

*CONTAINED:*  
HAUNTED AURAL ARCHITECTURES IN VIRTUAL REALITY

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## ABSTRACT

*Contained* is a virtual reality (VR) project that stages anthropocentric spaces as haunted acoustic architectures, non-places permeated with the sonic spectres of unseen forces. The work seeks to invert the traditional, visually-biased audio-visual hierarchy via a positioning of spatial and haptic audio as the central elements within an immersive cinematic experience, emphasizing sound's ability to not only permeate space and surround the auditor as an affective atmosphere, but also its capacity to penetrate, saturate and vibrate a listening body, forming an intense relational bond between self and environment, whether material or virtual.

This project evolves from and roots itself within an acoustemological approach: acoustemology is best described by Steven Feld as engaging “sound as a way of knowing” (Feld 2015, 12)). *Contained* explores how concepts rooted in the discipline might bear an impact not only on how immersive audiovisual experiences are created, but also on how they might enable a unique, profoundly embodied encounter.

Thematically, this project presents an auscultation of our anthropocentric milieu, integrating field recordings, 360° camera footage and 3D scans of urban corporate towers, logistical networks, industrial areas and other non-places (Augé 1995) as well as urban encampments and derelict locales that are resonant with both the heard and unheard acoustic emanations of the technotope we have become dependent upon for our survival. In doing so, it approaches sound as a material that can be apprehended as both corporeal and abstracted: in addition to the airborne, audible sound of the subject spaces, *Contained* integrates the electrical, vibrational and mnemonic emissions that permeate our everyday habitats, highlighting their roles as unheeded yet nonetheless deeply affective components of a quotidian and contingent soundscape.

Project Link: <https://youtu.be/NB2nY-fGFnE>



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## 1. INTRODUCTION

“Sound ... binds and unhinges, harmonizes and traumatizes; it sends the body moving, the mind dreaming, the air oscillating. It seemingly eludes definition, while having profound effect.”

(Brandon LaBelle 2015, xi).

*Contained* is a research-creation virtual reality (VR) project that seeks to invert the traditional, visually-biased audio-visual hierarchy via a positioning of spatial and haptic audio as the central elements within an immersive cinematic experience. Seeking to capitalize on the expanded dissemination capabilities afforded by consumer-level VR headsets, *Contained* foregrounds the effect and affect of head-tracking ambisonic audio and tactile sound disseminated via wearable haptic transducers, emphasizing sound’s ability to not only permeate space and surround the auditor, but also its capacity to penetrate, saturate and vibrate a listening body, forming an intense relational bond between self and environment, whether material or virtual.

This research-creation project evolves from and roots itself within an *acoustemological* approach, a form of sonic ethnography that has formed the core of my research and production as a field recordist and sound artist for over thirty years. Acoustemology is best described by Steven Feld as engaging “sound as a way of knowing” (Feld 2015, 12); *Contained* explores how concepts rooted in the discipline might bear an impact not only on how immersive audiovisual experiences are created, but also on how they might enable a unique, profoundly embodied encounter<sup>1</sup>.

Thematically, this project presents an auscultation<sup>2</sup> of our anthropocentric milieu – corporate towers, logistical networks, industrial areas and other non-places (Augé 1995) as well as urban encampments and derelict locales that are resonant with both the heard and unheard

acoustic emanations of the technotope we have become dependent upon for our survival. In doing so, it approaches sound as a material that can be apprehended as both corporeal and abstracted: in addition to the airborne, audible sound of the subject spaces, *Contained* integrates the electrical, vibrational and mnemonic emissions that permeate our everyday habitats, highlighting their roles as unheeded yet nonetheless deeply affective components of a quotidian and contingent soundscape.

Conceptually, *Contained* proposes approaching virtual reality environments as *acoustic architectures* (Blessner and Salter 2007), which, put simply, “refers to the properties of a space that can be experienced by listening” (Blessner and Salter 2007, 5). Aural architecture, like its structural namesake, functions as a space within a space, implicitly retaining a social, environmental, cultural and political connection to a broader spatio-temporal milieu. At the same time, aural architecture *re-spatializes* its users, functioning as an *atmosphere generator* bearing the potential for profound, physio-psychological manipulation; as Blessner and Salter put it, “an aural architect can create a space that induces such feelings as exhilaration, contemplative tranquillity, heightened arousal, or a harmonious and mystical connection to the cosmos” (ibid.). Adopting a parallel spatial turn, sound studies scholar and field recordist Mark Peter Wright similarly describes field-recorded sound – the primary sonic component of the work – as presenting the possibility of generating intensely affective spatial reconfigurations, “contact zones and elsewhere fields”, sites that provide “a cross-hatching of relations and affects over time and space” (Wright 2022, 5). In *Contained*, the creation of a sonic architecture is therefore approached as an act that has significant relational, affective and, ultimately, political capacities.

