CHOREOGRAPHIES OF MEDIATION

. **ABSTRACT**
This paper presents a methodological choreographic framework that combines diverse, experiential, and performative methods of mediatization to create interactive elements for immersive and performative artwork. The framework was used in the development of a screendance audiovisual projection and motion tracking technologies were used to create interactive components for an immersive artwork. The inquiry is driven by an ongoing practice-as-research project that explores embodiment, creative technologies, archival art practices, identity construction, and embodied archival worldmaking. The paper discusses how embodiment and experiential choreographic methods of mediation support the creative process of embodied archival worldmaking and describes the development and integration of interactive AR components in an immersive screendance environment. The framework was applied in a collaborative research project that investigated notions of experiential continuity through an interactive audiovisual architecture for an immersive artwork as part of the Vertical Studio Lab course, taught by professor Mark-David Hosale at York University.

CCS CONCEPTS: Interaction Design process and methods | Sensors and Actuators | Human computer interaction(HCI)
Keywords: Embodiment, mediation, gesture, choreography.

1.INTRODUCTION

This paper presents a conceptual choreographic framework that focuses on the corporeal and affective dimensions of mediatization. The research process explored the potential of motion tracking systems in choreographic practices and its potential in expanding screendance as an immersive and interactive installation environment. Choreographic methods of mediation are experiential and performative, integrating embodiment and creative technologies generated by a mediatization force. In this post-phenomenological methodology, I engage with technology and the embodied archiving process through the praxis of mediation. The paper was developed as part of a collaborative research project at Vertical Studio Lab that examines the potential of a WorldMaker universe framework (WMU) in creating an immersive artwork that incorporates an experience of immersion and interactivity through sensing sounds and visual representation through the lens of experiential continuity. The WorldMaker universe is a conceptual framework developed by Professor Mark-David Hosale [1], providing a space to consider the strong connection between the conceptual, software, and hardware components of an artwork. In this paper, I reflect on choreographies of mediation using the WMU framework, with an emphasis on the embodied ontology of creating a work. The WMU is divided into three parts: operations, transforms, and personae, each critical in structuring, connecting, and assembling a model for knowledge based on embodied knowing and non-rhetorical knowledge. This performance research practice provides the grounding motivation for designing interactive and immersive components for screendance installation, including immersive video, real-time image capture, motion sensors, real-time interactive sound, cinematography, generative audio, and moving image. Screendance, an interdisciplinary art, explores the intersection of cinematic techniques, choreography, technology, and visual arts. The movement materials section discusses the reflective and conceptual interpretation of the diasporic gesture, emphasizing the complex media architectural intervention of screendance. The methodology section will use the concept of rhizome, developed by Gilles Deleuze and Félix Guattari [2] to describe the complex mediatization processes in developing choreographic work. They demonstrate the notion of a diagram as a rhizome with many different entrance and exit points that connect many points to any other point, forming an interconnecting arrangement between differing media and order of representations.

1.1 MEDIATION

Mediatization is a concept that encompasses the changes brought about by media technology in all aspects of our lives. This research explores the corporeal and technological dimensions of mediation as methods of creative practice. Mediation is not only present in communication, representation, conflict management, or the arts, but it is also a fundamental process of human and nonhuman existence. Media technologies serve as modes of knowledge production and, at the same time, function bodily and materially to modulate individual and collective lived experiences and identities. [3] Technological mediations operate as mediators of spatial relations, fundamentally transforming our spheres of imagination, representation, and the experience of "connectedness at a distance" by digitally sculpting, compressing, stretching, and blurring temporal relations, transforming our experiences through

screens.[4] Bergson's concept of reality holds that the experience of time and movement is an active entity, where time is a "heterogeneous flux, and movement is reality itself".[5] How do we understand the space in-between space that defines the space of virtuality, a potential that always threatens to disrupt the operations of the fixed identities that constitute it? Marcus Novak describes intermediation as an extreme intermedium, where a new medium is placed between two familiar media. This passage describes a trend in various media where each one is moving towards an extreme opposite of its traditional understanding. Architecture is becoming "liquid," music is allowing for navigation through a sonic landscape and transforming into an art of time beyond sound, and cinema is becoming "interactive and habitable." [6] Choreographic methods of mediation explore movement and temporalities through mediation and duration as part of the choreography, where time is a perpetual becoming, and time that has to do with a continuity of movement in-between spaces. Mediated presence is at the heart of archival practice. In these explorations, the notion of mediatization often serves as a sensitizing concept to account for the complex intersections of media.

