UNIVERSITY OF CALIFORNIA SAN DIEGO

Embodied experience and perceptual thresholds: *spaces, between* and the concert-installation

A Dissertation submitted in partial satisfaction of the requirements
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by

Lydia Winsor Brindamour

Committee in charge:

Professor Rand Steiger, Chair
Professor Anthony Burr
Professor Amy Cimini
Professor Janelle Iglesias
Professor Clinton Tolley

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The Dissertation of Lydia Winsor Brindamour is approved, and it is acceptable in quality and form for publication on microfilm and electronically.

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Vita

2013 Bachelor of Arts in Music, Harvard College

2017 Master of Arts in Music, University of California San Diego

2022 Doctor of Philosophy in Music, University of California San Diego

Abstract of the dissertation

Embodied experience and perceptual thresholds: *spaces, between* and the concert-installation

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Lydia Winsor Brindamour

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Professor Rand Steiger, Chair

This dissertation discusses my concert-installation *spaces, between* in relation to thresholds, embodiment and cross-sensory perception. I draw on the work of Arnold Van

Gennep and Victor Turner's discussions of liminality as the basis for a consideration of the role of thresholds, brought about through processes of transition, in the musical, visual and spatial components of the work. I examine theories of embodiment in the work of Maurice Merleau-Ponty, Iris Marion Young and Judith Butler to propose a theory of individual embodiment as the basis for *spaces, between*. I explore the potential for cross-sensory correspondences in the context of embodied perception, and consider how grounding the experience of a live instrumental performance in individual embodiment separates the concert-installation from the broader Western concert tradition.

Introduction

A few years into my graduate studies, I became deeply frustrated with my creative work. Up until that point, I had been focused primarily on the musical materials and the organization of sound in my compositional work. However, as I reflected on the source of my frustration, I found that I was not unhappy so much with the work itself - the musical materials- but rather, the way in which it was presented, and experienced.

This led me to reconsider how I envisioned presenting my work, prompting me to pursue new paths of creative exploration. Many strands of this exploration are evident in my dissertation project, which is the first work of this type that I have created and which charts a new course for my creative practice.

At the time, I had been fortunate to have the chance for my music to be included in a few professional concerts and festivals. These were wonderful opportunities, for which I was very grateful. However, I also realized there were ways in which I was not, and would not, be able to shape the way in which the pieces I had composed were presented. These were really basic attributes of a concert, so basic that it almost seemed silly to have an issue with any of them:

- The performance space itself- what it looked like, what associations it might bring to mind, the setup, the acoustics.

- The other pieces programmed on the concert by the musicians, and the order in which the pieces were performed. I had found some programming decisions to be quite jarring, with the pieces that preceded or followed my own work affecting the atmosphere that I had tried to create.

All of this amounted to the *context* of the performance.

I realized that I cared deeply not just about the musical material- the sounds- but also about other aspects of the performance, and that I saw myself as the director of a larger "perceptual experience," more than as a composer alone. I realized I did not want my pieces to function as autonomous items which could be essentially "inserted" into any concert program, placed in as a type of objective object that could be approached from any direction, in any manner.

I began to understand this source of creative dissatisfaction as a desire to have a greater degree of curatorial control, as a director might, over *all* aspects of the work (and not just the sound). This prompted me to begin to understand my pieces as inherently multi-sensory rather than as exclusively sonic.

I had previously explored visual and auditory correspondences, and had composed audio-visual works using my own still photography. In these works, I had been focused on creating a type of counterpoint between sound and image but I had considered the visual component of the work only in two dimensional terms, as an image displayed on a screen or surface, against which a binary relationship was established between sound and image.

In developing a new understanding of the role of multi-sensory perception in my work, I was interested not in creating these binary correspondences defined by the borders of a screen, but rather in creating a space or environment that established a visual world in which the piece could occur. This meant engaging in a consideration of the possibilities of audio-visual connections in three-dimensional space and exploring the way in which correspondences between sound and sight could be embodied, rather than seen.

This necessitates a breaking down of conventional divisions between “audience” and “stage” where the performance occurs. In order for the three-dimensional audio-visual connections to be embodied, the perceptual experience must be immersive, incorporating the audience members in a dynamic interaction with the work, including the possibility of audience members moving freely around the space.

In considering all of this, I decided to take a new direction creatively: the creation of an evening length work that would be entirely self-contained and would include not just a sonic component but would also include the creation of a visual environment in which the music would be performed. With this model, I would function as both the composer and the director of the staging of the work.

The notion of breaking down barriers between a work of art and individuals who experience it, as well as a turn towards corporeal, embodied perception are ideas that have been central to the development of installation art since the 1970s. As I explored my own dissatisfaction with my work, I wrestled with the idea of turning my focus toward creating sound installations using fixed media, rather than works geared towards live performance. In many ways, this seemed like the most obvious solution to my frustrations. However, I found myself resisting this option and surprisingly, realized that I am more committed to live-performance than I had previously understood myself to be. I have never been particularly attached to the Western concert tradition, but I found myself unwilling to abandon live performance as a central component of my work.

For me, one of the primary differences between an installation context without an element of live-performance and a concert context is the model of temporality that defines each. A fixed-media installation has no defined temporality to which the individual viewer adheres. Rather, the temporality of the perceptual experience is defined by each individual for themself, as they are able to move in and out of the installation freely. As a result, I consider the temporal dimension of an installation as a kind of permeable, highly porous boundary between the installation and the "outside" space.

I have found personally that engaging with an installation requires me to move in and out of two modes of being- that of a perceptual experience and that of "ordinary" functioning- rapidly. As a result, I often find that my sense of time remains consistent between the two. While entering into a mode of "perceptual experience" in these contexts, I find that my sensory alertness heightens but my temporal experience does not. I often engage with an installation with much the same attention span that characterizes my mode of "ordinary" functioning.

In many ways, this is what makes this type of installation so appealing. Installations relinquish an essential boundary, that of defined temporality, that separates an experience like a concert from broader life. The infusion of perceptual art experiences into the temporality of ordinary life, and vice versa, radically redefines the role and experience of the individual viewer and/or listener.

However, in reflecting on the temporality of the installation, I came to realize that personally, in the context of my own creative work, I dislike the porous boundary between the temporality of the perceptual experience and the temporality of "ordinary" functioning that defines the installation experience. In contrast, I am interested in the way in which my work can facilitate a different experience of time for the listener, one that is distinctly, and sometimes

starkly, different from “ordinary” experiences of temporality. I found that I like the defined temporal boundary of live performances that characterizes a concert, and that the porous temporality that defines the experience of an installation for me was at odds with one of the central components of my own projects.

In expanding the format of my work from concert pieces to a model in which audio-visual connections were considered in three-dimensional space, I began to think about how these connections might be established, and how the medium could engage spatially with the performance space. In considering this, I drew on works of expanded cinema. Especially interesting to me in the field of expanded cinema were early works of artists including Lis Rhodes and Carollee Schneeman from the 1970s, which situated aspects of live performance within a space defined through projected visuals.

As I considered my artistic goals further, drawing on my own engagement with Western concert music, as well as the development of installation art and expanded cinema, I realized I sought two primary parameters to the multi-sensory work that I would create: First, the defined temporality of a live concert experience, and second, the engagement of three-dimensional space as an additional parameter of a performance.

It was at this point that I began to conceive of a hybrid context in which to present my work: The concert-installation. I envisioned the concert-installation as a unification of two central dimensions of the experience I wanted to create, incorporating a defined temporal boundary between the perceptual and “ordinary” experience, while engaging audience members in a dynamic interaction with three-dimensional space. With this I sought to break down the binary relationship between stage and audience that has historically defined the concert in Western art and facilitate an embodied mode of cross-sensory perception.

In the end, I do not situate my concept of the concert-installation as in opposition to, or as a rejection of, Western concert tradition but rather as a modification and recontextualization of it. In this way, I see the concert-installation medium as a hybrid form, drawing on elements of expanded cinema, installation art and the Western concert tradition, but also not adhering to any one discipline.

In developing my concept of the concert-installation, and subsequently in creating both the musical and visual components of the project, I drew on my research on liminality and the resulting role of thresholds of experience, as discussed in the work of Arnold Van Gennep and Victor Turner. In addition, my investigation into theories of embodied perception, beginning with Maurice Merleau-Ponty's *Phenomenology of Perception*, was essential in my reframing of the performance context for my project, and the mode of engagement and experience I sought to create. My consideration of these concepts was integral to my thinking and played an active role in the development of the work. I consider theories around liminality and embodiment as the actual, initial foundation for my creative ideas, rather than frameworks for theorization after the fact.

Musically, visually and spatially, *spaces, between* is an exploration of the embodied perception of threshold phenomena.

Chapter one: Thresholds, embodiment and cross-sensory perception

I. Thresholds

My interest in examining the boundaries of the concert hall, and how I could engage with the idea of boundaries in a different performance context in my own work, led me to consider the notion of "liminality." The term liminality is derived from the Latin root "limen" or "threshold." The concept originally developed in the work of the anthropologist Arnold Van Gennep (1873-1957). In his book *Les Rites de Passage*, published in French in 1909 and translated into English in 1960, Van Gennep identified liminality as a central feature of a rite of passage ritual, which he identified in a wide variety of cultures, including the Todas people of India, the Hopi of Oraibi in Arizona, the Muskwaki people, Slavic cultures, the Kota of Nilgiri Hills, the Basoko of the Congo, the Bontok Igorot of the Philippines, and the Ngente tribe in Assam.

For Van Gennep, rites of passage rituals are defined by social movement from one status to another. Van Gennep writes that an individual's life in "any society" is marked by "a series of passages from one age to another and from one occupation to another."[1] As a result, Van Gennep writes:

> Transitions from group to group and from one social situation to the next are looked on as implicit in the fact of existence, so that a man's life comes to be made up of a succession of stages with similar ends and beginnings: birth, social puberty, marriage, fatherhood, advancement to a higher class, occupational specialization and death.[2]

The passage from one stable state to another yields, in Van Gennep's view, a three-part structure to rituals of rites of passage. These three phases include: rites of separation (preliminal rites),

[1] Arnold Van Gennep, *The Rites of Passage* (Chicago: University of Chicago Press, 1960), 3.
[2] Ibid.

transition rites (liminal rites) and rites of incorporation (postliminal rites). In this model, while the rites of separation and the rites of incorporation function as states of stability, the liminal stage, as the second phase, functions as a transitional state, defined by its instability. The experience of liminality therefore functions as a middle-ground in which the individual "wavers between two worlds."[3]

As I became interested in Van Gennep's concept of liminality in the middle phase of a rite of passage ritual, I turned to the work of the anthropologist Victor Turner (1920-1983). Drawing on Van Gennep's work, Turner focused on the liminal, in-between-state, of a ritual, emphasizing the transition rather than the stable states which occur before and after. Like Van Gennep, Turner identifies liminality as a state of being "neither here nor there" and "betwixt and between all fixed points of classification." However, Turner writes that rites of passage can occur not just as the result of transitional moments in the course of a life, such as birth, puberty, marriage and death, but also as a result of any change of state, such as when "a whole tribe goes to war" or the celebration of "a passage from scarcity to plenty" as in a harvest festival.[4]

Drawing on both Van Gennep and Turner's discussions, the fascinating aspect of liminality, for me, returns the word to its linguistic origin: the threshold. While the liminal phase functions as a threshold between experiences, that liminal state is also bounded by thresholds, both temporal and spatial in nature. In either case, a mode of ambiguity is introduced, which separates the liminal from broader experience.

Liminality is defined temporally, as it occurs as an intermediary phase between two stable states. Liminality is therefore a temporary state of being, rather than a sustained state.

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[3] Van Gennep, *The Rites of Passage, 18.*
[4] Victor Turner, "Betwixt and Between: The Liminal Period in Rites de Passage" in *The Forest of Symbols* (Ithaca: Cornell University Press, 1967), 94-96.

Defined by this resulting instability, liminal temporality is distinct from that which defines a stable state. The change in social status that initiates the liminal phase in Van Gennep and Turner's theorization, therefore, initiates the experience of a different mode of temporality as well. I view the in-between nature of the liminal phase as introducing an ambiguous temporality that is less clearly defined and which creates a kind of temporal suspension, just as one's social status is suspended during the liminal phase of a rite of passage.

The thresholds of experience that define liminality are also defined in spatial terms. In *Les Rites de Passage*, Van Gennep identifies the doorway as a type of threshold in a territorial passage, writing:

> The door is the boundary between the foreign and domestic worlds in the case of an ordinary dwelling, between the profane and sacred worlds in the case of a temple… To cross the threshold is to unite oneself with another world.[5]

Turner also notes the importance of a "physical passage" in a change in social status, like Van Gennep, drawing on the example of a doorway:

> "The passage from one social status to another is often accompanied by a parallel passage in space, a geographical movement from one place to another. This may take the form of a mere opening of doors or the literal crossing of a threshold which separates two distinct areas, one associated with the subject's pre-ritual or preliminal status, and the other with his post-ritual or postliminal status.[6]

While both Van Gennep and Turner consider the role of a spatial passage in a ritual context, their acknowledgement of the function of a doorway as a type of threshold allowed me to see the potential of this idea within the context of ordinary life, in which doorways are ubiquitous.

We pass through doorways between rooms within a building and through doorways between a building and the outdoors continually throughout a given day. To pass through a

[5] Van Gennep, *The Rites of Passage*, 20.
[6] Victor Turner, "From Liminal to Liminoid, in Play, Flow, Ritual" in *From Ritual to Theatre* (New York: PAJ Publications 1982), 34.

doorway is to encounter a spatial threshold, but one that is so ordinary that it feels mundane. However, the passage through a threshold, even on as small a scale as a doorway, holds potential for a shift in the relationship between an individual and their surrounding environment. Often, walking through a doorway from one room to another is marked by distinct changes in the nature of the space: the nature of the lighting, the color of the walls, the temperature of the room, the scent in the air. Of course, when moving through a doorway from an outside space to an inside one, these differences are likely to be more pronounced.

Yet, while the threshold of experience embedded within a doorway is defined by sensory changes, oftentimes, the passage through a doorway also marks a shift in expectations around social behavior. For example, upon entering a library from outside, one is expected to lower their voice significantly. Conversely, in a school setting, while students might be reserved within the bounds of a classroom, once they cross the doorway and enter into the hallway, a greater degree of behavioral freedom is expected. In a workplace, while a person might feel free to laugh and chat with co-workers in a common space within the building, they might feel compelled to be more formal upon entering the office of their supervisor.

In this way, the threshold encased in a doorway is defined both through changes in the sensory components of the environment and the conventions around behavior. In both cases, an individual's relationship to a given environment shifts as the threshold is crossed. With a doorway, this shift is discrete and is defined spatially. There is largely no temporal component to the change in conditions marked by a doorway, as one crosses this divide at such a rapid pace. However, although the threshold itself is atemporal in this example, crossing a doorway can introduce a different mode of temporal experience, as is the case with the liminal phase.

Yet, thresholds of experience can occur temporally as well, without any shift in the spatial dimension. Imagine, for example, sitting all day on a chair in front of a window in a room facing east on a spring day. At sunrise, the room would gradually be flooded with direct light as the sun ascended. Once the sun had fully risen, the room would be intensely bright, perhaps even uncomfortably so. Through the course of the morning and early afternoon, as the sun gradually shifts to a southern exposure, the room would remain bright, but less so than in the early morning because the direct light would fade. One might now sit in a kind of dull light. By the later afternoon, as the sun moves to the west, the room becomes noticeably darker and, sitting in the same chair, one is likely sitting only in dim light, or perhaps even a shadow. As the sun sets in the evening, the room would gradually become dark, devoid of any natural light. The person, after sitting in the same chair, in the same position, all day, did not experience any change in physical or perspectival position. Yet, through the course of the day, the individual encountered a series of experiential thresholds which unfolded exclusively temporally. In this way, the threshold was experienced through time as part of a very slow transition in lighting.

Thresholds can also occur simultaneously both spatially and temporally, as the threshold emerges out of a process of transition. Such a transition could occur through numerous somewhat mundane events, just as is the case with thresholds defined exclusively through spatial or temporal components, as in the previous examples. Here, imagine walking down a very long corridor away from a source of very loud noise. Through time, and through decreasing proximity to the source, the volume of the sound steadily decreases. As one continues, at a certain point, the sound will eventually no longer be audible. In my conception, the moment at which the noise can no longer be heard is a perceptual threshold, set up through movement away from the source, which unfolds in time.

My investigation of the concept of liminality, as developed in the writing of Van Gennep, helped me to understand what I valued about the concert hall: To enter into a concert hall is to enter into a space that is distinctly different from the outside world. Here, the doorway into the space marks a clear delineation between "ordinary" space and "performance" space, which each audience member crosses. This division is characterized initially by changes in social conventions of behavior that reflect the shift in the identity of the environment. In other words, one is expected to behave differently once they have entered a concert hall than they did in the foyer or hallway outside it.

An important dimension of this shift is a distinct change in an individual's relationship to sound. Upon entering a concert hall, sound immediately becomes highly regulated through social convention. While one might feel free to laugh and talk loudly with others outside the hall, upon entrance into the concert hall, one is expected to lower their voice, engage in more subdued conversations and move with care as they find their seat. In this way, behaviors that an audience member might have felt entirely comfortable exhibiting moments before are deemed impolite once the threshold into the hall has been crossed, setting up a distinctly different mode of relating to the environment.

The shift in expectations of behavior that defines the entrance into a concert hall is equally pronounced once the performance begins. At that point, all conversing is expected to cease entirely and audience members are expected to remain in their seats. To talk audibly in the midst of a performance, or even to whisper, is considered a disruption, as is the crinkling sound of someone taking something out of their bag or pocket. While there are instances in which a person might need to leave the hall during a performance, moving around the space is regarded as forbidden. I have, a number of times, while sitting in a concert hall, found myself

uncomfortable in my seat but felt that shifting my position, yielding slight noises from the movement of my clothes against the chair or a slight creak, was too much of a break in the atmosphere of reverence. Eating or drinking is prohibited, coughing is frowned upon, phones must be silenced and any external sources of light must be turned off.