This paper and project engage a primarily *materialist* and *phenomenological* approach to sound and image within a VR ecology. Although there are several compelling discussions

broaching sound emerging under the rubrics of speculative materialism and object-oriented ontology (including some fascinating work being put forward at York, my ‘home’ university, by scholars such as David Cecchetto and Marc Couroux (2017)), these ontological debates ultimately bear only a peripheral connection to the work at hand. Similarly, the notion of ‘virtuality’ is one that appears as a leitmotif in much contemporary critical theory. However, as compelling as Gilles Deleuze’s concepts regarding distinctions between the virtual and the actual (Deleuze 2007), Manuel De Landa’s (distinctly Deleuzian) anti-essentialist notion of virtuality (De Landa 2013) and Brian Massumi’s extrapolation of the aforementioned approaches via an exploration of the event-centred relationship between the affective body and event (Massumi 2021) may be, their approaches address the ‘virtual’ on a level that bears a primarily semantic/etymological relationship to the *cinematic* virtual that comprises the subject of the *Contained* project. Instead, this dissertation and research-creation project will extrapolate upon resonances derived from subjective and contingent sonic negotiations of everyday spaces, delving into acoustemology, acoustics, psychoacoustics, acoustic ecology, auto-ethnography and trans-disciplinary sound in order to expand upon and develop their concepts as they might apply to the field of VR: how can Salomé Voegelin’s positioning of sonic experience’s ‘immersive complexity’ vis-à-vis ‘the imperative of the visual’ be convincingly manifested (or perhaps even enhanced) in a virtual environment? How can Brandon Labelle’s delineation of ‘acoustic territories’ be cogently transposed to a virtual topography, and what new sonic zones and approaches can be articulated therein? In what manner can tactile elements in an immersive environment be deployed to augment Steven Goodman’s outlining of an ontology of vibrational force? Can François Augoyard’s characterization of sonic experience as intrinsic to personal and collective memory be enhanced via the virtual? And, perhaps most importantly: can the affective

capacities of sound deployed within an embodied VR experience evoke a heightened sense of awareness, perhaps even agency, with respect to the largely abstracted ramifications arising from the consumerist lifestyles that are endemic to the developed world?

*Contained*'s predominant theme, then, is the foregrounding of sound's capacities as a profoundly affective and embodied medium, one that retains the ability to substantially reframe perspectives, specifically with respect to our lived anthropocentric condition, an abstracted culture of consumerism. If one is aiming to 'reframe perspectives', however, one needs to consider method as well as content. Consequently, a secondary motif within this project comprises an emphasis on accessibility, both in terms of dissemination and production.

*Contained* adopts an autarchic and self-reliant mode of creation, one that deliberately places itself in opposition to conventional commercial (mass-)media production. Although virtual reality typically continues to be positioned as an esoteric, complex and costly medium, the technology required to both create and consume immersive and haptic audio-visual content has in fact become surprisingly accessible. Consumer-level virtual reality headsets such as the Oculus Quest can be purchased for less than the price of an average smartphone; in fact, most current smartphones function as efficient VR platforms in themselves, capable of disseminating high-resolution VR visuals in conjunction with headtracking spatial sound. Furthermore, these can easily be augmented with inexpensive headsets such as the Google Cardboard (recent searches – as of October 2023 – have these listed at under \$2.00), enabling low-cost accessibility to 720-degree immersive sound and vision, a format that was until recently primarily restricted to the rarified domain of academic institutions<sup>3</sup>. In addition, an increasing number of affordable, wearable haptic interfaces (such as the Subpac, Basslet and Woojer systems) are being introduced to the consumer market; these are easily incorporated into a headset-based VR system

(even if smartphone-based), thus enabling the integration of tactile sound into a reasonably-priced multi-sensory and immersive ecology. Finally, and perhaps most importantly, powerful audio and video software tools such as Unreal, Blender, daVinci Resolve, Reaper, and Audacity are available for free, greatly facilitating the *creation* of VR content. *Contained* seeks to capitalize upon the exhilarating potential and accessibility of these technologies, asking how they might be (re)configured to enable new approaches to audio-led virtual reality cinema.

In correspondence with an emphasis on the articulation of accessible technologies, *Contained* espouses a modest and streamlined mode of production, one whose acquisition of audio and image content is predicated on solitary, iterative and responsive movements through quotidian sonic space. It is, as Salomé Voegelin describes, the work of a “transitive listener who produces the work in [their] subjective hearing, disregarding conventions, and who is unambiguously individual ... playfully walking through a geography of time and place producing a fiction of [their] own” (Voegelin 2010, 96). *Solvitur ambulando* – “it is solved by walking”: mapping the contiguous yet inchoate sites that circle my habitat, paced perambulations through zones of control and sonic traces of radiant energies connecting self and locale to both proximate and broader global contexts. As old-school hip-hop duo Eric B. & Rakim put it, “This is a journey into sound” (Eric B. & Rakim 1987), a medium perpetually propagated and (re)collected within a deeply politicized and comprehensively mediatized environment, tracing sonic agents that are simultaneously materialized and dematerialized, ephemeral and tangible. My approach is personal, auto-biographical, and auto-ethnographic, but is articulated with the intention of establishing the sonic self as a tuned receptor and the basis for agency within these complex networks of ghostly systems.