1.2 THE DIASPORIC GESTURE

Within the WMU framework, Archival materials are operational elements. The ‘Diasporic Gesture’ describes a reflexive ontology of identity. It's an expression of a transitory image, matter, movement, and perception that encompasses all forms of existence - human or non-human, virtual or physical, ephemeral, corporeal or digital. The gesture is the elusive force that intervenes between form and content, materiality and representations, often affecting upon our very process of seeing itself. Gesture as archival matter carries affective dimensions, embodied with inscription of mediation. Inscription of gesture is equivalent to the inscription of an image with its movement inscribing traces in-between mediatized spaces that move and mediated between spaces, one that is detached from fixed origin, an inscription of affective and mediated image that is dwelling in space, exiting and entering into some sort of an “existing wave”, no longer an origin but a sort of “putting-into-orbit” .[7]

The diasporic gesture produces, transmediates, and transforms material dimensions. Gestures carry the intensity of opposites and the rhythm of collectivity, shifting, transposing, translating and inscribing traces across time, space and surfaces, becoming a transitory force that is felt as interventions, capable of arousing the emotions of their beholder and producing kinetic experience. The creative process involves somatic and kinesthetic engagement, and the virtual and the actual exist in harmony, without hierarchy. Diasporic flesh merge, creating a poetic language that speaks of the dwelling experience of gesture. In this ontology, diasporic gestures are inscribed and re-inscribed through intra-meditation. Even through many returns, the inscription is always different in form, matter and visibility, a “ghost”, an affective trace that carries intricate patterns of movement across space-time. Jacques Derrida considers the image as an inscription of memory. Cinema allows one to cultivate ‘grafts’ of spectrality;” it inscribes traces of ghosts on the projected film, which is itself a ghost” .[8] This emphasis of the materiality of affect produced by film within the spectator’s sensorium is relevant to my thinking of screendance as a performative architectural environment. The screen is no longer framed, but rather a frame within an architectural space that contains a complexity of frames. Deleuze writes: “The screen is “the cerebral membrane where immediate and direct confrontations take place between the past and the future, the inside and the outside, at a distance impossible to determine, independent of any fixed point.”.[9] To inscribe, writes Marcus Novak, is to write in, to capture the fleeting essence of disembodied gestures that pass and traverse intermediation thresholds.[10] The inscription of a diasporic gesture is ‘disembodied’ as a result of a loss, an “agile shedding of one inscription in favor of another”, a transverse and simultaneous process of re-inscriptions, “a distribution of places of inscription”.[11] Sally Ann describes inward inscription of gesture, in which gestures are inscribed inside the body as a result of our lived experience, events and trauma. The in-of “inscription” - a very basic and yet complex prefix - is not the “inside” but the in-of “into”.[12] To elucidate the affective dimension of inscription, Jean-Luc Nancy describes the “Excription” which is an inscriptive matter of sensing.[13] Nancy refers to a sense that is coextensive with the constant movement of existence , traversing, coming and going in all directions. ‘Exscribing’ refers to how a sense is exposed, like a ‘seepage’, a sense that exceeds materiality, always going outward to sense the edge of the world.