The division between "ordinary" space outside the concert hall and the "performance space" itself is defined, not just by changes in the social conventions of behavior, but also by distinct changes in the sensory characteristics of the space. Most notably, the carefully designed acoustics of a concert hall reshape an audience member's relationship to sound. The lighting conditions of a concert hall are also often distinctly different than that of outdoor spaces. Concert halls are generally devoid of windows and are isolated from external sources of light. As with social conventions, these differences become more pronounced as the performance begins. The "house" lights are turned off, immersing the audience in darkness, while the stage is flooded in light. As the music begins, the acoustic design of the space takes full effect, rendering an experience of the music, and any ambient noises of the space, in a way specific to that location. In this way, the acoustical experience of a concert hall is not encountered outside of this context, in "ordinary" spaces.

The combination of changes in social expectations and sensory stimuli delineate a clear spatial threshold that isolates the concert hall from external spaces. While the threshold itself is not temporal in nature, as was the case with the doorway, once a person crosses the spatial threshold of the concert hall, they enter a distinctly different, liminal, temporality, which contrasts with that of "ordinary" spaces. The implicit expectation that individuals remain in their seats through the entirety of the performance, and the social convention that it is impolite to

leave the hall in the middle, establishes a distinctly different temporality, which necessitates a sustained mode of engagement and span of attention.

The concert hall, therefore, is defined by its clear boundaries, which separate it from external spaces. These boundaries are defined by temporal, sensory and behavioral shifts, and are, therefore, deeply experiential, as they prompt a change in the individual's relationship with their environment. However, this experiential quality is not traditionally part of the intention of a performance space but instead happens as a byproduct of their functionality. As a result, these aspects are generally considered as neutral, inherent aspects of the space, rarely even acknowledged, rather than socially and experientially charged dimensions of a traditional concert hall.

In my examination of both Van Gennep and Turner's conception of liminality, I found myself frustrated by a related aspect of their perspectives. Both of their work was rooted in a strict formulation of objectivity and they adopted the voice of an outside observer engaging in an anonymous analysis of human behavior in a given culture. Throughout Van Gennep's writing, his goal was to categorize the components of rites of passage rituals according to his three-part structure, and to prove the universal nature of the liminal stage. Ultimately for Van Gennep, liminality occurs as a functional feature of a process of transition primarily, and any features of the actual lived experience of the phase are secondary to its structural role. Although, as I wrote previously, Turner ties the ambiguity of liminality to the status, and identity, of an individual, he describes characteristics of ritualistic liminal experiences only in an abstract manner, again, as an outside observer. His consideration of any dimension of what an individual undergoes as part of a transitional stage serves to support his categorization of liminality but not to investigate liminality as an experiential phenomenon.

While the concept of liminality as theorized by Van Gennep and Turner has been influential in my interest in the concept of thresholds of experience, I reject the approach taken and perspectives articulated by both. Although both theorists' work is characteristic of methods in structural anthropology, I find it deeply problematic, especially when considering their ideas in relation to my own creative work. Van Gennep and Turner's interest in constructing a mode of universality in relation to the role of liminality, applying their theorizations to a wide variety of different cultures and contexts, approaches the individuals immersed in this transitional stage as objects, rather than as individuals. I find this especially troubling in Van Gennep and Turner's discussion of a wide variety of different non-Western cultures. The universality they both apply to a diverse array of these cultures is essentializing. In this context, Van Gennep and Turner position not only Western societies, but also themselves, as normative and authoritative. They consider those who experience the liminal stage as "others" and liminality is therefore understood as a phenomenon to study and record but not explore in relation to its experiential nature.

In contrast, my understanding of liminality, as with my view of the thresholds which define a concert space, roots the concept directly in the experiential and inherently subjective, dependent on the specifics of a given context and the individuals who inhabit that context. As a result, I am interested in the notion of experiential thresholds, rooted in *embodied* modes of perception.

II. Embodiment

I first began thinking about embodiment in relation to Maurice Merleau-Ponty's conception of the role of the body in his work *The Phenomenology of Perception.* I initially encountered this work in my undergraduate studies, in discussions of minimalist art in the United States during the 1960s, especially in the work of Rosalind Krauss. In subsequent years, through my undergraduate and graduate studies, I returned to *Phenomenology of Perception* multiple times, always as a basis for considering the corporeal dimension of perception. Merleau-Ponty's theorization of the centrality of the body was foundational for me in considering how my creative work could engage an embodied mode of perception.

In *Phenomenology of Perception*, Merleau-Ponty advocates a theory of perception as a phenomenon rooted in the body. Arguing against understandings of a dichotomy between mind and body, Merleau-Ponty instead argues that the two are fundamentally intertwined. Rather than viewing the body as an object, for Merleau-Ponty, "my body" is "my point of view upon the world" and a "necessary condition" for perception.[7]

In order for this to be true, Merleau-Ponty argues against positions that consider the body as a type of object. In his view, the body cannot be an object, as one is indivisible from their body: One cannot observe their body from outside of their body. Therefore, for Merleau-Ponty, one can never be separated from their body, as it "always appears to me from the same angle."[8] In contrast, one can perceive an object from numerous different perspectives, walking around an object and seeing it from all sides, and subsequently, walking away from it. Merleau-Ponty argues that it is the body which gives an individual a perspective of the world:

[7] Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (London: Routledge, 2012), 77.
[8] Merleau-Ponty, *Phenomenology of Perception,* 92-93.

> I observe external objects with my body, I handle them, inspect them and walk around them. But as for my own body, I do not observe it: to do so, I would need a second body, which would itself be unobservable.[9]

In this formulation, the body functions as a precondition of perception. Rather than being an object, the body is the condition through which there are objects:

> What prevents [the body] from ever being an object or from ever being 'completely constituted' is that my body is that by which there are objects. It is neither tangible nor visible insofar as it is what sees and touches… Not only is the permanence of my body not a particular case of the general permanence of external objects in the world, but moreover this latter can only be understood through the former. Not only is the perspective upon my body not a particular case of the general perspectives upon objects, but rather the perspectival presentation of objects itself must be understood through the resistance of my body to every perspectival variation.[10]

Merleau-Ponty's conception of the body as the basis for perception posits a model of embodiment that, at the time he wrote *Phenomenology of Perception*, was highly innovative. Merleau-Ponty positions his theory of embodied perception in opposition to other understandings of the relationship between mind and body common at the time, notably the mind-body duality of René Descartes and others.

In sharp contrast with Merleau-Ponty's theory of embodied perception, mind-body dualism presents the body not just as an object but as a machine. In this model, the body is a functional object and life is understood as a mechanistic occurrence. The body, as a physical entity and the source of mechanical life, is isolated from the soul.[11]

In contrast with these conceptions, the primacy of the body in Merleau-Ponty's theory of perception yields a new model of mind-body unity. In this model, any division between mind and body is constructed, rather than inherent. Perceptual experience is instead rooted in a

[9] Merleau-Ponty, *Phenomenology of Perception,* 93.
[10] Merleau-Ponty, *Phenomenology of Perception,* 94-5.
[11] Taylor Carman, *Merleau-Ponty* (London: Routledge, 2019), 81.

primary integration of the two. A division between mind and body is not, for Merleau-Ponty, an inherent component of lived experience, but is instead, a product of rational thought. Prior to the introduction of rational thought and reflection, Merleau-Ponty argues that there is a fundamental unity of the body.

The pre-reflective unity between mind and body is rooted, for Merleau-Ponty, in what he terms the pre-objective. The pre-objective realm functions as an original mode of perception which stands in contrast to rational and scientific thought. The pre-reflective, pre-linguistic mode is, therefore, a product of the pre-objective. Merleau-Ponty locates the roots of perception in this context.

Merleau-Ponty's theorization of pre-objective embodiment was deeply influential for me in a way that enabled me to consider new approaches to my creative work. When I first read *Phenomenology of Perception* in my undergraduate studies, the concept of perception rooted in the body was new to me and presented exciting new ways to think about both musical and visual artistic work. However, in returning to *Phenomenology of Perception* in recent years during my graduate studies, I have found myself uncomfortable with certain aspects of Merleau-Ponty's framework for the discussion of the unity of mind and body.

Foremost for me in this regard was Merleau-Ponty's discussion of case studies of experience in which he seeks to identify what is "missing" in a "patient's" experience but then uses that as a way to make a point about "normative" experience: "How should the function that exists for the normal person, but that is missing for the patient, be understood through them?"[12]

Within this orientation, Merleau-Ponty acknowledges that "illness" does constitute "a complete form of existence." Yet, at the same time, he aligns disability with childhood and "the

[12] Merleau-Ponty, *Phenomenology of Perception*, 110.

'primitive' state" and clearly sets illness and disability in opposition to "the normal person."[13] He does at least acknowledge that the experience of the patients discussed is distinctly different from the normative universal he seeks to construct. However, Merleau-Ponty's orientation is clearly one that engages with a conception of disability as a limited state of being, useful only to develop a greater understanding of perception more broadly. Merleau-Ponty therefore appropriates the individual, idiosyncratic experience of a person with an illness or disability for the sole purpose of illuminating normative experience rather than seeing disabled experience as having any intrinsic value itself.

For me, this was especially pronounced in Merleau-Ponty's discussion of the case of Johann Schneider. Schneider, a veteran of World War I, suffered a severe brain injury in battle that resulted in what was thought to be "psychic blindness" and motor issues. Merleau-Ponty, drawing on the work of psychologist and neurologist Adhémst Gelb and Kurt Goldstein's study of Schneider's injury (1920), explains facets of Schneider's experience. Schneider is unable to execute "'abstract movements" when his eyes are closed. These include movements that are not "directed at any actual situation" such as "moving his arms or legs upon command" or "extending and flexing a finger." Yet, he can complete abstract movements through the help of his own vision, as he can extend his leg if he is able to see it. Merleau-Ponty distinguishes these from "concrete," "habitual" movements," such as taking a handkerchief out of his pocket and blowing his nose, which Schneider can complete quickly and accurately even with his eyes closed. In other words, Schneider's injury impaired his ability to complete abstract movements only, while his ability to complete concrete tasks remained intact.[14] Merleau-Ponty argues that

[13] Ibid.
[14] Merleau-Ponty, *Phenomenology of Perception*, 105.

Schneider, "as well as patients with cerebellar injuries,"[15] experience a division between "concrete" and "abstract" movements and uses this to argue that, in (perceived) normative experience, these are typically integrated, creating the unity of motor-intentionality.

As I read *Phenomenology of Perception*, I felt alienated by Merleau-Ponty's discussion of Schneider and patients who suffered cerebellar injuries as a result of my own physical experience in the world. I suffered a traumatic brain injury in 2014 that caused a severe hemorrhage in my left cerebellum, the part of the brain that controls balance and coordination. As a result of the injury, I experienced significant issues with general mobility. Through extensive rehabilitation, I was able to improve my balance and coordination to a point where I could control my movement again and relearn how to walk. However, I still feel the effects of my injury in my body on a moment-to-moment basis, in ordinary, unremarkable activities. I often lose my balance in the middle of a simple action and stumble. I frequently trip while walking down the street. Every time I walk down a set of stairs my body balance feels precarious and I habitually rest my hand lightly on the railing to orient myself in space. The response-time on the left side of my body is slow so I cannot move quickly. As a result, I cannot move freely but instead have to always control my body to move in a careful and measured way in order not to lose my balance or fall. I therefore regulate my body on a moment-to-moment basis in order to ensure my own physical safety.

While Merleau-Ponty proposes a fundamental unity between mind and body, my everyday embodied experience is characterized by a discrepancy between my brain and my physical self. Soon after my injury, for example, I would try to lift my left leg straight in the air but it would careen from left to right instead. My leg could not do what my mind intended.

[15] Ibid.

Although through my process of recovery these issues improved, I still have issues in this regard. For example, sometimes I reach out to pick something up with my left hand and miss it entirely or I intend to place my left foot on something but it lands in the wrong place. For me, there is an inherent disconnect between what I intend, an intellectual understanding of movement, and what results, my physical body's experience of movement.

As a result, Merleau-Ponty's binary distinction between abstract and concrete movements does not correlate with my own experience. For me, the distinction between the two is blurry, and sometimes, a single movement functions as both simultaneously. This stands in contrast with Merleau-Ponty's binary distinction between the two types of movement, which is the foundation for his theory of mind-body unity. As a result, ultimately, Merleau-Ponty's theory of universal mind-body unity cannot account for my experience. This is not to say that I don't experience a perceptual unity between mind and body. It simply is a type of mind-body unity that stands in contrast with Merleau-Ponty's account, which depends on a division between movement types. In my case, mind-body unity is complicated by the attributes of my individual body and the particularities of my own embodied experience in life. For me, a unity between mind and body is distinguished by *discontinuities* between abstract and concrete movements.

In reading Merleau-Ponty's discussion of Schneider, I connected with certain aspects of the described experience. As a result, I am alienated from Merleau-Ponty's theorization on two levels. First, as I have mentioned, because his concept of motor-intentionality does not apply to my body, Merleau-Ponty's discussion cannot explain my own embodied experience in the world. Second, I recognize aspects of my own body in the description of Schneider's symptoms but Merleau-Ponty renders these qualities as "pathological" in order to move towards a theory of normative, universal embodiment. Ultimately, therefore, Merleau-Ponty's account of motor-

intentionality stands in opposition to my own body and excludes my own personal experience in the world from consideration.

Drawing on my consideration of my own embodied experience in relation to Merleau-Ponty's theorization, I realized that Merleau-Ponty's discussion of Schneider not only disregards the value of the experience of an individual with a disability, but it addresses normative perception as uniform. Merleau-Ponty does not engage in a discussion of embodied perception in relation to the particularities of an individual's body, disabled or not. Instead, Merleau-Ponty's account of embodiment is rooted in his conception of an embodied subject as neutral and universal.

While, for me, this neutrality was first evident in relation to physical disability, Merleau-Ponty's account of lived embodied experience is also limited in its failure to consider the way in which identity and subjecthood are socially and culturally informed. Again, in his failure to address these aspects, Merleau-Ponty considers the body-subject as neutral and embodied experience as universal. In reaction to my own discomfort around Merleau-Ponty's theory of motor-intentionality, I began to look into the work of theorists who challenged Merleau-Ponty's dichotomy between concrete and abstract movements that does not align with my experience. In this regard, I found the work of Iris Marion Young and Judith Butler, both of whom challenge this separation, deeply impactful in reconsidering embodied experience.

Butler has directly critiqued the neutrality and universality of Merleau-Ponty's theorization of the body-subject. In her essay "Sexual Ideology and Phenomenological Description" Judith Butler critiques this aspect of Merleau-Ponty's work directly, arguing that the "anonymous status" of the embodied subject is considered as universal and thereby without gender. For Butler, the objective gender-less identity of Merleau-Ponty's subject disregards

gender as an aspect of lived experience and the male body is treated as the "model for the human subject."[16] In contrast, for Butler, it is essential that any account of embodied experience consider "*whose* bodies are being described." Butler argues that the concepts of "sexuality" and "bodies" are only "abstractions without first being situated in concrete social and cultural contexts."[17]

In reflecting on Butler's direct critique of Merleau-Ponty's gender-blind theorization of embodiment, I realized that it is essential that these discussions be rooted in an awareness of the historical, social and political context of an individual subject's identity. While I considered this in relation to gender in the writing of Butler and Young, this is also true of other aspects of identity, including race, ethnicity, sexual orientation, socio-economic status and socially defined disability. In contrast to the universality of Merleau-Ponty's body-subject, my own understanding of embodied experience, influenced by the writing of Butler and Young, is grounded in an understanding that identity is not just given, but is socially and historically constructed.

Young's seminal essay "Throwing like a girl," was influential for me in considering the way that gender-identity, one's orientation towards their body and movement and by extension, their embodied experience, is socially conditioned. In this essay, Young engages in a detailed exploration of the phenomenology of the female body in relation to lived experience. Young situates this discussion of the social conventions imposed on women from an early age which limit the freedom and authenticity of embodied experience.

[16] Judith Butler, "Sexual Ideology and Phenomenological Description" in *The Thinking Muse*, ed. Jennifer Allen and Iris Marion Young (Bloomington: Indiana University Press, 1989), 98.
[17] Ibid.

In Young's consideration, this is most fundamentally evident in the ways that women and girls are taught is appropriate to move their bodies. In contrast with men and boys, a female's movements are highly regulated by society. Young argues that these are learned behaviors: "walking like a girl, tilting her head like a girl, standing and sitting like a girl, gesturing like a girl…" Here, a female's style of movement is "hampered" and restricted, yielding a "bodily timidity" that defines her relationship to her body, and her body's interaction with the world. While boys are taught to "roam and explore," girls are taught that their bodies are "fragile and immobile."[18]

For Young, the restrictive treatment of the female body in a patriarchal society renders the female body an *object,* as well as a subject. Rather than allowing for embodied subjectivity, such a society yields a (male) gaze that renders the female body as "a mere body, as shape and flesh that presents itself as the potential object of another subject's intentions and manipulations, rather than as living manifestation of action and intention."[19]

In Young's argument, women function as objects as a result of the objectification of the female body. Of particular note for Young in this regard is the relentless objectification of a woman's breasts in patriarchal society. Again, it is the male gaze, "that judges and dominates from afar,"[20] that renders a woman's breasts as an item and her body as an object. Young writes that a defining feature of an object is its identity as "property," functioning as "commodities." Importantly, an object is "passive", lacking the autonomy and opportunity of self-determination inherent in (male) subjecthood.[21] The result of this objectification is a type of alienation that

[18] Iris Marion Young, "Throwing like a Girl" in *On Female Body Experience,* ed. Iris Marion Young (Oxford: Oxford University Press, 2005), 43.
[19] Young, "Throwing like a Girl," 44.
[20] Iris Marion Young, "Breasted Experience" in *On Female Body Experience,* ed. Iris Marion Young (Oxford: Oxford University Press, 2005), 77.
[21] Young, "Breasted Experience," 78.

women experience in relation to their own bodies, as women exist simultaneously as themselves, as subjects, and as objects of male attention, which strips women of their autonomy.