My aesthetic influences here encompass a broad range of fellow listeners, observers and – most predominantly – wanderers: the peripatetic personal journeys practiced by the theorists and practitioners of the acoustic ecology movement, Eugène Atget’s melancholic street photographs of a disappearing Paris, the historically-charged and politicized audio-visual landscapes of James Benning’s experimental films, Heinz Emigholz’s minimal yet profoundly engrossing architectural meditations, the reflective vibrational investigations of Toshiya Tsunoda, the penetrating audio-visual gaze of the media practitioners comprising Harvard’s Sensory Ethnography lab...these and many more have left their traces within the *Contained* project. Whether these influences are visual or sonic, the resonance lies in a shared understanding of movement through space, acoustic or otherwise, as a reciprocal act of giving and collecting, transmitting and receiving, an echolocation in search of the sublimated oscillations of the political and the sublime within the quotidian. *We are all vibrating together.*

But who is this vibratory *sonic self*? How do the relational bonds between the subjective body and the broader forces in our anthropocentric milieus manifest? This point merits some elucidation via some salient examples. The following two anecdotes are intended to serve as entry points to specific concepts and strategies that inform my approach to sound within the context of the project discussed in this paper, highlighting the profoundly affective yet ambivalent nature of sonic force. The first example situates itself within the context of the Canadian International Airshow, an annual disruption to the downtown Torontonians’ daily routine that features mostly military aircraft (both historical and contemporary) and comprises a highlight (to some) of the city’s Canadian National Exhibition, or ‘CNE’. Let us consider the locus of this attraction – the modern fighter jet – as a physical object sitting on a runway, that is, as a tangible, observable, material assembly of parts. As an individual who abhors the subtle yet

pervasive insinuation of militarism within our media, I nonetheless find this to be an impressive device, an amalgam of sleek angles, exotic materials, and complex technological systems. To a large degree, the visible machinery remains opaque, however, its muted form resistant to an accurate apprehension of the sinister forces and intents concealed therein. Let the device now ignite its engines; its transformation into a *sounding object* is literally earth-shaking. It is at *this moment* – the sonic awakening – that the fearsome force concealed within the skin of the machine announces itself, revealing the hitherto inert apparatus as an intensity of violent energy. My body shakes, lungs implode, ears shatter with sonic energy in an intensely embodied acoustic event, a physical penetration that in instances of proximate audition will cause physical pain, and in more extreme cases (at less than 25 meters) is capable of causing eardrum ruptures<sup>4</sup>. Once airborne, the aircraft becomes a *largely unseen* apparatus of sonic territorialization (its visible manifestation is largely inconsequential, nothing but a moving dot), its thunderous *acoustic* presence nonetheless obliterating conversation, terrifying pets and eliciting instances of post-traumatic stress<sup>5</sup> within a broad swath of its trajectory. In my own neighbourhood, approximately 15 km away from airshow flightpaths, the walls shake, objects rattle, conversation becomes disrupted, and the dog and cat are thrown into a state of confused panic for the majority of the spectacle's approximately three-hour duration.

Here, then, we have the sonic spectacle of an acousmètre (an entity that is heard but not seen) – a deafening vibrational and weaponized spectre that haunts our everyday space, an unsolicited emissary from the military-entertainment industrial complex acting as a deafening (yet rarely visible, I wish to again emphasize) reminder of the nefarious nodes of control that surreptitiously pervade our daily circumstance. The CNE's airshow serves to remind us not only of 'who's in charge', but also of who is expected to remain acquiescent: while this terrorizing

territorialization of sonic space is somehow celebrated, I am left wondering how the neighbourhood (never mind the police) might respond if I were to fire up my own jet engine in the front yard.

Now let us enter a parallel realm of sonic control, the dance club, a space wherein we *willingly* succumb to an aural and vibratory sonic domination, enacting “an instinctively avant-garde surrender to the ‘will’ of technology”, as Simon Reynolds describes it in his ode to electronic dance culture *Generation Ecstasy: Into the World of Techno and Rave Culture* (10). In this instance, however, this sonic takeover elicits intense states of bliss and relational communion, if not transcendence. Sound studies scholar Julian Henriques describes the dancehall experience thus:

“It hits you, but you feel no pain – instead, pleasure. This is the visceral experience of audition, immersed in auditory volumes, swimming in a sea of sound, between cliffs of speakers towering almost to the sky, sound stacked upon sound – tweeters on top of horns, on top of mid, on top of bass, on top of walk-in sub-bass bins. There is no escape, not even thinking about it, just being there alive, in and as the excess of sound. Trouser legs flap to the bass line and internal organs resonate to the finely tuned frequencies, as the vibrations of the music excite every cell in your body” (Henriques 2011, xv).

Here, then, we have a territorializing sonic agent that evinces an astonishing capacity for flux, shifting from a shattering (literally), disorienting and terrorizing force to one that generates an intensely relational “collective desiring machine ... Unity and self-expression fused in a force field of pulsating, undulating euphoria.” (Reynolds 2013, 5). Such are the powers of sound, in all its affective, vibratory, sensual and disruptive energy.