2. RELATED WORK

While the discussion of the diasporic gesture and its inscriptive traces may seem abstract or philosophical, it is an integral part of my ongoing research process. As I engage in improvisation and explore connections between different aspects of my work, I have found somatic practices to be a valuable tool for cultivating reflective awareness and emergent performance. By focusing on affect and contemporary archiving practices, I aim to explore the potential of screendance as an immersive architectural environment. Thus, the concepts and ideas presented in this paper reflect my current attempt to grapple with these complex issues and further develop my artistic and theoretical practice. A range of scholarship and research in dance and phenomenology intersect within the performative research paradigm. The choreographer and philosopher Susan Kozel scholarship and works at the convergence between performance, philosophy and responsive digital technologies. Her book “Closer: Performance, Technologies, Phenomenology” offers methodologies for practical application of the intertwining of bodies, technologies, phenomenology, and visual materiality.[14] Her collaborative research project Affexity [15] at MEDEA, at Malamö University is relevant as it examine the integration of archival materials into AR\MR environments through a network infrastructure of techne, screendance, AR, Affect, and smart mobile devices.the AR used in the project extends the notion of relational temporality as it invites an audience to move from place to place, connecting with the project, using networked smartphones and tablets. Other inspiring sources and artwork that intersect choreography and technology in new and exciting ways, such as Extended Senses & Embodying Technology Symposium [16], CreativeApplications.Net [17] Space Odyssey and Embodiment of Silence [18] The Artist, theoretician, and educator **Hito Steyerl** integrates communications media into cinematic installations, blending documentary film techniques, speculative fiction, and first-person narrative.

Hito describes the dispersion of an image, where “The poor image is a copy in motion. Its quality is bad, its resolution substandard. As it accelerates, it deteriorates. It is a ghost of an image, a preview, a thumbnail, an errant idea, an itinerant image distributed for free, squeezed through slow digital connections, compressed, reproduced, ripped, remixed, as well as copied and pasted into other channels of distribution.”[19]

The term "screen" in screendance does not refer solely to the confined frame of the screen in its final form of reception by the viewer. Instead, it encompasses the complex technological interventions and mediation involved in the process of migration, dislocation, connection, contraction, re-contracting, materializing, and inscribing movement materials. Therefore, particularly within the emergence of interactive elements in AR/VR environments, screendance is a form of architectural media intervention. The complexity of the choreographic framework for an immersive screendance environment inspires me. The ‘Liquid architecture’ developed by Markus Novak as a worldmaking framework, is relevant in this context.[20] Novak’s definition of liquid architectures as "an architecture whose form is contingent on the interests of the beholder" and "an architecture that dances or pulsates, becomes tranquil or agitated" provides insight into the potential of screendance as an immersive architectural environment. Novak describes the "Habitual cinema," where the dispersion of images and sounds is intertwined into a single object through "multimodal weaving," and the dance becomes "disembodied," with the architecture of computers becoming part of the dance. Mediatization invokes the "collapsing of distance in space-time," resulting in "an unparalleled proximity." The medium in the space in between is equally far from each known medium and situated on a threshold betwixt and between, like the lived experience of the nomad, the diasporic subject. Douglas Rosenberg concept, "meta-dance," as a framework, is also useful in the expansion of screendance environment through complex architectural interventions. Rosenberg describes the “meta-dance” in which choreographic movement is altered through a complex architectural system of digital interventions and mediation, intertwining movement through sculpture, painting, and programming language, and recasting it as data in site-specific construction through kinesthetic stimulus that intermediates through the space of optical media. Screendance is part of a rhizomatic movement that emerges in a liminal space between "dance" and its (semi) permanent inscription as a replayable media archive.[21] The tension between the immanent space of the work and the final composition of the work contemplates the inside\outside space of architecture. The philosopher Elizabeth Grosz explores the ways in which two disciplines that are fundamentally outside each other—architecture and philosophy—can meet in a third space. Grosz asks how we can understand space differently in order to structure and inhabit our living arrangements accordingly. Grosz describes the temporal flow, arguing that time and emergence, traditionally viewed as outside the concerns of space, must become more integral to the processes of design and construction.[22] Grosz proposes that philosophical experiments can alter and render space to become more mobile and dynamic.