Yet, for Young, the conditions of a patriarchal society also often lead women to view their own bodies as objects, for example, as "she gazes at [her body] in the mirror" and modifies her appearance, "prunes it, shapes it, molds it, and decorates it" to remain consistent with societal standards.[22] A woman's viewing of her own body as an object, conditioned by the male gaze, introduces a mode of alienation from her own body.

The notion of gender-identity as socially constructed is discussed by Butler as well. Like Young's, Butler's writing on this topic has shaped my thinking on embodiment. Butler argues that gender functions as a type of performance. In her essay "Performative Acts and Gender Constitution," drawing on Turner's study of ritual social drama, Butler notes that such rituals depend on "a performance which is *repeated*" (277), thereby enacting a "set of meanings already socially established." In the context of gender this yields a social performance in which "individual bodies" must function within a "binary frame" of gender. For Butler, gender does not function outside of this performative context. Butler writes that "gender reality is performative which means, quite simply, that it is real only to the extent that it is performed…" This statement delineates a temporality of gender, not as pre-constituted but rather as a constructed aspect of identity and lived experience.

While Butler has criticized the implicit neutrality of Merleau-Ponty's embodied subject, in this essay she frames her argument in dialogue with his work. Drawing on Simone de Beauvoir's argument, in *The Second Sex* that "one is not born, but, rather, *becomes* a woman," Butler considers Beauvoir's conception of the body as being historically constituted rather than a

[22] Young, "Throwing like a Girl," 44.

"natural fact" as an outgrowth of Merleau-Ponty's writing. In this, Butler identifies a link between the two, and by extension, with her own argument as well:

> For both Beauvoir and Merleau-Ponty, the body is understood to be an active process of embodying certain cultural and historical possibilities, a complicated process of appropriation which any phenomenological theory of embodiment needs to describe.[23]

Although in *Phenomenology of Perception*, Merleau-Ponty describes the body as a "historical idea" rather than a "natural species,"[24] his notion of the pre-objective, as an original, pre-linguistic embodied state, does not account for the temporality of the socially contingent nature of the lived experience of embodiment. In this, I came to understand Merleau-Ponty's theory of embodiment, as influential as it has been for me, as a *starting point* for my own consideration of this topic.

Both Young and Butler's accounts of embodiment in relation to gender challenge Merleau-Ponty's division between abstract and concrete movement, in different ways. Young draws out the complexities of embodiment through the examination of the constructed nature of movement in relation to gender. She breaks down the binary established between Merleau-Ponty's two categories of movement and reveals that concrete movement, rather than purely habitual, is a conditioned set of behaviors. Within this framework, a movement cannot function as entirely one category of movement or the other. In this way, Merleau-Ponty's dichotomy between abstract and concrete movement types as the foundation of mind-body unity cannot explain lived experience, as was the case in relation to my own embodiment.

Butler challenges the division between concrete and abstract movements through her conception of the performative nature of gender. In this context, the reiteration of movement and

[23] Judith Butler, *Bodies That Matter* (London: Routledge, 2011), 272.
[24] Merleau-Ponty, *Phenomenology of Perception*, 173.

behaviors continually establishes gender-identity. Identity is therefore not fixed but, instead, is continually being established. In grounding gender identity, and therefore identity more broadly, in performance, Butler reveals the way in which a continual negotiation between abstract and concrete movement occurs for an individual. This ongoing temporality introduced by Butler connects to my own embodied experience, in which I continually have to negotiate my own relationship to my body's movement.

Drawing on Merleau-Ponty's theory of embodiment, my own experience of my body, as well the way that Young and Butler's discussion of embodiment in relation to gender challenge the theory of motor-intentionality, I came to understand embodiment as a fundamental condition of perception but also one that is contingent on the particularities of one's individual body, social conditioning and the relationship between identity and society more broadly. For me then, embodiment functions as both a pre-objective state of mind-body unity and as a state of discontinuity within that unity.

I also consider embodied perception to be, fundamentally, deeply personal. My own highly idiosyncratic corporeal experience provides a foundation for me to understand the individuality of each person's unique embodiment. In my view, embodied experience is shaped by the particularities of one's own body and therefore cannot be generalized. A universal model of embodiment is therefore impossible.

This stands in contrast not only to Merleau-Ponty's theorization around a universal mode of embodied perception but also with Van Gennep and Turner's desire to consider liminality in a universal context. In my work, I am interested in the exploration of *individual* experiences of liminality and embodiment. In *spaces, between*, as I will explore, I seek to facilitate a personal

embodied experience which allows an individual attendee to shape aspects of their own experience of the work, in a way that is rooted in an "ethics of care."[25]

III. Cross-sensory perception in an embodied context

My consideration of embodied perception led me to reconsider the relationship that I could stage between sound and vision in my creative work. As I have discussed previously, I had become frustrated with the binary relationship between sound and image constructed in the context of a screen and I sought to explore new models of cross-sensory interaction in a performance context. In my consideration of how embodied perception could transform the relationship between these two mediums, I became interested in Merleau-Ponty's discussion of synesthesia in *Phenomenology of Perception.* His discussion offered me a model of sound and visual correspondences, not rooted in an understanding of synesthesia in relation to its neurological definition but, instead, as a fundamental aspect of embodied perception for everyone.

Merleau-Ponty conceives of a unity of sensory experiences in relation to an a priori state of being, as he does with the notion of mind-body unity. Merleau-Ponty identifies an "originary layer" of sensory experience that exists "prior to the division of the senses." In this state, the senses are not just unified but are fundamentally inseparable. For Merleau-Ponty the fundamental unity of the senses that defines "original" experience and "natural perception" is dismantled by intellectual understandings of "sensing." In this way, it is "scientific knowledge"

[25] Carol Gilligan, *In a Different Voice* (Cambridge: Harvard University Press, 2016).

that "displaces" this unity. In illustrating this point, Merleau-Ponty draws on a common example of a relationship between sound and color.[26] He writes:

> Sounds modify consecutive images of color: a more intense sound intensifies the colors, the interruption of the sound makes them vacillate, and a low sound renders blue darker or deeper.[27]

Merleau-Ponty then examines the concept of synesthesia in connection with these correspondences between color and sound, illustrating their fundamental inextricability: "The [synesthete] does not tell us merely that he has a sound and a color at the same time: it is the sound itself that he sees, at the place where colors form."[28]

Yet, although Merleau-Ponty here references a classical example of synesthetic experience, that of sound-color synesthesia in which an individual involuntarily perceives a color in response to a sound, in his discussion he takes a much broader view of the phenomenon of synesthesia, incorporating multiple aspects of sensory unity and cross-sensory correspondences. Rather than offering a discussion of synesthesia as a neurological phenomenon, Merleau-Ponty engages in a discussion of the idea from the perspective of moments in which senses overlap. In these instances, lived perceptual experience reflects the apriori state of "natural perception" in which there was no division between senses.[29]

As a purely neurological phenomenon, synesthesia is relatively rare. In cases of synesthesia, the activation of one sensory pathway results in the involuntarily stimulation of a second sensory pathway, yielding "the rare capacity to hear colors, taste shapes, or experience other equally startling sensory blendings."[30] Importantly, the resulting sensory stimulus is not an

[26] Merleau-Ponty, *Phenomenology of Perception,* 236-8.
[27] Merleau-Ponty, *Phenomenology of Perception,* 237.
[28] Merleau-Ponty, *Phenomenology of Perception,* 238.
[29] Merleau-Ponty, *Phenomenology of Perception,* 237.
[30] André J. Abath, "Merleau-Ponty and the Problem of Synaesthesia" in *Sensory Blending: On Synaesthesia and Related Phenomena*, ed. Ophelia Deroy (Oxford: Oxford University Press, 2017).

interpretation of, or association with, the initial sensory stimulus. There is no process of translation. Instead, the two sensory experiences are *one and the same*. If a synesthete sees a color in response to a certain musical pitch, the musical pitch *is* the color, rather than the pitch being representative of the color.

In contrast, Merleau-Ponty seems to consider synesthesia as a type of universal aspect of sensory experience, noting that "synesthetic perception is the rule" rather than an "exceptional phenomenon".[31] In arguing this, he draws on a number of examples of cross-sensory perception that might occur in ordinary life:

> We see the rigidity and fragility of the glass and, when it breaks with a crystal-clear sound, this sound is borne by the visible glass. We see the elasticity of steel, the ductility of molten steel, the hardness of the blade in a plane, and the softness of its shavings. The form of objects is not their geometrical shape: the form has a certain relationship with their very nature and it speaks to all of our senses at the same time as it speaks to vision.[32]

In this way, Merleau-Ponty argues that he "hears the hardness and the unevenness of the cobblestones in the sound of a car."[33]

In his essay "Merleau-Ponty and the Problem of Synaesthesia" (2017), André J. Abath distinguishes between "synesthesia proper" as a neurological phenomenon and "cases of sensory union" which Merleau-Ponty discusses. Drawing on the work of Marks and Martino,[34] Abath notes that models of sensory union depend on associations, often commonly held, such as how "people tend to match higher pitches with lighter colours." Certainly, Merleau-Ponty's notion of being able to hear the texture of the cobblestones through the sound of the car is not a case of

[31] Merleau-Ponty, *Phenomenology of Perception,* 238.
[32] Ibid.
[33] Merleau-Ponty, *Phenomenology of Perception,* 239.
[34] G. Martino, and L.E. Marks, "Synesthesia: strong and weak," *Current Directions in Psychological Science* 10, no. 2 (April 2001): 61–5.

synesthesia as a purely neurological phenomenon. Instead, the example demonstrates a type of a unity across senses.

Abath notes that another central aspect of synesthetic experience is its seemingly "arbitrariness."[35] Deroy and Spence write that, in synesthesia there is no "obvious" or "immediately explainable" relationship between the nature of the sensory stimulus and response. In fact, correlations experienced by a synesthete can seem random, or irrational, to others.[36] This stands in stark contrast to the model of cross sensory union described by Merleau-Ponty and defined by Marks and Martino. While the experience of neurological synesthesia is individual, idiosyncratic and not objectively rational, Merleau-Ponty points to a type of shared multisensory experience, seemingly accessible to everyone.

Because my own sonic responses to visual stimuli are not intentional, nor do I experience them as associations or correlations that seem intuitive for others, I tend to think about my own experience as a quasi-synesthetic mode of perception, based on an understanding of synesthesia as a neurological phenomenon. Yet, in creating the work, I became interested in exploring modes of cross-sensory union as Merleau-Ponty describes them in his discussion of synesthesia. Merleau-Ponty's discussion offered me a model for thinking about the potential unity of the senses in a way that moves away from direct, one-to-one correspondences between two senses. Instead, for me, this theory suggested a way of considering relationships between senses in terms of the simultaneous perception of a single phenomenon on two different sensory levels.

Returning to the example of hearing the unevenness of the cobblestones, one can sense the rough texture of the cobblestones through the nature of the sound. In this way, a type of

[35] Abath, "Merleau-Ponty and the Problem of Synaesthesia."
[36] O. Deroy and C. Spence, "Why we are not all synesthetes (not even weakly so)," *Psychonomic Bulletin & Review* 20 (February 2013): 643–664.

translation occurs, as sound is rendered as tactile. One can imagine a translation of this type in numerous different contexts, across different combinations of senses. For example, one could experience a sense of the tactile nature of the cobblestones through vision, or associate a sonic quality with the sight of the uneven surface.

For me, the combination of Merleau-Ponty's understanding of the pre-objective as a fundamentally embodied state and his notion of an "ordinary" mode of perception in which there is a fundamental unity of the senses offered me a new model for considering audio-visual connections in my own creative work. My consideration of the role of embodiment in Merleau-Ponty's conception of the pre-objective and his notion of a priori sensory unity, prompted me to think about creating a performance context in which audio-visual connections could be embodied, rather than simply observed from afar.

However, while Merleau-Ponty's conception of cross-sensory perception provided a new model for considering the type of connection I could establish between music and visuals in my work, it also presented an issue. Merleau-Ponty's conception of the unity of the senses accompanies the unity of mind and body that characterizes the pre-objective. As I have explained, Merleau-Ponty's theory of embodiment cannot account for those for whom there is a more complicated relationship between concrete and abstract movements. Therefore, as I engaged with the concept of sensory union in the pre-objective as a model for my own work, I also had to consider the role that a unity of sound and visuals could play in relation to an embodied experience that is characterized by an altered, sometimes fractured, unity.

In *spaces, between*, I came to a model of cross-sensory correspondence that is rooted in the same tension between unity and discontinuity that characterizes this more complicated model of embodiment. This relationship is characterized in the project by the music and visuals

mirroring each other in their development but not synchronized, creating both unity and a disconnect between the two.

Liminality and the resulting threshold of experience are also defined by a breakdown in the unity of an experience, in social, temporal and spatial dimensions. Liminality, as a threshold phase, functions as a state of ambiguity because of the fracture in continuity that occurs within a transition. Thresholds themselves, as discrete markers of shifts in the social, sensory and temporal characteristics of an environment, are the points at which a seamless unity of experience breaks down. The performance of *spaces, between,* is structured around a series of perceptual thresholds in the various components of the work that mark shifts in the continuity of the mediums' evolution, thereby introducing a mode of liminality characterized by fractures in unity.

In considering how cross-sensory correspondences could occur in an embodied state, I became interested in creating a space or environment that created a visual world in which a musical piece could be performed, and which an audience could *inhabit* as they listened. Rather than constructing binary correspondences through a screen, this approach meant engaging in a consideration of the possibilities of audio-visual connections in three-dimensional space and exploring the way in which correspondences between sound and sight could be embodied, rather than just seen or heard. In order for this to occur, the perceptual experience must be immersive, incorporating the audience members in a dynamic interaction with the work.

I viewed this new approach not as a break with my previous compositions but rather as an extension. I conceived of this embodied multi-sensory perceptual experience in the context of the live, instrumental performance that has defined my compositional practice. In this way, while I sought to move away from the binary relationship between sound and image imposed by the

screen, I envisioned my project as being in dialogue with the Western concert tradition. In this way, while an immersive multi-sensory environment stages a dynamic interaction between audience members and artistic work that is distinctly different from that experienced within a concert hall setting, the work does not abandon that framework but instead recontextualizes it. In this way, the work operates both as a type of installation environment *and* as a concert. As a result, the work takes on the hybrid identity of a concert-installation.

My continued engagement with the Western concert tradition prompted me to consider how the installation environment, as the site for a live instrumental performance, might function in relation to characteristics of a traditional concert hall. For me, this meant returning to, and reconsidering, the concept of liminal thresholds that I found to be a defining feature of a concert hall experience. In this regard, I began to consider the role that liminal thresholds could play in the context of an immersive environment, in which the sonic and visual materials are staged spatially, and a mode of embodied multi-sensory perception is engaged.

In considering this, I came to be interested in establishing the same type of threshold between external "ordinary" space and "internal" performance space that I had identified in relation to the concert hall, defined however primarily through changes in the sensory environment rather than through embedded social conventions. As with the concert hall, this type of threshold introduces a new mode of temporal experience but functions as a primarily spatial threshold, as there is no inherent temporality in stepping across a doorway into the performance space.

Thresholds are a central feature of every aspect of the work, governing the identity and development of the musical material, the visual component and the relationship between the two mediums, in addition to the spatial configuration and the mode of entry into and exit from the

experience. Set within an immersive environment, *spaces, between* explores the embodied experience of perceptual thresholds, through multi-sensory connections staged in space.

Chapter two: Thresholds of cross-sensory perception in an embodied context

I. Thresholds: The environment and experience

The black box theater of the Conrad Prebys Music Center, even with the risers pushed back, is still primarily a proscenium context. It's not an ordinary space, and while the boundaries that delineate the theater are different than those of the concert hall, the boundaries of the black box theater are as well-defined. Within this context, in *spaces, between*, while I sought to remove the separation between audience and performance which characterizes the proscenium context, I chose to reinforce, and even exaggerate, the distinct boundaries of the performance environment that I had encountered, and found intriguing, in my own experience of the concert hall. This dual goal is a central aspect of my conception of the concert-installation.

The initial perceptual threshold established in the work is the division between the external space, the hallway where audience members wait to enter, and the performance space. As with the experience of entering a concert hall, the transition between the external space and the environment is defined by a physical boundary marked by a distinct shift in the nature of the space, creating a dichotomy between modes of perception. In this work, the division between spaces and modes of perception is achieved through stark changes in the sensory component of the environment. This is created through its spatial configuration and reinforced by the lighting and projection design, as well as the temporality of both the visual and musical components.

In this regard, the manner in which audience members first enter the environment is of central importance. With this work, individuals enter into a space and a mode of perception that has already been established, prior to their presence. In order to achieve this, the visual environment is ongoing upon the audience member's entrance into the space, with the lights

dimmed and the visual material already projected onto the scrims. In this way, the "world" of the piece is already established and the individual's introduction to the space is an act of *joining* the work.

In order to achieve a stark boundary between the external space and the theater space, and to facilitate the way in which the audience enters an ongoing experience, the environment was designed to be immersive both visually and physically immediately upon entrance into the space. Elizabeth and I sought to avoid creating a visual environment that could be seen from afar, and subsequently approached as a type of vista, as a setup of this type would allow for a process of transition between the two spaces to occur more gradually, thereby undermining the stark dichotomy that I felt was essential to the work. Instead, with our final design, the immediately immersive nature of the work reinforces the clear threshold that I sought to establish between the external "ordinary" space and the performance space.

