural institution setting.

Despite the difficulties of VR, it has a history wherein its integration into the museum dates back to 1993 when the first virtual reality exhibition was held at the SoHo branch of the Solomon R. Guggenheim Museum, curated by Jon Ippolito under the title *Virtual Reality: An Emerging Medium*. Ippolito aimed to showcase the potential of VR in the art world and featured

exhibits by prominent artists like Jenny Holzer, Lynn Holden, Paull Marshall, and Thomas Dolby. Dolby's *The Virtual String Quartet* VR experience showcased a digital quartet where users could get closer to the different instruments. Dolby's motivation behind creating this VR experience was to cater to a broader audience, particularly the older generation, including grandmothers, who were already considered the primary visitors to the Guggenheim. He noticed that VR content tended to focus on younger audiences and gamers, leaving the older demographic feeling excluded.[219] Despite Ippolito's efforts, VR did not gain widespread popularity in the 1990s. Ippolito thought the reason for this was that "V.R.'s original promise, to construct a ghostly realm where consciousness could roam free of the constraints of flesh, became socially obsolete. But there was a bigger, more concrete problem: while cellphones with all the whistles cost as little as $99, virtual reality environments could set you back about $1.5 million."[220]

In the last two decades, virtual reality has experienced a resurgence in art galleries, thanks to the continuous evolution of VR technology, which brought about significant reductions in cost and increased accessibility. VR has proven to be a valuable tool for art museums to overcome limitations related to display space and the fragility of exhibits. By utilizing VR, museums can visualize and simulate environments, objects, or constructions that are no longer accessible or preserved. Notable examples of this include interactive gallery tours like the Anne Frank House VR and exhibits that come to life, such as the Victoria & Albert Museum's *Curious Alice VR* and the AGO's *Small Wonders: The VR Experience*. Through the integration of VR into

[219] Kim Patterson, "Virtual Reality: An Emerging Medium (1993)," WordPress, October 16, 2014, https://kimpattersonvirtualreality2014.wordpress.com/2014/10/16/virtual-reality-an-emerging-medium-1993/#:~:text=Intel%20Digital%20Education%20%26%20Arts%20Program,to%20report%20on%20the%20exhibit.
[220] Michael Rush, "Virtual Reality Art: Beyond Technology," *The New York Times,* January 6, 2006, https://www.nytimes.com/2006/01/06/arts/virtual-reality-art-beyond-technology.html.

exhibitions, galleries and museums aim to enhance visitors' experiences and offer fresh perspectives on artworks. In a gallery setting, VR does come with a considerable technological and logistical price tag, with headsets ranging from $350 to $2000. Moreover, the constant release of newer models every twelve to eighteen months renders older headsets obsolete. Implementing virtual reality requires staff on hand to guide attendees through the process of putting on and taking off the headsets, adding an additional layer of logistical complexity.

Global Survey of Art Galleries and Museums Incorporating XR Media

Throughout my dissertation research, I attended various industry conferences that explored how museums and art galleries are embracing XR media as integral components of cultural institutions. These conferences highlighted the potential impact of emerging technologies on audience engagement and attendance at exhibitions. They also featured best practice examples from institutions across Canada and around the world, showcasing how they are addressing and adapting to the digital shift.[221] From these conferences, it became evident that some institutions are intentionally creating projects specifically tailored for XR media, while others view XR as supplementary additions to their exhibitions. Larger memory institutions, like London's Victoria & Albert Museum and the National Museum of National History in Paris, have collaborated with XR production companies to co-produce projects. Meanwhile, some institutions are taking on the challenge of creating XR media in-house.

The four XR projects discussed below can be categorized into three groups: immersive and theatrical experiences for attendees, at-home experiences, and XR projects that complement

[221] I attended several industry symposia: (1) Technology in Museums Symposium hosted by the Canadian Museum Association in Ottawa, Ontario, December 1–3, 2019, (2) Arts, Culture, Digital Transformation Symposium in Banff in November 2019, (3) MuseumNEXT XR Summit, July 12–14, 2021, and (4) MuseumNEXT Digital Summit, July 6–8, 2022.

and highlight the digitization process. These projects are considered exemplary instances of how large legacy institutions successfully incorporate XR, setting the standard for best practices in the field. By surveying institutions globally, it becomes evident that there is a collective effort to address the question of how to effectively integrate XR media, transcending geographic and institutional boundaries and demonstrating a universal exploration of XR's potential. However, the integration of XR media also comes with its set of challenges. Firstly, the expenses involved in producing and showcasing XR content can be substantial, demanding significant financial investment, sponsorships, and resource-sharing partnerships to offset costs. This reliance on partnerships raises concerns about transparency, as the credits and roles of collaborators in XR projects are often unclear, making it challenging to assess the financial stakes and contributions of various partners. Additionally, as Walter Benjamin has articulated in his seminal essay "The Work of Art in the Age of Mechanical Reproduction," the transition from physical experiences to virtual ones may raise concerns about the loss of the aura and authenticity inherent in traditional physical exhibitions.[222] For instance, attempting to recreate the Anne Frank House's walking path digitally may not fully capture the emotional impact of physically walking the same path.

Additionally, the technology itself poses accessibility challenges for institutions, as they often lack the necessary infrastructure to implement XR media without external partnerships. This reliance on partnerships further raises questions about how reorganizing collections to accommodate XR experiences might lead to potential losses, as valuable artifacts or artworks may need to be displaced, sparking debates about prioritization and preservation. The incorporation of XR media in cultural institutions brings both exciting possibilities and complex

[222] Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," *Essays and Reflections.* Ed. Hannah Arendt. Trans. Harry Zohn. New York: Schocken Books, 1968.

challenges. As museums and galleries navigate the realm of immersive technologies, they must confront issues related to finances, partnerships, authenticity, and accessibility. Striking a balance between preserving the essence of physical exhibitions and embracing the transformative potential of XR remains a key endeavour for institutions worldwide.

AR Example: The National Museum of Natural History in Paris – "REVIVRE"

In June 2021, The National Museum of Natural History in Paris collaborated with SAOLA Studio, an augmented creation studio, to create *Revivre* ("to live again"), an augmented reality experience that allowed attendees to interact with extinct animals. Now part of the permanent collection in the Great Gallery of Evolution, *Revivre* is a re-creation of eleven species, including the Passenger Pigeon, Steller's Rhytina, the Elephant Bird and the Helmeted Hornbill. Equipped with Microsoft HoloLens 2 smart glasses, museumgoers can witness the movements and sounds of these animals as they existed in the past. The integration of AR in this gallery aims to provide visitors with a deeper understanding of "the living heritage that we have lost."[223]

Creating this fifteen-minute experience required two years of meticulous research and seven months of modelling. Bruno David, the President of the Museum, emphasized the significance and time-intensive nature of this work, stating: "none of us have seen them, there is no 'taxidermized' specimen. The idea is to touch the sensitivity of the visitor, to take stock of what we have lost and that we will never again, neither in nature nor in captivity. And only technology allows that."[224] Jeremy Frey, director of SAOLA described the difficulty in this work

[223] Fabrice Pouliguen, "Biodiversité: Au Museum d'histoire naturelle, des animaux disparus reprennent vie en réalité augmentee," in *20 Minutes,* June 8, 2021, https://www.20minutes.fr/sciences/3057179-20210608-biodiversite-museum-histoire-naturelle-animaux-disparus-reprennent-vie-realite-augmentee. Original text in French: « Elle permet de prendre conscience, comme jamais, du patrimoine vivant que nous avons perdu. » ("It has allowed us to become aware, as never before, of the living heritage that we have lost.") Translated through Google Translate.
[224] Pauline Conradsson, "«Revivre»: Les espèces disparues reprennent vie au Muséum national d'histoire naturelle," in *Le Parisien,* June 15, 2021, https://www.leparisien.fr/culture-loisirs/sortir-region-parisienne/revivre-les-especes-

by saying that "it was quite a challenge. We went through scientific articles, spent time in the museum library, and discussed with specialists to get the detail of a feather or a hair and thus be able to recreate it in 3D."[225] All this attention to detail gave viewers an immersive and realistic experience of these extinct animals. David hints that only the technology of Microsoft HoloLens 2 will afford a distinct kind of experience that can be enjoyed by museumgoers, where they can get up close to the virtual animals, creating a memorable experience, especially for younger audiences. This suggests that the days of touring dinosaur bones and reading text are no longer enough to entertain attendees; instead, the spectacle of recreated extinct animals as they move with us along the museum gallery indicates a shift in audience expectations and potentially establishing a new standard for engaging museum experiences.

Attendees enter the gallery in small groups of no more than five people, each equipped with smart glasses, and the experience begins. Throughout the fifteen minutes, they are guided by a migratory pigeon, who narrates the life and disappearance of different species. For instance, the Passenger Pigeon recounts: "there were several billion of them in the 19th century in North America. The last specimen died at the Cincinnati Zoo in 1914. They were completely eradicated. Hunters were even rewarded if they succeeded in killing more than 30,000 a day."[226]

---

disparues-reprennent-vie-au-museum-national-dhistoire-naturelle-15-06-2021-SEV6TU6DKJBF5HJYQ6OB4OLIFM.php. Original text in French: «Aucun de nous ne les a vues, il n'existe aucun spécimen « taxidermisé », souligne Bruno David, président du Muséum. L'idée, c'est de toucher à la sensibilité du visiteur, de prendre la mesure de ce qu'on a perdu et qu'on ne verra plus jamais, ni dans la nature, ni en captivité. Et seule la technologie permet ça. » ("None of us have seen them, there is no "taxidermized" specimen, underlines Bruno David, president of the Museum. The idea is to touch the sensitivity of the visitor, to take stock of what we have lost and that we will never see again, neither in nature nor in captivity. And only technology allows that.") Translated through Google Translate.

[225] Pauline Conradsson, "«Revivre»: les espèces disparues reprennent vie au Muséum national d'histoire naturelle." Original text in French: « Ça a été un sacré challenge, reconnaît Jérémy Frey, réalisateur du studio Saola. On a épluché les articles scientifiques, passé du temps à la bibliothèque du musée et échangé avec les spécialistes pour avoir le détail d'une plume ou d'un poil et ainsi pouvoir le recréer en 3D. » Translated through Google Translate.

[226] Conradsson, "«Revivre»." Original text in French: «On en comptait plusieurs milliards au XIXe siècle en Amérique du Nord, détaille le président du Muséum. Le dernier spécimen est mort au zoo de Cincinnati (États-Unis) en 1914. On les a éradiquées totalement. On récompensait même les chasseurs s'ils réussissaient à en tuer plus de 30 000 par jour. Ça a été un massacre.» Translated through Google Translate.

Beyond providing entertainment, the exhibit's objective is to educate and foster a heightened awareness of these species, allowing attendees to better comprehend the reasons behind their extinction. SAOLA asserts that through the use of AR "we are betting that an increased awareness of the errors of our past is the best way for us to prepare for the challenges of tomorrow,"[227] thus emphasizing the importance of environmental preservation.

AR was chosen as the medium for this experience to facilitate shared participation among attendees, rather than isolating them within individual virtual reality headsets. As David commented, he wanted to avoid the total immersive experience of virtual reality: "thus we stay in touch with the people around us. In other words, we can discuss, which seemed important to us for this experience."[228] This points to the importance of sharing a collective experience where one can see and share with the people you are with, rather than being put in an isolated virtual world. Since its opening day, this exhibit has proved to be a popular addition to the gallery, attracting nearly 33,000 visitors.[229] This case study marks the first cultural utilization of Microsoft HoloLens.

Revivre is a meticulously crafted and presumably high-budget[230] immersive experience that resulted from a collaboration between a museum, XR SAOLO Studio, and the tech giant Microsoft. Its success serves as a compelling example of how museums and art galleries can

---

[227] "SAOLA Studio AR Presentation," Institut français, Accessed June 1, 2021, https://ifdigital.institutfrancais.com/sites/default/files/media/SAOLA%20Studio%20AR%20presentation%20-%20English%20-%20210222.pdf, 21.

[228] Fabrice Pouliguen, "Biodiversité: Au Museum d'histoire naturelle, des animaux disparus reprennent vie en réalité augmentée." Original text in French: « Le voyage se fait avec des lunettes à réalité augmentée et non un casque, tient-il à préciser. Ainsi, on reste en contact avec les personnes autour de nous. Autrement dit, on peut discuter, ce qui nous semblait important pour cette expérience. » Translated through Google Translate.

[229] "Paris: plus de 2 millions de visiteurs pour le Musée national d'histoire naturelle," Centre Presse Aveyron (February 10, 2022), https://www.centrepresseaveyron.fr/2022/02/10/paris-plus-de-2-millions-de-visiteurs-pour-le-musee-national-dhistoire-naturelle-10101646.php. Original text in French: « L'expérience Revivre, les animaux disparus en réalité augmentée**,** nouveauté majeure dans la salle des espèces menacées et disparues de la Grande Galerie de l'Évolution, ouverte uniquement les mercredis, week-end et vacances scolaires, ne désemplit pas depuis son ouverture le 16 juin dernier avec près de 33 000 visiteurs.» Translated through Google Translate.

[230] The budget has not been made public.

effectively engage and educate audiences by harnessing XR technology. By seamlessly integrating entertainment and education, the *Revivre* AR exhibit not only captivates visitors but also raises awareness about the significance of environmental preservation and the consequences of human actions on our ecosystem. This immersive experience goes beyond mere entertainment, prompting thoughtful reflections on pressing environmental issues. Furthermore, the decision to opt for augmented reality instead of virtual reality has proven to be a strategic choice, allowing attendees to share a collective experience and encouraging discussions about the content they encounter. This approach embraces a sense of togetherness and reinforces the role of museums as spaces for communal learning and reflection.

VR Example: Anne Frank House Virtual Reality

The Anne Frank House in Amsterdam is a leading tourist attraction that has over a million visitors a year. This museum has been characterized by art historian Bruno S. Frey as a "superstar museum"—a site that is considered a tourist "must" see.[231] However, the museum is facing many challenges such as the issue of space, where only 400 people per hour can enter, and issues around accessibility as there are no elevators so visitors must be able-bodied to enter and exit "The Secret Annex." Another challenge is engaging a younger generation with limited historical knowledge of World War II. According to the *Anne Frank House Annual Report 2019,* "more than half of the approximately 1.3 million visitors to the Anne Frank House are under 30

[231] Lichtman quotes Bruno Frey (1998, 113). Bruno S. Frey, "Superstar Museums: An Economic Analysis," *Journal of Cultural Economics* 22, no. 2 (1998): 113–125; Sarah A. Lichtman, "Designing Absence at the Anne Frank House Museum, Amsterdam, and the Secret Annex Online: Exhibition design, virtual reality, and historic preservation," in *Design & Heritage: The Construction of Identity and Belonging,* eds. Grace Lees-Maffei and Rebecca Houze (New York: Routledge, 2021), 273–274.

years old" and many hail from countries outside of Europe with no direct involvement with the war.[232] To address these challenges, the Anne Frank House is turning to virtual reality.

The Anne Frank House is no stranger to embracing digital technology and has been an early adopter with an active website since 1997 and the creation of a virtual reality version on CD-ROM of the Secret Annex in 1999. However, the "virtual" museum has become more important as the museum reached one million visitors in 2007/2008, and has helped alleviate capacity limits and showcase parts of the house that are not seen when visiting the physical museum (such as the attic of the Secret Annex which is off-limits to visitors). On June 12, 2018, on what would have been Anne Frank's 89th birthday, Anne Frank House launched a VR app for Oculus Go, Rift, Quest, and Gear VR with financial support from Oculus.[233] Similar to the National Museum of Natural History in Paris, The Anne Frank House Museum teamed up with a studio partner, Force Field Studio, to co-create the 25-minute virtual reality tour of the Secret Annex where audiences can see how Anne Frank and seven others lived for 761 days from 1942 until their arrest in 1944. Inside the headset, users can explore the space and pick up objects, such as Anne's red and white checkered diary and photographs on the walls, while listening to quotes from Anne's journal.

The VR app experience begins in front of the bookcase that kept the door to Anne Frank's Secret Annex hidden. Throughout the tour, we hear snippets from Anne's diary—her fears of being found out, her hopes to travel and publish, how her body is changing throughout puberty and her evolving relationship with Peter. As you move from room to room you feel how

[232] Lichtman, "Designing Absence at the Anne Frank House Museum," 279.
[233] The app can be downloaded for free from the Oculus Store and is available in seven languages including English, Dutch, French, German, Hebrew, Portuguese, and Spanish. It is unknown how much financial support The Anne Frank House received from Oculus. Quoted "With financial support from Oculus" from Anne Frank House, *Annual Report 2019* (2019), accessed June 1, 2021, https://annefrank.freetls.fastly.net/media/filer_public/c2/4d/c24d8759-efc6-4b8a-aeea-8c736cece935/afs_jaarverslag_en_2019.pdf, 12.

tight the living conditions were as Anne describes the limited number of activities they were allowed to do during the day. She talks about the struggle to be quiet to not be heard by the warehouse workers during the day. In the bathroom, Anne talks about how much she has physically changed as we come face-to-face with a wall that marks the changing heights of Anne, Margot, and Peter. According to scholar Sarah A. Lichtman: "Users of the technology compared it to a 'time machine' and noted that the experience was 'moving' and 'haunting' and felt it akin to visiting the house in Amsterdam; another remarked that being alone during the digital experience reinforced an impression of loneliness and seclusion."[234] Unlike the museum, where the attic of the Secret Annex is empty, as per the wish of Anne's father Otto Frank, users can experience the "unbearable tension"[235] of the confined living space as experienced by Anne.

The Anne Frank House VR has proven to be popular, especially since the museum has been closed due to COVID-19 but attendees can still visit the museum virtually through VR. According to the museum's *2021 Annual Report*: "In 2019 the Anne Frank House received a record 1.3 million visitors, but in 2020 that number dropped to 396,779, and in 2021 it fell still further, to 277,901."[236] This case study exemplifies how the Anne Frank House effectively utilized digital strategies, particularly the VR app, to address challenges related to its expanding audience and the limitations of its physical space. By leveraging technology, the museum managed to engage with a broader audience, including younger generations with limited historical knowledge, and to make its exhibits accessible during a period of restricted physical access. However, the museum's response to the pandemic also involved the creation of online

[234] Lichtman, "Designing Absence at the Anne Frank House Museum," 284.
[235] Hans Westra, *Inside Anne Frank's House: An Illustrated Journey through Anne's World* (Woodstock, New York, and London: Overlook Duckworth, 2004), 250.
[236] Anne Frank House, "Annual Report 2021," accessed June 1, 2022, https://www.annefrank.org/en/about-us/2021-annual-report/anne-frank-2021-annual-report/.

video-guided tours for schools and individuals. While the VR app garnered significant attention and success, the museum's focus on online tours raises questions about the future longevity and integration of VR projects within its overall strategies. It is worth noting that the museum's 2021 Annual Report did not mention the VR app, potentially indicating that it was not part of the museum's COVID-19 response or that it might have taken a backseat to other initiatives during this time.

Despite this observation, the online tour project is described as being in its pilot phase but with a clear intention to continue, suggesting that digital experiences are here to stay as a fundamental aspect of the museum's outreach efforts. However, the lack of mention in the annual report raises questions about the museum's plans for future development and integration of VR experiences into its long-term strategy. The Anne Frank House VR app serves as a case study of how digital strategies can bridge gaps in accessibility, engage diverse audiences, and offer innovative alternatives during times of crisis. As museums continue to navigate the dynamic landscape of digital engagement, it is essential to strike a balance between embracing cutting-edge technologies and preserving the authenticity and historical significance of their physical spaces.

VR Example: Victoria & Albert Museum – *Curious Alice: VR Experience*

The Victoria & Albert (V&A) Museum curated a large immersive exhibition for their Alice in Wonderland exhibition called *Alice: Curiouser and Curiouser* (May 22, 2021), exploring the adaptations of Lewis Carroll's *Alice in Wonderland* over the last 150 years in theatre, fashion, film, and TV. This exhibition has been heralded as an "immersive and theatrical

show"[237] and featured more than 300 objects ranging from photography to early manuscripts, fashion, art, music, and virtual reality.

The V&A partnered with HTC Vive Arts and PRELOADED,[238] an immersive game studio, to create *Curious Alice VR*. This marked the first time the museum brought virtual reality into its gallery space. The museum was interested in "creating compelling experiences inside and online and outside the walls of the museum . . . As well as creating an experience for the exhibition but at home."[239] This VR experience features artwork by Icelandic illustrator Kristjana S Williams who references Victorian engravings and paper theatres in her illustrations. Within the museum, attendees fall down the rabbit hole and can partake in the interactive sequence called *A Curious Game of Croquet* where they play against the Queen of Hearts using hedgehogs as balls. The garden was inspired by the V&A's own garden and courtyard. Throughout the VR journey, you can paint roses red and interact with flamingoes, and throw hedgehogs through card tunnels to defeat the queen—who is a very ungracious loser.

At home, the VR experience continued, inviting participants to meet other beloved characters from the novel and engage in activities like solving riddles from the caterpillar and searching for the White Rabbit's missing glove. Throughout the experience, we imagine what it is like to be Alice as the ground opens beneath our feet and we tumble down the rabbit hole, drink a potion that makes us small and eat mushrooms that turn our world psychedelic: these are all key moments of Alice's story that we experience in VR. It is a visually stunning project but can cause nausea as we experience Lewis Carroll's story in a new medium. However, it is

[237] "Alice: Curiouser and Curiouser," Victoria and Albert Museum, Accessed July 1, 2022, https://www.vam.ac.uk/exhibitions/alice-curiouser-and-curiouser.
[238] PRELOADED has previously worked with Tate Modern to create Modigliani VR: The Ochre Atelier in 2017. Read more here: https://www.tate.org.uk/whats-on/tate-modern/modigliani/modigliani-vr-ochre-atelier.
[239] "Curious Alice: The VR Experience," Victoria and Albert Museum (V&A), Accessed July 1, 2022, https://www.vam.ac.uk/articles/curious-alice-the-vr-experience.

important to note that unlike the free version of *Anne Frank House VR, Curious Alice VR* is available for purchase on Steam for HTC Vive for £4 (or $6.49 CAD). This distinction highlights the differing approaches taken by institutions in offering their VR experiences to the public.

Compared to the linear narrative VR and AR experiences of *Anne Frank House VR* and *Revivre,* the game-like elements in the *Curious Alice VR* experience contribute significantly to its appeal. By turning the exploration of *Alice in Wonderland* into an interactive and gamified journey, the V&A successfully engages a modern audience, especially those familiar with video game mechanics. This approach extends the cultural impact of the exhibition beyond the traditional museum-goer, attracting tech-savvy enthusiasts and younger generations. However, while the game experience offers remarkable visual and interactive components, it is crucial to address the potential issue of motion sickness experienced by some users. Virtual reality, despite its immersive qualities, may induce discomfort in certain individuals, highlighting the importance of balancing technological advancements with visitor comfort and well-being.

These three examples presented in the global survey exemplify successful case studies within the culture sector, showcasing effective implementations of XR technology in exhibitions. Notably, these exhibitions often require substantial funding, frequently with sponsorships from tech giants like Microsoft, Oculus, and HTC VIVE, who eagerly seek to promote their technology in the cultural realm. Additionally, traditional institutions collaborate with XR production companies such as PRELOADED and Force Field studio to help manage expenses and gain access to cutting-edge technology. Many of these XR projects serve as experimental pilot programs or complementary additions to larger exhibitions, though some, like *Anne Frank House VR,* stand as independent projects.

Despite industry conferences celebrating successful ventures, there remains a lack of a definitive framework for determining what constitutes success in XR projects. The criteria for evaluation remain ambiguous—the number of views, attendance, or generated revenue—leaving room for varying interpretations and potentially prioritizing superficial metrics over the impact on visitor learning and engagement. Moreover, it is essential to acknowledge that these three examples do not provide an all-encompassing list and it should be noted that they are very white and euro-centric case studies. Other examples that could not be discussed due to lack of time, funds and/or access (either the project is no longer available or was not made publicly available) and cannot be explored in detail include: (1) Te Papa Tongarewa the National Museum of New Zealand AR exhibition *Gallipoli: The Scale of our War* where the narrative about the conflict of the First World War is flipped by focusing on the emotional experience and impact on men and women who served during the Gallipoli campaign.[240] (2) The National Museum of Singapore's immersive installation *Story of the Forest* that used 69 images from the William Farquhar Collection of Natural History Drawings which have been turned into 3D animations that visitors can interact with using their smartphones.[241] (3) The Robben Island Museum that partnered with Google Arts & Culture to create *The Robben Island Virtual Island Tour* where viewers can watch 360° videos of the infamous prison that housed Nelson Mandela for eighteen years along with 3,000 political prisoners during their fight to end Apartheid. The island is a national and

[240] "Gallipoli: The Scale of Our War," Te Papa Museum, accessed June 1, 2021, https://www.tepapa.govt.nz/visit/exhibitions/gallipoli-scale-our-war.
[241] "Story of the Forest Exhibition," National Museum of Singapore, accessed June 1, 2021, https://www.nhb.gov.sg/nationalmuseum/our-exhibitions/exhibition-list/story-of-the-forest#:~:text=Created%20by%20the%20renowned%20Japanese,Drawings%20into%20three%2Ddimensional%20animations.

UNESCO World Heritage site situated 8 kilometres offshore from Cape Town. Today, it is one of South Africa's most visited sites, accessed by ferry from the Victoria & Albert Waterfront.[242]

While the examples presented above have offered valuable glimpses into the potential of XR technology within the cultural sector, one significant contrast is observed between the spectacle-focused approach of *Immersive van Gogh* and the immersive, context-rich experiences curated by legacy institutions. Being a for-profit venture, *Immersive van Gogh* primarily emphasizes visual extravagance, potentially overshadowing the educational and cultural aspects that traditional institutions strive to impart. Moreover, the motivations, partnerships, and financial arrangements underpinning institutional XR exhibitions demand deeper analysis, as no budgetary information has been publicly shared at the conferences I attended. The role and influence of tech giants such as Microsoft, Oculus, and HTC VIVE in sponsoring these exhibits also raise questions about their potential impact on the curatorial decision-making process. The eagerness of these tech companies to promote their products within the cultural realm may shape the content and objectives of XR exhibitions, potentially affecting their authenticity and educational value. While the inclusion of digital practices holds promise for engaging modern audiences, it is essential to critically assess whether these technologies align with the institution's mission and vision or merely serve as attention-grabbing novelties. As XR experiences shift the balance of authority and control, curators must navigate new territories of presenting information and art within immersive virtual environments. The implications of these shifts extend beyond visitor engagement to broader discussions of how traditional cultural institutions redefine their roles in the digital age.

[242] "Experience Google Arts & Culture's Robben Island Prison Tour," Google Arts & Culture, Accessed June 1, 2021, https://artsandculture.google.com/story/WQUhm-e6wopSJw.

Moving forward, the focus of this chapter shifts to a specific Canadian example—the Art Gallery of Ontario (AGO). This in-depth analysis of the AGO aims to shed light on how XR exhibitions were created, the reasons behind their inception, and the surrounding circumstances that influenced their development. This investigation into the AGO's XR endeavours offers an opportunity to explore the extent of commercial influence within the cultural space. Ultimately, this comprehensive examination of the AGO's use of XR technology provides valuable insights into the broader landscape of XR implementations in cultural institutions, offering insights on the future of the arts and museum experiences. While the surveyed examples provide glimpses into the possibilities of XR technology in the cultural sector, it is imperative to weigh the balance between spectacle and substance, assess the motivations driving these initiatives, and consider the implications of external collaborations. By closely examining the AGO's XR ventures, I take a crucial step towards understanding the broader landscape of XR implementations in cultural institutions, which can in turn guide informed decision-making for the future of arts and museum experiences.

Case Study of the Art Gallery of Ontario

The Art Gallery of Ontario (AGO) is one of the largest art institutions in Ontario, receiving $62 million a year in provincial and federal funding. Classified as an art museum and known for its showcase of trendy and commercially popular artists and temporary exhibitions, such as *Guillermo Del Toro: At Home with Monsters* (September 30, 2017 – January 7, 2018), *Yayoi Kusama: Infinity Mirrors* (March 3 – May 27, 2018), and *Andy Warhol* (July 21 – October 24, 2021), the AGO faces challenges of declining membership rates and falling attendance despite its initiatives like "Free under 25" and $35 Annual Pass campaigns aimed at boosting

traffic.[243] In the midst of an industry-wide decline in attendance and dwell time, temporary exhibitions featuring immersive experiences have emerged as a strategy to draw more visitors and increase engagement in the gallery space.[244]

Over the last seven years, the AGO has installed four exhibitions that had an XR component: *Small Wonders: Gothic Boxwood Miniatures* (November 5, 2016 – January 22, 2017), *ReBlink* (July 6, 2017 – April 8, 2018), *Anthropocene* (September 28, 2019 – January 6, 2019), and *Impressionism in the Age of Industry: Monet, Picasso and More* (February 16 – Mary 6, 2019). For the majority of these installations, the XR component was driven by an outside influence such as donors and added as last-minute features.