What is the significance of composition in relation to an intermedia artwork? The choreographic work consists of several frames of movement, and the composition of each frame has different qualities of movement, form, and interaction. To think of an immersive site-specific screendance environment requires a research process that

examines the interrelationships between compositions. According to Hosale's WMU framework, the compositional process of an artwork often uses the same tools derived from music theory as a "point of departure for its functional role in developing work"[23], characterized by indeterminacy, multiplicity, plurality, temporality, and interdependencies. John Cage's "indeterminacy" approach to composition can be useful in developing modes of chance operation within the interactive dynamic sound composition, and between the multiple frames of movement within the final composition of the artwork. Finally, thinking about the composition of a choreographic framework in a collaborative setting with multiple artists involved, The 'Choreotopology' framework by Kate Sicchio[24] addresses this challenge through the concept of the "Imminent Researcher." The framework reflects ontology of immanence, and describes the challenge of an artist-researcher who works with multiple movement frames within the choreographic work. 'Choreotopology' is a conceptual framework for considering space within choreography with real-time video projection. It identifies four specific spaces and the relationship between these spaces. The choreographic framework is further defined by exploring frames for movement, interrelated and connected space, time in the form of continuity and spatio-temporal aspects, and the transformations that occur within choreography and visuals. Sicchio's collaborative projects, such as "Hacking the Body" (2017) and "Sound Choreographer, Body Notes" (2014), inspire methods of making wearable sensing devices to access physiological data to create unique interactive performances. She develops embedded sensing and actuation systems within costumes to create various public performances, which explore how dancers interpret physical interactions triggered by devices on their bodies as a means of nonverbal communication and movement creation

3. METHODOLOGY

The goal is, as much as possible, to develop a kinaesthetic qualities that can help to shape the way movement is mediated across spaces through improvisational methods and embodiment relations.[25] This process is further explored through digital choreographic methods, such as duration, speed, flow, superimpositions, transpositions, intervals, repetitions, inversions, adaptations, multiplicities, tempo, rhythm, looping, variations, transitions, thresholding, cycling and line-breaking. . Used experientially, the technologies transfer the affective gestures, shifts and micro movements intermediated,into the timeline and ultimately the projection space or AR/MR interactions. During the mediation process, the camera becomes a live inscription apparatus felt through senses.