The inherent immersivity of the environment was achieved through the location of placement and angle of the scrims hung throughout the theater. Importantly, upon entrance, an individual immediately encounters a projection surface. This scrim is angled diagonally, in a manner that orients the eye and body to the rest of the environment. While the entrance door is located on the long-side of the rectangular theater, rendering the theater a type of horizontal space, the primary orientation of the visual environment is diagonal, with two lines of sight orienting the viewers diagonally. The first starts from the entrance door to the back right corner of the space while the second passes from the front right corner of the space to the back left corner of the space (see figure 1).

As a result, upon entrance, an individual is incorporated into one of the primary lines of sight, allowing the audience member to immediately encounter not just the first scrim, but a

spatial layering of projection surfaces and visual imagery. From this first position in space in relation to the environment, one is even able to view the musicians, blurred through multiple layers of staggered scrims. In this way, the individual audience member is immediately embedded into the environment through their vantage point.

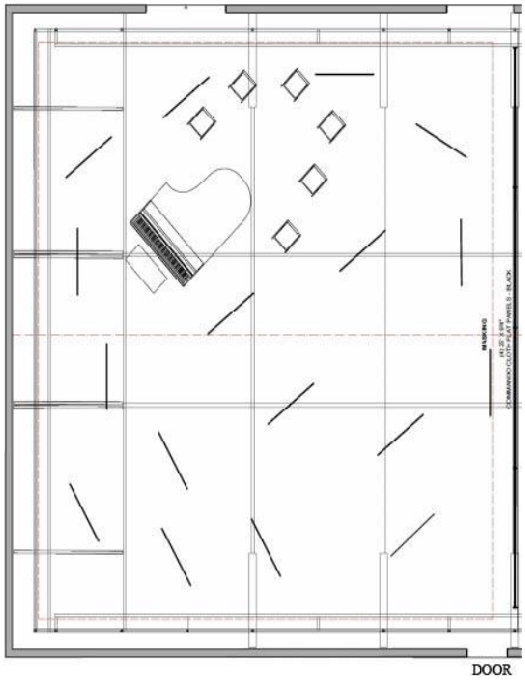

Figure 1: Ground plan for *spaces, between*

While in *spaces, between* the threshold between spaces is achieved through distinct shifts in the sensory component of an environment, the division between the two spaces is also marked through a clear shift in parameters of behavior. While this shift in social expectation is reminiscent of that of the concert hall, it also proposes distinctly different modes of engagement which challenge the conventions of concert hall performance. With my work, these changes in behavior were explicitly requested ahead of the performance, rather than resulting from tradition. At the performance, I spoke to attendees before they entered the theater, in order to both orient

them to the work and propose certain modes of engagement. The modes of behavior that I outlined before the audience members entered the theater included:

- I sought to orient the audience members to the space they were about to enter: The audience would enter an ongoing visual world. As a result, the theater would already be dark and the projections set upon their entrance.
- I provided information about how the space was set up, and how the attendees were encouraged to engage with the ongoing environment and situate themselves as the performance of my musical composition began. I encouraged attendees to explore the visual environment upon entrance, before finding a seat for the start of the performance.

- I offered models for how audience members might engage with the environment throughout the performance. This included a clear departure from Western concert tradition: the freedom for people to move through the space throughout the piece. In this regard, I sought to carefully balance the contemplative nature of both the visual and sonic component of the work, which require sustained listening and attention, with the dynamic physical interaction with the work that is an inherent component of my concept. I asked the audience to move through the space freely, but with a specific ethos of care and without disturbing the listening experience of others.

It is important to note that in the design of both the visual environment and the component of spatialization, there is no one optimal vantage point for the environment or the music. Instead, the work is spatially dynamic: it looks and sounds different from each position in space.

- In order to facilitate this balance between the creation of an attentive mode of perception and physical engagement with the spatially dynamic nature of the work, I asked audience members to remove their shoes and put on anti-slip foot covers if they were not wearing socks.

This request was the most direct intervention in an individual's "typical" mode of behavior and marked an overt moment of transition between the external space of the world and the internal space of the performance, even though it preceded the entrance into the theater.

My goal in doing this was to facilitate an experience that was effective for each individual. I wanted to allow attendees to be comfortable within the conditions of the environment and in their proximity to others. This positions my approach to liminality in opposition to that articulated by Van Gennep and Turner. Rather than seeing myself as an observer to the experience of transitional phenomena in my work, I see myself as a facilitator of that experience. In this way, I sought to ground my approach to the creation of the embodied experience of perceptual thresholds in an ethics of care.

As part of this ethics of care, I chose to speak to attendees before the performance myself, rather than a production staff member, or someone else associated with the performance. I did this to create a more personal dimension to the experience that I had created, again challenging the objective theorization of the concept of a threshold that I found articulated by Van Gennep and Turner. I sought to welcome each individual, orient them to the conditions they would encounter within the space and respond to anyone's concerns or questions before entering the performance space. Here, I sought to push against any assumption of universality in relation to embodied experience. Rather than requiring individuals to enter a space and adjust to the

perceptual conditions, I wanted to prepare individuals for these aspects so that each could navigate their own experience and negotiate their relationship to the space on their own terms, according to their own body, mind and sociality.

Another way that I modified conventions around a performance was in relation to how it came to a close. Here again, I sought to push against conventions of the concert tradition. Essential in this regard was my decision to eschew applause after the music came to a close. Again, I included this request in my remarks before the attendees entered the theater.

For me, asking audience members to refrain from clapping was essential in maintaining the temporality of the performance as a whole. In the Western concert setting, applause at the end of a performance provides a definitive "end" to the experience, and conclusion to a work. These were both characteristics that I sought to avoid, as both stand in opposition to the temporal experience I aimed to create. As the environment is ongoing, there is no "end" to the space of the sound and visuals. I conceived of the end of the music itself not as the end of the piece, but rather as the end of that portion of the experience. Just as the environment existed prior to the audience's entrance into the space, it continues after the audience leaves. Although the piece comes to a close, the performance does not. The time the audience spends within the space is therefore only a "window" into an ongoing performance. The potential for the musicians to begin playing again therefore intrinsically remains.

The removal of applause, and the model of indefinite temporality which characterizes the performance, significantly impacts the individual attendee's experience of the work. Typically, once clapping and bows have concluded, the house lights of the theater are turned on and audience members are free to talk again, gather their belongings and make their way towards the

exit. Therefore, while the applause itself marks a definitive end to the concert, once the lights are turned on, the audience members encounter a liminal phase of their concert experience in which they are able to transition between the heightened mode of perception engaged in a performance and "typical" modes of functioning in ordinary social situations. In this way, the applause marks not only the beginning of this transitional stage but a transformation in the nature of the theater or hall; once the lights have been turned on, the performance space becomes a pedestrian one. Once an attendee leaves the hall or theater, they have already been able to adjust to the end of the concert experience.

With my work, through the lack of a definitive conclusion signaled by applause, this liminal stage of experience between the theater and the outside world did not occur. Instead, my intention was to create a kind of discrete shift between these spaces and modes of perception, thereby creating a clear boundary between "external" and "internal" spaces, as was the case as audience members first entered the theater. Therefore, the process of transitioning between modes of functioning occurs once a person has already left the theater. In this way, a liminal stage occurs as the individual attendee must incorporate their experience of the work into whatever they do next.

Following the performance, many people who attended shared their experience of this aspect of the work with me. For some, crossing the threshold exiting the theater came with a degree of disorientation as a result of the stark contrast in environmental conditions. Others expressed to me that they felt somehow "refreshed," or "cleansed" as they left the performance. Additionally, some people shared with me that it took some time for them to readjust to the external environment after leaving, as they lingered mentally in the "world" that the work had immersed them in. Certainly, my intention was not to unsettle anyone in a way that was acutely

uncomfortable, but the notion of somehow being affected by the emergence from the visual and sonic environment of the work, and for perceptual faculties to be influenced as a result, was a core point of exploration with this project.

Eschewing bows and applause was an effective decision, but a difficult one to make. I wasn't concerned with undermining the habitual act of clapping after a performance ends, but had reservations about removing a tradition that is a customary way to express gratitude for the performance and admiration for the performers. While this didn't affect me directly, I was initially uncomfortable removing applause entirely as it felt ungracious towards a group of performers to whom I was deeply grateful for their hard work and commitment to the piece. In the end, I made the decision to ask performers about their feelings on how to handle this issue. It was one of the performers who suggested doing away with the applause entirely.

I understand the performance space, the Conrad Prebys Music Center's experimental theater, as a site integrated into a specific institutional structure, that of UC San Diego and the UC system as a whole. In this regard, it was interesting to experience the ways in which tension arose between some of the ways in which I wanted to curate the experience of the piece, the appearance of the theater, and institutional legal and safety protocols. Some of the issues that arose were resolved through modification of the customary procedures, but others were regulations that, in this context, could not be challenged.

In determining the nature of the threshold between external "ordinary" space and the internal space of the environment, the first tension arose in relation to the required safety

announcement that precedes the start of each concert performance. From my perspective, having the customary announcement locating emergency exits, which plays in the theater after audience members enter, would irreparably break the immersive atmosphere that I sought to create. In the end, this was a relatively simple issue to resolve as I was able to read the necessary information before attendees entered the theater, while they were removing their shoes.

Other issues, however, were more challenging. A significant limiting factor for me was that, while I wanted the visual environment to be entirely immersive, and for the audience to sit within a visual field defined entirely by the projected images, the exit signs within the theater cannot be turned off. The visual environment was designed with this knowledge, yet, as there is an exit sign on either side of the theater, it was impossible to create an immersive space in which the exit signs were not visible. While the bright red light of the signs surely contrasted with, and disrupted, the blue and gray hues of the visual material these exit signs also functioned as markers of the way in which the black box theater never functions as a blank, or neutral space.

Another tension between aesthetic considerations and legal regulations emerged in relation to my desire to hang a curtain over the door of the theater to prevent light from outside entering the visual environment as people entered. This, however, would have been a clear violation of the fire code, and therefore unacceptable. This was another point on which a potential negotiation must occur between legal regulations and creative ideals.

I do not detail these tensions in order to complain about the regulations. Rather, I find them to be interesting, if somewhat frustrating, components of the process of staging this work. These limitations situate the work within a specific context, and, as a result, the identity of the space actively shapes essential components of the work. While it might not feel ideal for this specific performance, I feel that reflecting on the way in which the contextual framework of a

performance space engages actively with the aesthetic considerations of a work, provides important points for further consideration. Certainly, the aspects of the work that I have outlined in relation to these limitations would be distinctly different in a privately owned space or a "DIY" performance context that exists outside institutional regulation.

Although this work is not site-specific in that it does not respond directly to specific features of the theater in which it was going to be performed, its design is dependent on the performance space. This is true of the spatial configuration of the visual environment, as well as the sound design and spatialization, and it is also true of the regulations which govern the space in which the work is performed. For future performances of this work, in different spaces, I will have to revise the design of the visual environment and sound design with collaborators to fit the spatial dimensions of the performance space, but I will also consider the regulations that govern the space in designing the overall experience.

Once the threshold between the external and internal spaces is established for audience members, a secondary threshold emerges: the relationship between the ongoing visual environment and the more finite temporality of the live musical performance.

Defining the relationship between these two components of the work was difficult as the intent was that for the attendee, the relationship would be somewhat murky. From my perspective there were two primary options that could achieve this. First, the piece was ongoing temporally, just as the visual environment was intended to be. In this scenario, the music would already have started upon the audience's entrance into the space. The second option was to

adhere to a model more reminiscent of a concert experience, in which the piece had a discrete beginning and end. Choosing which relationship between the visual and sonic aspects of the work was essential in defining the nature of the thresholds of perceptual experience that I sought to establish but was also essential in determining the project's orientation towards the Western concert tradition and practices of installation art.

In the end, I sought to maintain the inherently finite temporality of live performance, while embedding it within the ongoing nature of the visual installation. This resulted in a subtle, but essential, discrepancy between the temporality of the visual environment and the performance of my composition. This hybrid model draws on the temporal aspect of both the tradition of concert hall performance and models essential to the development of installation art. In this regard, the dual modes of temporality inherent in this work are a defining feature of the format of a concert-installation, as I have conceived of it.

II. Perceptual thresholds: Environment

While the initial threshold of the work arises as the audience members enter into the theater space, the experience of the visual environment itself is also defined by perceptual thresholds. In this regard, the visual and spatial components of the work do not center around a single threshold, as was established between internal and external spaces, but are instead centered around a series of perceptual thresholds, which unfold over the course of the work both spatially and temporally.

The spatial and visual design of the environment facilitates the experience of perceptual thresholds for the viewer, as they navigate their movement through, and discovery of, the space. The environment was designed so that there is no single optimal vantage point from which one

should experience the work. Instead, the work is spatially dynamic: It looks different from each position in space. As a result, audience members were invited to move through the environment during the course of the performance, navigating their way through the theater and continually encountering new aspects of the work with each change in perspective. With accessibility in mind, the design of the environment facilitates this experience even from a single position in space, as looking around, the visual imagery always appears differently.

During the performance, some aspects of the audience's movement patterns surprised me. I expected people to explore the ongoing visual environment once they had entered, before finding a seat as the musical performance began. However, in contrast, the vast majority of attendees found a seat quite quickly and most individuals who initially moved through the space did so only to find an open chair.

This was starkly different from the movement patterns I had observed with my previous piece, *through a mist*, which was performed in the same space, the experimental theater of the Conrad Prebys Music Center, in 2016. For this piece, I had created an open environment, with subtle lighting but no visual environment, and the four musicians were placed in each of the four corners of the theater. Each instrument was amplified and their sound spatialized independently. People were free to move around the theater during the performance. In this case, people walked around extensively upon entering the space and this movement continued throughout the first minutes of the performance. Over the course of the approximately 20-minute piece, this movement gradually slowed and by the half point of the work most audience members had settled into a single spot in order to listen.

With the performance of *spaces, between* I observed that although most people found a seat quickly, individuals' movements actually increased as the piece began. Interestingly, this

movement was also more deliberate in nature, as many individuals switched positions, moving from one visual and sonic perspective to another, but few walked continuously through the environment. I noticed that some people tried a few different spots within the environment and then remained there for the rest of the performance, while others moved from location to location, staying at each for five to ten minutes. It was also interesting to note that, although a few people remained in the same chair throughout, most of the audience seemed intrigued by, and eager to explore, the spatially dynamic nature of the environment. People that I spoke with after the performance also articulated to me that the changes in perspective created through changes in position shaped their experience of both the visual and musical components of the piece in a meaningful way.

In reflecting on the nature of the movement that I observed, as well as the differences that emerged in comparison with the performance of *through a mist*, it became clear to me that the spatial design of the environment was integral to the nature of the movement that I witnessed. First, I feel that the fact that the visual component of the work was immediately immersive upon entrance into the space actually influenced people to find a seat and adjust to the environment rather than to explore it, as I had originally expected. This makes sense, as I sought to create a clear division in the sensory conditions between the external area where attendees waited before entering, and performance space. In other words, it was the threshold that I established between these spaces that informed the nature of individuals' initial engagement with the environment.

I feel the design of the environment also influenced the nature of individuals' movement as the piece unfolded. As I mentioned previously, most people chose to make discrete changes in their spatial perspective but few moved continuously, or aimlessly, through the space. Elizabeth and I designed the environment to have visual "zones" so that, as I discussed, there were two

primary visual zones. This yielded four distinctly different fields of visual material and one's experience of this dimension could be transformed by changing their orientation to these zones.

I noticed as well that the audience members' movement seemed to reflect the comments I had made prior to their entrance into the performance space. In that context I noted that "the work is intended to create a contemplative environment that requires sustained listening and attention" but also invited the audience members to "change [their] position in the space during the performance" while being mindful of the experience of others. In sharing these comments, I hoped to facilitate a meaningful engagement with the work for attendees, without requiring anyone to adhere to a specific, defined spatial perspective. This goal was consistent with my understanding of embodied perception as a unique, individual phenomenon.

In order to create a dynamic space that audience members could actively explore, and which would allow the visual material to look different at every point in space, I felt it was necessary to de-cubify the theater to an extent, and to turn the rectangular black box that defines the space into an entity that felt less rigid and less rational. This informed the final spatial design of the environment, as well as the materials that we chose to create it. As I discussed previously, I developed the initial design of the environment so that the scrims would hang at a number of different angles, removing any optimal vantage point for viewing (see Figure 1). In setting the space up in this way, I also sought to challenge the rigidity of the rectangular theater and to introduce a more dynamic spatial awareness.

As Elizabeth and I continued our collaboration and began to develop the design further, they fine-tuned my initial sketches into a finalized ground-plan. Importantly, their work integrated my ideas into the dimensions of the specific performance space but also took into consideration the practicalities of *how* projections could reach this collection of surfaces hanging

at a variety of angles. Elizabeth and I decided on the placement of projectors in relation to the varying angles at which the projection surfaces would hang. As I mentioned previously, through the use of four projectors we created four different lines of sight, with some overlap between. Two of these lines of sight (1 and 4) oriented an individual's vision in contrast to the alignment of the walls of the space while the two that did point towards the wall (2 and 3) passed through multiple layers of scrims hung at angles that did not align with the perpendicular orientation the walls (see figures 2, 3, 4 and 5).