The question arises: why does the AGO include XR components in its exhibitions? In many cases, external influences, including donors and community partners, contribute to the funding and inclusion of XR media, absolving the AGO of direct financial or institutional investment in XR technology. While this approach provides temporary support, it hinders the AGO from developing in-house expertise or institutional knowledge. High staff turnover and a lack of established digital strategies[245] for XR further complicate the integration process, leading to a trial-and-error approach to immersive experiences.

---

[243] Office of the Auditor General of Ontario, "Value-for-Money Audit Museums and Galleries: Art Gallery of Ontario, Royal Ontario Museum and McMichael Canadian Art Collection," December 2020, https://www.auditor.on.ca/en/content/annualreports/arreports/en20/20VFM_13museums.pdf.

[244] The Auditor General of Ontario noted: "As well, the AGO has not experienced a significant increase in its attendance. Instead, the AGO's attendance has fluctuated from year to year, primarily based on the strength or weakness of its temporary exhibitions, with overall attendance at the AGO decreasing in each of the last two years." Office of the Auditor General of Ontario, "Value-for-Money Audit Museums and Galleries: Art Gallery of Ontario, Royal Ontario Museum and McMichael Canadian Art Collection." December 2020, 4.

[245] The AGO has no digital strategy for XR media as it defines "digital" solely as their website, focusing instead on making it easier to donate, buy tickets, and view upcoming exhibitions. Their top priority under the AGO's Digital Strategy is "upgrading the AGO website to make it easier to navigate." Art Gallery of Ontario, "2017-2018 Business Plan," accessed June 1, 2021, https://ago.ca/about/year-in-review.

The AGO serves as a significant case study for this chapter, illustrating how a major Canadian art institution grapples with adapting to the digital era through XR media. These four exhibitions underscore the challenges faced by the AGO, including a commitment to in-building art experiences, a plateaued budget, the preservation of a legacy collection, and the competition for a shrinking and aging audience with immersive exhibitions featuring works of van Gogh. As this chapter unfolds, the AGO's experiences with XR media will offer valuable insights into the evolving relationship between art institutions and emerging technologies, shedding light on the strategies, successes, and challenges that lie ahead in this digital age.

Exhibition #1: Small Wonders: Gothic Boxwood Miniatures (November 5, 2016 – January 22, 2017)

From November 5, 2016, to January 22, 2017, the AGO presented the exhibition *Small Wonders: Gothic Boxwood Miniatures*, showcasing 60 boxwood miniatures from the early 1500s, in collaboration with The Metropolitan Museum of Art and the Rijksmuseum.[246] This exhibition highlighted more than four years of research using CT scans of the miniatures, enabling AGO Curator of European Art Sasha Suda and Conservator of Sculpture and Decorative Arts Lisa Ellis to explore the intricate craftsmanship of these small beads. The exhibition featured ten prayer beads and two miniature altarpieces from the AGO's own Thomson Collection of European Art including the Chatsworth Rosary (c. 1509 – 1526), originally owned by Henry VIII and his first wife, Katharine of Aragon.

This exhibition included a VR piece—*Small Wonders: The VR Experience*—produced in collaboration with the Canadian Film Centre's Media Lab (CFC Media Lab) and Seneca College School of Creative Art & Animation. Spearheaded by creative and technical director Priam

[246] After its run at the AGO, this exhibition travelled to the Met Cloisters and the Rijksmuseum in the spring and summer of 2017.

Givord, with producers Ana Serrano from CBC, and Mark Jones from Seneca, the VR project stemmed from Serrano's initiative, who secured $60,000 in experimental project funding after learning about the Micro CT scans of the beads. Convincing the AGO executives of the merits of the VR project, the AGO agreed to let Givord create the VR experience around the scans.[247] Although branded as the presenter of the VR piece and credited with its success,[248] the AGO did not contribute financially and was under no obligation to include the VR experience in the exhibition. Nevertheless, the AGO collaborated with Givord, along with AGO Interpretive Planner Gillian McIntyre, to bring the VR experience to fruition.

The VR experience offered visitors the opportunity to explore the prayer beads' intricate carvings from multiple angles and in fine detail beyond the reach of the human eye. Accompanied by the soundtrack *Treasures of Devotion: Spiritual Songs in Northern Europe 1500 – 1540*, the VR enriched the contemplative and immersive experience for visitors. McIntyre, who initially hesitated to incorporate VR, recognized its value as it encouraged people to return to the exhibit's artifacts, promoting attendee engagement.[249] The success of this inaugural VR experiment delighted the AGO, drawing a positive response from donors and showcasing how it activated their collection.

This exhibition marked the AGO's first co-production and collaboration with experts like Anna Serrano in the field of VR. Despite having little financial stake, the AGO could claim the glory if the VR experience succeeded. This early success, driven by a community partner, exemplified the potential of XR technology in engaging audiences. However, as the subsequent examples will illustrate, the knowledge gained from this exhibition was not shared, and each

[247] Gillian McIntyre, Interview with Caroline Klimek on Zoom, June 23, 2021.
[248] The VR piece played at Hot Docs in 2018 and was awarded an Honorable Mention Media and Technology MUSE Award by the American Association of Museums.
[249] McIntyre, Interview with Caroline Klimek.

team had to start anew in subsequent projects. This underscores the AGO's lack of a comprehensive digital strategy for XR and raises questions about how it could harness the momentum of such successes to enhance its overall approach to immersive experiences.

Exhibition 2: ReBlink (July 6, 2017 – April 8, 2018)

ReBlink, a creation by Toronto artist Alex Mayhew, was featured at the AGO from July 6, 2017 to April 8, 2018. Mayhew's pitch for the ReBlink app found an advocate in AGO Associate Director, Interpretation and Visitor Research Keri Ryan. Using the *ReBlink* app, visitors interact with ten paintings from the AGO's Canadian and European permanent collections, each remixed with a modern twist. Mayhew described his process as a "remix," adding contemporary elements to the artwork to explore themes like technological influences and climate change. Mayhew used paintings from the AGO's permanent collection including *Evisceration of a Roebuck with a Portrait of a Married Couple* (1625 by Cornelis de Vos and Frans Snyders), *Drawing Lots* (1888 – 1902 by George Agnew Reid), and *The Marchesa Casati* (1919 by Augustus Edwin John). Similar to *Revivre*, the exhibition sought to deepen visitor engagement through AR, enticing longer stays and encouraging interaction with the paintings using smartphones or AGO-provided tablets.

Mayhew's vision rested on the belief "that by using tools like our phones that distract us from connecting with art in museums and galleries, we can *deepen our engagement* with art."[250] The hope was to extend visitors' encounters with the paintings. Witnessing the crowded gallery space during my visit in 2017, I observed large intergenerational families eagerly gathered around smartphones and iPads, taking family photos. This was a social and collective experience

[250] Talia Ricci, "AGO's ReBlink exhibit combines augmented reality and classic paintings," CBC News, January 3, 2018, https://www.cbc.ca/news/canada/toronto/art-exhibit-combines-augmented-reality-and-classic-paintings-1.4452158 (emphasis my own).

for AGO attendees where the signage encouraged museumgoers to take photos and share them with the hashtag #Reblink on social media. AGO interpretive planner Shiralee Hudson commented on the popularity of the exhibition, stating: "The exhibition ran for nine months and during that time there were over 22,000 downloads of the app. . . . And in terms of activations the number *ReBlink* remixed was viewed indicated there were over 190,000 activations."[251] While little context was provided as to what these statistics meant; they were enough to convince the AGO to extend the exhibition an additional four months.

Despite its immense popularity and social appeal, *ReBlink* faced criticism for its lack of interpretive depth and contextual information on the original paintings. Some viewed it more as an installation than an exhibition, leading to questions about its true impact on art appreciation and understanding. Critics such as McIntyre commented: "This was not an exhibition but an installation."[252] This distinction is important because, for McIntyre, she did not see an interpretive plan behind this installation nor a plan on how to organically incorporate this technology. McIntyre commented: "I found it very one-liner-ish. I found it did not lead you anywhere. It was clever and gimmicky."[253] For visitors, there was no back-and-forth between the AR technology and the original painting. Similar to *Immersive van Gogh,* there was no additional information on the original painting—who created it, the time period or the historical context. While it received accolades[254] and recognition,[255] including nominations and awards, the technology's actual contribution to enhancing the artwork remained a point of contention.

[251] Shiralee Hudson, interview with Caroline Klimek on Zoom, July 2, 2021.
[252] McIntyre, Interview with Caroline Klimek.
[253] McIntyre, Interview with Caroline Klimek.
[254] *ReBlink* was nominated for "Best Use of Augmented Reality" in the 22nd Annual Webby Awards and won an award from the American Alliance of Museums.
[255] The installation was heavily publicized with even Apple CEO Tim Cook experiencing *ReBlink* at the AGO.

The installation's contradictions lie in its ability to captivate and excite gallery-goers, while simultaneously raising concerns about the depth of engagement and interpretive value it offered. Though heavily publicized and embraced by visitors, the technology's ultimate significance in fostering new forms of understanding and emotional connection with art remains an open question. As the AGO continues to explore other XR endeavours, these contradictions underscore the need for critical analysis and a comprehensive evaluation of the institution's evolving relationship with XR media to ensure meaningful and transformative experiences for its audiences.

Exhibition 3: *Anthropocene* (September 28, 2018 – January 6, 2019)

Anthropocene is a transmedia project by long-time collaborators Edward Burtynsky, Nicholas de Pencier, and Jennifer Baichwal. It marks the final film in the trilogy that includes *Manufactured Landscapes* (2006) and *Watermark* (2013). The feature documentary *Anthropocene* (2018) follows the research of an international body of scientists, the Anthropocene Working Group (AWG), who, after nearly 10 years of research, are arguing that we are no longer in the Holocene Epoch but the Anthropocene Epoch, due to the profound and lasting changes to the Earth wrought by human activity. This message was circulated in multiple formats, including two gallery exhibitions at the National Gallery in Ottawa and the AGO, two books, a documentary film, and interactive works that include 360° videos and augmented reality.[256] Through this project, *The Anthropocene Project* asks us to consider: "What can images do to help us understand the current debates that are circulating about the brand-new epoch we have brought about?"[257]

[256] See list of all Anthropocene works here: https://theanthropocene.org/.
[257] "Anthropocene Exhibit," Art Gallery of Ontario, June 1, 2019, https://ago.ca/exhibitions/anthropocene.

During an interview with filmmaker Nicholas de Pencier, it was revealed that they received additional funding to add a digital component to their documentary, providing the impetus for including an interactive media component in this project.[258] Utilizing AR, the filmmakers created a three-dimensional model using photogrammetry. From a curatorial perspective, the layering of the three types of media was important for AGO Photography Curator Sophie Hackett who writes:

> These installations push the long-standing use of photographs or films to document and memorialize people, animals, or places whose conditions are undergoing profound, irrevocable change. Though very different in the form of a photograph or a film, these installations are nonetheless documents in the classical sense: their power resides in the very fact of *what they present.*[259]

Similar to *Revivre*, it brings the overall Anthropocene message digitally in front of viewers, so they come face to face with the three AR exhibits—Big Lonely Doug, Sudan, and the Ivory Tusks. The AR installation of the Tusks focuses on a particular moment in time when the largest ivory burn in history took place in Kenya's Nairobi National Park. The Kenyan government wanted to stage a dramatic public incineration that would make a bold statement that there is no market for ivory. Baichwal, de Pencier, and Burtynsky were able to document the largest pyramid of tusks—known as the "President's Pile"—the day before the ceremony. Within the gallery, this instant is encapsulated in two other ways: we see the photographs by Burtynsky of these tusk piles, and we see the burning of the piles through film installations by de Pencier and Baichwal. AR allows for a layering of the collaborative process of the filmmakers and also for their chosen artistic mediums. However, it is the AR component that allows you to walk up to the life-size sculpture and instills the idea of *witnessing* something that you would not otherwise

[258] Nicholas de Pencier, interview with Caroline Klimek, April 30, 2019.
[259] Sophie Hackett, "Far and Near: New Views of the Anthropocene," in *Anthropocene: Burtynsky, Baichwal, De Pencier*, eds. Andrea Kunard, Urs Stahel, Sophie Hackett, Edward Burtynsky, Jennifer Baichwal and Nicholas De Pencier (Toronto: Art Gallery of Toronto, 2018), 30 (emphasis added).

see. You can see the texture of the piles, read the markings on each of the individual tusks, and can grasp the size and scale of this pile. This "sculpture" allows us to witness the ephemerality and possibly an archival process of the effects of human-caused extinction and notes an important time in Kenya's attempt to end poaching. In contrast to *Revivre*, which aimed to resurrect extinct animals, the AR representation of the tusk pile sought to evoke a moment in time for viewers to revisit.

The purpose of these AR installations for Hackett was "to bring viewers close to that which no longer exists: in the latter case a single animal, standing in for an entire species; in the former case a set of objects, standing in for the living animals to whose bodies they were once connected. In both cases, the effect is deeply poignant."[260] While attending the exhibition, most people were using their own smartphones to engage with the installations. Children and teenagers were taking photographs and playing around with the AR. Older adults peered over each other's shoulders. However, on its own, it is unclear if the message of the effects of human entanglement with nature came across for most attendees as the AR component can be seen as a novelty item.

The AGO's incorporation of AR in their *Anthropocene* exhibition offered an immersive but somewhat underwhelming experience for viewers, raising questions about its uniqueness when compared to similar projects like *Revivre*. While the layering of media, including photographs, films, and AR attempted to weave a compelling narrative, it often fell short in delivering a cohesive and impactful message about the profound impact of human activity on the Earth. Although the AR component did manage to bring some viewers up close to the remnants of endangered species and environmental devastation, for many, it came across as more of a

[260] Hackett, "Far and Near: New Views of the Anthropocene," 28.

novelty rather than a profound tool for exploration. While the exhibition may have fostered some contemplation and reflection on the current epoch we inhabit, the overall impact of the AR aspect appeared somewhat diluted, raising doubts about its effectiveness in truly deepening our understanding of the urgent environmental challenges we face today.

Exhibition 4: Impressionism in the Age of Industry: Monet, Picasso and More (February 16 – May 6, 2019)

The AGO hosted the *Impressionism in the Age of Industry* exhibition from February 16 to May 6, 2019, showcasing French art at the end of the nineteenth century through a diverse collection of paintings, photography, early cinema, books, and sculpture. Caroline Shields, the AGO's Associate Curator and Head of European Art noted that "the goal of the AGO exhibition was to shift the public's perception of Impressionism as a movement chiefly concerned with sunny landscapes, bourgeois leisure, and recreation, to one that encouraged audiences to see the fundamentality of industry to the Impressionist project."[261] Shields worked on the project for fourteen months, "bringing together eighty-eight works on loan from domestic and international museums as well as private collections to complement thirty-two artworks from the AGO's own holdings."[262] The exhibition delved into the intersections of art, industry, and culture in France between 1853 and the 1900 World's Fair, featuring prominent artists such as Monet, Caillebotte, Munier, Tissot, and early cinema films by Thomas Edison and the Lumière brothers.

This exhibition included an AR component that focused on one specific painting—Gustave Caillebotte's *Le Pont de l'Europe* (1876). Positioned as the centrepiece of the train

[261] Andrew Eschelbacher, "Exhibition Review of: Impressionism in the Age of Industry: Monet, Pissarro and More" *Nineteenth-Century Art Worldwide* 18, no. 2 (Autumn 2019), 193. Also quoted: Caroline Shields, "Geographies of Impressionism in the Age of Industry: An Introduction," in *Impressionism in the Age of Industry,* ed. Caroline Shields (Munich, London, New York DelMonico Books-Prestel, 2018), 14.
[262] Eschelbacher, "Exhibition Review of: Impressionism in the Age of Industry," 193.

section within the gallery, the painting depicted an everyday urban scene of people strolling across a bridge in 1870s Paris. The painter, Gustave Caillebotte, was expressing his revolutionary political ideas by playing with the perspective of this scene. The AR experience allowed visitors to witness the extent of Caillebotte's artistic liberties with this depiction. Dr. Claude Ghez, a New York City neurologist and President of the Musée du Petit Palais in Geneva, lent the AGO five impressionist paintings for their Impressionism exhibit on the condition that the AR experience be included. Ghez and his team had spent eight years researching the original architecture of the bridge, constructing a physical 3D model from their findings. Their research revealed that the painting did not represent the actual view from the bridge but rather combined three different viewpoints to create an imposing and monumental appearance of the bridge. For Ghez, this painting depicted the traumatic legacy of the disastrous and bloody Franco-Prussian War. Caillebotte was 28 years old when he created this painting and would have remembered the fighting that occurred on the bridge depicted in the painting. "At the time this work was created, images of that war remained heavily censored by the French Government, forcing Caillebotte and other artists to use symbolism and atmosphere to give voice to their anxiety and memories."[263]

The exhibition presented the Caillebotte painting on one wall, while on the other side, a blown-up print of the painting on vinyl was placed alongside two iPads. Visitors could use the iPads and manipulate the painting demonstrating all the artistic licenses Caillebotte took with his painting. McIntyre used a vinyl copy of the painting to draw museumgoers to the AR piece. Andrew Eschelbacher, in his exhibition review, noted that the "'wow factor' of the augmented reality tool, the digital component (as well as an adjacent video screen with a PowerPoint-style

[263] "Seeing Impressionism in 3D," AGO Insider, Art Gallery of Ontario, Accessed April 1, 2021, https://ago.ca/agoinsider/seeing-impressionism-3d.

presentation) was an effective way to understand the urban infrastructure of Caillebotte's work and gave visitors a strong model to think about perspectives more broadly."[264] The AR installation's success, as defined by McIntyre, was evident in the active engagement of attendees as they continuously shifted between the AR installation and the original painting. This back-and-forth interaction between the AR component and the original artwork was highly valued by the AGO, underscoring the seamless incorporation of this new technology into the exhibition.

While the concept of using AR to explore the artist's perspective and the historical context of the painting seemed promising, there are several critical points to consider about its implementation. Firstly, while the AR component aimed to provide an immersive experience, it also had the potential to distract visitors from engaging with the actual artwork. The reliance on technology might have led some attendees to prioritize the novelty of the AR feature over the intrinsic value of the painting itself. Instead of contemplating the painting's artistic merits and historical significance, visitors may have become preoccupied with manipulating the AR representation on the iPads, diluting the impact of the original masterpiece. Moreover, the decision to include AR as a central feature of the exhibition appears to have been driven more by external pressure than by a genuine curatorial choice. The loan of five impressionist paintings from Dr. Claude Ghez to the AGO was conditional on the inclusion of the AR experience. This condition might have compromised the curatorial independence and integrity of the exhibition, potentially influencing the overall narrative to cater to the demands of the lender. The "wow factor" of the AR installation and video screen may have overshadowed the nuanced themes in the exhibition, oversimplifying the painting's historical and socio-political context. This could hinder deeper critical engagement and understanding. The effectiveness of AR in conveying the

[264] Eschelbacher, 196.

urban infrastructure raises questions about its role in art interpretation. It is crucial to recognize that while AR can provide informative visualizations of historical contexts, it should complement rather than replace traditional art analysis and scholarship.

While the inclusion of AR in the *Impressionism in the Age of Industry* exhibition at the AGO attempted to offer an innovative and interactive experience for visitors, there are valid concerns about its impact on overall curatorial integrity, visitor engagement with the original artwork, and the depth of historical understanding. As AR technology continues to evolve, thoughtful integration and critical assessment can unlock its full potential as a transformative tool for education, reflection, and enhancing the overall museum experience.

Audience Engagement as a Measure of Success

XR technology forces legacy institutions like the AGO to grapple with redefining engagement within a museum and gallery context, all while navigating the pressures of our neoliberal epoch. As public institutions increasingly enter into private partnerships and rely on metrics like audience engagement to justify their existence to donors, funders, and governments, they face a new era filled with competing pressures. The AGO's attempt to measure success through metrics like dwell time during the *ReBlink* exhibition is indicative of this evolving landscape. However, it prompts critical questions about whether such metrics truly capture the impact and educational value of XR installations or merely serve to satisfy external demands. While metrics such as dwell time, utilized during the AGO's ReBlink exhibition, offer quantifiable insights, they may fall short of capturing the full scope of visitor engagement or the educational impact of XR installations. Dwell time, which primarily measures the duration of a visitor's stay in front of an exhibit, does not necessarily correlate with deep or meaningful engagement. This metric often overlooks critical aspects of the visitor experience, including

emotional responses, cognitive comprehension, and the personal or cultural resonance of the artwork. Additionally, the emphasis on dwell time might inadvertently prioritize time-consuming exhibits over those that deliver impactful yet succinct experiences. By focusing predominantly on dwell time, there is a risk of prioritizing the quantity of engagement over its quality, potentially neglecting the transformative and enlightening aspects that art is designed to invoke. This suggests that the success of XR installations in museums and galleries should not be measured solely by the time spent, but rather by more comprehensive and qualitative aspects of engagement. The challenge for institutions lies in striking a balance between meeting the demand for measurable outcomes and upholding the inherent value of artistic and cultural experiences, which often defy simple quantification. As public institutions navigate this shifting terrain, they must carefully negotiate between their traditional role as stewards of art and culture and the contemporary expectations of demonstrating quantifiable success to their stakeholders.

Examining the XR installations at the AGO, such as those in the *Anthropocene* exhibit, provides insights into the ways art and technology converge. However, making definitive conclusions about the level of engagement across all XR experiences is a broad generalization that lacks substantiation. Instead, each installation demands a nuanced analysis, illuminating the tensions and contradictions arising from the incorporation of XR technology. For example, the AR installation of the Ivory Tusks in the *Anthropocene* exhibit raises questions about poaching policies, international markets, and the underlying socioeconomic factors driving demand. While Burtynsky, De Pencier, and Baichwal apparently take an apolitical approach, their omission of explicit political statements itself becomes a political choice throughout *The Anthropocene*

Project.[265] The images of devastation in the *Anthropocene* exhibit, despite their powerful impact, may risk detachment from the human and political realities that underlie them. While these short *Anthropocene* AR encounters can evoke strong reactions, they may resemble quick tourism, leaving the audience emotionally stirred but not necessarily motivated to take action. Throughout the *Anthropocene* exhibit, the images of Burtynsky capitalize on the horror of the Earth's devastation which is his trademark. Scholar Zoë Druick critiques Burtynsky's work: "the scale at which [Burtynsky] works risks becoming so large that any human or political link to the world it depicts becomes overly-attenuated," Druick notes that "critics charge him with failing to acknowledge the politics behind the devastation."[266] This disengaged sentiment is carried throughout the *Anthropocene* exhibit. This raises concerns about whether XR and immersive technologies prioritize delivering effective experiences over providing substantive educational content. The AR installations prompt introspection on the balance between affective experiences and substantive engagement.

The *ReBlink* exhibit drew a packed crowd, raising the question of whether people are genuinely engaging with the artwork and its historical context. An AGO interpretive planner criticized this XR experience for lacking substantive engagement, as museum-goers appear more enamoured with the technology itself. The AGO's underfunded visitor study department has limited evidence to contradict this notion, relying on metrics such as dwell time, qualitative

---

[265] In her article "Mythical Landscapes," Hana Nikčević echoes this sentiment and writes: "In attempting to present this project without 'accusing,' by being objective, the artists instead appear to balk at making a statement. When Burtynsky says climate change isn't a political issue, he seems to be saying that the issue transcends political party lines because climate change affects everyone. Why, then, are we are still trying to kindly convince the unconvinced that humans have a hugely destructive effect on the Earth? Are we not sufficiently past the revelatory—*An Inconvenient Truth* (2006) has already been made—that it might even make sense to be accusatory? Sometimes it seems that the filmmakers are hesitant to involve their film with activism, as though this will compromise its status as art." Hana Nikčević, "Mystical Landscapes," *The Strand*, October 16, 2018, https://thestrand.ca/mystical-landscapes/.

[266] Zoë Druick, "Environmentalism from the Sky?" in *Anthropocene: the Human Epoch in Docalogue*, accessed June 1, 2019, https://docalogue.com/october-anthropocene-the-human-epoch/.

interviews, and app downloads to measure visitor engagement. For example, *ReBlink*'s average dwell time was nine minutes, during which attendees were observed taking selfies. Statistics from the AGO's research team indicate that "51% of people who went through the space engaged with the devices. Also, 24% of people downloaded the app to their own devices without help and not much prompting. 27% took a selfie or a photo. . . . The net promoter score was 66 for the experience."[267] These statistics do not answer the question about the extent of genuine engagement with the artwork and the emphasis on the technology's spectacle. To me, these statistics mean that attendees are using their smartphones and are taking pictures and are not engaging with the artwork or the remixing Mayhew said was central to the thesis of *ReBlink*. The use of app downloads as a measure of success for exhibitions like ReBlink presents significant limitations, particularly when considering issues of access and equity. This metric assumes that all visitors have equal access to the necessary technology, namely smartphones and data plans, which is not always the case. Relying on app downloads as a key indicator of engagement inherently prioritizes those who can afford such technology, thereby excluding a segment of the population who may not have the means to participate in this way. This creates a skewed representation of engagement and success, one that is biased toward a technologically equipped audience. The data gathered from app downloads, therefore, may not accurately reflect the broader audience's experience and engagement with the artwork. It overlooks the interactions of those who, due to economic barriers, cannot engage with the exhibit through the app, potentially missing out on integral aspects of the XR experience. Furthermore, this approach raises questions about the inclusivity of the exhibition. This underscores the need for museums and galleries to adopt more inclusive and varied metrics of success that consider the diverse socio-

[267] Shiralee Hudson, Interview with Caroline Klimek on Zoom, July 2, 2021.

economic backgrounds of their visitors. By adopting a broader range of engagement metrics that account for socioeconomic diversity among visitors, institutions like the AGO can achieve a more equitable evaluation of visitor engagement, ensuring that their assessment captures the full spectrum of public interaction with art, beyond just technological participation.

Another way to think about success or impact measures includes moving beyond an economic or quantitative model and thinking about community and other social and cultural factors. In her book chapter "Creative Hubs: Sites of Community and Creative Work" Mary Elizabeth (M.E.) Luka defines impact in creative hubs by emphasizing broader, more inclusive measures beyond traditional economic assessments. She highlights the importance of creative citizenship, which involves stakeholders and participants developing shared objectives to cultivate innovative creative production practices and collaborative knowledge sharing. Luka argues that knowledge sharing and sense-making are two new crucial impact measures that complement economic assessments, as they foster community building, inclusivity, and sustainability. These measures allow for a more holistic understanding of the value and success of creative hubs, advocating for support through funding and policy that recognizes their social, cultural, and economic contributions.

I joined her subsequent research on impact assessments and published an article titled "Happy Accidents and Bureaucratic Debacles" where we separate sensemaking and knowledge sharing as two distinct impact assessments that creative hubs can use to showcase value. These two social and cultural impact measurements complement economic factors rather than replace them. For legacy institutions, sensemaking and knowledge-sharing are two ways to take into consideration holistic factors other than dwell time, downloads, and other quantitative measures such as information gathering, peer exchanges, narratives of experimental ingenuity or creative

practices, and understanding audiences and users. For XR, legacy institutions should be looking at who is using this technology to better understand demographics and users' access needs, as well as thinking further about who and what is this technology benefitting in terms of art education and engagement. Or what purpose is the XR serving in terms of the institution's mandate and/or mission statements and ultimately their audience? Ultimately, the AGO's exploration of XR media encourages us to reassess the role of technology in the art world. XR experiences can be captivating and immersive, yet their ability to provide nuanced interpretations of complex themes remains an ongoing challenge. Moving forward, legacy institutions must navigate the complexities of XR technology with a critical lens, striking a balance between spectacle and substantive content to enrich the museum and gallery experience for audiences.

Challenges: How are galleries using docents to incorporate XR media?