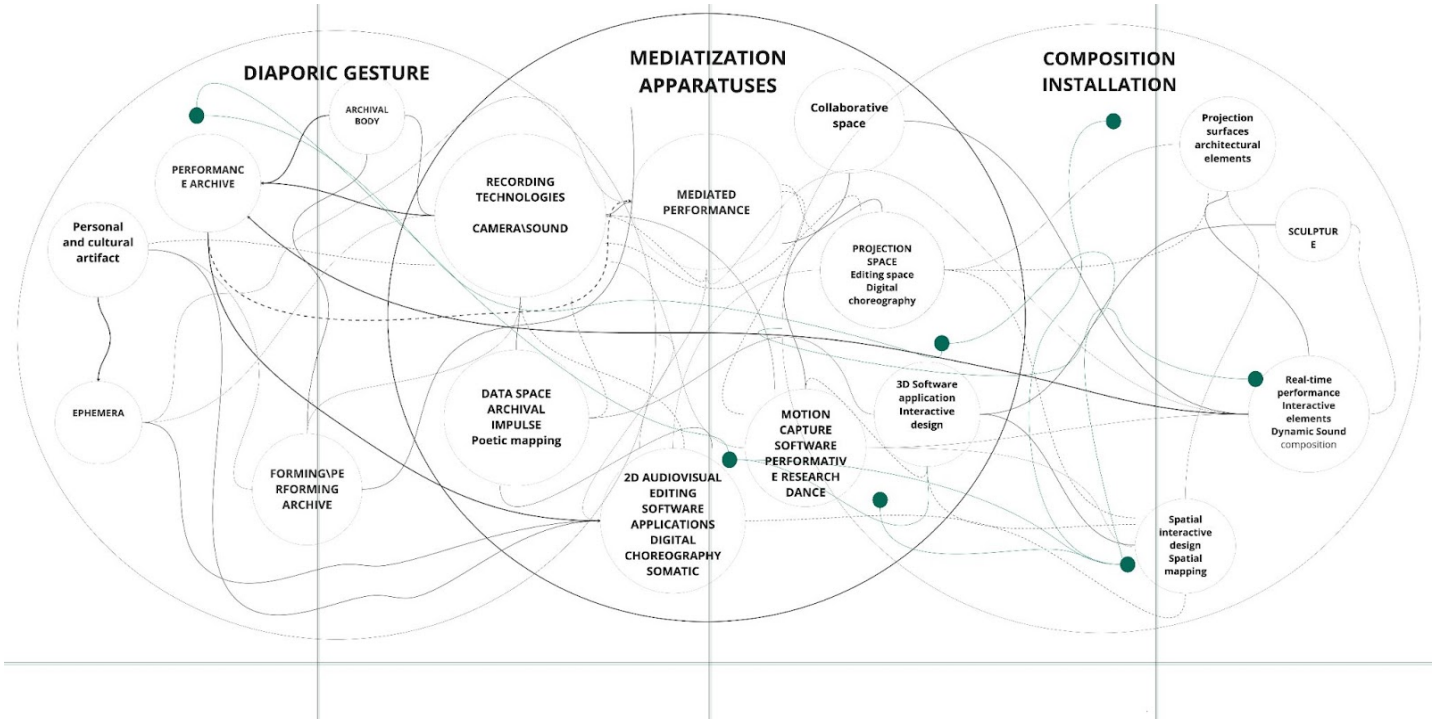

Figure 1: A rhizomatic diagram visualizing choreographies of mediation in embodied archival worldmaking

This diagram illustrates the intermediated spaces within the choreographic framework. Within the WMU, Meditization apparatuses are the transformative elements in the framework. The rhizomatic structure of the diagram reflects on the multiplicity of mediatization spaces within the choreography. 2D/3D video/audio editing software provides a rhizomatic sub-environment by itself, since it involves a variation of editing software and the ability to utilize each software for different editing processes and other compositional strategies.
The continuity of mediation is illustrated by the interconnected lines in between the mediatization spaces, and demonstrates the embodied engagement within each mediatization space Each inner sphere inside the large sphere is a space in which the movement and matter transformed through embodiment and mediatized apparatus, hardware software and other experiential use of movement devices. These spaces do not operate without movement. They are interrelated and cannot be conceived of and made sense of without their simultaneous relation to the others.

3.1 THE SKIN OF THE FILM

Through methods of haptic visuality[26], The projection space transforms the choreographed audiovisual materials into haptic visuals through a spectrum of light forms, lenses, , juxtaposition, angle, distance, colors, texture, proximity, scale in relation to the physical space and the final composition of the work. The inter-corporeality of technology that turns visuality into perceptual dimension, liminal and affective qualities of forms,movement and gestures. Attributes such as scale, surfaces, the projection system, distance, and from the projection surfaces generate experiences of immersion that contribute to the experiential continuities of dynamic temporalities and affective exchange.

3.2 SONIC TERRITORIES

As my practice is rooted in bodily practices and improvisation, it was crucial for me to find technological tools that would allow me to work with both corporeal and digital aspects of my work. The choreographic framework of mediation does not necessarily require complex computation systems; a variety of creative technologies and networked devices can be integrated into the creative process, especially when the goal is to use media technologies without sacrificing corporeal and embodied depth. The motion capture space includes various sensors and software that integrate motion tracking systems and devices to detect bodies in motion. Accessible technologies like the Kinect, the Leap Motion, and Apple motion tracking offer useful tools for both bodily practices and the development of interactive components for installations.