It is precisely these fluctuating (perhaps even contradictory), corporeal and affective aspects of the medium that draw me to explore its manifestation in immersive virtual environments. We are moved by sound (quite literally) in both an embodied, emotional sense as well as in a more sublimated, nefarious manner: the sound system, the fighter jet flying overhead, environmental music (a.k.a. ‘Muzak’), the sonic UI/UX that has become an integral component of our electronic devices, among many other examples, all function as *sonic agents* – wanted, unwanted or incidental – that permeate our real and virtual lived spaces, perpetually prodding, frustrating, and elating us. They have stories to tell about who we are.

These are the heard manifestations of the medium; *Contained*, however, also draws in *unsound*, that is, sonic agents that occur in spectra beyond audibility: mnemonic, parasitical phenomena such as earworms, sonic hallucinations as well as those unheard but ever-present and enveloping frequencies that lie within the electromagnetic spectrum – the radiance of a technological sublime within which are immersed. The enhanced spectrality of these emanations (sound, it can be argued, is already ghostly as it generates palpable effects while remaining unseen) has led sound studies researcher Steven Goodman to qualify such *unsonic* infiltrations as a particular type of *haunting*, a concept that will form a motif throughout both the *Contained* research-creation project as well as this paper. He describes unsound thus:

“From high-frequency crowd control systems, whispering windows, and directional ultrasound technology to haptic feedback devices using vibration within immersive VR, the parameters of the sonic are constantly re-engineered. We refer to such augmentations, which extend audition to encompass the imperceptible and the not-yet or no-longer audible, as *unsound*. The term refers not only to what humans cannot hear, but also to non-cognitive, inhuman phenomena connected to the

unknown, including the hum, hyperhythmia, and auditory hallucinations” (Goodman 2019, 1).

Goodman places *unsound* within a genealogy that roots itself in a longstanding human fascination with the supernatural: “ever since the invention of modern recording and communications technologies (such as the phonograph and telephone), humans have been captivated by the potential of vibration to fabricate aberrant zones of transmission between the realms of the living and the dead” (ibid., 2). Although the *Contained* project will not venture into these occulted zones directly, it will nonetheless auscultate<sup>4</sup> the uncanny and unseen (reality is already sufficiently numinous as it is, after all). It will also, at certain points, adopt a hauntological approach, positing virtual reality as a medium (pun intended) that bears the traces of lost futures, forgotten possibilities and that perhaps remains mired in audio-visual (cinematic, video game) repetitions and anachronisms that are ultimately cultivated by neo-liberal, market-driven interests. It is my hope that the sonically-centred *Contained* project might offer suggestions of new possibilities, new futures within a mediated immersive ecology.

So let the journey begin.

Chapter 1 will present an overview of the complexities of listening, considering what new strategies for audition might be required in our anthropocentric era, one that can be characterized as a ‘technological sublime’.

Chapter 2 will extrapolate upon these concepts, interrogating how the contingency and subjectivity of sonic reception might be accommodated within the sonic arts. Rooting itself

within the complexities of the audible body/space interface, it will expand upon the taxonomy set forward in chapter 1 by venturing into the domain of *unsound* – phenomena that function strictly within the mnemonic realm yet retain an affective power that is often deployed in the interests of outside agents for purposes of psychological and physiological manipulation.

Chapter 3 will address the vibrational and spatial components of sound, tracing a history of vibration as an embodied affective mechanism, querying current mainstream approaches to sonic dissemination technologies and proposing alternative approaches to the concept of immersion via the acknowledgement and integration of a ‘politics of frequency’ within an audio-led VR ecology.

Chapter 4 will critique current approaches to virtual reality and outline aspects of its unfulfilled potential or ‘lost futures’. In response, I will propose considering immersive sonic environments as an evolution of sound-based installation art, an *acoustic architecture* or atmosphere-generating space-within-a-space that functions in considered relation to a broader lived environment.

Chapter 5 will detail how a visual corollary to *Contained*’s sonically-led approach has been integrated, delineating an aesthetic and conceptual genealogy that encompasses Eugène Atget’s street photography, the New Topographics’ photographic examination of human impact on the contemporary landscape, Siegfried Kracauer’s notions of ‘cinematic realism’ and the ‘slow cinema’ of auteurs such as Heinz Emigholz, James Benning and the work of Harvard’s Sensory Ethnography Lab.

Chapter 6 will describe the specific technologies, techniques and precedents that have informed the *Contained* VR project. An emphasis will be placed upon the relevance of a self-reliant, DIY mode of production as well as the application of the strategies of ‘sonic elongation’ and ‘sonic aporia’ to documentary audio-visual material.

Finally, the conclusion will review and critique the outcome of this six-year endeavour, proposing possible future avenues of exploration for a sonically-led approach to immersive media.