Human Infrastructure

A significant challenge faced by the AGO in incorporating XR media was the need to build human infrastructure to facilitate attendees' access and use the technology. For instance, for the *Anthropocene* exhibition, the AGO had over 100 gallery guides, consisting of both volunteers and docents, who received training to assist visitors in using smartphones and iPads to interact with the AR features.[268] Prior to entering the gallery, attendees were guided through an AVARA app booth in the lobby, where volunteers connected them to the AGO WIFI, downloaded the app, and allowed them to test AR targets to understand what to expect inside the exhibition. Docents stationed at each AR installation played a crucial role in assisting visitors and addressing any technical difficulties or questions that arose during the experience. Nicholas de Pencier commented that the three filmmakers were involved with the training of the docents

[268] Hudson, Interview with Caroline Klimek.

before the exhibition opened in order to help them better understand their vision for this project and how the technology fits within the exhibition.[269] The gallery guides went through extensive training with the curator to understand how the exhibition flowed, walk-throughs with the artists as mentioned above and science training to familiarize them with issues surrounding the *Anthropocene* and communication principles in science and climate change. According to Hudson, "in order for these things to be successful, you needed to have a multimodal approach. So, you needed to encourage visitors to download or use their own mobile devices. But you also needed devices in the space."[270]

In the *Anthropocene* exhibit, the presence of gallery guides proved critical in re-engaging museumgoers with the exhibition and the XR technology. The planners found they needed that human cost to make the AR technology seamless, which is an admission of how difficult this is to do. The docent and gallery assistants showcase Jay Bolter and Walter Grusin's concept of immediacy and hypermediacy where they "are two sides of the same coin, and operate, often simultaneously, to evoke an authentic *real* experience."[271] This human interaction was crucial for the AGO to introduce people to the technology and to create engagement. Making people aware of AR and teaching them how to use it at the same time is an acknowledgement of the presence of this technology and the technical difficulties that come with bringing new technology into the gallery space. The docents were needed to ensure a seamless transition and to re-engage museum attendees who have been trained not to touch or interact in a museum setting.

[269] Nicholas de Pencier, interview with Caroline Klimek, April 30, 2019.
[270] Hudson, interview with Caroline Klimek.
[271] Freda Chapple and Chiel Kattenbelt paraphrasing Bolter and Grusin in their chapter "Key Issues in Intermediality in Theatre and Performance," in *Intermediality in Theatre and Performance* (Amsterdam: Rodopi, 2006), 14 (emphasis my own).

The incorporation of XR media in galleries, while enhancing the visitor experience, poses challenges that extend beyond technology implementation. The role of docents as human mediators is pivotal in bridging the gap between visitors and XR experiences. However, deeper examination is required to assess the true impact of XR media on learning outcomes and the extent to which it fosters genuine engagement with art and culture in a museum context. As galleries continue to navigate the complexities of XR media integration, it is crucial to strike a balance between novelty and authentic educational experiences for visitors.

Challenge: Donors - Who is driving the inclusion of XR media?

One of the major conclusions I have come to in my research is that a major obstruction to the incorporation of XR media in cultural institutions like the AGO is the influence of major donors. Founded in 1900, the AGO was created to house the private collections of wealthy families in Toronto.[272] Donors and patrons have consistently affected the AGO's mandate and mission and have driven large transformations and remodelling (such as the Thomson donation in 2008). In the case of *Impressionism* AR, an important art lender for that exhibition was creating the AR on his own time and with his own money. It was a win-win situation for the AGO where the AR component was a condition from this donor and so to please Dr. Ghez they included it within their exhibition thereby mitigating a lot of financial risks. The purpose of creating this AR component is unclear other than it being a personal pet project of a prestigious lender.

This raises questions about the motivations behind such XR installations, as they may cater to individual interests rather than serving the institution's mission or the public's

[272] Mark Osbaldeston, *Unbuilt Toronto: A History of the City That Might Have Been* (Tonawanda, NY: Dundurn Press, 2008), 188. Karen McKenzie and Larry Pfaff, "The Art Gallery of Ontario: Sixty Years of Exhibitions, 1906-1966," *RACAR: Canadian Art Review* 7, no. 1 (1980): 62.

educational needs. Additionally, the AGO has faced criticism for purchasing artworks that do not align with its mission statement or acquisition plan.[273] Moreover, the involvement of donors in securing tax certificates for donations has been scrutinized, with the AGO not displaying a majority of the certified artworks in the last five years.[274] This highlights the impact of outsider influence on the direction of XR installations and the potential divergence from the institution's core values.

Throughout all these case studies, a pattern emerges where the impetus for XR installations often comes from outsider influence in the form of community partnerships. For *ReBlink*, Alex Mayhew came to the AGO with an idea and found a friend within the Interpretive Planning department who was interested in partnering with him. *Small Wonders VR* was an experiment between Anna Seranno (CFC) and Priam Givord. They were invested in expanding the use of this technology, and were interested in using the micro-CT assets and creating a VR experience and had already found funding for this project but then had to convince the AGO hierarchy of the merits of the project. In many of these cases, the AGO did not have to finance or fund these projects or hire outside staff. The AGO was partnering with organizations that had money and were bringing the XR experience to the table and using the AGO brand. The AGO invested neither money nor talent in any of these experiences but did take credit when they received good press and were seen as being cutting-edge.

The AGO is currently working on a new exhibition that will include a VR component to showcase the Thomson Collection of Ship Models. Donated in 2008 by Kenneth Thomson as part of a $370 million contribution to the art museum, the ship models were incorporated into the

[273] Kate Taylor, "Art Gallery of Ontario buys Blue Irises painting for more than $1-million ending years of dispute," *The Globe and Mail*, August 22, 2019, https://www.theglobeandmail.com/arts/article-art-gallery-of-ontario-buys-blue-irises-painting-for-more-than/.
[274] Office of the Auditor General of Ontario, "Value-for-Money Audit Museums and Galleries," 3.

2008 renovation by Frank Gehry.[275] On display in the basement of the AGO, McIntyre is working with Priam Givord again to create a VR component for this new exhibition. Givord has started a VR company with Karen Vanderborght and Nadine Valcin. This project is being fully funded by the Thomson family with the hope of better activating the ship collection for the general public.[276]

As the AGO continues to explore VR components for upcoming exhibitions, the involvement of donors like the Thomson family is significant, but it also raises concerns about potential conflicts between artistic integrity and donor interests. These challenges underline the complexities faced by public institutions like the AGO in navigating the incorporation of XR media and balancing their mission with the influence of external factors.

In conclusion, the exploration of legacy institutions, with the AGO as a primary case study, reveals the complexities and challenges these institutions face in incorporating XR media into their programming. The AGO's experiences with XR technology exemplify the potential and pitfalls of integrating emerging technologies in a traditional cultural setting. The influence of major donors and external partners, as seen in the case of the *Anthropocene* exhibition and other XR installations, raises questions about the alignment of artistic integrity and institutional mission. The AGO's reliance on partnerships and collaborations with technology companies and external organizations highlights the need for careful consideration of how these collaborations impact curatorial decision-making and the authenticity of XR experiences within the institution.

---

[275] James Adams, "Thomson hands AGO $370-million donation," *The Globe and Mail*, November 20, 2002, https://www.theglobeandmail.com/news/national/thomson-hands-ago-370-million-donation/article25426249/. David Olive, "The Thomson family's legacy lies in the art world," *The Toronto Star*, January 5, 2015, https://www.thestar.com/business/2015/01/05/thomson_familys_legacy_lies_in_the_art_world.html?rf.
[276] Gillian McIntyre, interview with Caroline Klimek on Zoom, June 23, 2021.

Additionally, the global survey conducted in this chapter shed light on the involvement of large tech companies like Microsoft, Oculus, and HTC VIVE in sponsoring XR exhibits, prompting considerations about their influence on curatorial decision-making and the authenticity of XR experiences within the institution.

Moreover, the human infrastructure aspect plays a pivotal role in ensuring the successful implementation of XR media. The involvement of docents and volunteers as human mediators proves essential in bridging the gap between visitors and XR installations, enhancing engagement and understanding of the technology. However, this raises questions about the balance between immediate engagement and substantive learning experiences, as well as the true impact of XR media on fostering genuine connections with art and culture. The exploration of audience engagement within the context of XR technology at the AGO not only highlights the complex interplay between technology, art, and public interaction but also serves as a microcosm for broader discussions on the role of digital innovation in legacy cultural institutions. This analysis underlines a critical tension between leveraging emerging technologies for enhanced engagement and maintaining the intrinsic educational and cultural values of museum experiences. The reliance on quantitative metrics like dwell time and app downloads, while providing tangible measures of visitor interaction, reveals a nuanced challenge: these metrics may not fully capture the depth of engagement or the transformative potential of art facilitated by XR technologies. Furthermore, the influence of external factors, such as donor interests and private partnerships, introduces additional layers of complexity, questioning the autonomy of cultural institutions in curating experiences that truly resonate with their mission and public duty.

This chapter's findings prompt a re-evaluation of success measures in the digital age, advocating for a more holistic approach that values qualitative impacts and the cultivation of

meaningful connections with art. It suggests that true engagement transcends mere physical interaction, encompassing emotional, cognitive, and access dimensions that quantitative metrics may overlook. Moreover, the case studies reveal the potential of XR technology to democratize art experiences, yet they also caution against a one-size-fits-all application, highlighting the importance of inclusive, accessible, and culturally sensitive implementations.

In navigating the incorporation of XR media, the AGO and similar institutions face a balancing act: they must innovate to remain relevant and engaging in a rapidly evolving digital landscape, while also preserving their core mandates as stewards of cultural heritage and education. This delicate equilibrium demands a forward-thinking strategy that embraces the potential of digital technologies without compromising on the depth and richness of the artistic and cultural narrative. The future of XR in cultural institutions lies in its ability to complement rather than overshadow the traditional values of art engagement, fostering a more inclusive, engaging, and meaningful dialogue between the artwork, the institution, and the public. As legacy institutions continue to navigate the integration of XR media, a thoughtful and nuanced approach must be taken to preserve their core values while leveraging the potential of new technologies. By critically examining the experiences of the AGO and other legacy institutions, this chapter provides valuable insights for future XR implementations in cultural settings, ultimately shaping the trajectory of arts and museum experiences in the digital age.

Chapter 4: Canadian Artist-Run Centres: Sites of Access and Experimentation

"Artist-run culture, like an iceberg, is 95% beneath the surface."[277]

Artist-run centres (ARCs) serve as community centres for artists across Canada. ARCs are considered "the connective tissue"[278] that brings artists together by hosting exhibitions, events, and workshops. They are organizations that allow artists to act as "master[s] of their [own] destiny," operating as an alternative to more established art institutions, such as art galleries and other legacy institutions.[279] As scholar and archivist Felicity Tayler writes, "both their role in, and contribution to, Canadian cultural heritage is often unnoticed or misunderstood."[280] Nonetheless, ARCs play a vital role in the Canadian art ecology by fostering artistic autonomy, nurturing and promoting emerging talent, and facilitating artists' visibility and recognition within the art community.

> Arts researcher and writer Skye Maule-O'Brien defines an artist-run centre as:
>
> A unique grassroots structure, ARCs—though not free from funding constraints or grant obligations—are able to foster practices that make it easier to respond to the needs of their communities. These centres are grounded in member-driven initiatives, processes of self-reflection, and create room for dissent through a commitment to forge community-oriented partnerships. As such, artist-run structures are inherently open to dialogue around membership and community relationships.[281]

ARCs' programming responds to its community members' interests, with the goal of providing artists with a reactive forum for dialogue and experimentation, and they are able to respond to shifts within their artistic communities. Moreover, ARCs have been focusing on

---

[277] A.A. Bronson, "9.1 A word of caution," in *Decentre: concerning artist-run culture = Decentre: à propos de centres d'artistes* (Toronto: YYZBooks, 2008), 36.
[278] A.A. Bronson et al., eds., *From Sea to Shining Sea: Artist-Initiated Activity in Canada, 1939-1987* (Toronto: The Power Plant, 1987).
[279] Glenn Lewis, "The Value of Parallel Galleries," *Parallélogramme* 3, no. 2 (1977): 7.
[280] Felicity Tayler, "Perpetuating the 'Eternal Network': Bibliographies of Five Canadian Artist-run centres," *Art Documentation: Journal of the Art Libraries Society of North America* 26, no. 2 (Fall 2007), 4.
[281] Skye Maule-O'Brien, "Exploring Community Outreach Initiatives for Artist-Run Centres: A Case Study Using Anti-Racist Feminist Pedagogies to Create Inclusive Spaces for Knowledge Exchange," Muséologies: Les cahiers d'études supérieures 7 (November 1, 2014), 144.

"professionalization" with respect to paying artists' fees, and they are grounded in a commitment to supporting artists' research, creation, and experimentation.

Since their inception in the 1970s, Canadian ARCs have often been modelled as production centres, at which artists share the facilities that they need in order to produce, exhibit, and sell their artwork.[282] Over the years, funding for ARCs from all levels of government has slowly increased. As Tayler notes, "The relative financial stability, as well as representation by centralized lobbying associations such as ANNPAC (Association of National Non-Profit Artists Centres) and the RCAAQ (Regroupement des centres d'artistes autogérés du Québec) shifted the focus of the centers from facilitating production to becoming alternatives to the commercial galleries and major institutions."[283] Today there are approximately 180 ARCs throughout Canada, each of which plays a specific role and serving a different community.[284] Scholars Lynn Hughes and Marie-Josée Lafortune define ARCs as "communities of practicing artists and cultural workers and exist *for the artists*, providing them with an environment in which to develop theories in their discipline and their artistic practice."[285] Unlike legacy institutions, ARCs operate with a budget of less than $250,000 and have minimal staff.[286] Despite these limited means, according to the Artist-Run Centres and Collectives Conference (ARCA), "ARCs perform a critical function in the ecology of culture-based work. They create space for experimental practices to emerge and thrive, without the pressures of a major institutional

[282] Tanya Rosenberg, ed., "paces by Artists: 3e Retrospective," *Parallélogramme* 3 1978–79 (Toronto: ANNPAC, 1979), viii; Carol Carmichael, comp., *Artists' Centres: A Twenty-Year Perspective 1972 to 1992* (Ottawa: The Canada Council Visual Arts Section, 1993).
[283] Felicity Tayler, "Perpetuating the 'Eternal Network': Bibliographies of Five Canadian Artist-run centres," 4.
[284] "About," Artist-Run Centres and Collectives Conference (ARCA), accessed June 1, 2021, https://www.arca.art/en/arca/.
[285] Lynn Hughes and Marie-Josée Lafortune, « Creative Con/Fusions », in *Pense l'indiscipline: recherches interdisciplinaires en art contemporain = Creative Con/Fusions: Interdisciplinary Practices in Contemporary Art* (Montréal: Optica, un centre d'art contemporain, 2001), 19.
[286] "What is an Artist-Run Centre?" ARCA 2021*, Vimeo,* accessed June 10, 2022, https://vimeo.com/586063340.

framework or commercial viability."[287] It is important to note that these institutions also play a critical role in enabling artists to make a greater social impact by providing them spaces for creation, building credibility, and developing portfolios. Overall, ARCs foster a climate that encourage experimental practices to flourish and offer artists the freedom to explore and innovate in ways that might be challenging in more traditional institutional frameworks and when operating in commercial contexts.

Discussions of Canadian artist-run centres have primarily been led by community workers and artists who actively participated in their establishment. In their anthology, *Artist-Run Spaces*, Gabriele Detterer and Maurizio Nannucci emphasize the significance of conveying to others that "the personal memory of the founding generation, as well as the collective memory stored in archives, would be an invaluable source and the indispensable basis of documentation."[288] By recognizing the value of personal and collective memories, we acknowledge that the history of these centres is not solely about physical spaces but also about the stories, struggles, and aspirations of those who contributed to their creation. There are also several older histories of artist-run centres in Canada, including those by Bonin and Thériault (2010); Bronson and Gale (1983); Bronson (1987); Foss, Paikowsky, and Whitelaw (2011); Khonsary and Podesva (2012); Labossière (2008); Douglas (1991); and Nemiroff (1985).[289]

---

[287] "What is an Artist-Run Centre?" ARCA 2021, Vimeo, accessed June 1, 2023, https://vimeo.com/586063340.
[288] Gabriele Detterer and Maurizio Nannucci, eds., *Artist-Run Spaces: Non-profit Collective Organizations in the 1960s and 1970s*. (Zurich: JRP/Ringier, 2012), 4–5.
[289] Vincent Bonin and Michèle Thériault, eds., *Documentary Protocols/Protocoles Documentaires (1967-1975)* (Montréal: Galerie Leonard & Bina Ellen Art Gallery, 2010); A.A. Bronson and Peggy Gale, eds., *Museums by Artists*. Toronto: Art Metropole, 1983; A.A. Bronson, ed., *From Sea to Shining Sea: Chronology of Artist-Initiated Activities in Canada 1939–1987* (Toronto: Power Plant, 1987); Brian Foss, Sandra Paikowsky, and Anne Whitelaw, eds., *The Visual Arts in Canada: The Twentieth Century* (New York: Oxford University Press, 2011); Jeff Khonsary and Kristina Lee Podesva eds., *Institutions by Artists: Volume One (*Vancouver: Fillip Editions, 2012); Robert Labossière, ed., *Decentre: Concerning Artist-Run Culture/Decentre: à Propos De Centres d'Artistes (*Toronto: YYZ Books, 2008); Stan Douglas and Or Gallery, eds., *Vancouver Anthology: The Institutional Politics of Art* (Vancouver: Talonbooks, 1991); Diana Nemiroff, *A History of Artist-Run Centres in Canada with Particular Reference to Véhicule, A Space and the Western Front* (Master's thesis, Concordia University, 1985).

These sources provide unique insights into the history and evolution of ARCs, offering a perspective that extends beyond institutional narratives. Moreover, the fact that community workers and artists who played pivotal roles in the founding of ARCs are often the ones contributing to these discussions highlights their deep personal connection to these spaces and their commitment to preserving the collective memory of this vital cultural movement.

Art Metropole, located in Toronto, Ontario, is one of the noteworthy platforms contributing to the discourse surrounding artist-run centres. Aside from functioning as an artist-run centre itself, Art Metropole also engages in publishing books that explore various aspects of ARCs, including showcases of specific artists and exhibitions. In examining the role of artist-run centres (ARCs) and their impact, a range of publications has contributed valuable insights. Craig Leonard's work[290] is particularly noteworthy for his contributions to documenting the histories of these centres. Central to the concept of ARCs is the emphasis on collective self-organization and the exploration of innovative approaches to art. Moreover, the publication *Decentre* focuses on artist-run culture, delving into the efflorescence of projects, spaces, and events initiated by artists themselves. It is a compilation of short texts written by artists and individuals working in artist-run spaces, which address challenges faced in this milieu, and which envision these spaces' futures. In the realm of feminist discourse within Canadian ARCs, Amber Berson's dissertation, titled *A Case for Utopian Dreaming: Feminisms within Canadian Artist-Run Centres*, serves as a recent and significant addition.[291] Berson's research traces the history of feminist administration in ARCs, shedding light on the crucial role of feminism in shaping these creative spaces. Additionally, critical discussions surrounding race and gender within ARCs are informed by

[290] Craig Leonard, "Artists in Artist-run Centres: Ontario, 1971-2006," Self-published, 2006.
[291] Amber Berson, "A Case for Utopian Dreaming: Feminisms Within Canadian Artist-Run Centres," Ph.D. diss, (Queen's University, ProQuest Dissertations Publishing), 2022.

various texts, including works by Gagnon and Fung (2002), O'Brian (2007), and Robertson (2006). These texts engage with crucial aspects of identity, representation, and inclusivity within the context of artist-run centres. [292] Together, these publications form a diverse and comprehensive body of literature that not only enriches our understanding of ARCs but also aligns with the ethos of Art Metropole's publishing in fostering critical discourse and documentation within the artistic community.

This chapter focuses on two technology-focused artist-run centres located in Toronto, Ontario: Trinity Square Video (TSV) and InterAccess. Examining these two institutions enables us to observe how each has responded to the emergence of the XR industry and the specific needs of its artists. TSV has concentrated on building the necessary infrastructure in-house and working to democratize the technology for their community. On the other hand, InterAccess has shifted its focus towards supporting emerging artists and marginalized communities by providing them with a platform to showcase their work through exhibitions and workshops that they offer. Both TSV and InterAccess have recognized that their communities are interested in working with XR technology, but the technology's accessibility, both the hardware and software, requires support. As a result, both institutions have shifted their focus to making XR technology more accessible by offering affordable workshops and experimenting with exhibitions.

From 2016 to 2018, TSV focused on two big virtual reality initiatives: their *Worldbuilding* e*xhibition* and the launch of their V/Art app. These projects helped to build TSV's VR infrastructure, and they did so through technology partnerships that gave them access

[292] Monika Kin Gagnon, Cameron Bailey, and Richard Fung, eds., *13 Conversations About Art and Cultural Race Politics* (Montréal: Artexte Editions, 2002); Melanie O'Brian, *Vancouver Art & Economies* (Vancouver: Arsenal Pulp Press, 2007); Clive Robertson, *Policy Matters: Administrations of Art and Culture*. (Toronto: YYZ Books, 2006).

to equipment and that connected artists with technologists. A few years later, in 2021, InterAccess presented *Geofenced,* a guest-curated exhibition that showcased AR works curated by Karie Liao, which featured Canadian new media artists Scott Benesiinaabandan, Jenn E. Norton, Adrienne Matheuszik, Jonathan Carroll and Cat Bluemke. By hosting temporary exhibitions, InterAccess actively encourages artists to experiment with how XR art is displayed and it welcomes audiences to engage with this new technology.

These two artist-run centres are experimenting with XR media and working directly with artists to showcase their work and help them build their digital art skills. In both of these case studies, the ARCs are focused on experimenting with software, hardware, and content that consists of virtual and augmented reality. By empowering artists with these skills, these ARCs facilitate artistic success both internationally and within other art institutions.[293] ARCs contrast with legacy institutions, as both the TSV and InterAccess case studies highlight ARCs' willingness to embrace failure and build and promote their artists' skills. By examining the important role that ARCs play in Canada's art ecology, this chapter also explores what larger cultural institutions can learn from how ARCs approach the XR industry. More specifically, this chapter sheds light on how ARCs address barriers to access for emerging technologies and their artists and audiences, and it grapples with the questions and consequences of technological obsolescence.

Case Study #1: Trinity Square Video

[293] In this dissertation, you will encounter recurring artist names across various case studies. For instance, Scott Benesiinaabandan's artworks, including *Blueberry Pie Under a Martian Sky* (2016) is featured in imagineNATIVE's *2167*, *shke! waboose/look at the rabbit* (2021) was presented in *Geofenced* at InterAccess, and *Pelican Rock: Monuments (2 scenes at Obishikokaang* (2017)) at V/Art was showcased at Trinity Square Video.

Trinity Square Video was established in 1971, which makes it one of the oldest media arts centers in Canada. It has a rich history of supporting video and media artists, and it played a crucial role in the development of video art in Toronto.[294] It began in the Church of the Holy Trinity, where community workers, artists, and social workers collaborated with newly-available portable video equipment and cable systems, with the support of the Anglican Diocese of Toronto.[295] By 1976, TSV was incorporated as a non-profit artist-run charitable organization that was "dedicated to providing public access to the tools of video and audio productions."[296] The first Board of Directors featured artists and community workers Marty Dunn, Terry McGlade, Bill Jackson, Deborah Littman, Henry Gordillo, William Michael George, and Pamela Leeb.[297] TSV's mandate catered to video-focused artists with the goal of providing them easy access to video equipment during a period when it was prohibitively costly for independent artists.

TSV is still known as the place "to re-imagine media arts."[298] According to current Executive Director David Plant, "Trinity Square Video was always and has always been interested in an expanded definition of *what art can be*."[299] TSV offers a wide range of services related to media art practices, including artistic and curatorial experimentation, education, production and presentation, workshops, equipment rentals, artist residencies, and gallery exhibitions. Although TSV initially focused on assisting video artists, they have since broadened their scope to include a wide array of artistic media. Their current mandate is centred on three priorities: 1) promoting an expanded definition of media arts, 2) including diverse voices in all levels of operations, and 3) supporting emerging artists and curators. [300] In enacting their current

[294] Trinity Square Video, "Mission," https://www.trinitysquarevideo.com/mission/, accessed June 1, 2021.
[295] A.A. Bronson, *From Sea to Shining Sea* (Toronto: Power Plant, 1987), 52.
[296] Bronson, *From Sea to Shining Sea*, 87.
[297] Bronson, *From Sea to Shining Sea*, 87.
[298] Trinity Square Video, "About TSV," https://www.trinitysquarevideo.com/about-tsv/, accessed June 1, 2021.
[299] David Plant, Interview with Caroline Klimek on Zoom, November 23, 2020 (emphasis my own).
[300] Trinity Square Video, "About TSV."

mandate, they continue upholding their original mandate centred on access and the arts: "seeking to reduce barriers to access related to race, gender, sexual, orientation, and socio-economic and physical ability."[301]

TSV developed an interest in virtual reality in 2015. When asked about TSV's push towards VR, Plant stated, "It's a response to our artists. Trinity Square Video is committing to VR. We're an artist-run centre and our artists want to work in this medium."[302] From 2016 to 2018, TSV undertook two important VR initiatives: *Worldbuilding*, the first VR exhibition by an ARC, and V/Art, the first independently run VR exhibition platform. Their exhibitions were seen to be performing an important function as they were "meant to nudge the medium more firmly into the realm of contemporary art." [303] Plant elaborates, "but really, it just satisfies pent-up demand. We don't have to look very hard to find people who are wanting to do this."[304]

TSV's V/Art app and *Worldbuilding* exhibition (2016-2018) were considered radical, in part because 2016 was widely known as the "year of VR,"[305] and it was characterized by anticipation and hype surrounding VR technology. As VR scholar Paul Roquet notes, "While the accuracy of the 'hype cycle' model remains open to question, VR seems to have been through this cycle several times at least."[306] The general public eagerly awaited the release of highly

[301] Trinity Square Video, "About TSV."
[302] Chris Hampton, "Venturing into the virtual world with a new art," *The Globe and Mail*, November 23, 2017, https://www.theglobeandmail.com/arts/art-and-architecture/venturing-into-the-virtual-world-with-a-new-artapp/article37066961/.
[303] Murray Whyte, "Welcome to the machine," *The Toronto Star*, March 26, 2017, https://www.thestar.com/entertainment/visual-arts/welcome-to-the-machine/article_11abc417-1689-5ab6-abe7-5d7338796a41.html.
[304] Whyte, "Welcome to the machine."
[305] For articles discussing the Year of VR see: Rory Cellan-Jones, "2016: the year when VR goes from virtual to reality," *BBC News*, January 1, 2016, https://www.bbc.com/news/technology-35205783; Chris Morris, "Is 2016 The Year of Virtual Reality?" *Fortune*, December 4, 2015, https://fortune.com/2015/12/04/2016-the-year-of-virtual-reality/.
[306] Paul Roquet and Belisle B, "Guest Editors' Introduction: Virtual Reality: Immersion and Empathy," *Journal of Visual Culture* 19, no. 1 (2020): 3-10, doi:10.1177/1470412920906258.

anticipated VR headsets, such as Samsung's Gear VR and HTC Vive.[307] Similarly, audiences were keen for the launch of Facebook's Oculus Rift, following Mark Zuckerberg's acquisition of Oculus for $2 billion US in 2014. [308] A sense of great hope and promise surrounded VR at this time, as exemplified by marketing projections that estimated the sale of over 6.3 million headsets in 2016 alone.[309] However, most of these headsets were prohibitively expensive for many users, with the Oculus Rift and HTC VIVE costing over $1,000 USD (and they required a gaming computer as well). Aside from the exorbitant cost, the availability of content for VR headsets was quite limited. Most of the VR experiences at that time were also primarily focused on gaming, featuring popular titles such as *Tilt Brush* (2016), *Job Simulator* (2016), and *Batman: Arkham VR* (2016). While other industries, such as surgical practice and workers training in medicine, were beginning to explore VR's potential applications, it remained relatively unexplored in the artistic realm. Against this backdrop, TSV, a small ARC, was developing a growing interest and investment in VR. For this dissertation, TSV was chosen as a case study to showcase how an ARC was creating access to VR for artists by building the necessary infrastructure, in terms of equipment, artists' skills, and art-world connections.

***Worldbuilding: An Exhibition of Virtual Realities* (November 3 – December 9, 2017)**

In 2017, John G. Hampton, TSV's Artistic Director created and co-curated TSV's first VR exhibition, *Worldbuilding: An Exhibition of Virtual Realities*, with Maiko Tanaka. The project started as a commissioned residency in which four artists were asked "to respond to the philosophical, ethical, and physical conditions of 'the virtual' by creating new work using VR

[307] The cost of VR headsets as of 2016 included the Oculus Rift at $599 US, the Vive at $800 (plus computer); the Samsung Gear at $550; and the Daydream View at $649.
[308] Stuart Dredge, "Facebook closes its $2bn Oculus Rift acquisition. What next?" *The Guardian,* July 22, 2014, https://www.theguardian.com/technology/2014/jul/22/facebook-oculus-rift-acquisition-virtual-reality.
[309] "SuperData: VR's breakout 2016 saw 6.3 million headsets shipped," *VentureBeat,* February 4, 2017, https://venturebeat.com/2017/02/04/superdata-vrs-breakout-2016-saw-6-3-million-headsets-shipped/.

technology."[310] Each artist was partnered with a developer/technologist to help them translate their idea into VR. The following projects were shown: *Project H.E.A.R.T.* by Erin Gee with Alex M. Lee, *Preterna* by Jeremy Bailey and Kristen D. Schaffer, *Out of this World* by Yam Lau with Jonathan Carroll, and *Waiting for Rostam* by Eshrat Erfanian, and. The exhibition ran from November 3 to December 9, 2017 in the Trinity Square Video Gallery.