The choreographic framework is utilized for both visual and sonic work, extending my exploration into unfamiliar sonic territories. The process of developing sonic interactive elements involves a collaborative and performative research process where the composition is designed before its integration into the physical space of the installation. The embodied dynamic sound composition serves as an interactive element within the screendance environment, comprising a collection of sonic recordings that respond in real-time to the body's gestures, transforming the performer into a "full-body conductor" and creating a unique language of expression. The software utilized in creating this interactive element is SonicMoves, developed by media artist Marc-André Weibezahn. SonicMoves is a tool for body-interactive sound works based on tracking technology and sound modulation concepts. The tool employs Apple's motion capture technology to estimate the performer's posture and position, altering the interpretation of the composition accordingly. SonicMoves consist of two apps: The editor software runs on macOS, and the activation app on iOS. By tracing the body skeleton with the mobile phone, the app establishes an instant and direct connection between movement and sound, allowing for an immersive and responsive experience. The sonic composition was activated by a mobile phone placed in the installation space, responding to movement of bodies in the physical space. The interaction happening in real-time shaped the visual projection and light system through changes of colors and various distortion effects.

I have recently been developing the choreography of the screendance installation with the goal of transforming it into a mixed reality (MR) environment using augmented reality (AR) technology. The AR dynamic sound composition has been designed to suit the spatial conditions of the physical space and the position of various projection elements within it. Sonic recordings have been adapted into an AR environment using various audio software. The process of recording, collecting, producing and adapting sonic materials into a dynamic composition are intertwined with experiential and performative methods, dance improvisation, embodied mapping and proximity modalities. Working with AR technology that allows for both the corporeal engagement in the choreographic process and the ability to work with software, I have been using Adobe Aero. This AR application software for interactive 3D audio-visual extends the real sonic environment with virtual sonic. Other software applications,

including TiltBrush and Adobe Dimension, have been utilized in the creation process of the interactive AR environment. TiltBrush, an immersive drawing studio, was used to design virtual, glass-like objects that intervene with the physical space, while Adobe Dimension was used to design the colors and light. The interactive elements and the audiovisual components are independent spaces, yet they are interrelated, and the performative and embodied methods involved in each space help to generate the continuation of movement and temporalities in the installation.
The challenge is to establish a dialogue between the AR environment and other elements in the installation, such as the audio-visual projection, light, and human interaction. This involves considering and observing how dynamics and movement flow between all the interactive components and the tension between live composition and audience engagement. Durational elements are embedded throughout the process of creation, through the mediatization apparatuses and into the final composition of the work in the installation.

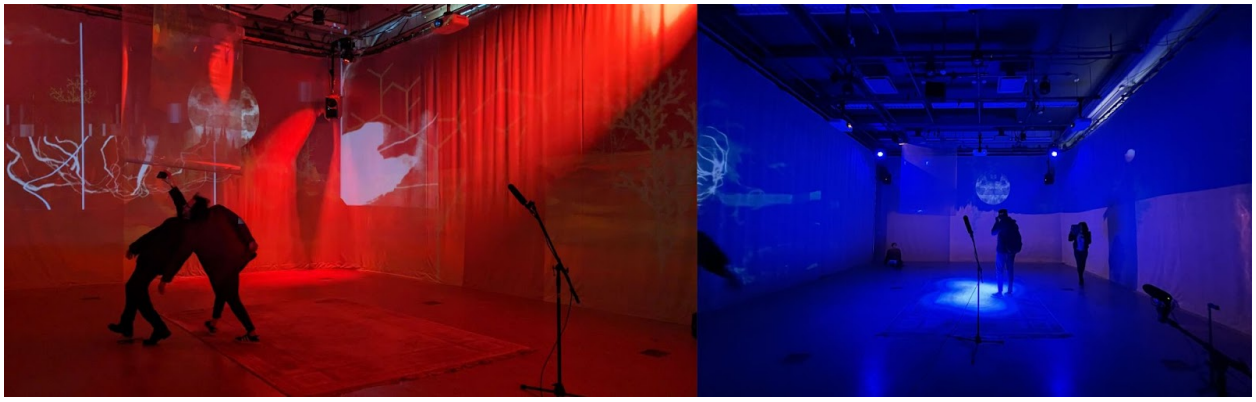

Figure 2: eNmotion, installation shot, the Transmedia Lab, York University (2023)

4. RESULTS

The research and process has shaped the creation of eNmotion (2023), Variations on Broken Lines (2020), Shared View (2022).