#### Endnotes:

1. It is important to note that acoustemology also intentionally aims to avoid the colonialist biases inherent in traditional sonic fields of sonic ethnography and ethnomusicology, seeking instead to acknowledge sensual, non-textual ways of knowing. It does, however, evince an ableist bias in terms of bypassing the ‘ways of knowing’ adopted by individuals who are hearing-impaired.
2. I use the term ‘auscultation’ here to gesture to the forensic nature of my field recording-based approach – a search for what lies below the surface of the everyday. Instead of a doctor with a stethoscope, one might imagine a field recordist with their microphone.
3. I am thinking here of facilities such as the University of Birmingham’s B.E.A.S.T. or Electroacoustic Sound theatre, see <https://beast.cal.bham.ac.uk/>, or the Immersive Media Lab within the Department of Music Research at McGill University’s Schulich School of Music].
4. See <https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm>
5. See <https://www.cbc.ca/news/canada/toronto/programs/metromorning/air-show-trauma-1.3747293>, <https://www.theglobeandmail.com/news/toronto/toronto-filmmaker-discusses-effect-cnes-air-show-has-on-those-who-fled-war-torn-countries/article36151411/> or [https://www.huffpost.com/archive/ca/entry/toronto-air-show\\_b\\_11762272](https://www.huffpost.com/archive/ca/entry/toronto-air-show_b_11762272), among many similar articles.

## **2. ANTHROPOCENTRIC ACOUSMÈTRES**

“Walking through [sound] in its resonant state provides an experience similar to perusing a landscape but from the inside, with all of your body instead of from the outside with just your eyes.” (Brewster 1999, 101).

“A geography of sound is a doing of geography, as a practice of the possible, defined not in opposition to actuality but as its lived expanse, as its generative environment, which is the outside of geography but not its annihilation. Instead, it is the continuation of geography in ‘unseen lands’ as ‘unknown lands’ that create a different territoriality and a different sense of boundaries and participation.” (Voegelin 2019. 84).

### **1. Introduction**

Sound permeates, delineates and conjoins space; whether defined as a vibrational force propagated through a medium to a receiving entity or acknowledged as a mnemonic resonance within a contingent subjectivity, sound and the act of listening are inextricably intertwined with territory; it links transmitter and receiver in a complex, fluid, fluctuating and echoing embrace. This chapter will broach a broadened definition of sound, one extending beyond the acoustic, arguing that regardless of its provenance, sound manifests itself as an emanation of force and therefore bears the capacity to reveal sources and vectors of influence that would remain obscured in a strictly ocular apprehension of space. ‘Space’ here is not to be understood as simply volumetric or Euclidian; rather it is understood as a Lefebvrian concept that integrates the political, the social and the psychological as well as one that has become increasingly fluid and abstracted in the digital age (Lefebvre 1991). Key concepts involving the complex interrelationship between sound, place and subjectivity will be articulated with a view to positioning active, critical attention to the broader soundscape as a political act, one that offers unique insights beyond the affordance of the other senses.



Three questions will be central to this discussion:

1. What information might be revealed in a sonic apprehension of space/place that would be obfuscated in a strictly optical assessment?
2. How can (should) an acoustemological approach be expanded in order to integrate the complex dynamics and subjectivities that characterize the Anthropocene?
3. What can attention to sound bring to the discourse regarding the Anthropocene and can it ultimately bear any effect on its real-world implications?

## **2. Sound and Space**

That which we say we ‘hear’ is usually (but not always) the outcome of energy (vibration) originating from an oscillating source; this force is then propagated through a medium as a longitudinal wave to be vibrationally re-embodied by intervening entities until the energy is dissipated. This journey, then, involves a series of encounters with various materials, surfaces and media, all of which lend their own trace to the original vibrational wave. As sensory ethnographer Paul Rodaway reminds us: “The structure of the environment, its openness and enclosedness, and the properties of the materials in that environment, sound absorbing or resonating/reflecting, influence...the sort of sound that is actually heard” (Rodaway 1994, 82). Importantly, in the case of a human receptor, this energy undergoes further transduction by the individual’s brain and all its highly subjective emotional, affective, temporal and mnemonic resonances (Grimshaw and Garner 2015).

This process is relentless; sound is auditioned continuously (the ears, unlike the eyes, cannot, under normal circumstances, be ‘closed’), perpetually surrounding, even engulfing us. In addition, sound has the capacity to negotiate physical obstructions that would occlude an

object from sight – one can hear what is behind a wall, for example, although it cannot be seen. Such instances of sound emanating from unseen sources (generally referred to as ‘acousmatic’) has the capacity to greatly expand and enhance the spatial field by intimating the invisible and alluding to the unknown.

The act of listening, then, unveils a vast, continuous network of seen and unseen vibrational entities or *sonic agents* (Schlüter 2011) – acoustic elements that engage in an “active, performative role...shap[ing] the urban soundscape” (ibid., 4). interacting within a spacious and rhythmic acoustic ecology “that creates complex outcomes in terms of cyclical and spatially organised sonic geographies that flow, modulate, and change as the chronology of days and seasons pass” (Atkinson, 2011, 25).

### **3. A Taxonomy for Soundscape Listening**

Paradoxically, the density and relentlessness of this flow of acoustic information that we find ourselves perpetually exposed to – particularly within a contemporary urban context – may be precisely why this resonant sonic topography has been comparatively overlooked, rather than overheard. Our brain has adapted by screening the amount of acoustic data it receives in order that “information is created and communication takes place only through the cognitive ability to distinguish what is significant” (Truax 2000, 17). As musicologist William Cheng reiterates: “[sounds that surround us], while legible, influence our behaviors without ever providing us with much incentive to read them per se – to deconstruct their anatomy, source, and function” (Cheng 2013, 186). A reorientation towards a more sensitized and cognizant assessment of the sonic environment, however, was initiated in the 1970s by Simon Fraser University’s World Soundscape Project (hereafter referred to as the WSP), whose renewed

awareness and study of the ‘soundscape’ has gone on to influence theoretical developments in the fields of sonic ethnography, acoustemology, acoustic ecology, urban studies and sonic arts practice.