During the search for artists, Hampton commented that "we specifically wanted to look at artists who[m] we thought could contribute something interesting and critical to this medium as it was just starting to develop."[311] At this time, TSV had a DK1 developer kit, but as Hampton noted, "there was no commercial product that existed."[312] Hampton was an early advocate for VR and was attending Toronto VR meetups at the time that were hosted in a café in Kensington Market as one of a handful of attendees. This exhibition was a test case to see whether others were as interested in VR as Hampton and it aimed to push the limits of what was artistically possible for the medium. Hampton and Tanaka turned to artists that they had worked with in the past and they were also "doing studio visits with artists working with new technologies in critical ways." [313] Many of the artists had not worked with VR before. As part of this exhibition, the curators started a conversation about what VR was and where it might be going. Hampton noted that, "through those [studio] visits, some potential project ideas started to form and these were the artists that really resonated and the idea resonated with them and they were excited about putting together a proposal."[314] Ultimately, Hampton and Tanaka chose artists who were already using technology as part of their artistic practice.

---

[310] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*, http://worldbuilding.trinitysquarevideo.com/, accessed May 1, 2021.
[311] John G. Hampton, Interview with Caroline Klimek on Zoom, May 25, 2022.
[312] Hampton, Interview with Caroline Klimek.
[313] Hampton, Interview with Caroline Klimek.
[314] Hampton, Interview with Caroline Klimek.

Once the four artists had joined them, Hampton and Tanaka worked closely with them to develop some initial concepts which they used in their application to the Canada Council for the Arts. They designed the project as a commission residency, stating that:

> There was nobody really in Toronto or Canada—artists that were really working in VR. But there were plenty of artists that had the capacity to and it made sense with their practice. And so, in that proposal, we said what it would it be like to have artists actively engaging with this as the terms are being defined. So, no responding to a market that already exists but engaging in the dialogue as the field was emerging.[315]

They received $46,200 in Initiatives funding from the Canada Council for the Arts in 2016.[316] According to Hampton, this idea was a big-budget project for Trinity Square Video. As part of this VR residency, Hampton and Tanaka hosted workshops in which artists and curators were learning together about the technology of VR and how to create in it. The curators also obtained development kits and downloaded VR experiences and resources to share with the artists.

The artists' VR projects pushed technological boundaries and delved into unique concepts. Erin Gee and Alex M. Lee's *Project H.E.A.R.T.*, for example, was a biodata-driven VR game, in which players engaged in emotional drone warfare through a custom biofeedback device. By activating the avatar, Yowane Haku, the player's enthusiasm, as measured by heart rate and skin conductance, inspired military fighters and created casualties in a virtual warzone. The game challenges players to navigate emotional anxieties, explore geopolitical landscapes, and confront the blurred boundaries between war, pop music, and technology. Gee's piece riffed off of 3D shooter video games, "where the player controls a cheerleading virtual pop superstar that is controlled by the player's emotions. The aim was to boost the morale of her military

[315] Hampton, Interview with Caroline Klimek.
[316] Canada Council for the Arts, "Recipients—Prior to 2017," Accessed June 1, 2022, https://canadacouncil.ca/about/public-accountability/proactive-disclosure/grant-recipients/recipients-prior-2017?form=submitted&page=1&year=2016&discipline=all&program=all&recipient=Trinity+Square+Video&province=all&city=&area=all&riding=all&Sort1=Recipient&Sort2=Recipient&Sort3=Recipient&firstfiscalyear=-2147483648&lastfiscalyear=2017.

allies. Success is measured in the player's ability to communicate positive emotional states via a specially designed bio-feedback device. The reward: to fight another day."[317] Plant commented that turning this technology into art required the artist to deconstruct it:

> There are smart folks who are able to hack it out, you know like Erin Gee and say, oh, I can deconstruct this, I can reprogram it and I can rewrite it, I can figure it out, I can make it, I can humanize it [...] The folks that are artists in code as well as in concept can also bring back some of this popularized technology and turn it into something that's viable as an artistic expression as well.[318]

Plant's quote emphasizes the importance of granting artists the freedom to explore, manipulate, and humanize cutting-edge hardware, as this approach ultimately empowers them to challenge norms and redefine the possibilities of artistic expression.

Preterna was a pregnancy simulator by Jeremy Bailey and Kristen D. Schaffer that offered a glimpse into the future of families. By virtually inhabiting a pregnant body, viewers become "pre-parents," challenging narratives of VR as an 'empathy machine.'[319] Satirizing utopian lifestyles promoted by tech innovators, the artists envisioned a technological, superior alternative to traditional childbearing, where couples can raise self-learning, intelligent computer software as their offspring, transcending material constraints and labour. [320] According to the curators' note, "Bailey and Schaffer satirize the utopian lifestyles often proselytized by guru tech innovators."[321] For Tatum Dooley in her exhibition review "VR and the Failure of Self-Help Technology" for *canadianart*, she describes her experience of this piece: "upon donning the VR headset—entering the art piece—you are transported into an idyllic meadow, complete with flowers moving in a breeze and birds chirping. In the distance there is a fellow pregnant woman,

[317] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*.
[318] Plant, Interview with Caroline Klimek.
[319] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*.
[320] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*.
[321] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*.

arms extended, scarecrow style. Bailey and Schaffer talk you through your new body and set in an auditory artist statement."[322]

Yam Lau worked with Jonathan Carroll to create *Out of this World,* a VR project that tries to recreate an out-of-body experience, asking users to start by laying down in a bed. Lau seeks to extend the moment when the body and mind diverge between the virtual and the real, drawing parallels with near-death experiences and examining the philosophical implications of such states.[323]

The fourth VR experience was *Waiting for Rostam* by Eshrat Erfanian, a nine-minute 360° video that captured mundane life in Iran, offering a non-sensationalized perspective by comparison with images typically portrayed in the news. For this project, TSV lent Erfanian a 360° camera for her to take back to Iran.[324] For this piece, the equipment needed to be small and unobtrusive, so that it did not draw attention to Erfanian. She wanted to showcase her experience as an Iranian as she visited museums, shopping malls, parks, and other everyday places. As the program note explains, "with these images, Erfanian brings the serenity and calm that she experienced during her 2016 visit to Tehran and Isfahan into 360° visual space, as a counter to hyperbolic and anxious popular images of Iran circulating in the west. Through this visual tour, visitors are prompted to reflect on the ways digital colonization operates through architecture and content producers/consumers."[325]

These four VR projects, commissioned by TSV, sought to push the boundaries of virtual reality as a medium for artistic expression, diverging from the more common approach taken by

[322] Tatum Dooley, "VR and the Failure of Self-Help Technology," in *canadianart,* December 7, 2017, https://canadianart.ca/reviews/vr-and-the-failure-of-self-help-technology/.
[323] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*.
[324] David Plant, Interview with Caroline Klimek on Zoom, November 23, 2020.
[325] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*.

film festivals and institutions like the AGO. In this unique context, artists like Gee, Bailey, Schaffer, Lau, and Erfanian were given the freedom to harness VR's immersive power in unconventional ways, aiming not only to captivate audiences but also to explore a wide range of diverse themes. These VR works were characterized by a critical analysis of the technology itself. Instead of merely showcasing the capabilities of VR, these artists utilized the medium to provoke thoughtful reflections on the relationships between technology, the human body, and society at large. They questioned preconceived notions about VR as a tool for escapism, instead harnessing its potential to confront audiences with pressing social issues, ethical dilemmas, and the ever-evolving interplay between humans and technology. The commissioning of these works represented a departure from traditional modes of VR presentation seen at film festivals and legacy institutions. The curators of *Worldbuilding* were not content with merely showcasing the technology; rather, they aimed to challenge, provoke, and engage viewers in a profound and transformative manner. By fostering an environment where artists could push the boundaries of VR, TSV succeeded in harnessing the medium's immersive power to create thought-provoking, accessible, and socially relevant art experiences.

This exhibition was unique because it was about both the virtual reality pieces and the installation itself. Hampton and Tanaka played around with how these VR pieces were exhibited inside the gallery. For them, "the installation piece was as important a component of the work that was shown as the pieces."[326] They did not want to recreate the classic VR experience of a swivel chair and a headset—instead, they worked closely with the artists to create an environment that fit each VR experience. As a result, this exhibition invited audiences to experience four VR pieces "in an exhibition that plays with the rules of engagement that

[326] Plant, Interview with Caroline Klimek.

immersive technologies are designed from."[327] Audiences were asked to lie in a bed to meditate with Lau's *Out of This World*, to experience pregnancy with Bailey and Schaffer's *Preterna*, and to engage with Gee's biofeedback device, where their mood affected how they played her war game, *Project H.E.A.R.T*.

One reviewer highlighted the technical difficulties faced by some of the artists, such as *Preterna*, for which Bailey and Schaffer addressed the glitches head-on by incorporating them into their pieces through voiceovers. In her review for *canadianart,* Dooley expressed her uncertainty about how to interpret VR and voiced concerns about being seen with a headset and not wanting to be photographed. Despite this positive review by Dooley, the exhibition itself has faded into obscurity. In our interview, Hampton expressed his disappointment with the low attendance from VR developers in his Toronto VR meetups. This raises questions about the divide between VR being seen as a gaming medium to being accepted as an art form that VR cannot seem to bridge, as well as how to address the challenges of attracting audiences for VR art. By comparison, while Trinity Square Video (TSV) was satisfied with the attendance at *Worldbuilding: An Exhibition*, it did not draw as large an audience as exhibitions hosted by the Art Gallery of Ontario (AGO). Despite advancements in technology, the distance between VR being seen and used as a gaming tool and its potential as an art form remains a significant barrier to wider acceptance and understanding.

As they underwent through the process of putting on this exhibition, TSV realized that they needed to build the necessary infrastructure in-house, as neither the headsets nor the technology needed to create VR were widely available to artists. TSV partnered with Advanced Micro Devices (AMD), a Toronto-based technology developer, who lent them equipment. As a

[327] Trinity Square Video, *Worldbuilding: An Exhibition of Virtual Realities*.

result, TSV acquired one of the first Oculus development kits and created the AMD VR Lab at Trinity Square Video in 2016. Through this partnership, TSV received the necessary software and hardware (such as gaming computers with high-resolution graphics cards) that were necessary for their artists to create their VR experiences. This was essential, as Plant commented: "several machines that were provided to us by AMD without which we would not have been able to either show the *Worldbuilding* exhibition, nor would we have been able to have the AMD VR Lab."[328] This marked the start of TSV building the infrastructure for artists to create VR using TSV's equipment, enabling artists to experiment with hardware and to connect with developers. Looking back Plant commented that "the whole *Worldbuilding* exhibition was pushing the limits of what the virtual reality technology of 2016 could do, which seems so very long ago."[329] By addressing technical challenges and partnering with technology developers like AMD, TSV demonstrated their commitment to supporting artists in exploring VR. These efforts laid the foundation for future advancements and developments in the field, allowing artists to push the boundaries of what was possible within the VR medium.

V/Art App (2017)

Simultaneously, TSV was developing a virtual reality app called V/Art. The *Worldbuilding* exhibition raised questions about audience access. Plant asked, "what about making work freely available through easily distributed means, rather than having something that requires a $5,000 investment just so that somebody can look at it?"[330] Furthermore, TSV became interested in using people's smartphones, as the general public did not have access to VR

[328] Plant, Interview with Caroline Klimek.
[329] Plant, Interview with Caroline Klimek.
[330] Plant, Interview with Caroline Klimek.

equipment such as Oculus Rifts. For his review of V/Art for *The Globe and Mail,* Chris Hampton wrote*:*

> Cheaper equipment has finally put VR within reach of the consumer—a viewer can be purchased for less than $20—but the tech has yet to produce the killer app that guarantees a Google Cardboard in each of our knapsacks. TSV's platform removes that barrier and stocks ready-to-use content at a single, convenient destination, with plans to add new works in the future.[331]

The premise behind this app was that if people used their smartphones and an affordable Google Cardboard (priced at $10), this might make VR more accessible to the general public. As Plant said about this VR project, with VR, it was guided by "The idea of democratizing it, popularizing it and making it accessible."[332]

In 2016, TSV applied for a Toronto Arts Council Open Door Grant and received $72,000 to create the V/Art app that would be free to the public and could be used with Google Cardboard.[333] With this funding TSV commissioned eight artists, Scott Benesiinaabandan, Trudy Erin Elmore, E. Jane, Endam Nihan, Tommy Truong, Fusun Uzun, Thousand Stars, and the collective Tough Guy Mountain, to create virtual reality pieces that would be available on the app. The programming team chose artists who could handle VR's steep learning curve and work within their tight 18-month timeline. This app aimed to "help promote new understandings of what the virtual can be, and to ask the questions; What does technology allow us to feel, what are its ethics, and what does it mean to be immersed in an artificial reality in a time of political urgency?"[334]

---

[331] Hampton, "Venturing into the virtual world with a new art."
[332] Hampton, "Venturing into the virtual world with a new art."
[333] Toronto Arts Council, "Toronto Arts Council 2016 Allocations," accessed June 1, 2022, https://torontoartscouncil.org/TAC/media/tac/Impact/Grant%20Allocations/2016-Grant-Allocations.pdf, 2.
[334] "Exhibition: V/Art Projects," Trinity Square Video, accessed May 1, 2022, https://www.trinitysquarevideo.com/programming/exhibition-vart-projects/.

According to Plant, without the technical team, which included Jennifer Chan, Jonathan Carroll, and Mohammed Rezaei, this project would not have come to fruition. Jonathan Carroll had been developing VR work for only two years and was a recent OCAD University graduate, but was already considered a VR veteran in Toronto.[335] Plant commented that Carroll's standing as a VR veteran in Toronto was "indicative of technology in general, just how quickly it moves." He continued, "And its anxiety-inducing because you want to keep up with it. But it's also exciting because it's easy to get into and, basically, whenever you get in, you're going to be on some ground floor."[336] Plant further emphasized the significance of having technical support for artists working with V/Art, stating, "If somebody ran into an issue with figuring out how the software . . . that we had somebody who was deep enough into the code that they could navigate the way out of it."[337] This highlights the essential role that technical professionals play in guiding artists through the intricacies of software and code, enabling them to fully explore VR's potential.

In addition to having developers working directly with the artists, TSV teamed up with the New York interactive technology company EEVO to help create the app. With their support, V/Art was up and running within a couple of months so that, shortly after the *Worldbuilding* exhibition ended, V/Art was launched.[338] At this time, EEVO was already working with Rhizome, an affiliation of the New Museum in New York City, to create a VR platform. By partnering with EEVO, the hope was that TSV would not have to create the platform in-house and could instead use the New Museum's model with the expectation that this would be easier

[335] Jonathan Carroll has been teaching workshops in Toronto since 2016. I took a Unity workshop through the Regent Park Festival and took Carroll's VR class through TSV.
[336] Hampton, "Venturing into the virtual world with a new art."
[337] Plant, Interview with Caroline Klimek.
[338] Plant, Interview with Caroline Klimek.

and more efficient process. The app also received advertising support from Google, which gave TSV access to global advertising. According to Plant, because of the partnership with Google, the app was accessed in 47 countries[339] and, he continued, "we had at one point more than 5,600 active streams in 13 or 14 countries simultaneously."[340] For TSV the app was deemed a success, and it drew a great deal of attention to the artists that led to their getting commissions internationally and having their work shown worldwide. [341]

The TSV app also had an unforeseen outcome: it became a virtual reality exhibition platform that was loaned to a variety of not-for-profit arts organizations to exhibit their VR works. This included film festivals, such as the Regent Park Film Festival, Toronto Animated Image Society (TAIS), and Inside Out, each of which was given access to the platform to show VR pieces for free. The app was also used at the Ottawa Animation Film Festival, where they commissioned and exhibited VR pieces from their 360° animators as a result. Plant remarked, "We didn't necessarily set out to create a platform specifically for this purpose, but we did want to make it accessible so that the technology that we had, either the head-mounted display, heavy-duty equipment that some people wanted to use or just the simple smartphone-based, were both possible."[342] This app's popularity among other ARCs and festivals demonstrates the need to make this technology accessible, as this accessibility allows these arts organizations to commission works from their community that can then be shown to the general public on the V/Art app.

However, with the pandemic's onset, EEVO redirected their focus towards Zoom. Consequently, the V/Art app is no longer supported or updated. Consequently, as a researcher, I

[339] Plant, Interview with Caroline Klimek.
[340] Plant, Interview with Caroline Klimek.
[341] Plant, Interview with Caroline Klimek.
[342] Plant, Interview with Caroline Klimek.

am limited to accessing and using the V/Art app solely on my old iPhone 6s. This raises concerns about barriers to access and preservation, given that the app is incompatible with newer iPhone models. That said, TSV has archived a few images of V/Art on their website for artists who had assumed that EEVO would persist and that they would therefore be able to continue showcasing their VR pieces, instead of needing to archive them. TSV is currently seeking additional funding to revive and sustain this project, and they have partnered with Jonathan Carroll for future app updates.

For Plant, these two projects have caused TSV to seriously "look at freeing ourselves from the constraints of FAANGs[343] (Facebook, Apple, Amazon, Netflix and Google) and relying on their store platforms such as Apple Store or Google Play."[344] This is incredibly difficult, as these technology companies not only own and operate the hardware (both VR headsets and smartphones), but they also own the software and control the app stores. These companies further control the conditions by setting the rules and prices for these apps. To combat these challenges, Plant is looking at making his platform accessible and potentially open-source to keep the work in artists' hands. The challenges that TSV encountered with their V/Art app underscore the significance of developing resilient, decentralized platforms for VR art. Open-source initiatives and community-driven projects can foster collaboration, innovation, and long-term sustainability, reducing an organization's reliance on single platforms or entities.

Plant's interest in expanding the V/Art app is evident in TSV's working with performance artists Karina Iskandarasjah and Holly Chang, who worked together to create a performance-based iteration of V/Art. Commissioning performance artists with no prior VR/XR

[343] "FAANG" is an acronym that refers to the stocks of five prominent American technology companies: Meta (META) (formerly known as Facebook), Amazon (AMZN), Apple (AAPL), Netflix (NFLX),), and Alphabet (GOOG) (formerly known as Google).
[344] Plant, Interview with Caroline Klimek.

experience to engage in 360° video performances served the purpose of supporting them during the COVID pandemic. [345] This project aligns with the ARC's mission statement: to foster dialogue, change processes, and lower barriers of entry for artists and audiences alike.

Despite the promising potential of V/Art, its fate remains uncertain. The futures of both V/Art and VR at TSV hinge on technological autonomy, inclusivity, and artistic empowerment. By redefining power dynamics and engaging in meaningful discussions, TSV can continue breaking down barriers, creating transformative experiences, and championing accessibility in the evolving landscape of VR in the arts. TSV's exploration of ways of freeing itself from the constraints of FAANGs highlights the importance of rethinking power dynamics in the VR landscape. Embracing alternative solutions like open-source platforms empowers artists and grants them greater control over VR works' distribution and accessibility, challenging the dominance of technology giants.

However, the fate of V/Art's new iteration raises questions about the sustainability and funding of VR platforms. Grant councils play a crucial role in supporting the maintenance and development of such initiatives: their continued financial support is essential to ensuring the longevity of V/Art and similar projects that challenge technological obsolescence, but such support is not guaranteed for organizations or artists. To keep V/Art alive and actively maintained, TSV may need to continually innovate and keep evolving the platform. This requires ongoing engagement with grant councils, artists, and the wider community to secure funding and support for V/Art's future iterations to ensure its relevance and accessibility for artists and audiences alike.

[345] Trinity Square Video, "Online Exhibition: Moving Ether Way," Accessed March 1, 2022, https://www.trinitysquarevideo.com/programming/online-exhibition-moving-ether-way/.

Case Study #2: InterAccess

InterAccess is a technology-focused artist-run centre located in Toronto, and it has a rich history rooted in technology. InterAccess has been at the forefront of incorporating new media and emerging technologies into the artistic landscape. It was founded in 1983 as the Toronto Community Videotex. It began as a venture focused on the Telidon project, which was developed by Trinity Square Video and *Computerese* magazine, showcasing TSV's early focus on providing artists with access to computer-based art. The project emerged out of a public discussion involving filmmakers and community workers such as Bill Perry, Paul Petro, Catherine Richards, Willoughby Sharp, Diana Bockus, Geoffrey Shea, Ric Amis, Nina Beveridge and others.[346] That same year, Toronto Community Videotex relocated to 1179 King Street West, and the subsequent year, in 1984, it incorporated as a non-profit organization with an explicit focus on providing access to artists interested in computers.[347] The organization underwent a name change in 1987, becoming InterAccess, as it is known today.[348]

This ARC takes a distinctive approach to integrating XR media, as it strongly emphasizes solo exhibitions and the collaborative efforts of guest curators. In addition to exhibitions, InterAccess plays a pivotal role in providing educational opportunities for artists and the wider community. This center hosts workshops led by leading XR creators like Jenn E. Norton, Tobias Williams, and Jawa El Khash. These workshops cover a wide range of topics, from hands-on Unity workshops to the creation of AR filters for platforms like Snapchat. InterAccess's

---

[346] A. A. Bronson, *From Sea to Shining Sea* (Toronto: Power Plant, 1987), 124–125.
[347] According to Bronson the aim of Toronto Community Videotex in 1983 was "to facilitate and encourage artistic, community and cultural use of new communications technology through training, workshops, equipment access, production and an open membership. It provided access for artists to computer interface with video, to allow computer-generated images to be put on tape. They also work with paint systems and telecommunications."
A. A. Bronson. *From Sea to Shining Sea*. Toronto: Power Plant, 1987, 124–125.
[348] A. A. Bronson, *From Sea to Shining Sea* (Toronto: Power Plant, 1987), 124–125.

commitment to progressive and inclusive workshops extends beyond XR media, encompassing such areas as 3D printing, video games, and projection mapping.

In contrast to TSV, which develops and houses infrastructure in-house, InterAccess provides space for showcasing artists' works through guest-curated exhibitions. In 2021, InterAccess hosted *Geofenced*, one of the first independent artist-created augmented reality exhibitions in Toronto. It exemplified InterAccess's collaborative approach and dedication to showcasing diverse voices and perspectives.

Geofenced AR exhibition (September 15 – October 9, 2021)

Geofenced ran from September 15 to October 9, 2021 at InterAccess's gallery. Curated by Karie Liao, the five artists commissioned included Scott Benesiinaabandan, Cat Bluemke, Jonathan Carroll, Adrienne Matheuszik, and Jenn E. Norton. This site-specific exhibition focused on "connect[ing] viewers to the forgotten histories, contemporary politics, and faraway futures of place,"[349] and it focused on the Dupont street area, where InterAccess is located. The term "geofenced" was used as "a metaphorical framework through which to consider how augmented reality (AR) technologies alter the environment, either by making spaces more accessible or by creating new barriers."[350]

Geofenced was first conceived back in 2019, when, Liao noticed that:

> Most of the AR experiences I was encountering in a contemporary art context seemed peripheral, meaning that it was being used as a didactic or pedagogical tool in exhibitions where it didn't seem integral to the artworks. I was also coming across AR works that were commercially driven, making it seem gimmicky or like a vehicle for marketing or promotional purposes. And while there certainly are artists working critically with AR, there didn't seem to be an exhibition I'd seen or heard about, especially in Canada that

[349] Karie Liao. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay. https://interaccess.org/sites/default/files/Geofenced%20Trifold%20Essay.pdf
[350] Liao, *Geofenced*.

> entirely was dedicated to the exploration and experimentation of AR as an artistic medium.[351]

Karie Liao, having worked at Snapchat, recognized the need for an exhibition made up entirely of AR works created by contemporary Canadian artists. Liao wanted to confront "the AR landscape, [as it is] regarded as a new frontier for innovation"[352] and to get audiences thinking critically about AR technology by taking it outside of its commercial space. For the general public, AR is most commonly associated with commodification, as Liao notes in her curatorial essay: "The AR landscape . . . has become a battleground for artists, technologists, and citizens to defend their agendas and uphold their values against those that are solely driven by market forces."[353] This includes brand placement applications, such as the IKEA app to visualize furniture, and the Nike app to digitally 'try on' shoes. Otherwise, the general public uses AR on a daily basis with social media filters, as found on Instagram and Snapchat. This technology is seamlessly integrated into social media, so that the public is often unaware of using AR. Liao "was interested in seeing what an exhibition entirely made up of AR works could be on an intimate scale and developed with an approach that was solely driven by artists."[354] *Geofenced* was a site-specific exhibition that critically analyzed artists' contributions according to a central theme using AR. Liao's interest in exploring the potential of an exhibition composed entirely of AR works and driven solely by artists signifies a departure from traditional curatorial methods. It emphasizes a more artist-centric and experimental approach to exhibition curation within the realm of AR.

---

[351] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities," *YouTube* video, 1:13:23. September 30, 2021. https://www.youtube.com/watch?v=7a8c4A6D2dw&t=6s.
[352] Karie Liao. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay.
[353] Karie Liao. *Geofenced.* InterAccess
[354] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities."

During the fall of 2021, I visited InterAccess twice to view the *Geofenced* exhibition. I borrowed a gallery iPhone with the apps already downloaded. There were two applications for this exhibition—one for Jenn E. Norton's *In careful fitted Ground* and the other for the rest of *Geofenced*, its official app. The exhibition extended over two distinct locations: the InterAccess gallery space and the outdoor areas, commencing at the gallery entrance and extending to two locations on Geary Avenue, a famous area in Toronto that is noted for good food, local breweries, and art galleries.[355] Each AR piece had an indoor and outdoor component. Attendees were not only encouraged but also granted the autonomy to chart their unique course, enabling them to experience all the AR pieces housed within the gallery and explore the corresponding outdoor elements at their own discretion.

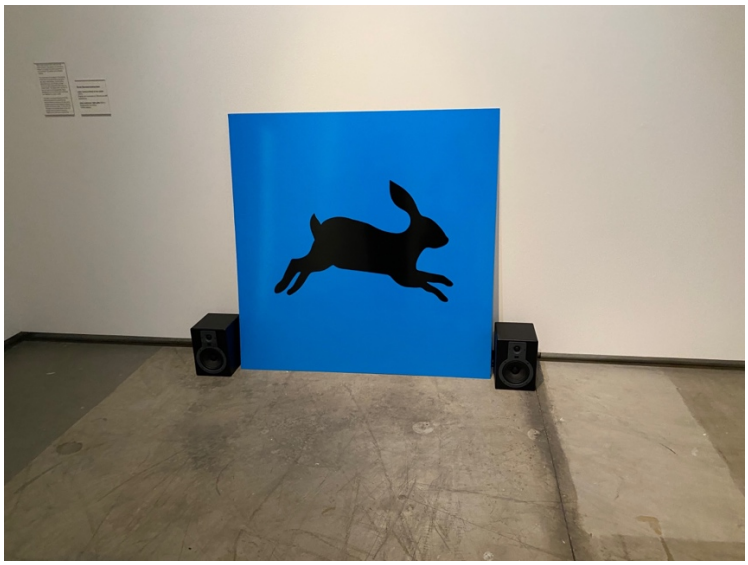


Figure 15: AR target for Scott Benesiinaabandan's shke! waboose/look at the rabbit (2021). Photo Credit: Caroline Klimek, 2021.

[355] See: Tanya Mok, "This is the perfect Toronto street before it won't be," *blogTO,* April 8, 2018, https://www.blogto.com/city/2018/04/geary-avenue-toronto/; blogTO staff, "This is one of Toronto's most exciting streets right now," *blogTO,* June 19, 2018, https://www.blogto.com/city/2018/06/geary-avenue-toronto-exciting-streets/.