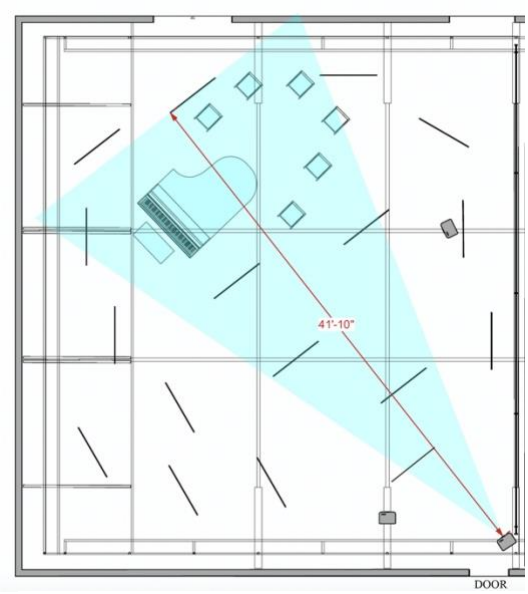

Figure 2: Projector 1 placement and path

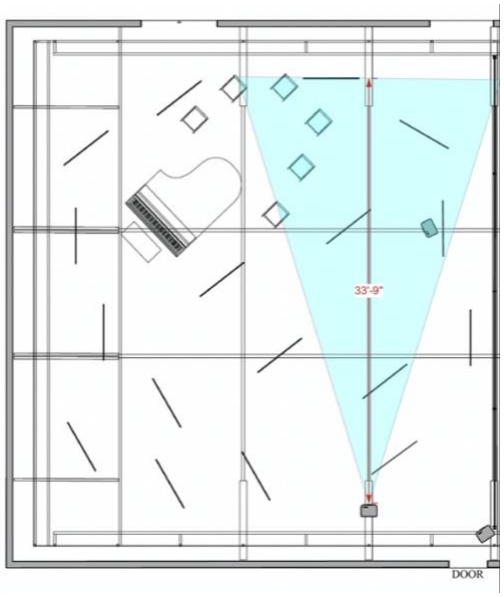

Figure 3: Projector 2 placement and path

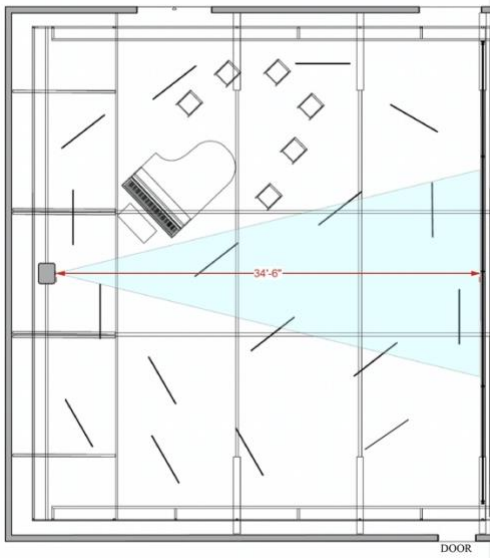

Figure 4: Projector 3 placement and path

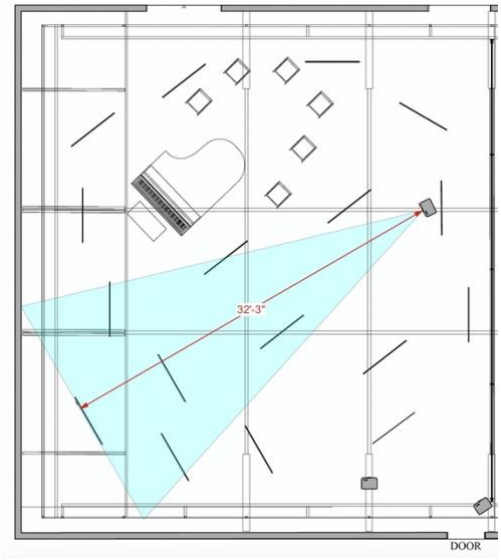

Figure 5: Projector 4 placement and path

My intention to de-cubify the rectangular theater also greatly informed the choice of material that Elizabeth and I settled on: somewhat translucent scrim (see figure 6). After considering other potential materials, such as “string curtains,” I decided it was essential that projections and light be able to bleed through the projection surfaces. As a result, it was necessary for the material to be permeable, catching but not entirely absorbing the projected visual material. In this way, the choice of semi-sheer scrim reinforced the spatial design. While the projection surfaces would hang at different angles, creating an irregular configuration, the passage of light through multiple scrims created an additional effect of layering, further blurring the spatial clarity of the theater space.

Figure 6: Scrim material for *spaces, between*

Within this context, an additional threshold emerges as the audience member's view of the performers shifts. Upon entrance into the theater, the musicians are largely hidden from view as a result of the layering of scrims and projected imagery. Yet, the spatial design of the environment that Elizabeth and I developed allowed for the presence of the performer to further reveal itself as attendees moved through the space.

In order to facilitate this experience, the issue of how and where to place the musicians within the installation was an integral aspect of the design of the environment. In my view, the placement of musicians was essential in establishing the work's relationship to the Western concert tradition that I was engaging with, and drawing from. As with the physical boundaries of the black box space, I wanted to both acknowledge and challenge the conventions of the Western concert tradition through the incorporation of live musicians into a visual installation. From the outset, it was essential to me that the musicians not function as a kind of "pit band" that was situated outside the environment and provided a soundtrack for an exclusively visual experience. Rather, it was essential that the presence of the musicians be fully integrated into the visual

environment in a seamless manner. In my conception, the presence of the performers is intended to be evident from the moment the audience member enters the space but also to never be the center of attention. This allowed for there to still be a stage, reflecting the work's engagement with the concert hall, embedded within an environment that also undermines the clarity of the stage's presence.

The musicians were placed in one of the primary lines of sight, from the entrance door to the back right corner. As a result, the musicians were immediately visible upon entrance into the space, but only through multiple layers of scrims and projections. In this way, the musicians were a central focus of the visual environment yet, at the same time, from every angle the view of the musicians was obscured or blurred by the hanging scrims, covered in projected imagery. In this way, the musicians first appeared almost as a type of mirage. As the attendees moved through the space, navigating the layers of imagery, the presence of the musicians became more evident, and the view clearer, but never revealed a true "stage." Instead, the musicians inhabited an inner chamber of the visual environment, immersed within the visual imagery.

The individual audience member's shifting orientation to the musicians, as the performers became increasingly visible, functioned as an additional transitional phase which ultimately yielded a perceptual threshold. The process of navigating one's way through the visual environment was a type of evolution of one's visual and spatial perspective in relation to the presence of the live performance. A threshold occurred as the attendee's view of the musicians became clear, and then another emerged as the audience member changed their perspective again and their view of the performers became blurred again. In this way, the perceptual threshold that occurred in relation to the view of the musicians was not linear. Rather, it was one that occurred again and again, with each change in perspective that an audience member made.

Attendees also shared with me that the position of the musicians influenced the nature in which they moved through the space, and the perspective that they chose to prioritize. Interestingly, people found themselves negotiating their own, individual, orientation to the live performance, and by extension, to the "stage" embedded within the environment and to traditional Western concert performances. Some people told me that they intentionally chose to always have the musicians in their line of sight, even if their view was clouded by layers of scrims and projected material. Others mentioned that they preferred to have a clear view of the musicians while balancing that with their view of the visual component of the work. Another experience that attendees shared with me was actually a preference for a perspective that did not prioritize a view of the musicians at all and instead focused on the layering of projected material and held the live performance only in the periphery of their view. This diversity would seem to have met my goal of allowing attendees to navigate their own embodied experience based on personal interest and comfort.

III. Perceptual thresholds: The music

The musical composition develops around a series of perceptual thresholds which unfold over the course of the work. The music contains two large sections, roughly equivalent in length, each of which is defined by particular harmonic structures. The first section ranges from the beginning of the piece proper at 0:00 to 25:20 while the second section follows, lasting until the conclusion of the piece at 46:30. The first half of the piece engages primarily with thresholds of audibility, while the second section recontextualizes the first. In this way, a middle ground between the two halves is established and again, a series of thresholds emerge as the piece unfolds.

Multiple “thresholds of audibility” occur in the musical material throughout the work. In the first section, these thresholds occur as a result of gradual changes in harmony while in the second, these thresholds emerge primarily through the slow widening of the range from one half step to five octaves.

In the first half of the piece, a microtonal drone is established around the equal-tempered pitch D4. While the D4 continuous tone is rendered through the overlapping of pitches played by the five string instruments, the overall harmonic organization is based on the behavior of the harmonics heard in the piano part. Each of these harmonics results in the creation of a different cent deviation from an equal-tempered D4, based on the fundamental and partial number of each. As multiple harmonics are activated in succession, the resonance of one begins to beat with the other(s), creating a “cloud” of harmonic beatings.

Acoustical beating functions as an auditory phenomenon, but also as a physical and spatial one. Beating can be felt in the body and, therefore, creates a harmony that facilitates an embodied mode of listening. This form of listening is also spatially dynamic, as the presence and strength of beating can vary depending on one’s position in space. In my own experience, I have found that people’s perception of beating varies widely, as some sensitive to the phenomenon than others. The prominent role of acoustic beating in this work, especially in the first half of the piece, creates an additional layer of embodied experience, again, rooted in individual engagement.

The harmony which results from the collection of harmonics articulated in the piano informs the harmonies played by the string instruments. In this way, each of the microtonal gradations of the D4 pitch articulated by the strings is derived from the harmonic series. Each microtonal pitch in the strings is an overtone of a “ghost” fundamental, some of which are heard

at moments, but most of which are never actually articulated. Just as the collection of piano harmonics, each resulting in a different cent deviation from the equal-tempered D4, creates a cloud of harmonic beating, the five string instruments create a secondary cluster of beating which weaves in and out of that established by the piano.

The nature of the D4 microtonal drone is continually shifting, as microtonal gradations of the pitch fade in and out. Through this section, the shifting nature of the drone occurs through the gradual introduction of new gradations of D4 and the widening and narrowing of intervals between these pitches. The expansion of the micro intervals never occurs in a linear manner, consistently widening, but rather evolves in a process of ebb and flow. No pattern of progression is implemented in the music and so the rate of expansion and contraction is unpredictable for the listener. These gradations gradually shift between being more pronounced, as intervals between gradations widen, and less pronounced, as the intervals narrow. I conceived of the introduction of each new pitch, as well as each time the intervals widen and narrow, as a threshold of audibility, as the dimensions of the harmony shift. Yet, because these events never occur at regular or predictable rates, thresholds occur unexpectedly throughout this section of the piece.

The first half of the piece is structured around the introduction of additional gradations of D4 to the harmony and, eventually, the introduction of gradations of D#4. This evolution of the harmony creates the large-scale trajectory of this section of the work. At the opening of the piece, the primary pitches are determined by piano, double bass and cello harmonics, including the natural harmonic of the 7th partial of E, yielding D (-31) in the bass, the 5th partial of Bb in the piano, yielding D (-14), and the second partial of D, creating D (+0) in the cello (listed in order of appearance). The D (-31) harmonic that appears in the double bass line at 0:00 is then picked up by the piano at 1:15 and incorporated into subsequent articulations. In the opening

minutes, these pitches are then mirrored in the other string parts and comprise the entirety of the pitch material.

This set of pitches expands for the first time when the 11th partial of G#, yielding D (-49) enters at 3:10 in the viola line. The 3rd partial of G, heard as D (+2), then appears in the cello part at 3:30. This expands the range of the set of pitches from 17 cents (-31 to -14) to 51 cents (-49 to +2). At this point, the overall range is roughly a quarter tone, although the individual intervals are smaller.

The introduction of new pitches, and the widening of the overall range, does not coincide directly with changes in the width of the intervals. For example, prior to the introduction of D (-49) at 3:10, the widest interval had been 31 cents, between D (-31) and D (+0). When D (-49) enters it is initially harmonized with D (-14), yielding an interval only slightly wider at 35 cents and D (-31), yielding an interval of 18 cents. The harmony between D (-14) and D (-49) occurs again at 5:52. It is only upon the third entrance of D (-49) at 7:00 that a wider interval of 49 cents occurs with the overlapping articulation of D (+0). D (+2) then appears with D (-49) at 8:30, creating an interval of 51 cents. Yet, at 8:50, the interval has narrowed again, as D (-49) appears against D (-31) and D (-14). At this moment, the intervals are only 35 cents, 18 cents and 17 cents.

The interval width then widens significantly after the entrance of the 23rd partial of G#, creating D (+28), at 9:15. The cello enters at 9:20 with D (-49) rendering an interval of 77 cents. D (+28) is heard for the second time at 10:30, first as a single line against D (-14) in the piano and then harmonized with D (-31) and D (-49). Here, the widening of the interval is more complicated, as while the 77-cent width is maintained between D (-49) and D (+28) and an interval of 59 cents is introduced between D (-31) and D (+28), the significantly smaller interval

of 18 cents between D (-31) and D (-49) emerges underneath, creating a layering of wider and narrower intervals and undermining any sense of linear opening of interval width.

The same pattern occurs with the entrance of the 13th partial of F#, creating D (+41) at 12:20. Here, the overall range expands to 90 cents, from the lowest pitch in the collection, D (-49), to the highest pitch in the collection, D (+41). At the entrance of D (+41) at 12:20, the D (-31) in the viola line results in an individual interval of 72 cents, however. This is simultaneously accompanied by an interval of 31 cents between the D (+0) in the cello and the D (-31) in the viola, as well as an interval of 41 cents between D (+0) and D (+41). Again, here, a layering of intervals of different sizes undermines a sense of linear development as the range expands.

At 13:47, a wider interval occurs again, as the D (+28) is heard against D (-49), yielding an interval of 77 cents again. Once more, this narrows subsequently, as at 14:12 the D (+28) pitch drops out, leaving D (-14), D (-31) and D (+0). At 14:20, D (-49) is added to the harmony, creating a stack of intervals: 17 cents between D (-14) and D (-31), 31 cents between D (-31) and D (+0), 14 cents between D (-14) and D (+0), 18 cents between D (-49) and D (-31), 35 cents between D (-49) and D (-14) and 49 cents between D (-49) and D (+0), all significantly smaller than the interval of 77 cents heard at 13:47. This narrowing becomes more pronounced shortly after, as the four part texture thins to a two-part texture consisting of D (-31) and D (-49), yielding an interval of only 18 cents between 14:30 and 14:45.

However, immediately, the process of widening and narrowing continues, as D (+41) is introduced against D (-49) at 14:45. This creates an interval of 90 cents between D (-49) and D (+41), which begins to hint at an interval of a half step. Each of these pitches is offset by the 7th harmonic of E in the piano (D -31). This creates intervals of 18 cents and 72 cents

simultaneously with the 90-cent interval. Here, the movement between wider and more narrow intervals, and the stacking of wider intervals and narrow intervals continues.

The next new pitch to be added to the collection is D# (-49), at 16:15 in the piano part, subsequently at 18:00 in the piano and then at 18:35 in the cello line. These are the first iterations of a gradation of D#, and are therefore a significant harmonic departure. Yet, these markers are intentionally camouflaged, and incorporated into the broader structure of fluctuating interval sizes. At 16:30 an interval of 59 cents is heard between D (-31) and D (+28). This is accompanied by intervals of 31 cents and 28 cents between D (-31) and D (+0) and D (+28) and D (+0). At 17:12 the harmony thins to a single line, D (-31) in the Double Bass, which is then articulated at 17:30 by the piano.

At 17:47 the interval widens to 42 cents, between D (-14) and D (+28). This widening continues at 18:00, as the D# (-49) in the piano appears against D (+28), D (-14) and D (-31), yielding intervals of 82 cents between D# (-49) and D (-31), 65 cents between D# (-49) and D (-14), 59 cents between D (+28) and D (-31), 42 cents between D (+28) and D (-14), 23 cents between D# (-49) and D (+28) and 17 cents between D (-14) and D (-31).

Here again, a wider interval of 82 cents is heard simultaneously with the narrower interval of 59 cents and the significantly smaller intervals of 23 and 17 cents, creating another stacking. Even the largest interval at this point, 82 cents, is smaller than the interval of 90 cents heard at 14:45. Again, this exemplifies the non-linear process of widening that defines the first half of the piece.

From here, D# (-49), and then additional gradations of D#4, are incorporated into the harmony. The moment of interval widening at 18:00 continues at 19:00, as an interval of 82 cents occurs again between D (-31) and D# (-49). Yet, here, a stacking of intervals occurs again,

yielding narrow and wider intervals simultaneously. In addition to the 82-cent interval, these include: an interval of 65 cents between D (-14) and D# (-49) and an interval of 17 cents between D (-31) and D (-14). Similarly, at 19:52, D# (-49) occurs against D (-31) and D (+28), yielding intervals of 82 cents, 59 cents and 23 cents. A narrowing then occurs at 20:00 as D (-14) enters and subsequently, D (+0). At 20:25 D (+41) is heard, against D (-14) and D (+0), creating intervals of 55 cents, 41 cents and 14 cents.

Once D#4 is established as the central pitch at 21:30, the intervals widen significantly again at 22:10. Here, D# (+28) is heard with D (-31). This interval functions as the furthest extent of the intervallic widening. While it suggests a discrete change in harmonic material, the intervals subsequently narrow once again. For example, at 23:22 D# (-14) appears alongside D# (-49), creating an interval of only 35 cents. From there, D# (+2) emerges at 23:30, yielding an interval of only 16 cents with the D# (-14). From there, the structure of widening and narrowing is complete, and the texture of the music thins out and comes to rest on single iterations of gradations of D# before the second half of the piece begins.

The fluctuation between the widening and narrowing of intervals and the simultaneous stacking of wide and narrow intervals creates a process of harmonic development that is constantly in flux. As both of these attributes remove any sense of linear development from the first half of the piece, the harmonic evolution of the music is both dynamic and amorphous. While the set of pitches, and the resulting intervals between, are limited in number, the particular manner in which new pitches and intervals emerge are never the same. Similarly, the specific method for the widening and narrowing of the intervals does not follow the same procedure each time. This creates an additional layer of ambiguity in the ever-changing harmony of this section of the piece, which is reinforced by the different rates at which these changes occur. Just as there

is no prescribed manner in which these developments occur, there is no clear, audibly discernable, pattern for when these changes occur.