WSP member R. Murray Schafer’s *The Soundscape: Our Sonic Environment and the Tuning of the World* (1993) has become a seminal text in terms of outlining categories of acoustic signals that define location. Schafer introduces a taxonomy of sonic space that comprises three main categories:

1. *Keynote sounds*, which “outline the character of the people living [in a specific space and time]” (Schafer 1993, 23). These consist of a type of background, thematic sound, examples of which might include the sound of a seashore in a coastal city.
2. *Soundmarks*, sounds which are unique (and thus definitive) of an area and time. The London Tube’s ‘Mind the Gap’ announcement would be an example.
3. *Sound signals*, which are foregrounded and meant to be listened to consciously, such as sirens, alarms, ringtones and so on.

These concepts are meant to establish a framework for a more nuanced understanding of place, one that acknowledges and integrates cultural and physical elements that are usually silenced in a strictly visual apprehension of a lived environment (Trommer, 2020). Bernie Krause, a fellow member of the WSP, proposed a more expansive categorization of sonic events comprised of the *Geophony*, or sounds made by non-living natural elements (waves, wind, sounds made by weather, etc.), *Biophony*, or sounds made by non-human living things (animal vocalizations, etc.), and *Anthrophony*, or sounds made by humans, whether through

speech, industrial activity, music-making, etc. (Krause, 2016). The WSP have become influential in the field of sound studies not only for their lexical contributions and commitment to engaged listening, but also for promoting several key auditory pedagogical practices, most notably soundwalking (popularized by Hildegard Westerkamp as a method of re-engaging with a locale's acoustic environment), ear-cleaning (R. Murray Schafer's technique of re-calibrating hearing in order to 'open ears' to sounds that may habitually remain unperceived (Schafer 1967, 1)), engaging the use of audio recording media as essential creative research tools and, perhaps most importantly, foregrounding the act of critical listening as a relevant pedagogical strategy.

Influential though the WSP may be, their ideological bias (Schafer's in particular) towards the aesthetics of a pre-industrial soundscape has encountered significant critique. According to media theorist Jonathan Sterne, Schafer's concept of *schizophonia* (sounds separated from their sources, as evidenced in radio broadcasts, for example) is particularly problematic as it "argue[s] that the mediation of sound is inherently psychologically damaging, a position that trivializes mediation and, importantly, ignores that all sounds are 'separated from their sources'" (Sterne 2019, 88). As we shall hear later in this chapter, I would go one step further to suggest that it is precisely within the schizophrenic rupture that the contemporary anthropocentric soundscape has the most to reveal. For his part, sensory ethnographer Paul Rodaway argues that at its core, Schafer's stance remains essentially visual, or landscape-based, one within which "the observer is detached, the image is static and is viewed from a privileged position". He goes on to counter that "auditory experience is far more dynamic and the sentient *participates* within the sonic environment" (Rodaway 1994, 86, italics mine) – a positioning that is of key relevance to *Contained*.

#### **4. Sonic Ethnography: Acoustemology and Beyond**

This argument that sound is a profoundly *relational* mechanism articulated between individuals and their surroundings (be these physical or otherwise), is one that has gained significant currency in current sound studies scholarship, most notably in the field of acoustemology. Anthropologist Steven Feld posits acoustemology as a framework for examining “sonic ways of being in and knowing the world” (Feld 1996, 61), stressing the importance of sound as “simultaneously social and material, an experiential nexus of sonic sensation...[that] engages the relationality of knowledge production, as...contextual and experiential knowing” (Feld 2015, 12). Feld emphasizes that “The kind of knowing that acoustemology tracks in and through sound and sounding is always experiential, contextual, fallible, changeable, contingent, emergent, opportune, subjective, constructed, selective” (Feld 2015, 14). Acoustemology, then, is predicated upon a profoundly embodied, subjective, participatory and fluid negotiation of spatio-temporality. As stated earlier, such an approach emphasizes the capacity for a dynamic aural-vibrational geography to provide an ongoing stream of complex information “shaped by the environment through which the sound has passed” (Rodaway 1994, 101) and thus bearing a density of sensual and sensuous audio-haptic data revealing materiality, placement, distance and force. It is, furthermore, an ecology within which the auditor, in all their contingent subjectivity, is de-facto placed centrally and that is “dynamic, always in flux, creating its own dimensions moment by moment” (Carpenter 1973, 35).