When entering the gallery, attendees first encountered Scott Benesiinaabandan's *shke! waboose/look at the rabbit* (2021) (see Figure 15) and heard the Anishinaabeg language and saw a large picture of a rabbit that was the AR target. Within this piece, Benesiinaabandan dismantled the borders of AR as he investigates "how digital beings are able to transgress conventional boundaries of virtual and physical, spiritual and corporal, as well as human and non-human."[356] Attendees followed the AR rabbit on a journey through the gallery and outside it, at Bartlett Parkette. As Liao describes in her curatorial essay, "users are intended to follow on a journey of unknown outcomes."[357] Benesiinaabandan was inspired by Nanabozho, a shape-shifting spirit featured in many First Nations world creation stories, is often described as a giver of gifts leading "humans to a better place and time, though where and when is left for viewers to discover."[358] Motivated by Dominic Pettman's book *Look at the Bunny: Totem, Taboo, Technology*, Benesiinaabandan described how, in *The Lord of the Rings* (2001-2003) during a large Orc battle there were glitches in the CGI battle scene. Pettman explains that, even though each individual orc was programmed to fight each other, the programmers found that randomly out of 1,000,000 paired-up orcs there would be two that were pacifists. For Benesiinaabandan, this was notable , as he commented that "they would refuse to fight […] That even with the certainty of code there seems to be some agency within these digital beings that will behave on their own given enough time and space."[359] Using this agency and applying it to the Anishinaabe life-giver Nanbozho, who for this AR project comes in the form of the hare, Benesiinaabandan created the ultimate fence skipper (see Figure 16): "He doesn't really obey what we think as humans are to do those things. So, the idea behind that despite all this technology we can do for

[356] Karie Liao. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay.
[357] Karie Liao. *Geofenced.* InterAccess
[358] Karie Liao. *Geofenced.* InterAccess
[359] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities."

pre-planning everything, we can have all the layers in place and it still seems to want to do whatever it wants."[360] Benesiinaabandan's comment came true when I was at the outdoor location at Bartlett Parkette, running around, trying to follow the rabbit. The "rabbit is boundless, crossing and evading all confines including geofences,"[361] bringing this theme to the fore.

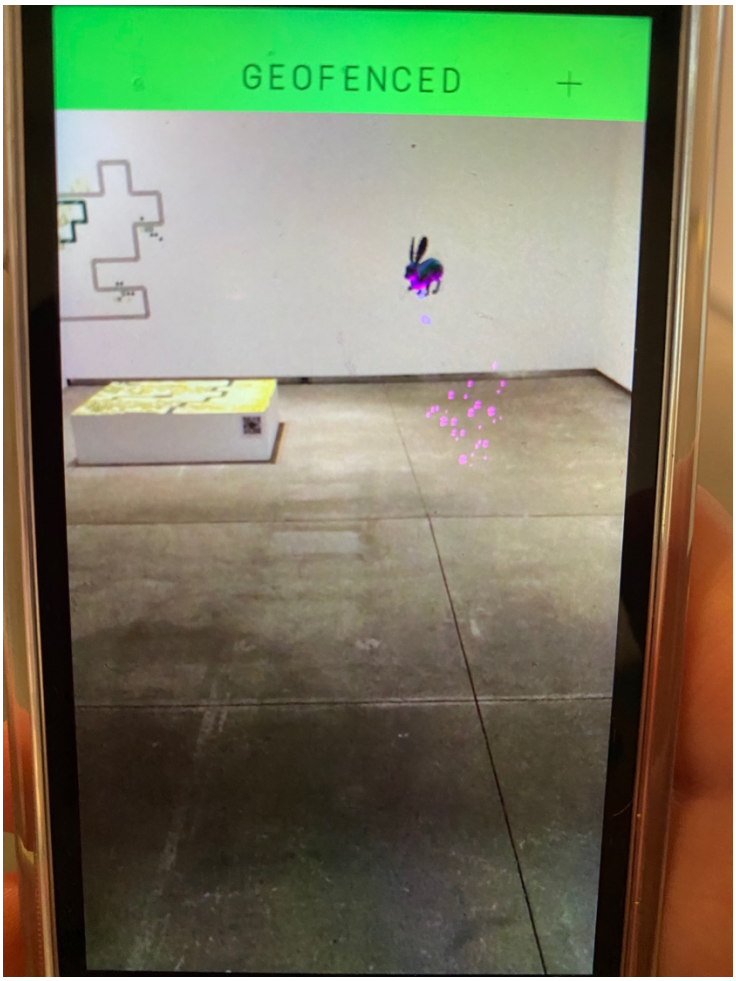


Figure 16: Following the AR rabbit of Scott Benesiinaabandan's shke! waboose/look at the rabbit (2021). Photo Credit Caroline Klimek, 2021.

[360] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities."
[361] Karie Liao. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay.

Adrienne Matheuszik's *Proxima-B* (2021) blurred the lines between space tourism, science fiction, and AR. Her timely piece's exhibition coincided with the much-publicized private space tourism that was in headlines at the time,[362] featuring Jeff Bezos' aerospace company, Blur Origin, which enabled celebrities such as William Shatner and Michael Strahan to publicly go up into outer space.[363] This space craze began in 2013 with Richard Branson, the CEO of spaceflight company Virgin Galactic, selling seats for a sub-orbital flight that would take its guests 50 miles up into Earth's atmosphere to the edge of space for $200,000.[364] Although critics saw little technological or explorational value in space tourism, companies owned by multi-billionaires such as Bezos, Branson and the PayPal, Tesla and SpaceX CEO Elon Musk saw the benefit: they charge eye-popping amounts for an excursion, however fleeting, to the stars. These highly publicized events present space tourism as an industry funded by the ultra-rich, and not as a future endeavour, but as one happening now. As Matheuszik commented, "Before we started the project, we didn't know what space tourism might look like and now that every billionaire has gone to space you kind of understand how exactly that is going to look like and it is going to be a very inaccessible experience for most of us."[365] Matheuszik underscores the exclusivity and inaccessibility of space tourism, especially as it becomes increasingly dominated by the ultra-rich. This serves as a prime example of how technology, originally seen as a futurist concept when *Geofenced* was initially conceived, can rapidly transform into reality,

[362] See: Richard Luscombe, "Rocket men: how billionaires are using celebrities as PR for their space projects," *The Guardian*, October 13, 2021, https://www.theguardian.com/science/2021/oct/12/billionaires-space-tourism-celebrities-blue-origin-jeff-bezos; Scott Galloway, "Jeff Bezos is Not My Astronaut," Blog Post, July 23, 2021, https://www.profgalloway.com/jeff-bezos-is-not-my-astronaut/.
[363] Although it appears that William Shatner did not have to pay for his space experience with Blur Origin, others likely will. See: Marina Koren, "The Cost of William Shatner's 'Most Profound Experience,'" *The Atlantic,* October 13, 2021, https://www.theatlantic.com/science/archive/2021/10/william-shatner-blue-origin/620370/.
[364] Arielle C. Frommer, "Why Celebrities Are going to Space—and What it Means for our Future," *The Harvard Crimson,* November 2, 2021, https://www.thecrimson.com/article/2021/11/2/celebrity-space-tourism/.
[365] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities."

as evidenced by the exhibition's launch. Such transformations carry significant and far-reaching consequences, shedding light on the broader societal impacts of emerging technologies and industries, including issues related to access and inequality.

Figure 17: Billboard featuring Adrienne Matheuszik's Proxima-B (2021).
Photo Credit: Caroline Klimek, 2021.

Against this backdrop, I encountered Matheuszik's piece, *Proxima-B*, on the large billboard outside of the gallery, at the intersection of Dupont Street and Dovercourt Road (see Figure 17). It featured a bright, shiny advertisement for luxury space travel—this was also an AR target. The billboard acted as the first breadcrumb for attendees to follow to find the rest of the exhibitions along Geary Avenue. Inside the gallery, Matheuszik had also set up an installation

that acted as a travel booth for attendees to "gain information about *Proxima-B*." Matheuszik named her piece after the closest potentially habitable exoplanet to earth, Proxima Centauri b, otherwise known as Proxima b. She said, "when people talk about space colonization, they already talk about Mars or Proxima b. But it's the closest planet to Earth that is Earth-like, but it's 13 light-years away."[366] In the AR piece, rather than see luxury advertisements for extraterrestrial resorts, we confront a dystopian atmosphere. Matheuszik reflected on this:

> I thought about how this might look and what it might mean. And another thing I thought about was how putting these artificial resort experiences into other planets and how those other planets might react. And so, I have all this nice flashy imagery of the resorts from the promotional material. But then when you look into the AR, you see kind of like the live view of it where the environment has rejected these luxury experiences.[367]

Figure 18: AR version of Matheuszik's Proxima-B. Photo Credit: Caroline Klimek, 2021.

[366] Adrienne Matheuszik, Interview with Caroline Klimek on Zoom, February 10, 2022.
[367] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities."

In the AR image in Figure 18, we see the degradation of the environment that stands in stark contrast to the glitzy and glamourous image on the touristy postcards. Liao notes, "The tourist imagery seen in Matheuszik's work has a legacy rooted in the colonial project of presenting travel destinations as vacant, devoid of local inhabitants, and thus ready for consumption."[368] The extravagant images began to degrade upon activating the AR image. Instead of a glamourous five-star resort, we see a dilapidated space that has been taken over by the planet's natural elements. For Liao, this is an important moment, "The artist deliberately denies the viewer visual, mental, and physical access to this resort, planet, and future. Instead, beholders must stay where they are and remain accountable to the environmental, social, and political ailments of our present moment."[369] This piece asks: why are we going to space? Why are we colonizing another place? And what are the consequences of doing such a thing?

[368] In her curatorial essay, Liao quotes Sean P. Smith, "Instagram Abroad: Performance, Consumption and Colonial Narrative in Tourism," *Postcolonial Studies* 21, no. 2 (March 2018): 172-191, https://doi.org/10.1080/13688790.2018.1461173; Karie Liao, *Geofenced*, InterAccess, September 15 – October 9, 2021. Curatorial Essay, https://interaccess.org/sites/default/files/Geofenced%20Trifold%20Essay.pdf.
[369] Karie Liao. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay.

Figure 19: Wall decal showcasing Jenn E. Norton's In careful fitted Ground (2021). Photo Credit: Caroline Klimek, 2021.

The third piece of the exhibition was Jenn E. Norton's piece *In careful fitted Ground* (2021), which focuses on the local history of the building at 950 Dupont Street, the current home of InterAccess. Before it was an artist-run-centre, the building housed the Hamilton Gear and Machine Company. Inside the gallery, a large vinyl decal of a gear featuring the words from Emily Dickinson's poem "No Notice gave She, but a Change" (1863)[370] covers one wall (see Figure 19). When activated the constellation of gears became interactive: viewers could rotate and change the direction of each individual gear (as illustrated in Figure 20). Each gear was

[370] Norton's title for her AR piece *In careful fitted Ground* (2021) also borrows from the same poem by Emily Dickinson.

embossed with part of Dickinson's poem and, by rotating the gears, the order of the stanzas change. The poem "begins with the description of a woman quietly exhaling her last breath, "No Notice gave She, but a Change/No Message, but a Sigh.""[371] The poem concludes with "'her warm return,' which can be interpreted as referring to the woman's soul—a resurrection or perhaps her existence in memory."[372] For Norton, "the words on the gears that were turning was about change, but it was also about death; the death of somebody who was aging. And, for me, it was representative of a changing industry, a changing city, a changing generation. The end of lots of things, and how that can happen in a way that hurts but it's a natural process."[373] This AR installation with Emily Dickinson's poem and the rotating gears not only embodies the theme of change and transition within the artwork but also serves as a poignant metaphor for broader societal changes, the evolution of industries, and the passing of generations. The juxtaposition of the poem's themes with the shifting gears within the AR piece highlights the natural yet often bittersweet process of transformation. This connection underscores the significance of art in reflecting and making sense of these transitions, a theme that resonates throughout this chapter.

[371] Karie Liao. *Geofenced.* InterAccess
[372] Karie Liao. *Geofenced.* InterAccess
[373] Jenn E. Norton, Interview with Caroline Klimek on Zoom, February 7, 2022.

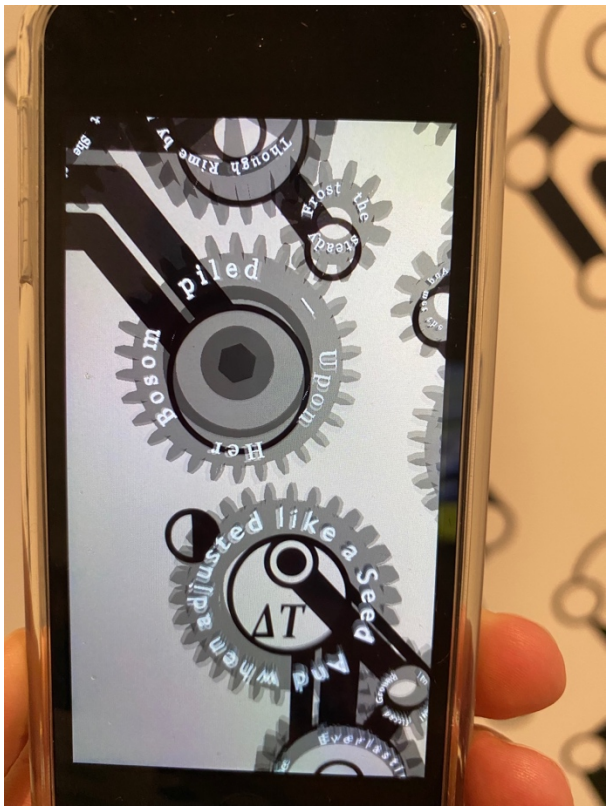


Figure 20: AR version of Norton's In careful fitted Ground (2021). Photo Credit: Caroline Klimek, 2021.

The outdoor component of Norton's AR piece was positioned just outside the entrance to InterAccess. A floor decal near the artist-run centre's front door, when active with AR, revealed, "the rupture in the ground reveals an underground water source [as seen in Figure 21]. The imagery of water alludes to the former pool that was once used to cool and harden the red-hot, freshly-made gears at the factory."[374] With this piece, attendees could follow the gears as they came up from the pool of water, reminding them of the rich industrial history in an area of Toronto that is facing rapid gentrification. For Norton, "showing where the cooling tanks of that building used to be, was a reference to the gear factory, Hamilton Gears."[375] She continues:

> But I also wanted to address the waterways that coursed through the city and had been redistributed and built on top of, or completely polluted and just destroyed. So, I was

[374] Karie Liao. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay.
[375] Norton, Interview with Caroline Klimek.

looking a lot into Taddle Creek and Garrison Creek and that sort of thing when I created that. That was for the outside area. I wanted it to have kind of an X-Ray feeling, but I also wanted to talk about some kind of natural phenomena though they were floating in sort of an esoteric kind of way.[376]

Figure 21: AR view of a gear moving out of pool of water from Norton's In careful fitted Ground (2021). Photo Credit: Caroline Klimek, 2021.

Liao's curatorial statement beautifully encapsulates the essence of Norton's installation and its profound impact on our perception of history and technology, "In viewing the water or turning the gears, we are invited to momentarily experience the "warm return" of Toronto's industrial

[376] Norton, Interview with Caroline Klimek.

past"[377] as we are reminded of the many histories of the InterAccess site. Norton's use of AR to reveal the concealed water source and evoke memories of this industrial history offers a distinctive lens through which we can explore the interplay between technology and our collective past. This approach mirrors the larger mission of ARCs like InterAccess in bridging the gap between art, technology, and accessibility. It highlights the multi-dimensional role these centres play in nurturing artistic expression and advancing the boundaries of creative exploration with emerging technologies.

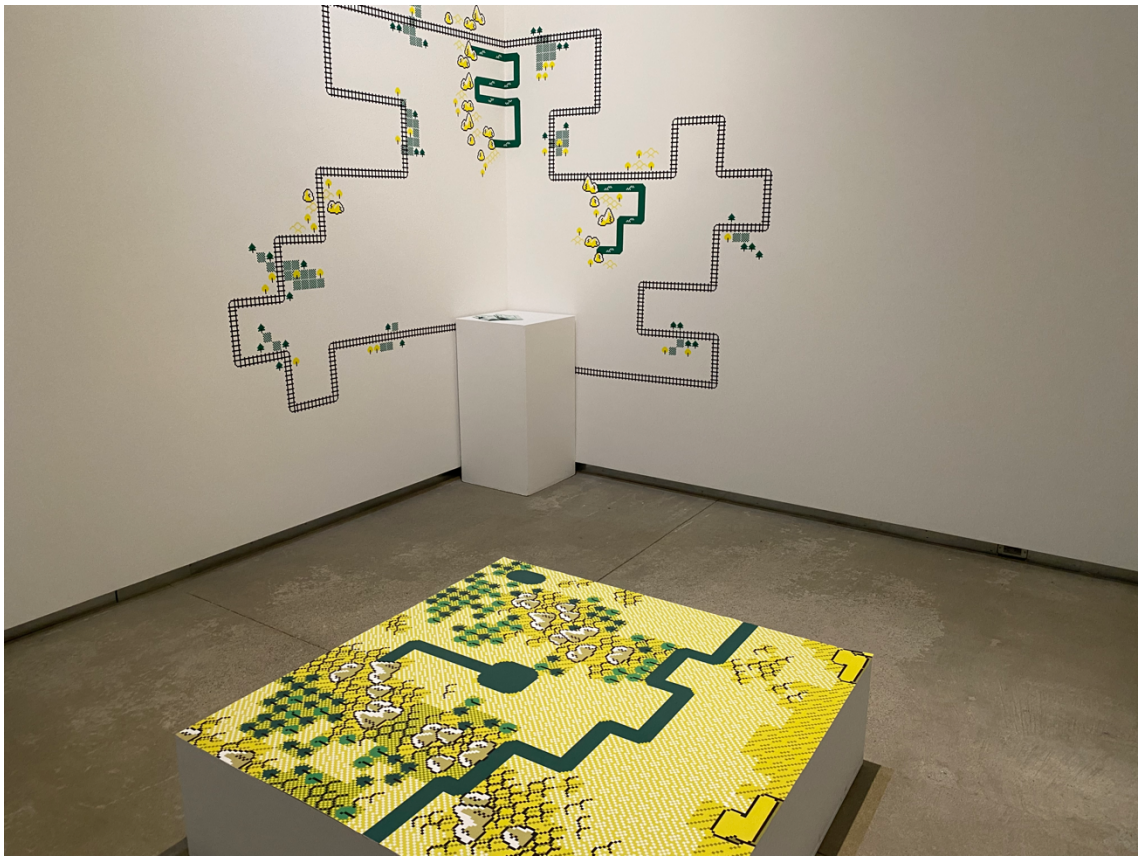


Figure 22: Gallery installation of Reality Crossing (2021) by Cat Bluemke and Jonathan Carroll. Photo Credit: Caroline Klimek, 2021.

[377] Karie Liao. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay.

The final AR project in *Geofenced* was *Reality Crossing*, by Cat Bluemke and Jonathan Carroll. At the centre of the gallery was a platform displaying a pixelated image of a field, which served as the AR target for their multiplayer game (see Figure 22). In this game, participants assumed different roles, either as land speculators or railway workers as they delved into a simulation of Canada's railway construction. As a labourer, one selects the "work" button to sell their labour, but if they find no jobs in that area, they can click to move to another spot. However, it costs money to survive each turn. As the more problematic land speculator, "you inherit the wealth and position necessary to accumulate more. Real estate is looking pretty lucrative right now!"[378] In this role, one can click the "invest" button, and, if a tile has entered the market and is available, they can invest in it. When other players spend money inside their investment property, the speculator receives a monetary return. In this game, one is strongly encouraged to invest near the railroad, as it will yield large returns, but they must guess where the railway will go. The speculator can also influence the railway's route, however, by buying "control" over a tile. According to the exhibition zine, your goal as the land speculator "is to accumulate as much wealth and power as possible while you shape the emerging colonial nation in your interests."[379]

[378] Cat Bluemke and Jonathan Carroll, "Reality Crossing: Pocket Edition," Spek Work, September 2021, Exhibition Zine, 16.
[379] Bluemke and Carroll, "Reality Crossing: Pocket Edition."

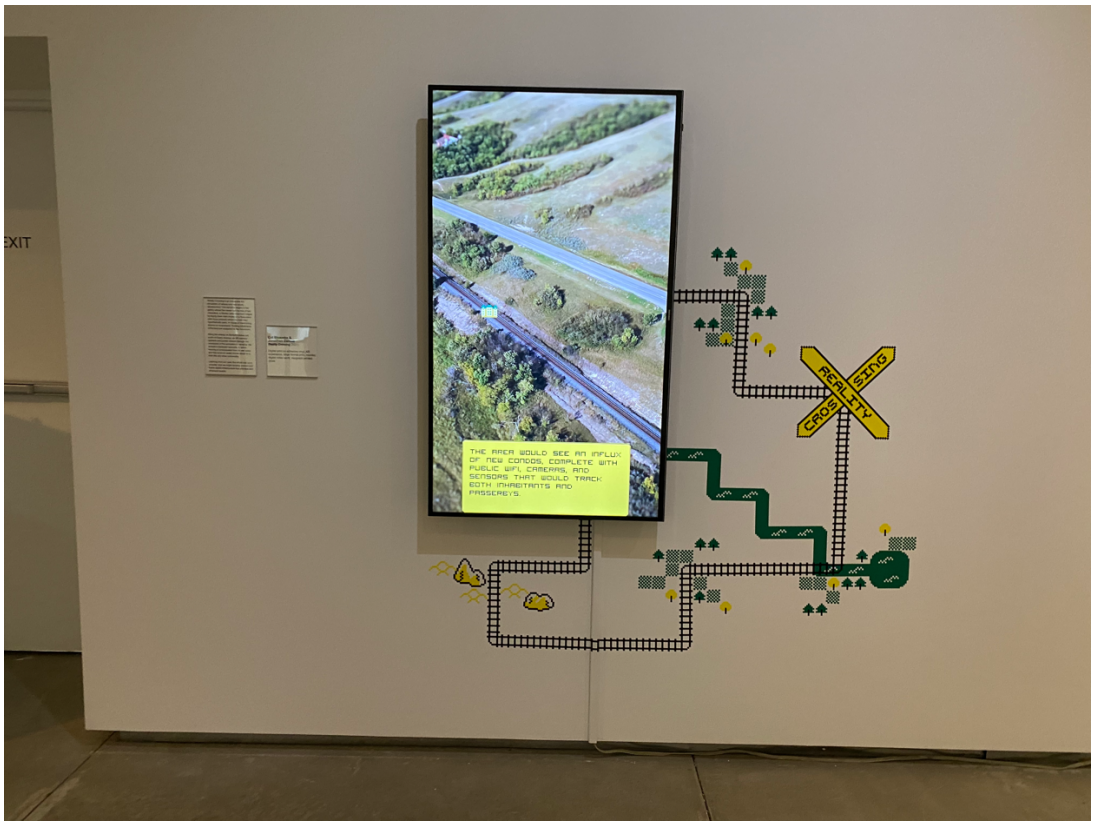


Figure 23: Gallery TV display of Reality Crossing (2021) by Cat Bluemke and Jonathan Carroll. Photo Credit: Caroline Klimek, 2021.

This added layer of Canadian imperialism was an important component when creating this AR experience. Since Bluemke and Carroll had previously lived in the Dupont area, they commented that "The Dupont corridor of the CPR we were really familiar with because we used to live right against it and our apartment was shaking all the time. We wanted to work on this site-specific project that involved the railway and we began reading more about this relationship between the expansion of Canada as a colonial nation, that was enabled through the railway."[380] The project was inspired by thinking about the relationship between technology and the land, and "thinking about specifically railways and augmented reality and their relationship to that terrain,

[380] InterAccess, "*Geofenced*: Building and Rebuilding Mixed Realities."

to the land that they overlay."[381] Carroll and Bluemke's video game simulation is designed to get attendees thinking about, as they wrote in their exhibition zine, "digitizing manifest destiny while sidelining competing narratives and minimizing the cost of technology on the land and the people."[382] Their project asks the important and pertinent question, "What can we learn about the present and future digital infrastructure from the systems and incentives that developed physical technologies of control in the past?"[383]

Figure 24: Outdoor component of Cat Bluemke and Jonathan Carroll's Reality Crossing (2021). Photo Credit: Caroline Klimek, 2021.

[381] InterAccess, "*Geofenced*: Building and Rebuilding Mixed Realities."
[382] Bluemke and Carroll, "Reality Crossing: Pocket Edition," 2.
[383] Bluemke and Carroll, "Reality Crossing: Pocket Edition," 3.

The outdoor component of *Reality Crossing* was located on a wall belonging to Blood Brothers Brewing, and it presents the game's culmination of the game (see Figure 24). Here, a conductor offers players a condominium on the train, marking the final installment of the narrative. Bluemke and Carroll describe this outdoor portion as:

> the end state of the story that began with speculative real estate at the outset of Canada as a nation and an idea. And then the end state is this train that is just all condo units and total commodification of housing and real estate as a thing that you can move around freely and you are free to buy, sell and trade if you have the funds as well. So, we sort of wanted to look at the past through the work in the gallery and think about this ongoing process that we're still a part of now and then create this sort of dystopian speculative piece for the outdoor portion that would add and yet to speak to this sort of lighthearted but still dark future.[384]

The concept behind the outdoor component closely resembled the neighbourhood's actual environment. When Liao sought permission from Blood Brothers Brewery to place the AR trigger on their wall, the brewery wanted reassurance that this was not an attempt to put up an advertisement to sell condos in the area. Liao said, "I had to really convince them that we weren't a condo company. So, to your point, I think it's very much a reality."[385] This neighbourhood is facing gentrification. Across the street, in February 2020 the Galleria Shopping Mall on Dupont has been torn down and, in its place, construction has begun on a massive neighbourhood revitalization project that will include high-rise and mixed-use buildings.[386] Carroll and Bluemke commented that they were also pushed out of the neighbourhood by gentrification and rising rent and have since left Toronto.

This exhibition came at an important moment for me, after eight months of lockdown during the COVID-19 pandemic in Toronto. While our local cinemas, museums, and galleries were

[384] InterAccess, "*Geofenced*: Building and Rebuilding Mixed Realities."
[385] InterAccess, "*Geofenced*: Building and Rebuilding Mixed Realities."
[386] Lauren O'Neil, "Toronto's Galleria Mall is finally being demolished," *blogTO.* February 6, 2020, https://www.blogto.com/real-estate-toronto/2020/02/galleria-mall-toronto-demolished/ (accessed October 1, 2023).

closed, I re-entered the cultural foray for *Geofenced* with my N95 mask and hand sanitizer. After almost a year, InterAccess and *Geofenced* marked the first cultural moment that I was participating in. The exhibition felt safe with its outdoor component, which enabled friends who were very COVID-cautious to feel comfortable joining me.

In our post-COVID world, we need to better understand that COVID has been traumatic and that not everyone is comfortable going back to theatres and crowds, especially immunocompromised people. This exhibition allowed for play, too, as my friends and I chased Benesiinaabandan's rabbit around Bartlett Parkette, sat on the patio at Blood Brothers Brewing after experiencing the end of *Reality Crossing*, and enjoyed a snack at Parallel. Being outside felt good, as did attending exhibitions again and thinking critically about technology after being on Zoom and in my apartment for months at a time over the past year. This exhibit interwove accessibility, intimacy, and performance in a non-traditional setting.

However, in *Geofenced*, the technology was not as seamless as it might have been. There were difficulties getting the AR triggers to work, especially with Benesiinaabandan's *shke! waboose/look at the rabbit*, as the rabbit did not always appear. In Cat Bluemke and Jonathan Carroll's *Reality Crossing*, it was not always clear which character I was. Figuring out how to get each AR target to function required significant coordination and time. I went back a second time to try these pieces again, as I had missed the final installment of *Reality Crossing*, and I needed InterAccess staff to show me how to get the AR targets to work outside, especially with Bluemke and Carroll's outdoor piece. For curator Liao, when I asked how she had anticipated tech glitches she said, "There's always going to be a chance that it's just not going to work, and that's a part of it."[387] Liao commented that technological difficulties are part of the exhibition:

[387] Karie Liao, Interview with Caroline Klimek on Zoom, March 19, 2022.

> I love visitors, people like you, who go to a new media art show or a media art show or go to shows at InterAccess because you actually have the patience. You just understand when something is broken. You're not frustrated. You expect it. You just know it's a possibility. And so, it's not as disappointing, I think. If you were going to the AGO, I think there's maybe different expectations there. There's a broader audience that goes to the AGO. And when something is broken, it's very disappointing.[388]

Understanding that some visitors might miss out on some of the digital components was a major reason that Liao tried to include other physical elements, such as vinyl decals for the different pieces and a travel kiosk for *Proxima-B.* Liao reasoned:

> I was really trying to move away from that [phone and vinyl] because I felt like that isn't really using AR to its maximum potential. These are things that I'm still exploring myself. This is my first AR show. It's the first entirely AR show that I have seen anyways. So, I did encourage the artists to develop work that took up the site and the space and to avoid an empty space. I encouraged them to stay away from just vinyl.[389]

Liao encouraged artists to contemplate what visitors would experience if they were unable to engage with the digital aspects, emphasizing the importance of crafting a comprehensive and engaging exhibition for all attendees. During our interview she said, "I asked them to really think about what they would like visitors, gallery goers to see if they didn't have a phone. If they didn't engage with the digital aspects, what are they seeing? What would they see otherwise? What would that experience be?" [390] Introducing AR to an audience brought with it unique challenges, such as ensuring that all attendees feel included despite any difficulties that they might experience in accessing digital components. Furthermore, achieving a harmonious balance between non-digital elements and AR technology necessitated thoughtful deliberation. While it was recognized that certain attendees might experience fatigue from the extensive use of vinyl decals, it was crucial to acknowledge their continued significance within the exhibition.