Instead, in composing this aspect of the work, I carefully determined the proportions of these shifts to avoid establishing a feeling of any expectation for when the size of the microtonal intervals would change. I carefully manipulated these proportions to avoid the feeling that there was any discernible objective rationale for these shifts. In this way, the structure of the changes in the harmony becomes amorphous, ambiguous and irrational for the listener.

The microtonal gradations of D4 also gradually become more audible over the course of the first half of the piece because a type of ear training takes place. This allows for another threshold of audibility to emerge gradually over time. The focused nature of the harmony slowly orients the listener to the subtlest shifts in pitch, as the same cent deviations, and intervals between, continue to return again and again. Through the sustained engagement with the subtleties of these harmonies that the piece facilitates, the listener's ears slowly become accustomed to the microtonal movement, and the harmony begins to reveal itself to a greater degree.

As a result of these two factors, the experience of listening to the first half of this work is centered around a series of thresholds of audibility. The experience of listening to Part A of the piece is defined by the series of moments when the listener hears a widening of the microtonal interval, its disappearance, and then the introduction of a new widening of the intervallic relationship between pitches. Because this process of expansion and contraction occurs at unpredictable rates, and because this process never occurs in the same way or to the same degree, each time the interval widens and narrows, the listener encounters this threshold of audibility anew. Rather than establishing a single moment at which point the pitches peel away from each

other, yielding a clearly demarcated additional pitch, the appearance of new intervals becomes apparent and is then withdrawn, creating a succession of thresholds where changes are audible, then inaudible and then audible again. Inevitably, each listener's ears will adjust to the pitch material at different rates, and different levels of acuity, resulting in the moment of differentiation occurring at differing points in the piece. However, the experience of thresholds of audibility is an integral component of the work, regardless of the exact nature of this perception.

The non-linear addition of pitches, and the expansion and contraction of microtonal intervals creates ambiguity in the musical material. This results in an ambiguity of perceptual experiences: There is never an exact moment when each person is intended to hear a change in the harmony. Instead, the evolution of the harmony occurs through extended processes of transition and each individual might locate a point of change in a way that is unique for them. For me, the ambiguity of musical material is intriguing because it allows for an individual perceptual experience to occur.

On a larger-scale, the form of Part A facilitates a second type of threshold of audibility: the moment when the individual listener discerns a second pitch, separate from the microtonal gradation of the equal-tempered D4. This threshold of audibility emerges gradually, as a result of the changing harmonic material. A significant shift occurs when a microtonal version of D#4 first occurs in the music, in the piano part, as the 11th partial of A at 16:15. However, the emergence of this new pitch is camouflaged by the pitch material heard in the string parts. As a result, while this moment hints at the presence of a "second pitch," it is not clearly audible, or perhaps not audible at all for some.

At this point in the piece, the harmony consists of a variety of intertwining gradations of D4 including: the 13th partial of F# (+41), 23rd partial of G# (+28), 9th partial of C (+4), an equal-tempered D, the 5th partial of A# (-14), 7th partial of E (-31) and the 11th partial of G# (-49). In this section, the harmony introduces the partials yielding higher deviations (+28) and (+41) in relation to the partials yielding lower deviations (-49, -31, -14), both revolving around the equal-tempered D4. In order to create the gradual emergence of D# (-49), I composed the harmonies so that the higher deviations of D4 are heard with increasing frequency as the music approaches the introduction of D# (-49) at 16:15. In this way, the harmony is extended upwards towards the D# (-49), yielding a progression, rather than a distinct shift.

The first section of the piece prioritizes the presence of the lower deviations of D4 (-49, -31 and -14) in combination with articulations of the equal-tempered D4. The 23rd partial of G#, yielding a deviation of +28, first occurs in the viola part at 9:15 and is subsequently incorporated into the pitch set consistently. The establishment of the presence of D (+28) widens the "register" of the harmonies that were previously heard.

Alongside this, the 13th partial of F#, yielding a deviation of (+41) also emerges. D (+41) is first heard at 12:22, roughly three minutes after the first articulation of D (+28). As was the case with D (+28), the D (+41) pitch goes on to be incorporated as a primary component of the harmony. In this way, a progression is established from the entrance of D (+28) to the emergence of D (+41) to the first iteration of D# (-49). This creates an ascending line of micro intervals, which leads to the entrance of a gradation of D# for the first time.

I also obscured the emergence of D# (-49) through the presence, and absence of D (-49) throughout the minutes preceding and following D# (-49) at 16:15. The D (-49) is heard essentially continually between 13:12 and 15:50, in different string parts. At 15:50 D (-49) drops

out before the D# (-49) is first heard at 16:15. In this way, while the D (-49) is no longer present at the time of the first iteration of D# (-49), the auditory "memory" of D (-49) is still present. This duality creates an ambiguity between the D# (-49) as an extension of the D (+28) and D (+41) ascending line and a clearly distinguishable second pitch, in a half-step relationship with the D (-49). While for some, a discernible "second pitch" might occur at 16:15, for others, the presence of microtonal variations of D# might only become audible as the pitch becomes more prevalent in the string parts.

The D# (-49) is not heard again until 18:00, when the harmonic is rearticulated in the piano, and then in the cello part at 18:35. At this point, the D# (-49) harmonic in the piano retroactively functions as a foreshadowing of the harmonic movement that begins at 18:35 towards the establishment of an equal-tempered D#4 as the new central tone at 21:30. The portion of music between these two points functions as an intermediary zone harmonically and introduces a secondary threshold of audibility as the new prevalence of D#4 slowly emerges.

Following the statement of D# (-49) at 18:35, the pitch becomes increasingly incorporated into the overall harmony, as was the case with the introduction of D (+28) and D (+41). In this way, the emergence of D# (-49) is further camouflaged.

As D#4 becomes the central pitch, microtonal gradations of D4 are still present, creating a wide (in this context) interval of pitches. This collection includes iterations of D (-31), D (-14), D (+28) and D (+41), which continue to function in relation to an equal-tempered D4. In this way, the gradual emergence of D# still occurs within the framework of an extended range of microtonal deviations of D4. At 21:00 the 7^{th} partial of F, creating D# (-31) enters. At 21:17 the 3rd partial of G#, yielding D# (+2), is stated. Then subsequently at 21:22 the 5th partial of B,

rendering D# (-14), is heard. The arrival of these three additional microtonal variations of D#4 brings about the establishment of D# as the new central pitch at 21:30.

At this point, the music has finally moved away from the consistency of the D4 drone, and the presence of a second pitch becomes more clearly audible. However, after the establishment of the D#4 as a definitive second pitch, the subsequent harmonic expansion of microtonal versions of this new tone continues as part of a process of gradual evolution. While the pitch collection at this point in the piece consists primarily of deviations from D#, including D# (-49), (-31), (-14), (+2), (+28) and (+41), versions of D4 are still heard woven into the texture. For example, a natural harmonic of the 7th partial of E, yielding D (-31), appears in the double bass from 22:05 to 22:35 and then a natural harmonic of the fifth partial of A#, creating D (-14), is heard from 23:00 to 23:17.

The continued presence of versions of D4 allows the D#4 tone to emerge organically out of the ever-evolving cloud of beating, facilitating a further widening of the intervals present and gradually establishing a notable difference between the two pitches. At this point, the process of discerning two distinct pitches is complete, and the transition towards Part B begins in the music.

A distinct, but subtle, shift in pacing occurs in this intermediary phase of the piece in which the music transitions to a D#4 central pitch and then to an E4 central pitch as the second half begins at 25:17. In contrast to the gradual process through which a new central pitch was established in Part A, over the course of more than 20 minutes, the transition from D#4 to E4 occurs at a much more rapid pace. While D#4 emerges as the central tone at 21:30, the shift to E4 is complete at 25:17. In contrast to the previous transition, this one occurs not through the gradual addition of microtonal gradations of E on top of those of D# but rather through

movement between fundamentals that yield higher deviations from D#4 that eventually lead to the E4 (+0) tone.

In the first instances in which a version of D# is introduced, beginning at 16:15, the pitch occurs as the 11th partial of A, yielding a -49-cent deviation. Subsequently, by 21:25, a collection of gradations emerges: D# -49, -31, -14 and +2 cents. By 22:00 however, a +28 deviation from D#4, is heard and joins the existing group. This pitch set remains constant past the moment when the texture thins to a single note at 23:45 with D# (+2). A subsequent iteration of the D# (-31) creates a type of micro melodic movement within the line, which then yields an iteration of the 13th partial of G, resulting in a +41 deviation. This is the first statement of this gradation of D#4 and, as it is higher in pitch than the others, provides a bridge between the primary collection of pitches that define this intermediary section and the emergence of E4 as the central tone at 25:17. In this way, the +41 gradation functions as a type of "leading tone" which guides the music to rest on E4 as part B begins at 25:17.

The establishment of E4 at 25:17 as the new central pitch functions as another harmonic threshold, as a distinct shift in the harmonic structure of the music occurs. A new, static, "shadow" fundamental, an equal-tempered E2, emerges. In this way, as was the case in the first half, the central pitch is a partial of a fundamental that, at the opening of Part B, is only occasionally articulated. Regardless, the consistent nature of this shadow fundamental drastically transforms the harmonic behavior of the music. Rather than creating a cloud of beating around a single note, each of the microtonal pitches of the second half are derived from the harmonic series of the E fundamental, but all of the pitches have been transposed freely from octave to octave. This creates a type of microtonal scale within a single octave.

Therefore, the harmonic relationship between ghost fundamental(s) and the partials which comprise the harmony of Part A is inverted in Part B. In the first half of the music, while there was a collection of ghost fundamentals, the partials articulated in the music resulted in microtonal gradations of a single equal-tempered pitch. Yet, in the second half, while the fundamental remains static, the partials that comprise the harmony yield a variety of pitches, which through free octave transposition, again appear in the same range.

The distinctive shift in harmonic organization that occurs at the opening of the second half presents a clear shift in the nature of the music. The establishment of a single shadow harmonic provides a new sense of stability. The simultaneous expansion of the intervallic content, which finally allows the cloud of beating which characterized the first half to subside, creates a blooming of sorts in the music, transforming the perceptual experience of the piece. This characteristic of the music results from the restraint in range that characterizes the music of the first half. In this way, the first section of the piece facilitates a type of sensory recalibration for the listener, as every subtle microtonal harmonic shift becomes audible. This recalibration comes as a result of the way in which a series of thresholds of audibility occurs throughout the first half of the music, transforming how the listener hears.

As a result, the distinct change in the harmonic identity of the music at 25:17 comes as a stark shift in the progression of the music. This moment is prepared for in the music through a gradual winding down of the cloud of beating present throughout the first section, and the simultaneous manner in which the music gradually comes to rest on E4.

Yet, the opening of Section B brings a perceptual shock as a result of the speed at which the music moves from one set of harmonic organization to another. This is the first moment in the music that presents a stark shift in the behavior of the musical material. As a result, the

opening of the second section feels very intense. The dramatic nature of this moment is a *result of* the recalibration that occurs in the first half. In this way, the extended restraint of the material of the first half facilitates the intensity of the musical blooming that occurs beginning at 25:35.

The sonic blooming that occurs as a result of shifts in the harmonic organization of the music is facilitated by the very narrow range, sustained over an extended period of time, of the first half. In this way, the series of thresholds of audibility that characterize the first half of the music, and yield the recalibration of the listener's ears, transform the perceptual identity of the music of the second half. In other words, the music of the second half would sound different if not prefaced by the music of Part A.

Yet, at the same time, the transformation of musical material that occurs at the opening of the second half also recontextualizes the music previously heard. In this way, the listener is prompted to "listen backwards." The blooming of harmony that begins at 25:35 allows the listener to fully feel and comprehend the previous limitation which defined the first half of the work. In this way, another perceptual threshold is established, through a conflation of temporalities as a mode of listening through memory occurs.

Over the course of the remainder of the work, the music passes through a series of subsequent perceptual thresholds, as the blooming of the music continues and transforms. In this portion of the piece, the transformation of material continues to unfold gradually, again creating an ambiguity in the experience of the development as the shifting nature of the music is never entirely evident. In this way, an additional type of perceptual threshold is established. As in the first half, the perceptual threshold is one of audibility, but centered on gradual evolution of register over time, rather than the transition to a second pitch.

Unlike in the first half of the piece, the pitch material remains relatively consistent throughout the second portion of the work, shifting subtly only in the final minutes. The primary process of transformation which occurs between 25:17 and the conclusion of the music at 46:30, is the drastic widening of the range of the harmony, across multiple registers. In this context, a significant transformation occurs over the course of the second half of the piece as the range of the music gradually moves from roughly a half-step at 25:35 to five octaves by the conclusion of the music.

One of the ways in which the range of the music gradually widens is through the increasing presence of the E2 shadow fundamental, as it is slowly established as a drone underneath the other lines. The first statement of E2 occurs from 26:50 to 27:10 and subsequently becomes increasingly frequent in its presence. At 40:00, the bass settles on the E2, although it is heard intermittently, rather than continuously. Over time, the consistency of its presence increases: 40:00 to 40:25, 40:30 to 40:50, 41:00 to 41:20, 41:25 to 41:42, 41:50 to 42:10, 42:15 to 42:30. Then, at 42:37, the double bass articulates E2 for the last time, as it becomes a constant pitch underneath the undulating harmonics of the upper strings. Although E2 is established as a new drone at this point, its intermittent quality continues through the rest of the piece, as the double bass moves between crescendos and decrescendos, as the upper strings fade out and then cease playing altogether by 44:45.

Simultaneously throughout this process, the range of the string writing slowly widens. While the E2 fundamental emerges two octaves below the E4 central pitch of part B, the writing for the other four string instruments gradually incorporates more pitches in the 5th octave as the music develops. Subsequently, at 37:55 the music extends into the 7th octave in the Violin 1 part. Pitches in the sixth and seventh octaves become increasingly frequent and, as is true

throughout the work, through a process of gradual transition, the music comes to settle in the 7th octave in Violin I and II at 41:30. Once the viola drops out at 42:45, the two violins continue alone above the E2 drone, in the 7th octave. In this way, while the range of the music for the first half of the piece was constrained within a half-step, by the final portion of the piece, a range five octaves wide is established.

Yet, at the same time, despite this drastic shift in range, the harmony comes to rest, beginning at 42:45 in the Violin I and II parts, on material reminiscent of that which defined the first half of the piece. In this regard, as the piece winds to a close, the pitch material becomes significantly more limited. While the E2 drone is continually present in the double bass beginning at 42:37, in the Violin I and II parts, beginning at 42:47, the pitches are limited to: F# (+4), F# (-45), G (-49) and G (+42), respectively, all heard in the 7th octave. This creates an interval significantly smaller than the intervallic relationships which define most of the second half of the piece, and which, at that point, have not been heard since the conclusion of the first half.

As a result, a secondary perceptual threshold occurs in the harmony. While the range slowly expands, by the final minutes of the piece, the intervallic relationships between pitches in the Violin I and II have narrowed significantly. As with each process of transformation previously, the narrowing of intervals emerges gradually in the Violin 1 and 2 parts, even as the viola and cello contribute separate pitches beneath. Microtonal gradations of F, F# and G in the fifth octave can be heard as early as 29:25 in the Violin I part. From there, microtonal deviations of F, F# and G continue occurring in the Violin 1 and 2 lines with increasing frequency, all in the fifth octave.

At 37:52, Violin I and II begin transitioning to harmonics. From there, the predominance of the pitches and harmonies which characterize the end of the piece slowly become prominent in the 7th octave. Although the violin lines come to rest finally on microtonal versions of F# and G, the arrival at this pitch center is facilitated by the inclusion of gradations of F, which allows the intervals to gradually narrow. The progression of the increasing presence of these pitches is further blurred by the alternation between pitch centers of C, C# and D and F, F# and G before the music comes to rest on microtonal gradations of F# and G, played as harmonics in the 7th octave.

As the music comes to rest on the E2 note in the Double Bass part, the unfolding of the series of thresholds of audibility that defines the structure of the music is complete. The entirety of the work consists of a series of slow transformations of material. The slow pace at which the music develops creates ambiguity in the trajectory of the music, which is only resolved once a clear threshold of evolution becomes audible. None of the distinct shifts in material develop in a consistent, linear fashion so each time a new element of the music is heard, the continuity of the process of transition is broken. The thresholds of audibility in the music therefore reflect the notion of discontinuity within unity that I proposed as my own embodied experience.

IV. Thresholds: Correspondences between music and visuals

i. Conception

For me, breaking away from both temporal synchronization and the binary relationship between sound and image of the screen necessitated that I reconsider my conception of what the relationship between the visual and sonic components of the piece could be. With *spaces,*

between, I sought to create a correspondence between the two mediums in a broader, more intuitive and perhaps more elusive sense. In this way, with this piece, I sought to allow the audience to inhabit a unified audio-visual space.

However, despite a more ephemeral interaction between sound and visual materials, I continued to envision the visual and sonic components of the work to be inextricable, but through correlation, rather than direct translation. I located this quality in the correlations that are established between sonic and visual material, rather than in a direct translation between the two. In this way, an experiential unity between the two materials occurs, but in a manner that is more elusive than temporal synchronization.

This conception is a result of my own perceptual experience and creative process. Even in the concert music that I have written in the past which did not include any visual component in its performance, my musical ideas always developed in response to some visual stimulus: a work of visual art, something that I had seen or noticed or, increasingly in the last few years, a photograph that I had taken myself. The nature of the sonic responses to visual material that I experience are somewhat idiosyncratic, appearing as an unintentional, quasi-synesthetic response to one sense, vision, with another, auditory perception. It is an immediate, and intuitive response, and not a constructed, intentional association. I interpret these experiences as moments of cross sensory perception in which a blurring of the senses occurs. I conceive of it as a type of "slippage" of the visual into the sonic realm. In this context, the visual *is* the sonic, and vice-versa.