It is important to point out that such fluid, malleable and embodied emanations of relational vibrational power implicitly constitute not only an effective barometer of, but also a potent instrument for, the dissemination of vectors of institutionalized force. The political

dynamics imbricated within the contemporary urban soundscape have become a central focus in the writings of sound studies scholars such as Brandon LaBelle and Steven Goodman. Distinctly echoing an acoustemological approach, LaBelle emphasizes that “the seemingly innocent trajectory of sound as it moves from its source and toward a listener, without forgetting all the surfaces, bodies, and other sounds it brushes against...[conveys] a story imparting a great deal of information fully charged with geographic, social, psychological, and emotional energy” (LaBelle 2010, xvi). LaBelle aims to position the act of considered listening to the quotidian soundscape as a profoundly affective form of radical engagement with the lived environment: “a position that is in tune with the material and paradigmatic energy found within sound, that weave of intensity and ephemerality, of animate flexibility and charged spatiality” (ibid., xviii). He goes on to stress that “an auditory paradigm is tacitly embedded within the contemporary condition and offers a compelling structure for elaborating what is already in play” (ibid., xviii). LaBelle posits the notion of *acoustic territories*, a distinctly Lefebvrian concept (Lefebvre, 1991) within which sound not only reflects but also produces space, disrupting established notions of interior and exterior, difference and commonality: “sound operates as an emergent community, stitching together bodies that do not necessarily search for each other, and forcing them into proximity” (LaBelle 2010, 25).

In many respects echoing LaBelle’s relational framework for analyzing space as an acoustic phenomenon, sound studies theorist and electronic music producer Steven Goodman proposes a more radically politicized “aesthetic ontology that revolves around vibrational force and the prehension of affective tonality [that] can be felt as mood, ambience, or atmosphere” (Goodman 2012, 189). Goodman situates his examination of these affective

capacities of sound squarely within the dynamics of “viral capitalism” (ibid., xix) and the military-entertainment complex. A significant portion of his book *Sonic Warfare* (2012) examines the deployment of schizophrenic technological apparatuses by and for the purposes of techno-militaristic interests, positing that audio technologies such as magnetic recording tape, loudspeakers and VHF radio transmission were developed specifically to further the breadth and depth of institutional influence and control. As stated earlier, it is precisely this technologization of (schizophrenic) audio dissemination that comprises one of the defining characteristics of our contemporary technotope.’s soundscape.

### **5. Schizophrenia and the Acousmètre**



Figure 1: Schizophrenic acousmètres as disembodied voices of control:  
Source: <https://prudentgroove.com/2019/03/05/his-masters-voice/>

I wish to stress that the pervasiveness of such anthropocentric signals within contemporary acoustic environment remains largely neglected. As I presently sit alone, writing at my desk on a summer mid-afternoon in downtown Toronto, I am immersed in a network of sounds emanating from a multitude of sources that gesture to a complex, multivalent and broad-reaching ecology that lingers unseen. Moving from the distant to the proximal: outside my window there is a pitch-bending whistling (a gradual shift from high to low) underlined with a white-noise rumble of a high-altitude jet traveling to/from destinations unknown. Closer, yet still airborne, a propeller airplane appears to be circling the Toronto Island airport, a long loop of approaching and receding drone, perhaps a pilot in training. Now an approaching, then stationary chopping bass thrum of a helicopter, monitoring traffic or an incident of some sort? A bit closer and earthbound, I can hear the hushed white-noise rush of traffic on the Gardner Expressway: an occasional, nervy, snarling crescendo rises above the textured hiss, indicating a motorcycle. Automobile and streetcar horns provide punctuation, announcing the impatience of drivers negotiating the urban gridlock that characterizes the plight of the commuter in one of North America's largest cities. The sustained low-frequency harmonic drone of a train emerges – likely a GO train on the Lakeshore rail line. Trucks rumble by regularly on nearby Bathurst Street, the high revs of diesel engines and light shaking of objects in the studio implying that these may be heavily-laden dump trucks transporting the debris of the rampant condo construction occurring (seemingly perpetually) in the downtown core. Immediately outside my window, cars pass, often with booming sound systems (mostly hip-hop though the occasional rock, reggae or reggaeton track makes an appearance), alluding to the younger, multicultural demographic that tends to frequent the West Queen West neighbourhood for its bars, restaurants and trendy shops. Moving to the house's interior: I can hear beeping



downstairs, the sound design of networked household appliances announcing the initiation or completion of various cooking and cleaning processes. CBC (Canadian Broadcasting Corporation) radio is on the kitchen and can be dimly heard from where I am upstairs, the familiar jingle letting me know that we're on the hour and it's time for the news. Through the wall, I can also hear the muffled voices of neighbouring Airbnb guests, who, judging by their excited voices and the sounds of rolling suitcases, seem to be just arriving. They're speaking Spanish, though I can't quite identify the regional accent. Outside my studio door, Krubbz the Cat is meowing – I am told that this is a form of communication that has evolved as the result of domestication and doesn't occur in wild cats – she's letting me know that it's time for her lunch. I like to listen to music as I write; currently I am listening to an album by Argentine artist that was recorded in London and released on a Berlin label, disseminated via the internet and paid for in an online transaction. My writing is interrupted as Cleo (our dog) announces the arrival of a delivery person; I'm hoping that it's a book that I've recently ordered on Amazon.