[388] Liao, interview with Caroline Klimek.
[389] Liao, Interview with Caroline Klimek.
[390] Liao, Interview with Caroline Klimek.

Geofenced, curated by Karie Liao, showcased augmented reality's potential as an artistic medium. Featuring works by five Canadian artists, the exhibition challenged AR's conventional use for commercial purposes and explored its critical and artistic possibilities. While the exhibition tackled important themes like colonization, gentrification, and environmental degradation, some technical glitches marred the seamless experience for visitors. Despite Liao's efforts to incorporate physical elements alongside AR, there was room for improvement in bridging the gap for those who encountered difficulties accessing the digital components. Nonetheless, *Geofenced* provided a compelling opportunity to engage with forgotten histories and contemporary politics of Toronto's Dupont neighbourhood. The artists' explorations of the impacts of space tourism, industrial history, and the colonization of digital space offered a thought-provoking experience. The exhibition's timing, amid the post-COVID reopening of cultural spaces, highlighted the importance of making art accessible to all audiences. However, a more critical lens could have been applied to address the area's potential gentrification and the social implications of technology on marginalized communities. *Geofenced* demonstrated the progressive approach that artist-run centres can take by integrating emerging technologies into their programming and community engagement practices. It also underscored AR's potential as a tool for critical artistic expression while revealing the need for continued exploration and refinement of AR's use in artistic spaces and project to fully realize its impact on the art world and society.

Conclusion

This chapter has investigated how two technology-focused artist-run centres, Trinity Square Video (TSV) and InterAccess, have successfully incorporated VR and AR into their

programming. On the one hand, TSV's approach centers on building the necessary infrastructure to support their artist community's experimentation, providing a platform for artists to showcase their innovative works. On the other hand, InterAccess has collaborated with guest curators to assume the responsibility of exhibiting their artists' cutting-edge works. These case studies have shown that artists at these ARCs are not only embracing VR and AR as new technologies, but that they are also continuing a rich tradition of questioning and playing with various media. This not only enriches the artistic landscape but also challenges and expands the traditional boundaries of audience engagement and public education in art. The reliance on public funding and the negotiation of corporate influence underscores a critical tension between artistic independence and the pragmatics of technological adoption.

The financial implications that are associated with adopting XR media pose a very real barrier for artists. The costs of incorporating VR and AR into artistic practices, as revealed by interviewees and confirmed through funding records, are significant; therefore, artists looking to work with XR often rely on support from public funding agencies. This underscores the need for sustainability and strategic planning for artist-run centres when emerging technologies are being integrated into artistic production. Additionally, this chapter reveals that artists working out of ARCs are not immune to the challenges of navigating the presence and influence of larger corporations on the VR landscape.

These case studies suggest that best practices in curation within ARCs must navigate these tensions by prioritizing the support of artists' explorations in XR media, while also critically engaging with the broader socio-economic contexts that shape these technologies' accessibility and impact. Furthermore, the role of ARCs in facilitating public engagement with XR art points towards a need for innovative approaches to arts education that can demystify

emerging technologies and foster a more inclusive and informed audience. The integration of VR and AR in art not only continues a tradition of media experimentation but also poses unique challenges for art education, necessitating strategies that bridge technical knowledge and artistic experience. The experiences of TSV and InterAccess offer valuable insights into the evolving dynamics of art, technology, and community in the digital age. They highlight the potential of ARCs as incubators for technological and artistic innovation, while also calling attention to the imperative of developing sustainable models that ensure these innovations remain accessible and meaningful to a diverse public. As we consider the future of XR media in the cultural landscape, the lessons from these artist-run centres emphasize the need for a balanced approach that values creative exploration, public engagement, and critical reflection on the implications of new technologies in art. Studying TSV and InterAccess illustrates that artist-run centres are crucial platforms for experimentation and failure, where artists can push the boundaries of artistic expression through XR media. As we move forward, we must recognize that incorporating VR and AR into art pieces does not constitute a radical departure from artistic practices, but that it instead continues a long-standing history of artistic exploration and innovation with technology. In my Conclusion, I will further examine the implications of these findings and explore the prospects of XR media's integration into the broader cultural landscape.

Chapter 5: Facing Technological Obsolescence with XR Media: "Goodbye Forever"[391]

The case studies of Trinity Square Video and InterAccess bring up new questions about how artists and artist-run-centres will confront the challenges posed by technological obsolescence when it comes to VR and AR. What lies ahead for these technologies, and how will artists and other cultural institutions discussed in my dissertation adapt to the evolving landscape? Scholars such as Ioana B. Jucan (2019), Garnet Hertz and Jussi Parikka (2012), and Jonathan Sterne (2007) have extensively discussed technological obsolescence, along with researchers focusing on video games and computational art addressing outdated technology as well as Jean Gagnon's DOCAM project archiving installations. Confronting an industry entrenched in perpetual updates, Jucan asserts, "discarding and obsolescence are in fact internal to the capitalist mode of production and consumption more broadly, which both produced and feeds off the habit of disposability."[392] In the context of AR and VR, these capitalist industries are closely tied to the hardware and software controlled by major companies like Facebook, Samsung and Google. The longevity of virtual and augmented reality, in light of technological obsolescence, becomes a pressing concern. How will technological obsolescence affect the longevity of virtual and augmented reality? This issue of how to archive and access with XR media has come up through these case studies.

Concerning virtual reality, artists express apprehension about the long-term maintenance, sustainability, and viability of their projects as VR technology and hardware evolve, which include the release of new headset models every twelve to eighteen months. In my book chapter "A Much-Needed Conversation with Women in VR," I interview VR creator and Toronto

[391] Adrienne Matheuszik, Interview with Caroline Klimek on Zoom, February 10, 2022.
[392] Ioana B. Jucan, "Introduction: Remain x Remain(s)," *Remain*, eds. Ioana B. Jucan, Jussi Parikka, and Rebecca Schneider (Minneapolis, MN: University of Minnesota Press, 2019), xiii.

Metropolitan University Professor Linda Zhang, who articulates her primary concern regarding the survival of her VR projects:

> One of the biggest challenges that worries me the most is what's the long-term maintenance, upkeep and sustainability of a platform because they evolve so quickly. And how can I ensure that this is still going to be accessible or still useful in 15 years? It seems in five years, everything is going to be so outdated or even if trying to upkeep I don't even know if they'll still work. That's one of the challenges what's the longevity of the projects beyond five years?[393]

Confronted with these questions, Zhang became the 2022 Library Research in Residence at Toronto Metropolitan University, where she aims to leverage the 360 Immersion Studio to collect data and archive her projects.[394] Stanford University is also engaged in efforts to archive immersive experiences with MediaX.[395] Currently, the prevailing method for archiving these works primarily involves creating videos or walk-throughs of the VR experiences. However, this approach fails to capture the full immersive nature of the artwork, leaving the question of how crucial it is to preserve the immersive experience unanswered. Jean Gagnon's DOCAM project serves as an instructive example, showcasing the need to consider the unique characteristics of media art.[396] This involves capturing and preserving the physical components of the artworks but also the software, hardware, and conceptual aspects that contribute to their overall experience.

In his insightful observation, Jucan highlights the inherent dilemma of the capitalist system articulating, "In (what I call) the capitalist system of disposable redundancy, the (planned

---

[393] Caroline Klimek, "A Much-Needed Conversation on Women in VR," *States of Immersion: Bodies, Medias Technologies,* eds. Phlippe Bédard, Carl Therrien and Alanna Thain (The University of Amsterdam Press, forthcoming Winter 2024).
[394] "University Library's Researcher-in-Residence (LRiR) program launches welcoming Assistant Professor Linda Zhang as inaugural resident researcher," *Ryerson Library Blog*, January 17, 2022, https://library.ryerson.ca/blog/2022/01/university-librarys-researcher-in-residence-lrir-program-launches-welcoming-assistant-professor-linda-zhang-as-inaugural-resident-researcher/.
[395] https://mediax.stanford.edu/.
[396] The mission of the DOCAM Research Alliance has been to identify and implement five research axes and propose tools, guides and methods that contribute to the preservation of the media arts heritage. The axes are conservation, documentation, cataloguing, history of technologies and terminology. https://www.docam.ca.

and programmed) production of the new is in equal measure the production of the obsolete."[397] This concern is exemplified in the case study of Trinity Square Video and their V/Art platform, after EEVO shifted their business model to focus on Zoom with the onset of the global pandemic. Currently, the V/Art platform is stagnant, no longer being updated and maintained. Unfortunately, many original artists did not archive their VR work, assuming EEVO would fulfill that role.[398] To address this issue, TSV is actively seeking additional funding to hire Jonathan Carroll for the much-needed app revamp. While the app is still utilized by other organizations as a VR platform, its incompatibility with newer smartphones poses a major obstacle to accessibility. However, the critical question arises: Will grant councils keep funding the maintenance and upkeep of this platform? The tension TSV is facing is either developing new iterations of V/Art to sustain and maintain it or allowing the app to perish. Grant councils play a crucial role in deciding whether to continue funding the platform's maintenance and upkeep. TSV must navigate between developing new iterations of V/Art to sustain and maintain it, or potentially losing the platform altogether. This decision carries implications for the organization's artistic community and the broader VR landscape. Balancing financial considerations, technological advancements, and the platform's relevance is pivotal in determining the path forward for TSV and its commitment to the VR medium.

> With regards to the future of VR at Trinity Square Video, Plant stated:
>
> It doesn't all have to be fun houses and rollercoaster rides. There's a more meaningful discussion to be had. It's also a response to what I would call for want of a better word, the bro culture that a lot of tech started with. And our artists and our organization is about turning that whole notion on its head. Divesting from white male supremacy as much as possible. That's where the organization is, and that's the future of it. And I think that's also by doing that and promoting it and advancing these discussions to regain the control

[397] Ioana B. Jucan, "Introduction: Remain x Remain(s)," *Remain*, eds. Ioana B. Jucan, Jussi Parikka, and Rebecca Schneider (Minneapolis, MN: University of Minnesota Press, 2019), xii.
[398] Erin Gee, Interview with Caroline Klimek on Zoom, April 18, 2022.

> of this technology, as opposed to letting the FAANGs dictate how their technology can be used.[399]

Plant's perspective on the future of VR at Trinity Square Video (TSV) unveils a shift towards meaningful discussions and a rejection of what he calls the bro culture that has permeated the tech industry. By turning this notion on its head, TSV aims to divest from white male supremacy and promote inclusivity. The organization's vision encompasses regaining control over technology and challenging the dominance of FAANGs, asserting their autonomy in determining how the technology is utilized. Through advancing these discussions, TSV seeks to redefine the narrative surrounding VR, emphasizing its potential for societal impact beyond mere entertainment. By prioritizing diversity, inclusivity, and critical engagement, TSV envisions a future where VR becomes a medium for fostering meaningful dialogue and social change.

[399] David Plant, Interview with Caroline Klimek on Zoom, November 23, 2020.

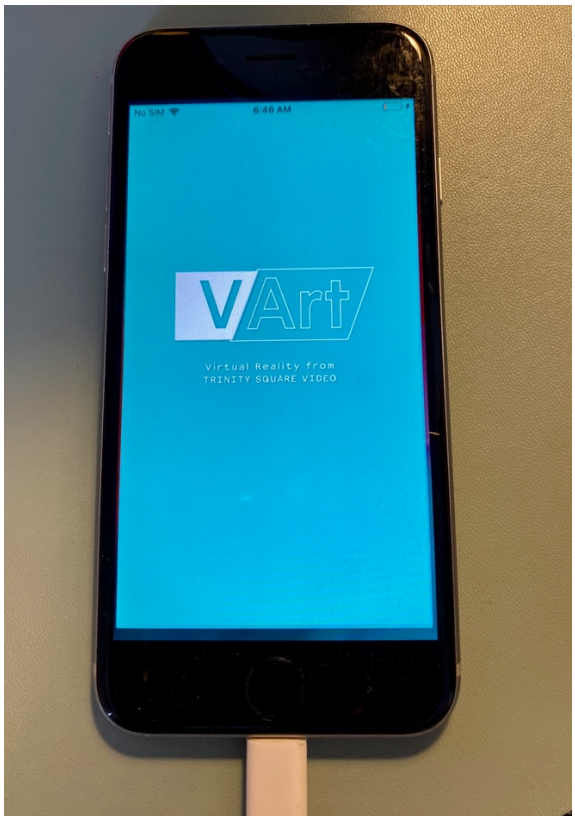


Figure 25: My offline iPhone 6, exclusively used for accessing TSV's V/Art app. Photo Credit: Caroline Klimek, 2022.

During the course of my research, I relied on an offline iPhone 6S where all the V/Art projects are downloaded to access and study. This outdated device now stands as a frozen relic, underscoring the profound challenges associated with accessing and archiving XR media. Similarly, programming VR for community-based film festivals and educational purposes presents similar obstacles, as not all projects are available on widely accessible platforms like Oculus or other app stores. The challenge at hand is to make these VR experiences more easily accessible to the general public. In Chapter Two of my dissertation, a global survey uncovered contrasting examples of accessibility in VR experiences. For instance, *Anne Frank VR* is a free and easily accessible VR experience on most VR devices, allowing for broader participation. In contrast, *Alice VR* is limited to HTC Vive, tied to their major tech sponsor, and incurs a cost of

£4 for the experience. Despite the industry promises of widespread VR availability, the reality falls short. While initially relying on borrowed headsets from my university, I recently acquired an Oculus Quest 2 for personal use. However, even with a headset at my disposal, the availability of VR content remains inconsistent. Consequently, I have turned to creating my own archive, storing projects that have been shared with me to continue programming, such as Danis Goulet's *The Hunt,* an early VR project and important Indigenous Futurism piece (see Chapter 1 on Film Festivals and my discussion on the 2167 project). Ethically archiving VR content is one ethical consideration that needs to be considered further. But for the moment it is the only way I can show my students in the classroom Goulet's *The Hunt.* Many VR creators face the prohibitive cost of maintaining individual app store accounts, coupled with the challenge of keeping their projects up to date amidst rapid technological advancements with software and hardware upgrades.

In addition to the logistical challenge of finding historical content for students, there are significant hardware obstacles involved in bringing VR in the classroom. A notable example occurred during FILM3230: Contemporary Directions in Cinema and Media Studies class, taught by Dr. Janine Marchessault, on February 25, 2019, when I delivered a guest lecture on I-Docs, VR, and Indigenous Futurism. During this lecture I showed Lisa Jackson's VR piece *Biidaaban: First Light* (2018). However, making this experience possible required the assistance of a graduate student who aided in the setup and facilitation of the piece, as well as equipment borrowed from Dr. Caitlin Fisher, who provided access to a gaming computer (it is worth noting that *Biidaaban* was presented through Sensorium as part of Jackson's MFA project release). Before the lecture, my colleague, Derval Slatcher, and I arrived three hours early to set up the equipment in the classroom, with the entire duration consumed by connecting the computer to

the projector to ensure students could view the content displayed in the headsets. We also encountered challenges while setting up the room-scale cameras and ensuring their proper calibration. It took a lot of time, help and trial and error to bring in this VR experience into the classroom.

In Fall 2023, I attempted to introduce VR to my FS275: The Business of Film Class at Wilfrid Laurier University. Conveniently, I was also teaching a graduate research methodology seminar at the University of Toronto Information School (iSchool), which had a makerspace undergoing revitalization after COVID. The iSchool possessed multiple VR headsets that had not been used since 2020. Dr. Sara Grimes, Director of the Makerspace, granted me permission to borrow an HTC Vive VR headset and gaming computer, with the condition that I provide a brief report on its usage for other students. I tested the HTC Vive in the Makerspace to ensure it worked before transporting it home. However, despite my efforts, I encountered difficulties when attempting to reboot the system as I did not have the administrator password, preventing me from restarting the HTC Vive app to connect the headset to the computer. Unfortunately, no one at the iSchool knew the password, leaving me with a non-functional (or technological carcass) piece of hardware sitting in my family room and unable to introduce any VR to my class. Thankfully, my students were understanding of the situation, albeit disappointed. This recent example underscores the challenges faced by sessional lecturers when trying to implement VR in their teaching. Colleagues at other universities, who have more support through their libraries, have access to 30+ headsets and can integrate them into their classrooms with greater ease. At conferences, I am frequently asked about incorporating VR into the classroom. Previously, I would suggest using the more affordable option of VR cardboard, where students can utilize their personal devices. However, Google Cardboard is a poor substitute for the high

quality of an HTC Vive or Oculus Quest 2 headset. Moreover, students fail to comprehend the true potential of VR after using Google Cardboard and often come away from the experience disappointed and confused about why I am so excited about this medium. The truth is that without institutional support from libraries or other departments, it is exceptionally challenging to implement VR in the classroom, particularly for precariously employed sessional lecturers. This leads to another narrative tension: while virtual reality is perceived as the future, as educators, we struggle to adequately prepare our students for the workforce when easy access to these headsets is lacking. Some colleagues argue that VR will soon be a dead medium and not everyone needs access to a VR headset. This is a dangerous idea, as the wealthy and affluent will always have access to the newest technology, further emphasizing the importance of TSV's narrative to provide access for all and highlighting the need for artist-run centres and publicly funded institutions to mediate these technologies.

To address the persisting issue of accessibility in the VR industry, concerted efforts are required from artists, technology companies, and educational and cultural institutions. Overcoming barriers such as limited compatibility, platform exclusivity, and financial constraints is essential to achieving broader availability of VR experiences. The need to address the costs associated with individual app store accounts, alongside the challenges of updating and maintaining projects amid rapidly evolving technologies, poses significant obstacles for artists seeking to make their VR works accessible. Moreover, collective efforts from artists, technology companies, and artist-run centres are required to establish more accessible platforms and alleviate the financial burdens.

For augmented reality, there is an inherent ephemerality built within the business model of Snapchat – a social media platform that made AR universal for the general public. Snapchat's philosophy of "living in the moment" and what has become known as 'ephemeral social media'[400] promote the sharing of fleeting experiences that disappear after a determinate period, typically 24 hours. This business policy, therefore, extends to AR. In the face of a capitalist infrastructure where software updates and terms of service are continuously being updated, artists are confronted with the decision of whether to update and maintain their AR works. During the panel talk for *Geofenced,* curator Karie Liao raised a pivotal question about this media ecology: "How do you think about the future of your AR work and the issue of technological obsolescence? Does it resist typical trajectories or economies of art?"[401]

Some of the artists interviewed have embraced the transient nature of AR and integrated it into their artistic practice. Adrienne Matheuszik, for instance, expressed her contentment: "I think that the way that I work, I just kind of produce it, and then I'm satisfied, and then, okay, goodbye forever."[402] Matheuszik relies on photographs, curator notes and reviews as archival remnants of her work, which she shares on her artist website. She perceives AR as an ongoing learning process and intentionally avoids becoming too attached to her past creations. When discussing her AR piece created for *Geofenced,* Matheuszik reiterated her stance:

> I don't have the same kind of relationship to the content anymore. So, I don't want to be that attached to it and I don't want people to attach me that closely to that work either because it was a moment in time, it's gone now. I also worry about updating it and I

[400] "Ephemeral social media" is defined as sharing and consuming media content in a short period.
See: J. B. Bayer, N. B. Ellison, S. Y. Schoenebeck, and E. B. Falk, "Sharing the small moments: ephemeral social interaction on Snapchat," *Inf. Commun. Soc.* 19, (2016): 956–977, doi: 10.1080/1369118X.2015.1084349;
L. T. Wakefield and G. Bennett, "Sports fan experience: electronic word-of-mouth in ephemeral social media," *Sport Manag. Rev.* 21, (2018): 147–159, doi: 10.1016/j.smr.2017.06.003.
[401] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities," *YouTube* video, 1:13:23, September 30, 2021. https://www.youtube.com/watch?v=7a8c4A6D2dw&t=6s.
[402] Adrienne Matheuszik, Interview with Caroline Klimek on Zoom, February 10, 2022.

> would much rather spend my time making new work than making sure the old work is still usable.[403]

Matheuszik's comments implicitly reveal her acceptance of the ephemeral nature of AR. Similarly, Scott Benesiinaabandan shares this sentiment and has come to terms with the technological obsolescence within his artistic practice. He said, "I think working with this is sort of an ephermal-ish technology, right? It's here. It's now. At some point, it becomes not a living thing. It becomes a thing you can revisit. So, for me, I just live with the idea that it might not exist as it exists now in like five years or six years or two years."[404]

Other artists, however are actively combating the issue of obsolescence by preserving their original hardware to store their projects. Jenn E. Norton, Jonathan Carroll and Cat Bluemke discussed the multitude of hard drives and computers they keep frozen in time to safeguard their older AR projects. Bluemke, for example, revealed that she relies on an older hard drive to store all her 2016 projects.[405] Nevertheless, one significant obstacle in accessing AR content is keeping up with the evolution of smartphones. To participate in the *Geofenced* exhibition, many of the artists had to purchase new smartphones since their existing devices were incompatible with the new software AR foundations.[406] These new phones were an unexpected additional cost for the artists to participate in the exhibit. This proved to be a significant challenge in the creation of the exhibition app as two separate apps were needed as Jenn E. Norton used an older

[403] Adrienne Matheuszik, Interview with Caroline Klimek on Zoom, February 10, 2022.
[404] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities."
[405] InterAccess, "Geofenced: Building and Rebuilding Mixed Realities."
[406] AR Foundations is a set of tools and functionalities offered by Unity Technologies for developing Augmented Reality (AR) applications using the Unity game engine. It simplifies AR development by providing a high-level API that abstracts complexities, including AR tracking, anchors, face tracking, and session management. Developers can create interactive AR experiences with ease, making it an essential resource for AR app development within the Unity ecosystem. https://docs.unity3d.com/Packages/com.unity.xr.arfoundation@5.0/manual/index.html.

software and her project could not be amalgamated into the one exhibition app with the other projects.

The financial constraints and technical requirements associated with VR and AR contribute to barriers in accessibility for both artists and audiences. The cost of personal accounts on app stores, updates, and hardware upgrades often present challenges for artists. Bridging this gap and making VR and AR experiences more accessible to the general public remains a significant concern. The ephemerality embedded in platforms like Snapchat, which prioritize the fleeting nature of AR experiences, raises questions about the resistance of AR works to traditional trajectories and economies of art. Some artists embrace the transient nature of AR and view their works as moments in time, while others strive to archive and preserve their projects through the storage of hardware and meticulous documentation. The acceptance of technological obsolescence within artistic practices should not overshadow the importance of continued efforts to preserve and make works accessible. Artists and artist-run centres must grapple with the tension between embracing the transitory nature of certain mediums while ensuring the longevity and accessibility of their creations. Artist-run centres play a vital role in addressing the challenges of technological obsolescence by advocating for artists, seeking funding, and engaging in interventions that promote the preservation and accessibility of VR and AR works. These centers can foster collaboration, resource-sharing, and advocacy to challenge the dominant control exerted by capitalist infrastructures and technology giants.

For Liao, “the future of AR is here” where she sees “the way AR is developing because so many corporations are interested in pretty much making money off of it, that the development is moving so fast that they’re not thinking about archiving it or how it will last or how it will live

on."[407] This sentiment echoes the chapter by Caetlin Benson-Allott titled, "The Commercial Economy of Film History: Or, Looking for *Looking for Mr. Goodbar,*" where she explores the influence of the commercial economy on the production and reception of films by returning to the 1977 film *Looking for Mr. Goodbar.* Benson-Allott calls for a new approach in dealing with degrading media, proposing an alternative reading practice she terms "sitting with" which involves attentively analyzing deteriorating films and acknowledging their material conditions, emphasizing the dependence of film-historical value on commercial distribution. Benson-Allott writes:

> In so doing, it creates an occasion to examine the savior complex via an alternative reading practice I call *sitting with.* Sitting is the most common posture for motion picture spectatorship, and posture can—and should—provoke attentive analysis of the material conditions of film criticism. Sitting with also designates a spiritual posture and practice, a grieving ritual and a way of being present in contemplation. Sitting with a movie on a deteriorating platform and disappearing from cultural memory focuses the viewer's attention on the movie as object, and in this case on how attributions of film-historical value can depend on commercial distribution, specifically on digital reissues of back-catalog films. Digital video platforms and economies too often determine the subject and approach of film scholarship, but by sitting with degraded videos, scholars can become attendant to our mutual materiality and mortality, our mutual worldly transience. When a movie shows artifacts of its substrate's material deterioration, that transience provides an opportunity for me to face my fear of loss, of death. It leaves me vulnerable and open to learning from a film rather than learning about it.[408]

Taking my cue from Benson-Allott, it is important to delve into the concept of "sitting with" and its implications for the study of emerging technologies. The idea of sitting with a deteriorating film or, in this case, an AR or VR project draws attention to the material conditions of criticism and the film's existence as an object. Building on Benson-Allott's work, the concept of sitting with degraded videos invites scholars to consider the mutual materiality and mortality shared between the medium and the researcher. However, as I am writing and researching about these

[407] Karie Liao, Interview with Caroline Klimek on Zoom, March 19, 2022.
[408] Caetlin Benson-Allott, "The Commercial Economy of Film History: Or, Looking for *Looking for Mr. Goodbar*," *The Stuff of Spectatorship* (University of California Press, 2021), 62.

'emerging' technologies I am also sitting with their obsolescence at the same time. This dual perspective creates a unique position where you can observe and analyze these technologies, all while contemplating their future preservation and the challenges of archiving them for further study. As a cinema and media studies scholar, grappling with the obsolescence of these technologies becomes an integral part of the research process, necessitating innovative approaches to archiving and preserving these projects for future study. Moreover, during my interviews many of my subjects are so excited to talk about their work or exhibitions because they felt they had been forgotten and are so relieved someone is writing about them.

On April 30, 2023, Nonny de la Pena, widely known as the godmother of VR[409] and CEO of Emblematic Group, shared devastating news on Twitter (@ImmersiveJourno). Her home office had been destroyed in a lithium battery fire caused by her electric bicycle. The photo she posted depicts the remnants of her office, where she stored her numerous awards, papers, and, most notably, her archive of VR projects spanning the last decade. In subsequent days, she continued to share the extent of the loss through Twitter. De la Pena's VR works include *Hunger in Los Angeles* (2012), *After Solitary* (2017), *Use of Force* (2014), *Project Syria* (2014) and *We Who Remain* (2017).

Upon reading her tweet, I couldn't help but reflect on the profound significance of this loss and, as Benson-Allott suggests *sitting with the loss*. Not only were precious items such as awards, equipment, and computers destroyed, but also de la Pena's personal photographs and notes. She embodies the history of virtual reality as we currently understand it, and the unforeseen lithium battery fire stemming from her electric bicycle has caused us to lose an invaluable archive. Regrettably, her works were not extensively backed up in the cloud, and

[409] Joseph Volpe, "The Godmother of Virtual Reality: Nonny de la Pena," *engadget*, January 24, 2015, https://www.engadget.com/2015-01-24-the-godmother-of-virtual-reality-nonny-de-la-pena.html.

conventional personal archival methods were unable to safeguard them. The devastating destruction of Nonny de la Pena's home office and her precious archive is a somber moment for the history of VR. Nonny de la Pena's irreplaceable contributions to the history of virtual reality now exist solely in memory, highlighting the delicate balance between technological advancement and the preservation of artistic legacies. As we mourn this loss, may it ignite a collective commitment to safeguarding and cherishing the works that define our journey into the immersive realms of virtual reality.