Importantly however, my sonic responses to visual stimuli are atemporal in nature. The association is singular, appearing almost as a sensory "flash," rather than as one that develops or

expands in any way. As a result, in my compositional process, these sonic responses function as a type of source material, which form the basis of the musical material of the work but do not offer a formal structure or any inherent sense of development. Therefore, while the basis of the musical material of my compositions is inextricable from my initial sonic response to a visual stimulus, the process of composing the piece involves developing an overall structure for that material over time. In other words, I translate an atemporal experience into a temporal one.

This process of translation informs my approach to form, and ties the structure of the work back to the moment of visual-sonic association. Rather than considering form as an abstract structure in architectural terms, I "play" and experiment with the musical source material from that initial experience to figure out how it can function and unfold in time. As a result, although I develop the form of a piece separately from the atemporal "flash," the ultimate form is derived from the nature of the source material itself, and as a result, the initial association. For me, therefore, the entirety of the work is grounded in my personal experience of a sensory slippage between vision and sound.

In developing *spaces, between*, I followed this process with both the musical and visual components. With both, the source material of an initial quasi-synesthetic experience functioned as the starting point. The visual-sonic association that functioned as the source material for this piece was one that I had been contemplating for a few years. The visual impetus was one of murkiness, of shifting lights and shadows on gently moving water. In this way, it was a diffuse image, one that lacked defined or geometric features and offered a color palette and texture that was evocative for me. This visual resulted in a sonic association that was also ambiguous in nature, as it was more of diffuse timbre rather than explicitly gestural. It had an almost trembling quality to it, but also contained distinct pitch content.

This visual stimulus was one I originally encountered in passing. As such, it's not one that I initially took a photograph of or tried to document in any way. Instead, it was simply a chance encounter, but one that stuck with me as particularly intriguing, both visually and sonically. Over the last handful of years, I have returned to this type of visual material in my own photography a number of times, and so although I do not have the first encounter documented, I do have a collection of imagery that reflects it.

Figure 7: Reflections on a pond at dusk. Photo by author.

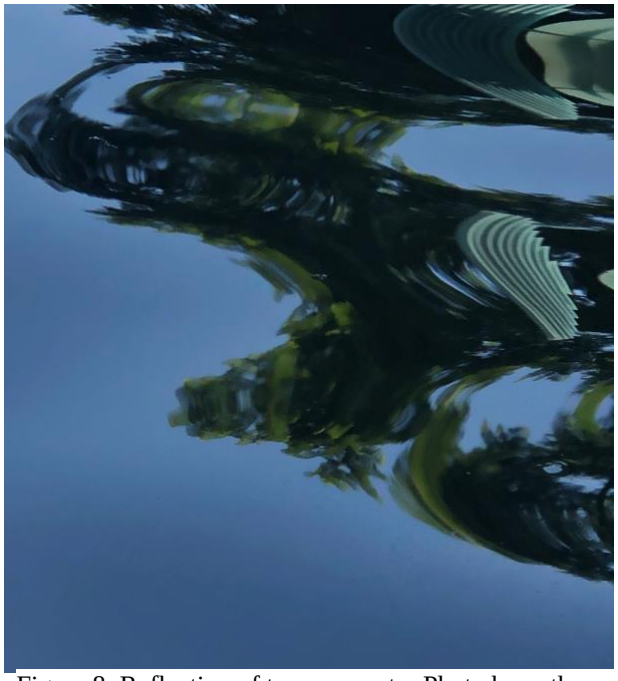

Figure 8: Reflection of trees on water Photo by author.

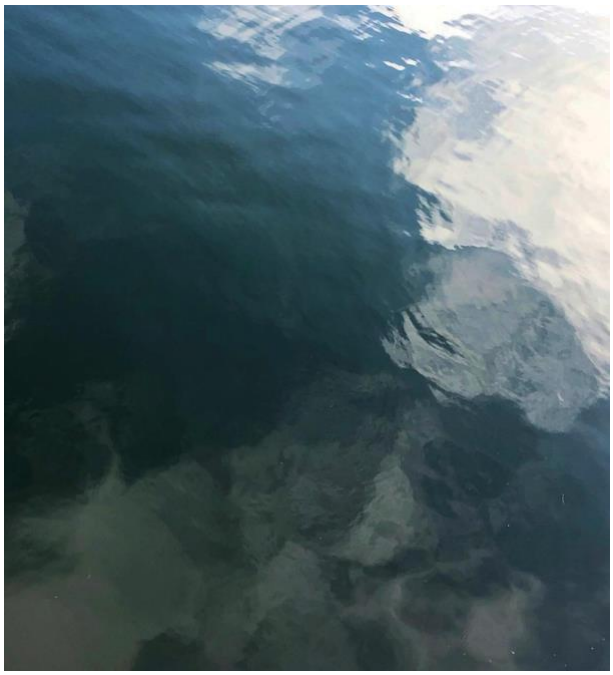

Figure 9: Reflection of clouds in the ocean Photo by author.

The sonic response to this first visual stimulus is also one that I have explored in various ways in previous pieces. In these, I explored the "trembling" quality of my sonic response in relation to harmony. Specifically, I explored this sonority in relation to beating between microtonal gradations of a single pitch in my work *(of) the ether*, for piano trio, from 2019. For me, the ambiguity in the audibility of different pitches and the auditory and physical experience of beating creates the nature of the sonic response that I initially experienced, and therefore reflects the murkiness of the corresponding visual stimulus. In this project, just as the fundamental musical material is a temporal expression of the atemporal source material, the visual environment creates a temporal version of the original visual stimulus.

In creating this project, I first composed a structure and process of evolution of material in the music and then implemented a parallel structure into the visual material. I sought to mirror the form and behavior of one medium in the other, creating a secondary mode of unity between the musical and visual components. I therefore locate correspondences in both my initial, highly intuitive, quasi-synesthetic sonic response to a visual stimulus and in my subsequent treatment of both elements, structurally and temporally, over the course of the work.

Since the work is a temporal expression of this association between senses, in my conception, the two components are fundamentally inextricable: the imagery which defines the visual environment *is* the music, just as it was in my initial conception. As a result, the music cannot be performed without the visual environment, and the visual environment could not exist without the sonic component.

In some ways, on the surface at least, my conception of the fundamental unity between the musical and visual components of the work stands in contrast with my desire to avoid establishing an overt, synchronized relationship between the two mediums. On one hand, I want

these correspondences to be elusive, but on the other, I argue that the two mediums cannot be separated and are one and the same. Although this might seem contradictory, I see both desires in relation to my goal of dissolving established binary relationships between sound and image and hearing and seeing. To reject the "box" of the screen, and to dissolve its edges, is to free audio-visual connections from a one-to-one relationship defined by a direct translation of sound to image or vice versa.

A common approach to establishing full integration of music and visuals is through temporal synchronization. I argue that this synchronization also establishes a binary relationship between the two, that differentiates each medium from the other, and ultimately separates the two. For me, synchronization results in watching a reflection of what I hear, or hearing a reflection of what I see. I experience a consciousness that there are two mediums and even as they might reflect each other, my perception is divided in two, and therefore binary.

With this project, I sought to move away from this binary relationship. Instead, I was interested in creating correlations between the two mediums that would allow an audience member to experience the two mediums without dividing their perception. I wanted a person to experience the development of the two mediums simultaneously, but without a direct, obvious, correspondence at any point. In the context of an immersive environment, these sensory correspondences are embodied rather than purely observed. In this format, attendees are situated *inside* the connections, with the parallel processes of evolution in the music and visuals occurring around them.

The correspondences established between the two mediums develop out of the role of perceptual thresholds in each. Both the musical and sonic material are structured around slow processes of transitions that facilitate the crossing of both visual and auditory thresholds. The

relationship between the unfolding of these in both the music and the visual components, staged in an immersive spatial context, allows for the simultaneous embodied perception of both. The parallel experience of both visual and sonic thresholds yields a model in which the two mediums are intertwined, as each exhibits the same behavior, but are not dependent on synchronization.

In developing a framework for correspondences between musical and visual material through the embodied experience of perceptual thresholds in each, I drew on the model of cross-sensory union that I had encountered in Merleau-Ponty's discussion of synesthesia in *Phenomenology of Perception*. As with the case of being able to "hear" the "hardness and unevenness of the cobblestones in the sound of a car," I sought to create a work in which the slow evolution of the musical material could be experienced in the slow transitions between visual materials.

ii. The Process of design and creation

I worked on the design of the visual component of the project, and the development of the structural unity between the sonic and visual mediums, in collaboration with Elizabeth Barrett. I began my collaboration with Elizabeth by sharing the collection of images that I had collected as a type of aesthetic reference board with them. These included my own photographs which represented my initial visual stimulus for the sonic material, which I have included previously, as well as a set of additional images, including photographs that I had taken and images of work by other artists. I chose these images because I felt they could create a visual dialogue with the images of my own visual-sonic association. In this way, I sought to further undermine a one-to-one correspondence between the two mediums. Rather than asking Elizabeth

to recreate my own visual experience, I provided a collection of images, including some of my own photographs, that I asked them to interpret in their own way (see figures 10 to 18).

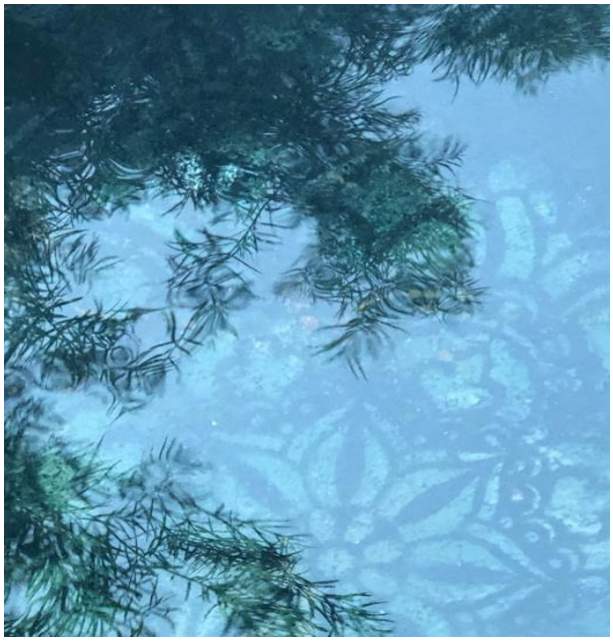

Figure 11: Reflections in a pool. Photo by author.

Figure 10: Bubbles in a water fountain Photo by author.

Figure 12: Fog on the beach. Photo by author.

Figure 13: Mark Rothko, *Blue and Grey*
Credit: www.mark-rothko.org

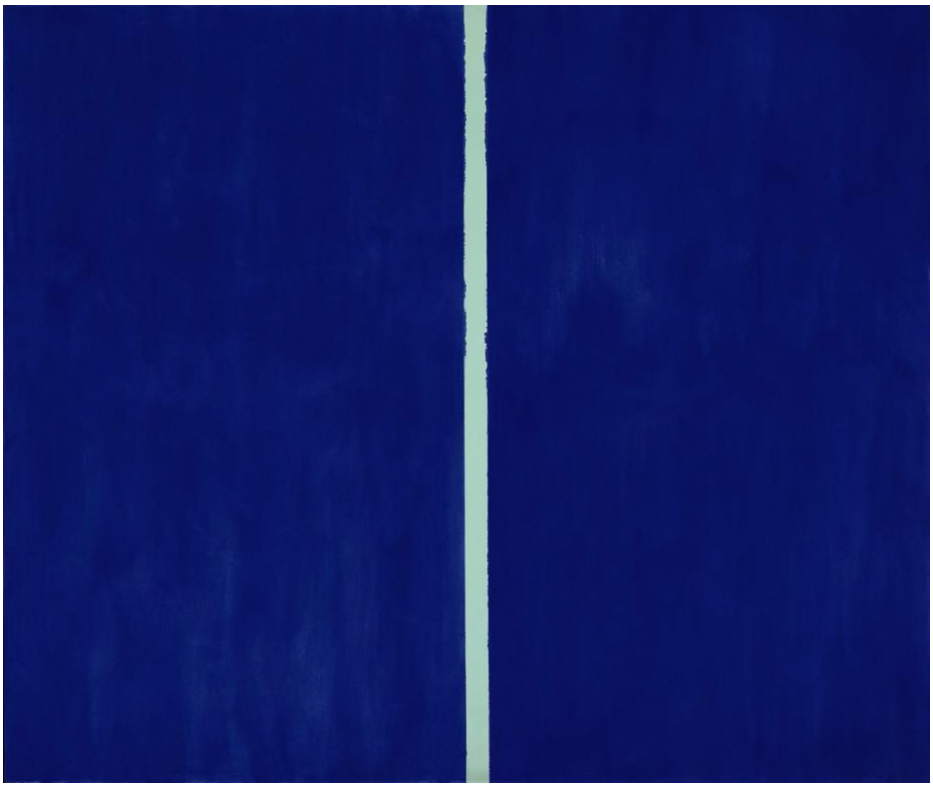

Figure 14: Barnett Newman, *Onement VI* Credit: The Guardian

Figure 15: The horizon at dawn on a foggy morning Photo by author.

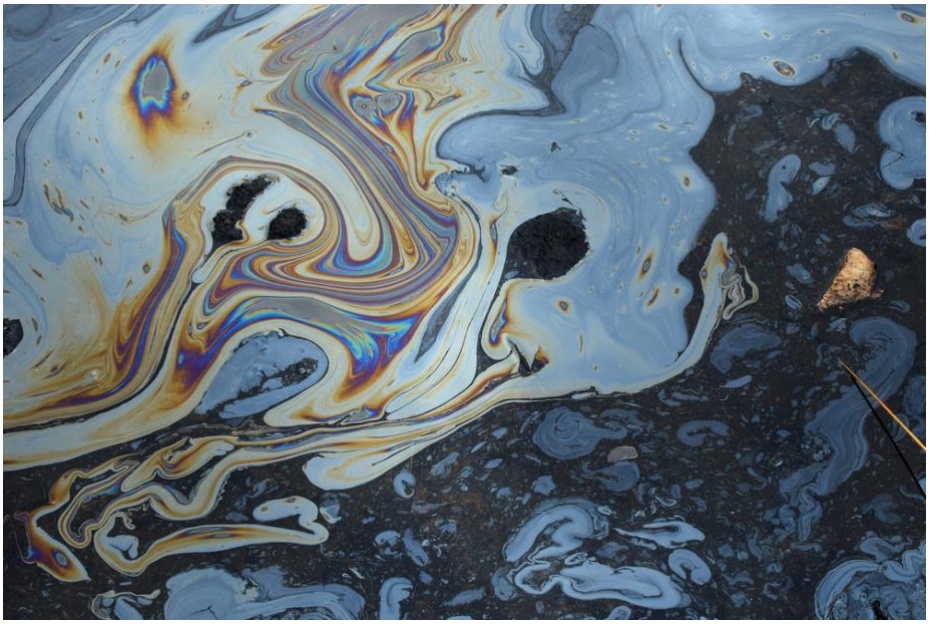

Figure 16: Oil spill in Huntington Beach, CA (2021) Credit: Reuters

Figure 17: Reflection of street lights in a harbor at night Photo by author.

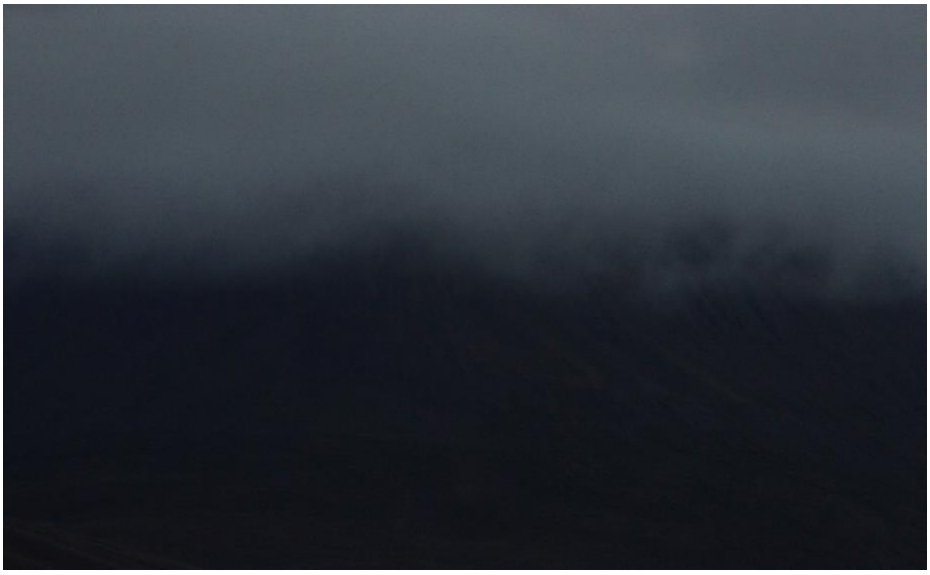

Figure 18: Fog over a mountain Photo by author.

In gathering these images together, I had considered a few different aspects of the relationship between music and visual environment that I wanted to convey, including the overall feeling and mood of the work, the color palette, ideas around texture and even some simple diagrams of ideas I had for the design of the space, which, while only sketches, I hoped could convey the nature of the immersivity that I had been imagining. For me, these images were representative not just of the visual environment that I had been imagining but were representations of the music which I had composed as well. This was of the utmost importance to me, as my goal was to create a visual environment which paralleled the music.

As I compiled these images, I found myself gravitating to abstract images that prioritized color and texture, two aspects of a visual work that I have consistently found the most musically evocative for myself through the years. These were the visual ideas that had sparked my initial

musical ideas, and these were the central aspects that I later chose to represent the music that I had composed.

At our first meeting, I shared my collection of images, and a few simple sketches of ideas for the design of the space. When we met the following week, Elizabeth had gathered a set of images themself to "respond" to the collection of images that I had collected. We went through each of my images and each of their images to discuss the aspects that felt integral to us.