"eNmotion" is a collaborative research creation project that explores notions of experiential continuity through an MR audiovisual interactive environment. The installation was installed at the Transmedia Lab at York University and comprised an audio-visual interactive system: multi-channel haptic visual projection that reacted to an interactive sonic system in real-time through several interactive sound systems. These include an AR sonic-visual dynamic composition, embodied dynamic sound in the physical space activated by sensors, and a sensitive microphone that translates physical sound into noises.
Although the several audiovisual components of the installation were created as a separate system, indeterminate operations and conditions implied by the choreography, duration proximities and scale, allowing a continuity of movement and temporalities while providing a variety of ways to interact and participate. Whether as a viewer witnessing a live performance or engaging with the AR environment and audiovisual reactive composition, embodied and intuitive interaction was possible. The haptic screendance projection design in relation to the physical space, the interactive sound, moving lights, and a holographic film sculpture that hangs at the center of the space and was randomly rotating according to the movement of people and flow of air in the physical space. The wall protection passes through the holographic film sculpture, and its movement fractures the projection like a mirror, sending fragments of visuals that were superimposed on the projection walls as abstracted forms, creating a continuity of illuminated translations of forms and gestures in real-time. "Variation on Broken Lines" is an immersive MR screendance performative installation that culminates my MFA research on notions of liminality that constitute dance archive and identity construction. It explores how liminal experiences emerge in a time when our bodies, identities, and environments are becoming displaced, intermediated, and impalpable. The installation consists of a multi-channel screendance projection, sound, and moving-image sculptures. The installation features both mediated and real-time dance performance and is an open work that allows for iteration through the choreographic framework. The first iteration was shown at York University in 2020, and the second iteration was adapted for public space as part of the 2022 Toronto Nuit Blanche. The development of the interactive sound

composition culminated in the third iteration, which integrated an AR audio-visual environment that was intertwined with the physical space of the installation. "Shared View" is a site-specific immersive MR screendance installation that explores notions of identity, liminality, the diasporic gesture across social, cultural and personal registers. The installation consists of multi-channel audio-visual projection, a mirrored sculpture, and an AR screendance environment that was intertwined with the physical space.

5. FUTURE

Much of the artistic research and work described in this paper has focused on the potential of a worldmaking framework as a scaffolding for methods within the realm of my own practice. With the emergence of experimental studies at the intersection of embodiment, choreography, Dance and philosophy, I want to continue developing embodied worldmaking processes in archival art practices. By continuing to explore both available technologies and the design of costume-made devices, I hope to continue exploring the possibilities of sensing technologies, developing improvisational dance that uses haptic feedback to influence the performative experience of the work, and structuring choreography around interactive elements that may be embodied and affective.

6. CONCLUSION

The use of AR and motion sensor technologies enabled further exploration of immersive and participatory elements in artwork. I'd like to add some reflections on notions of experiential continuity that have been explored in our collaborative project 'eNmotion', as well as in the creation of immersive and performative artwork. Experiential continuity refers to the potential for a continuity of movement, temporalities, and immersive experience within an artwork, which is frequently a complex architectural media intervention created through a collaborative research process. I hope to continue participating in collaborative processes in a creative and critical manner through performance modalities such as performance experiments, installation, participatory performances, telematic performance and performative workshops. Experiential continuity also refers to the performative turn, the performative process of becoming not only from the standpoint of identity, but also as an affective exchange between bodies, individuals, and communities via mediatization, choreography, and performativity, that produces experiences of "collective rhythm" [27].

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