Figure 26: Tweet by Nonny de la Peña (@ImmersiveJourno) announcing a fire in her home office. https://twitter.com/ImmersiveJourno/status/1652871059430051842?s=20

As Hertz and Parikka remark, "far from being accidental, discarding and obsolescence are in fact internal to contemporary media technologies."[410] In light of this, it becomes imperative for artists and cultural institutions to respond to the looming technological obsolescence of VR and AR. How can they navigate the capitalist infrastructure, which continuously updates technology, software, and terms of service? This pressing question demands exploration, particularly in terms of artist-run centres and other public institutions understanding of their role and potential interventions on behalf of the artists they support. How can artists and artist-run-centres respond to VR's technological obsolescence as they face the capitalist infrastructure where the technology, software and terms of service are continuously being updated. The question is still open about how artist-run-centres see their place and possible intervention on behalf of their artists with this issue. My dissertation research serves as both participation in the archival process and an exploration of these works through participant observations and close readings, with the hope of ensuring their remembrance. Benson-Allott ends her chapter asking scholars:

> Whether we recognize it or not, we are all always sitting with impermanent media objects. Their loss is inevitable. How we stop fighting loss and start learning from it, even welcoming it into the process of film appreciation, only becomes more crucial as technological change accelerates.[411]

We see this with the decline of VR as companies such as Meta, Google, and others have changed their business priorities and have shifted to focusing on the new emerging tech – AI.[412] This shift

---

[410] Ioana B. Jucan, "Introduction: Remain x Remain(s)," *Remain*, eds. Ioana B. Jucan, Jussi Parikka, and Rebecca Schneider (Minneapolis, MN: University of Minnesota Press, 2019), xiii.
[411] Benson-Allott, "The Commercial Economy of Film History."
[412] See articles about business shutting down their Metaverse divisions:
Sawdah Bhaimiya, "Disney is ditching its metaverse plans after laying off an entire team focused on interactive storytelling, report says," *The Business Insider*, March 28, 2023, https://www.businessinsider.com/disney-ditching-metaverse-plans-laid-off-entire-team-report-2023-3; Maria Monteros, "Major retail players are walking back their metaverse strategies," *ModernRetail*, April 12, 2023, https://www.modernretail.co/technology/major-retail-players-

has raised concerns about the future of virtual and augmented reality. In May 2023, Tech magazine *Insider* wrote an obituary to Metaverse, calling "the death of the Metaverse should be remembered as arguably one of the most historic failures in tech history."[413] Ed Zitron highlights when the Metaverse failed as a technology and in relation to the industry and the many jobs it impacted:

> The Metaverse fell seriously ill as the economy slowed and the hype around generative AI grew. Microsoft shuttered its virtual-workspace platform AltSpaceVR in January 2023, laid off the 100 members of its "industrial metaverse team," and made a series of cuts to its HoloLens team. Disney shuttered its Metaverse division in March, and Walmart followed suit by ending its Roblox-based Metaverse projects. The billions of dollars invested and the breathless hype around a half-baked concept led to thousands — if not tens of thousands — of people losing their jobs.[414]

Sitting with this loss, we see the intertwining of multiple industries. This loss reverberates and is just not technology but the massive loss of jobs, illustrating the profound impact of failed technologies and changing business interests. The failure of VR as a household consumer product means it becomes just another tech carcass sitting on a coffee table, symbolizing unfulfilled potential. Throughout this dissertation, many companies have been tied to virtual reality from the most technologically advanced products such as the HTC Vive, Samsung Gear and Oculus Quest, as well as more technologically primitive such as the Google Cardboard. The

---

are-walking-back-their-metaverse-strategies/#:~:text=Walmart%20has%20reportedly%20shut%20down,the%20experience%20"as%20planned; Emma Roth, "AltspaceVR is shutting down as Microsoft's mixed reality division shrinks," *The Verge*, January 21, 2023, https://www.theverge.com/2023/1/21/23565188/altspace-vr-shutting-down-microsoft-layoffs.
See articles about companies shifting to AI:
Preston Gralla, "As Microsoft embraces AI, it says sayonara to the metaverse," *Computerworld,* February 23, 2023, https://www.computerworld.com/article/3688433/as-microsoft-embraces-ai-it-says-sayonara-to-the-metaverse.html;
Lauren Leffer, "Zuckerberg Pivots to AI After Pivoting to the Metaverse," *Gizmodo,* March 16, 2023, https://gizmodo.com/instagram-facebook-mark-zuckerberg-whatsapp-ai-1850232199;
Kari Paul and Johana Bhuiyan, "It's a tough time for Meta. Can AI help make the company relevant again?" *The Guardian*, March 11, 2023, https://www.theguardian.com/technology/2023/may/11/meta-artificial-intelligence-metaverse-mark-zuckerberg.

[413] Ed Zitron, "RIP Metaverse: An Obituary for the latest fad to join the tech graveyard," *Insider*, May 8, 2023, https://www.businessinsider.com/metaverse-dead-obituary-facebook-mark-zuckerberg-tech-fad-ai-chatgpt-2023-5.

[414] Zitron, "RIP Metaverse."

investments and support from major companies contributed to the hype and hope surrounding the promise of VR. However, this dependence on corporate involvement also raises concerns about the control these companies exert over this medium, a topic criticized throughout this project.

Furthermore, this project has explored the engagement of Canadian cultural institutions with VR, revealing a spectrum of approaches. While some institutions, such as film festivals and artist-run centres, have wholeheartedly embraced the technology, investing in it and guided by knowledgeable decision-makers, others, like the AGO, have faced challenges in navigating this new digital world. The AGO strives to remain relevant with audiences who now have more choices in how they consume art and culture digitally, from private commercial ventures such as the *Immersive van Gogh* to other legacy institutions increasingly integrating digital technologies. Throughout the dissertation, case studies and artists have been presented, showcasing successful implementation of VR to raise critical questions and convey meaningful messages. Conversely, examples of failures within the field have also been highlighted, shedding light on the complexities of integrating VR into institutional practices.

The examination of these institutions has revealed an overarching pattern: the constant emergence of new technologies that both institutions and audiences gravitate toward, seeking the next "it" thing or buzzword. Artist-run centres (ARCs) provide platforms for production and experimentation, and film festivals serve as showcases and exhibitions. There remains a question regarding the legacy of this media and the preparedness of institutions to adapt. The challenge lies in the ability of public institutions to secure adequate funding and navigate the ever-evolving technological landscape. As they strive to find their place and ensure their legacy, it becomes evident that further exploration and discussion are needed to fully comprehend the implications and potential of VR within cultural institutions.

In conclusion, this project has shed light on the diverse engagements of Canadian cultural institutions with VR and AR, revealing both successes and struggles. As the technological landscape continues to evolve, it is imperative for institutions to remain adaptable and open to innovation, considering the long-term impact and legacy of these emerging media forms.

Bibliography

"A Case Study: Bell Fund Web Documentary Programme." Bell Fund, http://bellfund.ca/ case-studies/world-ten-blocks-interactive-documentary/. Accessed 17 March 2015.

"About." Artist-Run Centres and Collectives Conference (ARCA). https://www.arca.art/en/arca/.

"About Contraverse." Contraverse. Accessed June 1, 2022. https://www.contraverse.co/about.

"About MaRS." MaRS Discovery District. Accessed June 1, 2022, https://www.marsdd.com/about/.

"About Us" Hot Docs. Accessed October 1, 2018. https://www.hotdocs.ca/u/about-us.

"About Us." IDFA DocLab. Accessed 5 May 2016, https://www.doclab.org/about/.

Adams, James. "Thomson hands AGO $370-million donation." *The Globe and Mail.* November 20, 2002. https://www.theglobeandmail.com/news/national/thomson-hands-ago-370-million-donation/article25426249/.

Adler, Dan, Janine Marchessault, and Sanja Obra-dovic, eds. *3D Cinema and Beyond*. Toronto: Public Books, 2013.

"Alberto Giuliani: Surviving Humanity." Brookfield Properties. Accessed August 1, 2023. https://www.brookfieldproperties.com/en/our-approach/events/alberto-giuliani-surviving-humanity-74.html.

Alcinii, Daniele. "Hot Docs' Sarafina DiFelice jumps to Netflix." *Playback.* September 22, 2017. https://playbackonline.ca/2017/09/22/hot-docs-sarafina-difelice-jumps-to-netflix/.

"Alice: Curiouser and Curiouser." Victoria and Albert Museum. Accessed July 1, 2022. https://www.vam.ac.uk/exhibitions/alice-curiouser-and-curiouser.

Anderson, Duncan. "Indigenous VR project makes its last stop in Vancouver." *Vancouver is Awesome.* December 20, 2017. https://www.vancouverisawesome.com/events-and-entertainment/indigenous-virtual-reality-vancouver-2147-1935316

Anne Frank House. *Annual Report 2019* (2019). https://annefrank.freetls.fastly.net/media/filer_public/c2/4d/c24d8759-efc6-4b8a-aeea-8c736cece935/afs_jaarverslag_en_2019.pdf, 12.

Anne Frank House. *Annual Report 2021*. Accessed June 1, 2022. https://www.annefrank.org/en/about-us/2021-annual-report/anne-frank-2021-annual-report/.

"Announcing the Remaining TIFF 16 Films and Talks, POP VR, TIFF Kids, and More." TIFF (Toronto International Film Festival). Accessed July 1, 2019. https://www.tiff.net/the-review/announcing-the-remaining-tiff-16-films-and-talks-pop-vr-tiff-kids-and/.

"Anthropocene Exhibit." Art Gallery of Ontario. June 1, 2019. https://ago.ca/exhibitions/anthropocene.

"Art Exhibition: A New Ambitious Show." DISKO Agency Blog. https://www.disko-agency.com/thoughts/brand-content-blog/art-exhibition-new-ambitious-show/.

Art Gallery of Ontario. "2017-2018 Business Plan." Accessed June 1, 2021. https://ago.ca/about/year-in-review.

Barnard, Linda. "TIFF to spotlight VR films for fest." *The Toronto Star.* July 1, 2016. https://www.thestar.com/entertainment/movies/2016/07/01/tiff-to-spotlight-vr-films-for-fest.html.

Bayer, J. B., N. B. Ellison, S. Y. Schoenebeck, and E. B. Falk. "Sharing the small moments: ephemeral social interaction on Snapchat." *Inf. Commun. Soc.* 19 (2016): 956–977. doi: 10.1080/1369118X.2015.1084349.

Bazin, André. 2009. "The Festival Viewed as a Religious Order." Trans. Emilie Bickerton. In *Dekalog 03: On Film Festivals*, ed. Richard Porton, 13–19. London: Wallflower Press.

Benjamin, Walter. "The Work of Art in the Age of Mechanical Reproduction," *Essays and Reflections.* Ed. Hannah Arendt. Trans. Harry Zohn. New York: Schocken Books, 1968.

Bennett, Susan. *Theatre & Museums*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2013.

Benson-Allott, Caetlin. "The Commercial Economy of Film History: Or, Looking for *Looking for Mr. Goodbar*," *The Stuff of Spectatorship.* University of California Press, 2021.

Berson, Amber. "A Case for Utopian Dreaming: Feminisms Within Canadian Artist-Run Centres." Ph.D. diss. Queen's University, ProQuest Dissertations Publishing, 2022.

Bhaimiya, Sawdah. "Disney is ditching its metaverse plans after laying off an entire team focused on interactive storytelling, report says." *The Business Insider.* March 28, 2023. https://www.businessinsider.com/disney-ditching-metaverse-plans-laid-off-entire-team-report-2023-3.

Biocca, Frank, and Mark R. Levy, eds. *Communication in the Age of Virtual Reality*. Hillsdale, NJ: Lawrence Erlbaum, 1994.

Bluemke, Cat and Jonathan Carroll. "Reality Crossing: Pocket Edition." *Spek Work*. September 2021. Exhibition Zine, Self-Published.

Bolter, David J. and Richard Grusin. *Remediation: Understanding New Media*. Cambridge, Mass: MIT Press, 1999, 24.

Bonin, Vincent and Michèle Thériault, eds. *Documentary Protocols/Protocoles Documentaires (1967-1975)*. Montréal: Galerie Leonard & Bina Ellen Art Gallery, 2010.

Bronson, A. A. "9.1 A word of caution." *Decentre: concerning artist-run culture = Decentre : à propos de centres d'artistes.* Toronto: YYZBooks, 2008, 36.

Bronson, A. A. and Peggy Gale, eds. *Museums by Artists*. Toronto: Art Metropole, 1983.

Bronson, A.A. et al., eds. *From Sea to Shining Sea: Artist-Initiated Activity in Canada, 1939-1987.* Toronto: The Power Plant, 1987.

Brown, Wendy. *Edgework: Critical Essays on Knowledge and Politics*. Princeton, N.J: Princeton University Press, 2005, x.

Burgess, Diane and Brendan Kredell, "Positionality and Film Festival Research: A Conversation," In *Film Festivals: History, Theory, Method, Practice*, edited by Marijke de Valck, Brendan Kredell, and Skadi Loist. New York: Routledge, 2016.

Canada Council for the Arts, "Recipients—Prior to 2017," Accessed June 1, 2022, https://canadacouncil.ca/about/public-accountability/proactive-disclosure/grant-recipients/recipients-prior-2017?form=submitted&page=1&year=2016&discipline=all&program=all&recipient=Trinity+Square+Video&province=all&city=&area=all&riding=all&Sort1=Recipient&Sort2=Recipient&Sort3=Recipient&firstfiscalyear=-2147483648&lastfiscalyear=2017.

Carmichael, Carol. *Artists' Centres: A Twenty-Year Perspective 1972 to 1992*. Ottawa: The Canada Council Visual Arts Section, 1993.

Cellan-Jones, Rory. "2016: the year when VR goes from virtual to reality." *BBC News.* January 1, 2016. https://www.bbc.com/news/technology-35205783.

Chapple, Freda and Chiel Kattenbelt. "Key Issues in Intermediality in Theatre and Performance." *Intermediality in Theatre and Performance.* Amsterdam: Rodopi, 2006.

Charmaz, Kathy. *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. London: SAGE, 2006, 46.

Chew, May. "Beckoning Bodies, Making Subjects: Interactive and Immersive Technologies in Canadian Museums, 1967-2014." Ph.D. diss. Queen's University, ProQuest Dissertations Publishing, 2015.

Chun, Wendy Hui Kyong. “Introduction: Did Somebody Say New Media?” *New Media, Old Media: A History and Theory Reader*, edited by Wendy Hui Kyong Chun and Thomas Keenan. New York: Routledge, 2006.

Cineuropa. “Industry Report: New Media – Cannes’ Marché du Film announces the launch of Cannes XR,” *Cineuropa*. https://cineuropa.org/en/dossiernewsdetail/3108/368912/.

Connolly, Maeve. *The Place of Artists’ Cinema: Space, Site and Screen*. Chicago: Intellect, 2009.

Conradsson, Pauline. “«Revivre»: les espèces disparues reprennent vie au Muséum national d’histoire naturelle.” *Le Parisien.* June 15, 2021. https://www.leparisien.fr/culture-loisirs/sortir-region-parisienne/revivre-les-especes-disparues-reprennent-vie-au-museum-national-dhistoire-naturelle-15-06-2021-SEV6TU6DKJBF5HJYQ6OB4OLIFM.php.

“Curious Alice: The VR Experience.” Victoria and Albert Museum (V&A). Accessed July 1, 2022. https://www.vam.ac.uk/articles/curious-alice-the-vr-experience.

Czach, Liz. “Affective Labor and the Work of Film Festival Programming.” In *Film Festivals: History, Theory, Method, Practice,* edited by Marijke de Valck et al., Routledge, 2016, pp. 196–208;

Damiens, Antoine and Marijke de Valck, “What Happens When Festivals Can’t Happen?” In *Rethinking Film Festivals in the Pandemic Era and After*, edited by Marijke de Valck and Antoine Damiens. London: Palgrave Macmillan, 2023, 6.

Davies, Lyell. “Documentary Film Festivals as Ideological Transactions: Film Screening Sites at Hot Docs.” *Canadian Journal of Film Studies* 51, no. 1 (March 2016): 91.

Dayan, Daniel. “Looking for Sundance: The Social Construction of a Film Festival.” In *Moving Images, Culture and the Mind*, edited by Ib Bondebjerg. Luton: University of Luton Press, 2000.

de Valck, Marijke. “Fostering Art, Adding Value, Cultivating Taste: Film Festivals as Sites of Cultural Legitimization.” In *Film Festivals: History, Theory, Method, Practice*, edited by Marijke de Valck, Brendan Kredell, and Skadi Loist. New York: Routledge, 2016.

Dean, Amber Richelle. *Remembering Vancouver’s Disappeared Women: Settler Colonialism and the Difficulty of Inheritance*. Toronto: Toronto University Press, 2015, 21.

Detterer, Gabriele and Maurizio Nannucci, eds. *Artist-Run Spaces: Non-profit Collective Organizations in the 1960s and 1970s*. Zurich: JRP/Ringier, 2012, 4–5.

Deuze, Mark. *Media Work.* Cambridge, UK and Malden, MA: Polity, 2007.

Dixon, Steve. *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*. Cambridge, MA: MIT Press, 2007.

Dooley, Tatum. "VR and the Failure of Self-Help Technology." *canadianart*. December 7, 2017. https://canadianart.ca/reviews/vr-and-the-failure-of-self-help-technology/.

Douglas, Stan, and Or Gallery, eds. *Vancouver Anthology: The Institutional Politics of Art*. Vancouver: Talonbooks, 1991.

Dove, Lucia. "Film History as Media Archaeology: an Interview with Thomas Elsaesser and Vladimir Lukin," *Amsterdam University Press Website,* August 7, 2018, https://www.aup.nl/nl/articles/film-history-as-media-archaeology-an-interview-with-thomas-elsaesser-and

Dovey, Lindiwe. *Curating Africa in the Age of Film Festivals* (New York: Palgrave Macmillan, 2015).

Dredge, Stuart. "Facebook closes its $2bn Oculus Rift acquisition. What next?" *The Guardian.* July 22, 2014. https://www.theguardian.com/technology/2014/jul/22/facebook-oculus-rift-acquisition-virtual-reality.

Druick, Zoë. "Environmentalism from the Sky?" In *Anthropocene: the Human Epoch in Docalogue*. https://docalogue.com/october-anthropocene-the-human-epoch/.

Elsaesser, Thomas. "Introduction." *Film History as Media Archaeology: Tracking Digital Cinema*. Amsterdam: Amsterdam University Press, 2016, 53.

Elsaesser, Thomas and Vladimir Lukin. "Film History as Media Archaeology: An Interview with Thomas Elsaesser and Vladimir Lukin" *Amsterdam University Press Website*. August 7, 2018. https://www.aup.nl/nl/articles/film-history-as-media-archaeology-an-interview-with-thomas-elsaesser-and.

Emerson, Robert M., Rachel I. Fretz, and Linda L. Shaw. *Writing Ethnographic Fieldnotes*. Chicago: University of Chicago Press, 1995.

Ernst, Wolfgang. *Digital Memory and The Archive*. Minneapolis: University of Minnesota Press, 2013.

Eschelbacher, Andrew. "Exhibition Review of: Impressionism in the Age of Industry: Monet, Pissarro and More." *Nineteenth-Century Art Worldwide* 18, no. 2 (Autumn 2019).

"Experience Google Arts & Culture's Robben Island Prison Tour." Google Arts & Culture. Accessed June 1, 2021. https://artsandculture.google.com/story/WQUhm-e6wopSJw.

Farago, Jason. “Submerged in van Gogh: Would Absinthe Make the Art Grow Fonder?” *New York Times,* June 9, 2021, https://www.nytimes.com/2021/06/09/arts/design/van-gogh-immersive-manhattan.html.

Fei., Jia Jia “Art in the Age of Instagram.” Tedx Martha’s Vineyard. March 2, 2016. https://www.youtube.com/watch?v=8DLNFDQt8Pc.

Foss, Brian, Sandra Paikowsky, and Anne Whitelaw, eds. *The Visual Arts in Canada: The Twentieth Century*. New York: Oxford University Press, 2011.

Frey, Bruno S. “Superstar Museums: An Economic Analysis.” *Journal of Cultural Economics* 22, no. 2 (1998): 113–125.

Frommer, Arielle C. “Why Celebrities Are going to Space – and What it Means for our Future.” *The Harvard Crimson.* November 2, 2021. https://www.thecrimson.com/article/2021/11/2/celebrity-space-tourism/.

Fuller, Matthew. *Media Ecologies: Materialist Energies in Art and Technoculture*. Cambridge, MA: MIT Press, 2005.

Furtado, Will. “Olivia McGilchrist: The Artist Recreating a Jamaican Tradition in VR.” *SLEEK.* October 26, 2017. https://www.sleek-mag.com/article/olivia-mcgilchrist-jonkunnu-jamaica-vr/.

Fux, Niv. “VR on the film festival circuit: IDFA & IFFR 2017-2019” *NECSUS* 9, no. 1 (Spring 2020): 307–314. https://necsus-ejms.org/vr-on-the-film-festival-circuit-idfa-iffr-2017-2019/.

Gagnon, Monika Kin, Cameron Bailey, and Richard Fung, eds. *13 Conversations About Art and Cultural Race Politics.* Montréal: Artexte Editions, 2002.

Gagnon, Monika Kin and Janine Marchessault, ed. *Reimagining Cinema: Film at Expo 67*. Montreal: McGill-Queen’s University Press, 2014.

“Gallipoli: The Scale of Our War.” Te Papa Museum. Accessed June 1, 2021. https://www.tepapa.govt.nz/visit/exhibitions/gallipoli-scale-our-war.

Galloway, Scott. “Jeff Bezos is Not My Astronaut.” Blog Post, July 23, 2021. https://www.profgalloway.com/jeff-bezos-is-not-my-astronaut/.

Gaudiosi, John. “Over 200 Million VR Headsets to Be Sold by 2020.” Fortune. 21 January 2016. Accessed 25 January 2016. https://fortune.com/2016/01/21/200-million-vr-headsets-2020/.

Gilderdale, Malcolm. “Creating TIFF Digital Studio.” https://www.malcolmgilderdale.com/work/tiff-digital-studio.

Goddard, Michael N. "Genealogies of Immersive Media and Virtual Reality (VR) as Practical Aesthetic Machines." In *Practical Aesthetics,* edited by Bernd Herzogenrath. London: Bloomsbury Academic, 2020, 171.

Gralla, Preston. "As Microsoft embraces AI, it says sayonara to the metaverse." *Computerworld*. February 23, 2023. https://www.computerworld.com/article/3688433/as-microsoft-embraces-ai-it-says-sayonara-to-the-metaverse.html.

Grau, Oliver, ed. *Museum and Archive on the Move: Changing Cultural Institutions in the Digital Era*. Berlin; De Gruyter, 2017.

Grau, Oliver. *Virtual Art: From Illusion to Immersion*. Rev. ed. Cambridge, MA: Massachusetts Institute of Technology Press, 2003.

Grief, Amy. "TIFF to screen virtual reality films at 2016 festival." *blogTO.* June 28, 2016. https://www.blogto.com/film/2016/06/tiff_to_screen_virtual_reality_films_at_2016_festival/.

Griffiths, Alison. *Shivers down Your Spine: Cinema, Museums, and the Immersive View*. New York: Columbia University Press, 2008.

Griffiths, Sarah. "Has Pokémon Go's bubble burst?" *WIRED.* August 24, 2016. https://www.wired.co.uk/article/pokemon-go-numbers-falling.

Gupta, Dipti and Janine Marchessault, "Film Festivals as Urban Encounter and Cultural Traffic," *Urban Enigmas: Montreal, Toronto, and the Problem of Comparing Cities*, edited by Johanne Sloan. Montreal: McGill-Queen's University Press, 2007.

Hackett, Sophie. "Far and Near: New Views of the Anthropocene." In *Anthropocene: Burtynsky, Baichwal, De Pencier*, edited by Andrea Kunard, Urs Stahel, Sophie Hackett, Edward Burtynsky, Jennifer Baichwal and Nicholas De Pencier. Toronto: Art Gallery of Ontario, 2018.

Haigney, Sophie. "The Museums of Instagram." *New Yorker*. September 16, 2018. https://www.newyorker.com/culture/culture-desk/the-museums-of-instagram.

Hampton, Chris. "Venturing into the virtual world with a new art." *The Globe and Mail.* November 23, 2017. https://www.theglobeandmail.com/arts/art-and-architecture/venturing-into-the-virtual-world-with-a-new-artapp/article37066961/.

Harbord, Janet. "Contingency, Time, and Event." In *Film Festivals: History, Theory, Method, Practice*, edited by Marijke de Valck, Brendan Kredell, and Skadi Loist. Abingdon, Oxon: Routledge, 2016.

Harbord, Janet. *Film Cultures*. London: SAGE Publications Ltd, 2002. 67.

Hayles, Katherine N. *My Mother Was a Computer: Digital Subjects and Literary Texts*. Chicago: University of Chicago Press, 2005.

Heim, Michael. *Virtual Realism*. New York: Oxford University Press, 1998.

Herbert, Daniel., Amanda D. Lotz, and Aswin Punathambekar. "Introduction." In *Media Industry Studies.* Newark: Polity Press, 2020.

Hertz, Barry. "Toronto's Hot Docs festival reaches gender parity with 2018 lineup." *The Globe and Mail.* March 20, 2018. https://www.theglobeandmail.com/arts/film/article-torontos-hot-docs-festival-reaches-gender-parity-with-2018-lineup/.

Hesmondhalgh, David and Sarah Baker. "Creative Work and Emotional Labour in the Television Industry." *Theory, Culture & Society* 25, nos. 7–8, 97–118.

Hillis, Ken. *Digital Sensations: Space, Identity, and Embodiment in Virtual Reality*. Minneapolis: University of Minnesota Press, 1999.

"History of Information." Accessed June 1, 2023. https://www.historyofinformation.com/detail.php?id=4231.

Holt, Jennifer, and Alisa. Perren. *Media Industries: History, Theory, and Method*. Chichester, West Sussex; Wiley-Blackwell, 2009.

"Hot Docs donates 25 years of festival history to Ryerson." *TorontoMet Today.* March 6, 2018. https://www.torontomu.ca/news-events/news/2018/03/hot-docs-donates-25-years-of-festival-history-to-ryerson/.

Hot Docs Canadian International Documentary Festival, Industry Guide. Accessed 6 July 2018. http://assets.hotdocs.ca/doc/HD17_Industry_Guide.pdf.

Hot Docs. 2015 Screening Schedule, 23 April – 5 May 2015, 5.

Hot Docs. 2016 Screening Schedule. 28 April –8 May 2016, 20–21.

Hot Docs 2016/2017 Festival Highlights, 8, https://issuu.com/hotdocsfestival/docs/hd17_hi-lite-broch_4web_fa-.

Hot Docs 2018 Screening Schedule. Accessed April 26, 2019. http://assets.hotdocs.ca/doc/HD18_Screening-Schedule.pdf, 24-26.

Hot Docs. Hot Docs 2019 Annual Report. Accessed June 1, 2020. http://assets.hotdocs.ca/doc/HD19_Annual-Report.pdf, 7.

Hot Docs Press Release, "Interdisciplinary Storytelling Takes Centre Stage in DocX Program."

Houpt, Simon. “What’s the future of virtual reality? TIFF looks for answers.” *The Globe and Mail.* September 15, 2016. https://www.theglobeandmail.com/arts/awards-and-festivals/tiff/whats-the-future-of-virtual-reality-tiff-looks-for-answers/article31907515/.

Hughes, Lynn and Marie-Josée Lafortune. “ Creative Con/Fusions...” In *Pense l’indiscipline: recherches interdisciplinaires en art contemporain = Creative Con/Fusions : Interdisciplinary Practices in Contemporary Art*. Montréal: Optica, un centre d’art contemporain, 2001.

Huhtamo, Erkki and Jussi Parikka, “Introduction.” In *Media Archaeology: Approaches, Applications, and Implications*. Berkeley: University of California Press, 2011, 3.

Iordanova, Dina. “The Film Festival as an Industry Node.” *Media Industries* 3, no. 1 (2015): 7–11.

Iordanova, Dina and Rhyne Ragan, Eds. *The Festival Circuit.* St. Andrews: St. Andrews Film studies, 2009.

imagineNATIVE 2019 Festival Catalogue. “imagineNATIVE’s Art Talks.” https://issuu.com/imaginenative/docs/in_catalogue_2018_, 35.

imagineNATIVE 2020 Festival Catalogue. “Official Selection Digital + Interactive.” https://issuu.com/imaginenative/docs/artbook_14.0wcovers-for-web-1, 79.

imagineNATIVE 2023 Festival Catalogue. “iNDigital Space,” https://issuu.com/imaginenative/docs/2535_in_catalog_9.6, 93-105.

InterAccess. “Geofenced: Building and Rebuilding Mixed Realities.” *YouTube* video, 1:13:23. September 30, 2021. https://www.youtube.com/watch?v=7a8c4A6D2dw&t=6s.

Jackson, Joshua. “A shack, a house, a prison: The Analogy of the shack and videogame production.” *First Person Scholar*. February 6, 2019. http://www.firstpersonscholar.com/a-shack-a-house-a-prison/.

Jucan, Ioana B. “Introduction: Remain x Remain(s).” *Remain*, edited by Ioana B. Jucan, Jussi Parikka, and Rebecca Schneider. Minneapolis, MN: University of Minnesota Press, 2019.

Khonsary, Jeff, and Kristina Lee Podesva, eds. *Institutions by Artists: Volume One.* Vancouver: Fillip Editions, 2012.

Kirschenbaum, Matthew. *Mechanisms: New Media and the Forensic Imagination*. Cambridge: MIT Press, 2008.

Klimek, Caroline. “A Much-Needed Conversation on Women in VR.” *States of Immersion: Bodies, Medias Technologies*, edited by Phlippe Bédard, Carl Therrien, and Alanna Thain. The University of Amsterdam Press, Forthcoming Winter 2024.