Through this process, we settled on a general feeling for the visual environment along a few central ideas:

- A play between visual material that was vaguely figurative, or reminiscent of something figurative, and images that were entirely abstract

- A color palette focused on shades of dark blue in combination with charcoal and gray that would move in and out of a spectrum of bolder shades of deep blue, bright blue, light gray and white.

- References to murky visual images based in the natural world, especially reflections of light on water

- An exploration of degrees of translucence in both the visual material itself, and the material that we would project on.

The images that Elizabeth and I exchanged in our initial meetings became the guiding principle for the material of the visual environment, as I sought to integrate the visual stimulus with my sonic response. Rather than using one of the pre-existing items that Elizabeth and I had exchanged, including one of my photographs, we decided that Elizabeth would create original material which interpreted my photography and the images that we exchanged and develop imagery that I felt achieved the unity between mediums that I sought to establish.

Once Elizabeth and I had settled on the nature of the visual material that we would use, I began to consider the structure of how the environment would change over time, and how these changes would relate to the evolution of the music. In this context, I sought to create a structure in the visual material that followed the same processes that characterized the music's development but did not align, or synchronize, with the musical material in any specific, discernable way. In my conception, the two mediums would undergo the same process of transformation, developing side-by-side in a simultaneous, rather than explicitly coordinated, fashion. In order to achieve a unity between the mediums, it was essential that the pace of change in the visual component match the rate of development in the music.

I created a formal scheme for development in the visual environment that evolved in relation to the evolution of material in the musical piece. I determined seven large sections for the visual environment, based on the musical material, with continuous, very slow transitions in-between.

-5:00 Entrance lighting w/ stage 1 projections

-3:00 lighting transitions to Stage 1

0:00 Stage 1

23:47 Stage 2

34:00 – Stage 3

44:00 Stage 4

47:00 Stage 5

49:00 Exit lighting

In correspondence with my initial momentary "flash" association, the nature of the visual material in each section, in terms of color, brightness and texture, corresponded to my visual impetus for the music, and its evolution in time.

It is important to note in the discussion of the visual environment that, while I have provided still images from the video that was projected in the performance, Elizabeth designed projection mapping that allowed each scrim to display a different portion of the entire image, creating a spatial environment that varied as one moved through it. As a result, the images that I have included cannot represent the entirety of the visual experience of the work.

Intro and Stage 1: -5:00 to 23:47

Figure 19: Stage 1 Credit: Elizabeth Barrett

As audience members first entered the theater, they encountered the visual material for Stage 1 of the piece. As a result, this initial material sets the tone for not just the visual environment but for the whole experience, as the music does not begin for two minutes once the audience has entered. This slowly evolving visual idea is Elizabeth's interpretation of the initial images I shared with them of light reflected on water. For me, this image is connected to the cloud of beating gradations of D4 which characterize the first half of the piece. It also establishes the overall color palette that prompted the visual material that I developed, including a dark palette of black and the deep blue of the water in my initial visual stimulus, as well as the bold, brighter blue and white which recreates the effect of light.

Stage 2: 23:47 to 34:00

Figure 20: Stage 2 Credit: Elizabeth Barrett

Stage 2 in the visual material begins at a discrete moment of transformation in the music, as the texture thins to a single line. At the same time, the music settles on repeated gradations of D#4: D# +2, -31 and +41, respectively, between 23:45 and the beginning of the second section at 25:22. Here, although this moment marks an important turning point in the development of the music, the second section of the music, in which the harmonic blooming occurs, does not begin until approximately 1:30 after the visual material comes to rest on this material. For me, although perhaps counterintuitive to some, the significantly darker color palette and lower brightness level connects with the blooming of the harmony which begins at 25:17. This is a personal association, as the greater intensity in the harmony in that moment reflects a visual stimulus that is darker, and less defined, than the material which defined the opening of the work.

Stage 3: 34:00 to 44:00

Figure 21: Stage 3 Credit: Elizabeth Barrett

In the third stage of the visual material, the overall less saturated color palette, compared to Stage 1, reflects the visual stimulus for the blooming of harmony which occurs in the second section of the music. Yet, at this point in the piece, shifts in register have begun, which transform the musical material. As a result, the visual material associated with this section reflects similar changes implemented by Elizabeth. These are evident in the changing color palette of the video, from deep blues and greens to gray. Noticeably as well, brighter highlights in the image are once again reminiscent of light reflecting off of water, as in my initial visual stimulus. In addition, the faster rate of change evident between Stage 2 and Stage 3 reflects the shift in pacing which occurs in the music between the first and second sections.

Stage 4: 44:00 to 47:00

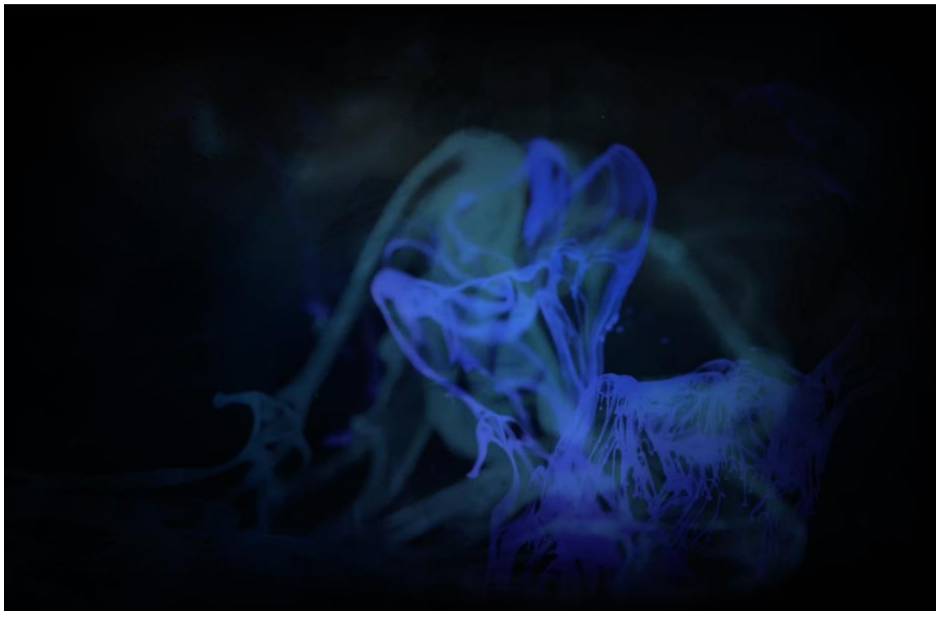

Figure 22: Stage 4 Credit: Elizabeth Barrett

Stage 4 of the visual material coincides with final moments of the dissolution of the musical material, as the texture thins out to Violin I and II playing harmonics in the 7th octave, and the double bass playing the E2 fundamental. At this point, the slow process of evolution that has occurred in the music has come to its culmination, as the range has expanded to five octaves, which is exposed fully in the thinner texture. Yet again, the arrival of Stage 4 in the visual material does not coincide exactly with the arrival of this thinner texture and exposed wider range in the music. While the viola stops playing at 42:45, leaving just the violins and double bass, Stage 4 in the visual material does not arrive until 1:15 later, at 44:00.

Stage 5 and exit: 47:00 through audience's exit

Figure 23: Stage 5 Credit: Elizabeth Barrett

In this final stage of the visual material, I sought to allow it to diffuse, as the musical material does. Elizabeth and I decided to create a saturated image that hinted at, but largely

lacked, the defined features that characterized the previous stage and instead to allow a diffusion to occur through settling on a single color. In developing this approach, I decided to return to the central color palette of the work for me, derived from my initial visual stimulus. Again, the arrival of Stage 5 in the visual material does not align with the diffusion that occurs in the music. While the music ceases at 46:30, the visuals do not complete their evolution, and come to settle on Stage 5, until 0:30 later, at 47:00. The misalignment that characterized the relationship between the music and visuals throughout the work is evident at the end as well, as the musical piece concludes before the visual material is complete.

The shifts in color and texture in the visual material unfold over the course of very gradual transitions so that the ongoing processes of change are only clearly discernible with consistent, intense concentration on the material. While these shifts in material are quite evident, even drastic, when looking at still images side-by-side, the evolution of material occurs so slowly that any shift is barely, if at all, perceptible moment-to-moment. This creates another threshold of experience, as the shift in imagery is never possible to locate, and the gradual nature of any change occurs at a rate that does not reveal the process which is occurring. As a result, a type of perceptual confusion occurs at moments in the work, as uncertainty arises about whether a shift is taking place or at what point a shift occurred. As is the case with the music, the visual material is always in transition from one stage to another.

Talking with people who attended the performance afterwards, many expressed to me aspects of perceptual uncertainty in their experience of the shifts in visual material over the duration of the work. A number of these individuals articulated that they had not realized the visual environment was evolving until the color, texture and brightness had finished its transition into a distinctly different state. Another attendee mentioned to me that they only realized that the

imagery had shifted once they had looked away, to another area of the space, for a few minutes, and then returned. A different attendee mentioned that for the first section of the piece, they had not realized the visual environment had changed, and that their realization that these shifts were, and had been, occurring only came with the significant darkening that occurred approximately halfway through the piece.

Again, as with the music, the experience of these gradual changes was different for each person, but all articulated that their awareness of changes in the visual environment emerged gradually over time, as they became more attuned to the work. I locate the role of perceptual thresholds in the visual material in this process of gradual discovery.

In this way, a similar process of expansion and contraction is happening in both the music and visual material, but these changes in each medium don't line up exactly with each other. As a result, the relationship between the visual and musical material is defined by the way in which each medium undergoes comparable processes simultaneously, but, again, not with any synchronization.

Important to the simultaneous, yet intertwined, nature of this relationship between the music and environment is the mode of attention that both require. The slow progression of minute changes in both the visual and sonic material necessitates a mode of close listening and attentive viewing. As one becomes immersed in the sonic and visual world of the work, one becomes more attuned to these shifts in material in each medium, and these simultaneous evolutions gradually reveal themselves. As both exhibit the same behavior, neither outweighs the other, creating a unified perceptual experience.

The mirroring of behavior between the two mediums, in combination with the simultaneous, but not synchronized, progression that each exhibits encapsulates my conception

of the intertwined nature of the relationship between the two mediums. This is reinforced by the similarity of the perceptual experience that both require, defined by intense, sustained modes of attention. The combination of these two characteristics of the relationship between the visual and musical components yields the cross-sensory unity that I sought to create in this work. The person experiencing the work is absorbed into a singular perceptual process, articulated in two mediums but unified into a single entity.

The relationship between the visual and musical components of this work is defined by the parallel evolution of each, and the mirroring of behavior across the two mediums. However, while the aspects are intended to create a cross-sensory unity of experience, the relationship between the visual environment and the musical piece is also characterized, at moments, by a subtle fracture and dislocation. I carefully planned so that, as I have described, changes in the visual material never line up in any exact or discernable way with changes in the music. In addition, while Elizabeth and I based the visual content on my personal associations between sound, color and texture, I was aware throughout the process that some of these were likely not intuitive connections for many. For example, Stage 2 of the visual material, in which the color palette darkens significantly, marks an opening in the music, creating what for many might be a discrepancy between the two mediums, rather than a unity.

The introduction of these subtle fractures in the overall integration of the two mediums was an area of interest for me in this project. Within the context of my own embodied perception, and the staging of visual material as a three-dimensional environment, I found that moments of discrepancy actually created a more dynamic interaction between the mediums, and again allowed me to move away from any binary, one-to-one correspondences between sound and image that I had sought to escape with this project.

In this context, I sought to create an additional layer of discrepancy through the spatialization of each instrument's sound. In my design, this was intended to be very subtle throughout, and in sections, almost imperceptible. Rather than adding discrete movement of sound to the musical work, the spatialization was geared towards creating a fracture between the perception of the location of the acoustic sound and its spatialized shadow. In this way, a single sound would emerge simultaneously from two different locations in space, one acoustic and "real" and the other a displacement via a speaker. This process of dislocation was designed to occur gradually through the course of the piece, as the "shadow" sound transitioned between being more pronounced and less. In this way, another process of evolution through patterns of ebb and flow emerged in the sonic spatialization, just as it occurred within the music itself and in the visual material. The nature of the cross-sensory relationship that I sought to establish between image and music in this work was mirrored on another perceptual level.

Through the inclusion of spatialization in my design for the piece, I sought to create not just a relationship between sound and visuals, but to create a cross-sensory, embodied experience of perceptual thresholds, and the slow processes of transition that establish them. Moments of disconnection and discrepancy between the visual and musical aspects of the work are mirrored in the spatialization, as the three mediums develop in correspondence with each other, but never in synchronization.

V. Conclusion

The connection between the musical, visual and spatial components of the work that I sought to create in *spaces, between* was distinctly different than my approach in earlier works.

My examination of and research into embodiment allowed me to reconsider the performance context for my work, and by extension, the nature of the relationship I sought to establish between the sonic and visual components of my work. The exploration of perceptual thresholds, derived from my research into liminality, became the central connection between the visual material and music, as well as the spatial configuration of the environment, the spatialization of sound and the entrance into and exit from the visual environment.

In both the sonic and visual components, the perceptual thresholds emerge out of a state of ambiguity, which results from a process of very gradual, sometimes barely perceptible, transitions. The relationship between the two mediums is defined by fractures and discontinuities in material, set in an immersive context that allowed these connections and discrepancies to be felt and actively explored by the attendees. The two mediums are united in this work through the embodied experience of perceptual thresholds in both the music and the visual material, as well as in the physical parameters of the experience.

The process of creating this work also prompted me to reflect on a different aspect of my frustration with the concert hall: the implicit anonymity of the experience. There is an expected universality to the experience of a piece of music in traditional concert hall settings. Interestingly, the role of anonymity and universality were aspects of the work of Van Gennep, Turner and Merleau-Ponty that I also found problematic. Yet, building on the work of these three scholars, as well as Young and Butler's discussions of embodiment and my own corporeal experience, I came to an understanding of embodiment as inherently individual and idiosyncratic. This approach was the starting point for my creation of *spaces, between* and places my work in relation to, but also in opposition to, the work of Van Gennep, Turner and Merleau-Ponty. In addition, although I conceived of the work as functioning in dialogue with the Western

concert tradition, my establishment of individual embodied perception as the conceptual root of this project places it in clear contrast with the concert-hall. Here, again, the importance of individual embodiment in this work reflects the hybrid medium of the concert-installation.

Reflection: **Embodiment and creative practice**

I have always considered my compositional process to be an embodied practice. I write music from a perspective of listening. Sometimes that involves listening to recorded sounds or to mock-ups created through samples but it often involves simply listening to the music I am composing in my own imagination, again and again.

While notating my musical ideas in some form has always been a part of my practice, I spend most of my time composing not sitting, writing but instead sitting *with* the musical material itself. I listen attentively as I lie on my couch. I listen as I am walking through my neighborhood. I listen as I wait in line. I listen as I commute on public transportation.

My compositions therefore always emerge in dialogue with my daily life, and my embodied experience of being in the world. I carry the musical ideas with me, as I, and my body, move through the days.

As a result of this compositional process, my own corporeality has deeply influenced the nature of the music that I write. As I mentioned previously, after a cerebellar injury, I struggle with the coordination of movement and cannot move quickly. Rhythm no longer feels comfortable, or even accessible, to my body. As a result, in recent years, I began to move away from rhythm in my compositions, eventually dissolving rhythm entirely into sustained tones only. I instead gravitated to stillness and slowness, both of which have become central characteristics of my work, and of the music of *spaces, between*. In this way, the music that I composed came to be an expression of my own embodied experience.

My interest in sustained tones and the gradual evolution of material prompted me to become more focused on harmony in my music. Through this focus, I began exploring microtonal harmony, which I had not engaged with previously. I became especially interested in the possibilities of acoustical beating, again, a concept that is central in the music of *spaces, between*. My own corporeal experience following the injury, therefore, prompted significant shifts in the music that I compose and brought about new exploration.

I consider my approach to photography to be an extension of my practice of listening. I take photographs as I encounter interesting visual material in my everyday life, most often when I am walking. I therefore document moments in passing, as an extension of my experience of moving through the world. Because my compositions are often an outgrowth of my visual experience, which I document through photography, the music that I write is informed by my embodied experience on two levels: its original visual impetus and my process of composing.

I wrote *spaces, between* during the Covid-19 pandemic, at a time when everything I was doing was remote and my life was solitary. Time felt more expansive during this period and without needing to go out, it felt like the days took longer to go by. I would go on long walks almost every day, thinking through the music that I was composing for this work, listening to the material in my head and imagining its development. I took the music with me as I walked, hearing it in my mind's ears.

Without the possibility of collaborating with musicians in my development of the music for *spaces, between,* and restricted to only using the resources I had available in my own apartment, I began to experiment with the microtonal harmonies of my piece using sine tones

and later, recorded string samples. I began by creating a single interval between two sine tones, gradually allowing the interval to widen and then narrow, and eventually began building additional intervals on top of that through the addition of a third, then fourth, then fifth sine tone. I listened to these harmonies for long durations, and repeatedly, trying to immerse myself fully in the tones and the character of the harmonies. I would lie on my couch, or sometimes even the floor, and just listen, trying to feel the harmonies, physically and psychologically.

I conceived of *spaces, between* as an intervention in the Western concert tradition, not as a mode of critique but in dialogue with conventions of the concert hall. For me, the process of creating this work was defined by a constant navigation of the tension between customs of the Western concert tradition and an immersive, embodied context for performance that I sought to create. This revealed to me that live performance is at the core of the work that I wish to do but that I am also eager to move beyond a direct engagement with the concert hall. This context is fundamentally at odds with my goal to engage attendees' individual embodied perception in an immersive context. Drawing on this, in future projects my goal is to develop a personal performance-based installation and sound art practice. I hope to offer embodied perceptual experiences to others, which are able to be shaped by each individual.

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