Klimek, Caroline. “I-Docs and Live Performance: *Highrise: Universe Within* at Hot Docs.” *I-Docs*, edited by Jessica Mulvogue and Michael Baker. McGill-Queen’s Publishing, Forthcoming Winter 2024.

Klinger, Barbara. *Beyond the Multiplex: Cinema, New Technologies, and the Home*. Berkeley: University of California Press, 2006.

Kohn, Eric. “Sundance Helped Launch the Metaverse Industry, but Isn’t Thrilled About the Future of the Business.” *IndieWire*. January 22, 2022. https://www.indiewire.com/features/general/sundance-metaverse-industry-1234692627/.

Kohn, Eric. “Sundance Film Festival Cancels Plans for New Frontier Program in 2023.” *IndieWire.* October 17, 2022. https://www.indiewire.com/features/general/sundance-cancels-new-frontier-2023-1234773339/.

Koren, Marina. “The Cost of William Shatner’s ‘Most Profound Experience,’ *The Atlantic.* October 13, 2021. https://www.theatlantic.com/science/archive/2021/10/william-shatner-blue-origin/620370/.

Labossière, Robert, ed. *Decentre: Concerning Artist-Run Culture/Decentre: à Propos De Centres d’Artistes.* Toronto: YYZ Books, 2008.

LaPensée, Elizabeth and Jason Lewis. “Call it a vision quest: Machinima in a First Nations context,” *Understanding Machinima: Essays on Filmmaking in Virtual Worlds,* edited by Jenna Ng. London: Bloomsbury Collections, 2013.

Larkin, Brian. *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria*. Duke University Press, 2008.

Lee, Toby. “Being There, Taking Place: Ethnography at the Film Festival.” In *Film Festivals History, Theory, Method, Practice*, edited by Marijke de Valck, Brendan Kredell, and Skadi Loist. Abingdon, Oxon: Routledge, 2016.

Leffer, Lauren. “Zuckerberg Pivots to AI After Pivoting to the Metaverse.” *Gizmodo*. March 16, 2023. https://gizmodo.com/instagram-facebook-mark-zuckerberg-whatsapp-ai-1850232199.

Leighton, Tanya. *Art and the Moving Image: A Critical Reader*. London: Tate Publishing, 2008.

Leonard, Craig. “Artists in Artist-run Centres: Ontario, 1971-2006.” Self-published, 2006. https://artmetropole.com/shop/7931.

Leotta, Alfio and Miriam Ross. “Touring the ‘World Picture’: Virtual Reality and the Tourist Gaze.” *Studies in Documentary Film Issue 2: Virtually Real: Exploring VR Documentary.* Volume 12, 2018. https://doi.org/10.1080/17503280.2018.1503859.

Lewis, Glenn. “The Value of Parallel Galleries.” *Parallélogramme* 3, no. 2 (1977): 7.

Lewis, Jason Edward. “A Brief (Media) History of the Indigenous Future.” *Indigenous Art: New Media and the Digital.* PUBLIC 54, edited by Heather Igloliorte, Julie Nagam and Carla Taunton, 37.

Liao, Karie. *Geofenced.* InterAccess. September 15 – October 9, 2021. Curatorial Essay. https://interaccess.org/sites/default/files/Geofenced%20Trifold%20Essay.pdf.

Lichtman, Sarah A. “Designing Absence at the Anne Frank House Museum, Amsterdam, and the Secret Annex Online: Exhibition design, virtual reality, and historic preservation.” *Design & Heritage: The Construction of Identity and Belonging*, edited by Grace Lees-Maffei and Rebecca Houze. New York: Routledge, 202.

Loist, Skadi. “Precarious Cultural Work: About the Organization of (Queer) Film Festivals.” *Screen* 52, no. 2 (2011): 268–273.

Loist, Skadi. *Queer Film Culture: Performative Aspects of LGBT/Q Film Festivals*. Hamburg: University of Hamburg, 2014.

Loist, Skadi. “The Film Festival Circuit: Networks, Hierarchies, and Circulation.” In *Film Festivals: History, Theory, Method, Practice*, edited by Marijke de Valck, Brendan Kredell, and Skadi Loist. Abingdon, Oxon: Routledge, 2016.

Luka, Mary Elizabeth. “Making Video Glitter in the Time of COVID-19.” *Qualitative Inquiry* 27, no. 7 (2021): 878.

Luscombe, Richard. “Rocket men: how billionaires are using celebrities as PR for their space projects.” *The Guardian*. October 13, 2021. https://www.theguardian.com/science/2021/oct/12/billionaires-space-tourism-celebrities-blue-origin-jeff-bezos.

Marchessault, Janine. “Multi-screens and Future Cinema: The Labyrinth Project at Expo 67.” In *Fluid Screens, Expanded Cinema*, edited by Janine Marchessault and Susan Lord. Toronto: University of Toronto Press, 2007, 7.

Maule-O’Brien, Skye. “Exploring Community Outreach Initiatives for Artist-Run Centres: A Case Study Using Anti-Racist Feminist Pedagogies to Create Inclusive Spaces for Knowledge Exchange.” Muséologies: Les cahiers d’études supérieures. Le dialogue dans les musées d’art contemporain 7 (November 1, 2014): 141-156.

McKenzie, Karen and Larry Pfaff. “The Art Gallery of Ontario: Sixty Years of Exhibitions, 1906-1966.” *RACAR: Canadian Art Review* 7, no. 1 (1980): 62.

McLean, Kathleen. “Do Museum Exhibitions have a future?” *Curator* 50, no. 1 (2007): 109–121.

Milk, Chris. “How Virtual Reality Can Create the Ultimate Empathy Machine.” TED Talk. March 2015. https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine?language=en.

Mingus, Mia. “Changing the Framework: Disability Justice: How our communities can move beyond access to wholeness.” RESIST Newsletter. February 12, 2011. https://leavingevidence.wordpress.com/2011/02/12/changing-the-framework-disability-justice/.

Mok, Tanya. “This is the perfect Toronto street before it won’t be.” *blogTO.* April 8, 2018. https://www.blogto.com/city/2018/04/geary-avenue-toronto/.

Monteros, Maria. “Major retail players are walking back their metaverse strategies.” *Modern Retail*. April 12, 2023. https://www.modernretail.co/technology/major-retail-players-are-walking-back-their-metaverse-strategies/#:~:text=Walmart%20has%20reportedly%20shut%20down,the%20experience%20“as%20planned.

Morris, Chris. “Is 2016 The Year of Virtual Reality?” *Fortune.* December 4, 2015. https://fortune.com/2015/12/04/2016-the-year-of-virtual-reality/.

Museum of Other Realities. “Home - Museum of Other Realities.” Accessed on July 31, 2023. https://www.museumor.com.

Nagam, Julie. “‘Indigenism’: Aboriginal World View as Global Protocol.” In *Indigenous Art: New Media and the Digital.* PUBLIC 54. Edited by Heather Igloliorte, Julie Nagam and Carla Taunton.

Nakamura, Lisa. “Feeling good about feeling bad: virtuous virtual reality and the automation of racial empathy.” *Journal of Visual Culture* 19, no. 1 (2020). https://doi.org/10.1177/1470412920906259.

“National Museum of Singapore - Story of the Forest Exhibition.” National Museum of Singapore. Accessed June 1, 2021. https://www.nhb.gov.sg/nationalmuseum/our-exhibitions/exhibition-list/story-of-the-forest#:~:text=Created%20by%20the%20renowned%20Japanese,Drawings%20into%20three%2Ddimensional%20animations.

Neddermeyer, Ina. “I Want to See How You See: Curatorial Practices of Exhibiting Virtual Reality.” *Image – Action – Space: Situating the Screen in Visual Practice*, edited by Luisa Feiersinger, Kathrin Friedrich and Moritz Queisner. Berlin, Boston: De Gruyter, 2018, 207.

Nemiroff, Diana. *A History of Artist-Run Centres in Canada with Particular Reference to Véhicule, A Space and the Western Front*. Master's thesis, Concordia University, 1985.

Niazi, Amil. "Would Frida Kahlo approve of her immersive experience exhibit?" *The Globe and Mail*. April 11, 2022. https://www.theglobeandmail.com/arts/art-and-architecture/article-immersive-frida-kahlo-exhibit-toronto-review/.

Nikčević, Hana. "Mystical Landscapes." *The Strand.* October 16, 2018. https://thestrand.ca/mystical-landscapes/.

O'Brian, Melanie. *Vancouver Art & Economies.* Vancouver: Arsenal Pulp Press, 2007.

Oculus Best Practices Guide. Accessed April 30, 2018. https://www.cs.sjtu.edu.cn/~shengbin/course/vr/misc/oculus_bestpractices.pdf.

O'Doherty, Brian. *Inside the White Cube: The Ideology of the Gallery Space*. Berkeley: University of California Press, 1999.

Office of the Auditor General of Ontario. "Value-for-Money Audit Museums and Galleries: Art Gallery of Ontario, Royal Ontario Museum and McMichael Canadian Art Collection." December 2020.

Olibet, Ylenia and Alanna Thain. "Vidéo de Femmes Dans le Parc: Feminist Rhythms and Festival Times Under Covid," In *Rethinking Film Festivals in the Pandemic Era and After*, edited by Marijke de Valck and Antoine Damiens. London: Palgrave Macmillan, 2023.

Olive, David. "The Thomson family's legacy lies in the art world." *The Toronto Star.* January 5, 2015. https://www.thestar.com/business/2015/01/05/thomson_familys_legacy_lies_in_the_art_world.html?rf.

O'Neil, Lauren. "Toronto's Galleria Mall is finally being demolished," *blogTO.* February 6, 2020, https://www.blogto.com/real-estate-toronto/2020/02/galleria-mall-toronto-demolished/ (accessed October 1, 2023).

Osbaldeston, Mark. *Unbuilt Toronto: A History of the City That Might Have Been* (Tonawanda, NY: Dundurn Press, 2008), 188.

Patterson, Kim. "Virtual Reality: An Emerging Medium (1993)." WordPress. October 16, 2014. https://kimpattersonvirtualreality2014.wordpress.com/2014/10/16/virtual-reality-an-emerging-medium-1993/#:~:text=Intel%20Digital%20Education%20%26%20Arts%20Program,to%20report%20on%20the%20exhibit.

Paul, Christiane ed. *A Companion to Digital Art*. Malden, MA: John Wiley & Sons, 2016.

Paul, Kari and Johana Bhuiyan. “It’s a tough time for Meta. Can AI help make the company relevant again?” *The Guardian.* March 11, 2023. https://www.theguardian.com/technology/2023/may/11/meta-artificial-intelligence-metaverse-mark-zuckerberg.

Paul, Kari and Johana Bhuiyan. *New Media in the White Cube and Beyond: Curatorial Models for Digital Art*. Berkeley: University of California Press, 2008.

Parikka, Jussi. “Introduction.” In *What is Media Archaeology?* Malden, MA: Polity Press, 2012, 2.

Parikka, Jussi. *Digital Contagions: A Media Archaeology of Computer Viruses*. New York: Peter Lang Publishing, 2007.

“Paris: plus de 2 millions de visiteurs pour le Musée national d'histoire naturelle.” Centre Presse Aveyron. February 10, 2022. https://www.centrepresseaveyron.fr/2022/02/10/paris-plus-de-2-millions-de-visiteurs-pour-le-musee-national-dhistoire-naturelle-10101646.php.

Piepzna-Samarasinha, Leah Lakshmi. *Care Work: Dreaming Disability Justice*. Vancouver, BC: Arsenal Pulp Press, 2018, 151.

Pine II, B. Joseph and James H. Gilmore. “Welcome to the Experience Economy.” *Harvard Business Review* 76, no. 4 (1998): 97–105.

Pouliguen, Fabrice. “Biodiversité : Au Museum d'histoire naturelle, des animaux disparus reprennent vie en réalité augmentee.” *20 Minutes.* June 8, 2021. https://www.20minutes.fr/sciences/3057179-20210608-biodiversite-museum-histoire-naturelle-animaux-disparus-reprennent-vie-realite-augmentee.

Punter, Jennie. “Hot Docs Festival Taps into Virtual Reality.” Boston Herald, 25 April 2015. Accessed 1 February 2017. https://www.bostonherald.com/2015/04/25/hot-docs-festival-taps-into-virtual-reality/.

R., James. “Cannes 2016 embraces virtual reality.” *Vodzilla.co* May 4, 2016. https://vodzilla.co/blog/vod-news/cannes-embraces-virtual-reality/.

Ravindran, Manori. “Hot Docs’ Shane Smith on shorts, VR and world premieres.” *Realscreen.* August 21, 2015. https://realscreen.com/2015/08/21/hot-docs-shane-smith-on-shorts-vr-and-world-premieres/.

Rees, A.L. and Duncan White, Steven Ball, and David Curtis, ed. *Expanded Cinema: Art, Performance, Film*. London: Tate Gallery Publisher, 2011.

Redden, Rebeccah. “VR: An Altered Reality for Disabled Players.” *First Person Scholar.* April 11, 2018. http://www.firstpersonscholar.com/vr-altered-reality/.

Rheingold, Howard. *Virtual Reality*. New York: Touchstone, 1991.

Rhyne, Ragan. "Film Festival Circuits and Stakeholders." In *Film Festival Yearbook 1: The Festival Circuit*, edited by Dina Iordanova and Ragan Rhyne. St Andrews: St Andrews Film Studies, 2009, 9–39.

Ricci, Talia. "AGO's ReBlink exhibit combines augmented reality and classic paintings." *CBC News*. January 3, 2018. https://www.cbc.ca/news/canada/toronto/art-exhibit-combines-augmented-reality-and-classic-paintings-1.4452158.

Robertson, Clive. *Policy Matters: Administrations of Art and Culture*. Toronto: YYZ Books, 2006.

Rosenberg, Tanya, ed. *Spaces by Artists: 3e Retrospective Parallélogramme 3 1978-79*. Toronto: ANNPAC, 1979.

Roth, Emma. "AltspaceVR is shutting down as Microsoft's mixed reality division shrinks." *The Verge.* January 21, 2023. https://www.theverge.com/2023/1/21/23565188/altspace-vr-shutting-down-microsoft-layoffs.

Roquet, Paul, Belisle B, and Roquet P. "Guest Editors' Introduction: Virtual reality: immersion and empathy." *Journal of Visual Culture* 19, no. 1 (2020): 3–10. doi:10.1177/1470412920906258.

Rush, Michael. "Virtual Reality Art: Beyond Technology." *The New York Times,* January 6, 2006. https://www.nytimes.com/2006/01/06/arts/virtual-reality-art-beyond-technology.html.

"SAOLA Studio AR Presentation." Institut Français. Accessed June, 2021. https://ifdigital.institutfrancais.com/sites/default/files/media/SAOLA%20Studio%20AR%20presentation%20-%20English%20-%20210222.pdf, 21.

Sarris, Andrew. "Catch as Catch Cannes: The Moles and the Moths." *The Village Voice*. 12 June 1978. 39–40.

"Seeing Impressionism in 3D." AGO Insider. Art Gallery of Ontario. Accessed April 1, 2021. https://ago.ca/agoinsider/seeing-impressionism-3d.

Serrell, Beverly. *Exhibit Labels.* Lanham, Maryland: Rowman & Littlefield Publishers, 1994.

Shields, Caroline. "Geographies of Impressionism in the Age of Industry: An Introduction." In *Impressionism in the Age of Industry,* edited by Caroline Shields. Munich, London, New York: DelMonico Books-Prestel, 2018, 14.

Skura, Elyse. “2167: Indigenous artists to use virtual reality to imagine Canada’s future.” *CBC NEWS.* June 23, 2016. https://www.cbc.ca/news/canada/north/2167-indigenous-virtual-reality-art-project-1.3647580.

Smith, Sean P. “Instagram Abroad: Performance, Consumption and Colonial Narrative in Tourism.” *Postcolonial Studies* 21, no. 2 (April 3, 2018): 172–191. doi:10.1080/13688790.2018.1461173.

Stein, Scott. “Meta Completes Acquisition of VR Fitness Company Within.” *CNET*. February 8, 2023. https://www.cnet.com/tech/computing/meta-completes-acquisition-of-vr-fitness-company-within/.

“SuperData: VR’s breakout 2016 saw 6.3 million headsets shipped.” *VentureBeat.* https://venturebeat.com/2017/02/04/superdata-vrs-breakout-2016-saw-6-3-million-headsets-shipped/.

Sutton, Gloria. *The Experience Machine: Stan VanDerBeek’s MovieDrome and Expanded Cinema*. Cambridge, MA: MIT Press, 2015.

Tayler, Felicity. “Perpetuating the ‘Eternal Network’: Bibliographies of Five Canadian Artist-run centres.” *Art Documentation: Journal of the Art Libraries Society of North America* 26, no. 2 (Fall 2007): 4–11.

Taylor, Kate. “Immersive shows like the van Gogh and Monet exhibits betray art’s stillness.” *The Globe and Mail*. August 13, 2021. https://www.theglobeandmail.com/arts/art-and-architecture/article-the-new-mania-for-immersive-shows-betray-arts-stillness/.

Taylor, Kate. “Art Gallery of Ontario buys Blue Irises painting for more than $1-million ending years of dispute.” *The Globe and Mail.* August 22, 2019. https://www.theglobeandmail.com/arts/article-art-gallery-of-ontario-buys-blue-irises-painting-for-more-than/.

“This is one of Toronto’s most exciting streets right now.” *blogTO.* June 19, 2018. https://www.blogto.com/city/2018/06/geary-avenue-toronto-exciting-streets/.

Thorne, Barrie. “You Still Takin’ Notes’? Fieldwork and Problems of Informed Consent.” *Social Problems* 27 (1980): 284–297.

“Toronto Arts Council 2016 Allocations.” Toronto Arts Council. https://torontoartscouncil.org/TAC/media/tac/Impact/Grant%20Allocations/2016-Grant-Allocations.pdf, 2.

“Tree Official.” Accessed July 1, 2021. https://www.treeofficial.com/.

Trinity Square Video. “About TSV.” Accessed March 1, 2019. https://www.trinitysquarevideo.com/about-tsv/.

Trinity Square Video. “Online Exhibition: Moving Ether Way.” Accessed March 1, 2022. https://www.trinitysquarevideo.com/programming/online-exhibition-moving-ether-way/.

Trinity Square Video. “Exhibition: V/Art Projects.” https://www.trinitysquarevideo.com/programming/exhibition-vart-projects/.

Trinity Square Video. “Worldbuilding: An Exhibition of Virtual Realities.” Accessed April 2. 2021. http://worldbuilding.trinitysquarevideo.com/.

Trinity Square Video. “Mission.” Accessed April 1, 2019. https://www.trinitysquarevideo.com/mission/.

Trodd, Tamara, ed. *Screen/Space: The Projected Image in Contemporary Art.* New York: Manchester University Press, 2011.

“University Library’s Researcher-in-Residence (LRiR) program launches welcoming Assistant Professor Linda Zhang as inaugural resident researcher.” *Ryerson Library Blog.* January 17, 2022. https://library.ryerson.ca/blog/2022/01/university-librarys-researcher-in-residence-lrir-program-launches-welcoming-assistant-professor-linda-zhang-as-inaugural-resident-researcher/.

Uroskie, Andrew V. *Between the Black Box and the White Cube: Expanded Cinema and Postwar Art*. Chicago: The University of Chicago Press, 2014.

Vanian, Jonathan. “Metaverse off to ominous start after VR headset sales shrank in 2022,” *CNBC,* 28 December 2022, https://www.cnbc.com/2022/12/28/metaverse-off-to-ominous-start-after-vr-headset-sales-shrank-in-2022.html.

Vertucci, Raffaele and Salvatore D’Onofrio, Stefano Ricciardi & Maurizio De Nino. “History of Augmented Reality.” In *Springer Handbook of Augmented Reality*, edited by A. Y. C. Nee and S. K. Ong. Springer Handbooks. Springer, Cham, 2023.

“Virtual Galleries, Actual Institutions.” Museu Sem Paredes (Museum Without Walls). YouTube. September 29, 2022. https://www.youtube.com/watch?v=xmsxmWRePQY.

“Vision + Mission + Mandate.” imagineNATIVE. http://www.imaginenative.org/vision-mission/. Accessed 1 February, 2017.

Vitale, Jen. “Tree VR: A Virtual Reality Experience.” Jen Vitale's Portfolio. Accessed July 20, 2022. https://www.jenvitale.com/tree-vr.

Volpe, Joseph. “The Godmother of Virtual Reality: Nonny de la Pena.” *engadget.* January 24, 2015. https://www.engadget.com/2015-01-24-the-godmother-of-virtual-reality-nonny-de-la-pena.html.

Vomiero, Jessica. “Montreal-Based VR Film Studio Felix & Paul Raises $6.8 million Series A,” *betakit,* June 16, 2016, https://betakit.com/montreal-based-vr-film-studio-felix-paul-raises-6-8-million-series-a/.

Wakefield, L. T., and G. Bennett. “Sports fan experience: electronic word-of-mouth in ephemeral social media.” *Sport Manag. Rev.* 21 (2018): 147–159. doi: 10.1016/j.smr.2017.06.003.

Wallis, Keziah and Miriam Ross. “Fourth VR: Indigenous virtual reality practice.” *Convergence: The International Journal of Research into New Media Technologies* 27, no. 2 (2021): 313–329, 321.

Wasson, Haidee. “Big, Fast Museums / Small, Slow Movies: Film, Scale, and the Art Museum.” In *Useful Cinema*. New York, USA: Duke University Press, 2020, 178–204.

Westra, Hans. *Inside Anne Frank’s House: An Illustrated Journey through Anne’s World*. Woodstock, New York, and London: Overlook Duckworth, 2004.

Weibel, Peter. “Expanded Cinema, Video and Virtual Environments.” In *Future Cinema: The Cinematic Imaginary after Film*, edited by Jeff Shaw and Peter Weibel. Cambridge, MA: MIT Press, 2003.

What is an Artist-Run Centre? ARCA 2021. Vimeo. https://vimeo.com/586063340.

Wilner, Norman. “Hot Docs 2020 is turning into a digital film festival.” *Now Magazine*. May 5, 2020. https://nowtoronto.com/movies/hot-docs-online-festival-2020-streaming.

Wilson, Alexandra and Maggie McGrath. “I Scream. You Scream. The Meltdown at the Museum of Ice Cream.” *Forbes,* July 2, 2020. https://www.forbes.com/sites/alexandrawilson1/2020/07/02/i-scream-you-scream-the-meltdown-at-the-museum-of-ice-cream/?sh=2b1741cb56c8.

Wong, Alice, et al. “VR Accessibility Survey for People with Disabilities.” *The Disability Visibility Project*. Disability Visibility Project and ILMxLAB. January 2017. disabilityvisibilityproject.com/2017/01/03/vr/.

Wong, Cindy. *Film Festivals: Culture, People, and Power on the Global Screen*. New Brunswick: Rutgers University Press, 2011.

Whyte, Murray. “Welcome to the machine.” *The Toronto Star*. March 26, 2017.

Zielinski, Ger. “On studying film festival ephemera: the case of queer film festivals and archives of feelings.” In *Film Festivals: History, Theory, Method, Practice*, edited by Marijke de Valck, Brendan Kredell, and Skadi Loist. Abingdon, Oxon: Routledge, 2016.

Zitron, Ed. “RIP Metaverse: An Obituary for the latest fad to join the tech graveyard.” *Insider*. May 8, 2023. https://www.businessinsider.com/metaverse-dead-obituary-facebook-mark-zuckerberg-tech-fad-ai-chatgpt-2023-5.

INTERVIEWS

Bluemke, Cat. Interview with Caroline Klimek. Zoom. March 30, 2022.

Byrne, Meagan. Interview with Caroline Klimek. In person at imagineNATIVE’s office. March 5, 2020.

Carroll, Jonathan. Interview with Caroline Klimek. Zoom. June 9, 2021.

DiFelice, Sarafina. Interview with Caroline Klimek. Phone. May 27, 2016.

Faber, Henry. Interview with Caroline Klimek. Zoom. August 21, 2020.

Gee, Erin. Interview with Caroline Klimek. Zoom. April 18, 2022.

Hackett, Sophie. Interview with Caroline in person at AGO. April 29, 2019.

Hampton, John G. Interview with Caroline Klimek. Zoom. May 25, 2022.

Hudson, Shiralee. Interview with Caroline Klimek on zoom, July 2, 2021.

Hudson, Shiralee and Nadia Abraham. Interview with Caroline Klimek over the phone. April 30, 2019.

Lewis, Jason Edward. Interview with Caroline Klimek. Zoom. September 10, 2020.

Liao, Karie. Interview with Caroline Klimek. Zoom. March 19, 2022.

MacLaurin, Megan. Interview with Caroline Klimek. Zoom. December 4, 2022.

Matheuszik, Adrienne. Interview with Caroline Klimek. Zoom. February 10, 2022.

McIntyre, Gillian. Interview with Caroline Klimek on Zoom, June 23, 2021.

Northway-Frank, Daniel. Interview with Caroline Klimek. In Person at imagineNATIVE office. January 8, 2016.

Norton, Jenn E. Interview with Caroline Klimek. Zoom. February 7, 2022.

Pencier, Nicholas de. Interview with Caroline Klimek, April 30, 2019.

Petric, Gabor. Interview with Caroline Klimek. In Person at coffee shop. March 3, 2020.

Plant, David. Interview with Caroline Klimek. Zoom. November 23, 2020.

Appendix A

THE FABULOUS FESTIVAL OF FRINGE FILM

New Media Encounters

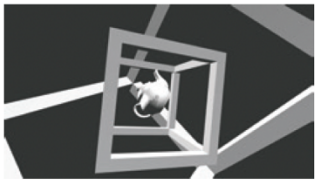
Saturday, July 21, 6:30 pm @ James Mason Culture & Rec Centre
Friday, July 27, 10 am- 2pm @ West Grey Library, Durham
Saturday July 28, 11 am- 2pm @ West Grey Library, Durham

Programmer: Caroline Klimek

With this new media programme I wanted to show the variety of genres and topics that can be covered with new mediums. Music videos, documentaries, cartoons and science fiction are all represented within this programme. Also represented are some of the important Indigenous artists and VR companies currently working with virtual reality. I am bringing to Durham and Saugeen First Nation artists that should be known and projects that need to be seen. These projects will take you out of your comfort zone and immerse you in a different world.

Virtual Reality Projects

BLUEBERRY PIE UNDER A MARTIAN SKY
Scott Benesiinaabandan
Canada 2017
5 minutes
Bringing to life a prophetic Anishinaabe legend about a young boy who travels through a wormhole back to his people's place of origin, Blueberry Pie Under the Martian Sky also addresses concerns about the revitalization, growth and evolution of the Anishinaabe language.



THE HUNT
Danis Goulet
Canada 2017
6 minutes
The Hunt imagines a postwar North America in 2167 that lies in ruin, where the law is enforced by a fleet of automated orbs that patrol the skies. When an orb interferes with a man and his son on a goose hunt on sovereign Mohawk territory, it forces an altercation.

HIGHWAY OF TEARS
Lisa Jackson
Canada
2016
4 minutes
Ramona Wilson was 16 years old when she left her home in Smithers, British Columbia on June 11th, 1994. Her body was discovered eight months later, but her killer has never been found. In September, 2016 the Canadian government officially launched an inquiry into Canada's missing and murdered indigenous women. In this immersive documentary, Ramona's mother, Matilda, shares her story of personal loss and ongoing search for answers.

A TRIBE CALLED RED: INDIAN CITY 360
Jon Riera
2017
4 minutes
Remix a Tribe Called Red track using only your eyes! Filmed at Toronto's Fort York, this interactive video from the acclaimed Indigenous DJ collective uses gradient audio to mix traditional and contemporary sounds, and features a throwdown between hip-hop and pow wow dancers.

POLARMAN
Ryan Oliver
2017
4 minutes
When he was young, Derek Emmons was bullied. One day, he put on a Lone Ranger mask… and found his true self. Meet Polarman, a masked crusader for everyday justice, who spent years walking the streets of Iqaluit, shovelling walks, mediating playground fights and spreading his anti-bullying message. In a piece that combines 360° scenes of Iqaluit with comic-book style animation by top Canadian comic artists, Polarman tells us his origin story, sharing his influences and his goals for a more compassionate world.

THE FABULOUS FESTIVAL OF FRINGE FILM

New Media Encounters

Program continued

Interactive Documentary

THE WORLD IN TEN BLOCKS
Marc Serpa Franceour and Robinder Uppal
2017
With half its population born outside of Canada, Toronto is probably the world's most diverse city. The World in Ten Blocks is set in Bloorcourt, a stretch of Bloor Street in downtown Toronto where immigrant-owned small businesses are the heart and soul of the neighbourhood. At the core of this interactive web documentary are a dozen immigrant small business owners, whose stories reveal both the challenges and rewards of immigration and entrepreneurship.