What I aim to emphasize here is the fact that *all the sources of these sounds remain unseen* – my vision is perspectivally constrained to the screen of my computer, a blank white glow with a stream of words forming themselves as I type. Electroacoustic composer and cinema sound scholar Michel Chion identifies such “sound that is heard without its cause or source being seen” (Chion 1999, 18) as *acousmatic*, tracing the modern use of this term to musique concrète pioneer Pierre Schaeffer, contextualizing it within the practice of ‘reduced listening’ (a phenomenological form of listening to a sound solely for its audible properties) and recognizing its prominence within the contemporary condition of constant exposure to mediated, ‘schizophonic’ sound. Chion’s discussion of acousmatic sound, however, centres on

its use as a particularly powerful tool for conjuring cinematic ghosts, which he dubs *acousmêtres*. These are decidedly spectral, offscreen manifestations, “haunt[ing] the borderlands that are neither the interior of the filmic stage nor the proscenium – a place that has no name” (ibid. 24). Chion’s *acousmêtres* are sinister and unsettling presences: all-seeing, omnipresent and omnipotent, sources of paranoia (he reminds us that “The one you don’t see is in the best position to see you” (ibid. 24)) and obsession, preying upon the fantasy of a “total mastery of space” (ibid.).

Adopting a non-cinematic and less haunted perspective, musicologist Brian Kane positions the *acousmêtre* within a broader ecology of listening: acousmatic audition is “a way of listening to the soundscape” that cultivates attention towards sounds emanating from sources “beyond the horizon of visibility, uncertain, underdetermined, bracketed, or willfully and imaginatively suspended” (Kane 2014, 7). Kane’s *acousmêtre* exists as the manifestation of a *sonic body* (ibid., 8), a transcendent, vibrational and ephemeral conjuration whose acquisition of structure is contingent upon the “specific context, culture, and experience of the agents involved” (ibid., 9). We shall hear more about the sonic body in chapter four, but for now, I wish to return to the anecdote that began this section: as banal as it may initially seem, what I am hearing as I sit here typing in front of my computer are acousmatic sonic bodies insinuating themselves into my quotidian space, audible apparitions emanating from vast, invisible networks and histories of economic, geo-political, social and technological force, intensities that define the quotidian life of a more-or-less average individual living within a typical North American urban centre in the early 21st Century. If “the sonorous object is never revealed clearly except in the acousmatic experience” (Schaeffer 2017, 137), in other words, the audible is currently exposing a legacy of anthropocentric intervention on a massive scale,

from the meows of domesticated cats to the logistical chains that permit international travel, commerce and communication.

This saturation and penetration of anthropocentric sound within our mediatized and networked everyday has evolved beyond simple passive reception; referencing fellow theorist Julian Henriques. sound studies researcher Holger Schulze points to a form of “sonic dominance” (Henriques 2011) perpetuated via our household devices, whose signals situate “sound design in the midst of the force field of technology, politics, and society” (Schulze 2019, vii). Although one could argue that the beeps, chimes, vibrations and melodies emitted by our consumer gadgets do not constitute *acousmêtres* per se (these devices are, after all, visible), one has to be reminded that these instantiations of sonic UI/UX are developed within the equally-obfuscated boardrooms of massive corporate entities for purposes of individual and social control, often prompting the end-user to very specific, increasingly well-honed behaviours (as I've been writing this I've received two Instagram notifications and an Amazon message informing me that my book has indeed been delivered). Although generally understood as benign, if not helpful, our electronic apparatus' sound signals in fact constitute something of a technologized haunting of the sensorium, imbuing the rhythms of daily life with their increasingly bespoke, AI-enhanced acoustic language of prompts, reminders and warnings:

“I live among bleeps, you are punished by buzzers, we all are pinched and perforated by the affirming or denying sound signals of contemporary, sonified surveillance societies. This radical dystopia of contemporary social developments seems to be implied in the contemporary trajectories of sound design: for if one is restrained in this world of limited sonic experience then one is living under the rule of surveillance: a Panacousticon” (ibid. 6).

Schulze recognizes that this sonic harassment has become ubiquitous and therefore naturalized within the anthropocentric soundscape – we have transformed into what he terms *consumer citizens* (ibid., 11).

As essential as R. Murray Schafer's initial contributions to the notions of soundscape and active listening may be, these concepts need to be situated more emphatically within the anthropocentric condition if they are to remain meaningful. The contemporary mediatized, networked, technologized and instrumentalized auditory environment is largely dominated, in all senses of the word, by schizophonic emissions. Within *Contained*, what we hear – the humming HVAC systems, bristling electromagnetic hums, screeches and pulses, the industrial whine of distant industrial machinery – consists of auditory information gesturing to a technological sublime, a sprawling network of complex systems within which we are perpetually immersed yet whose provenance, within both our immediate territory or broader logistical chains, remains obscured. These sounds serve as a reminder of everything else that is 'out there', a world in which, as Laura Marks puts it, a "thousands of programmers are writing code, thousands of workers are harvesting coffee, millions of people are brushing their teeth, and more, infinitely more. When some of that infinite stuff slips out, it is considered noise – in a given system. Noise, then, is the trace of the universe that reaches around information to our perception. Noise is an index of the infinite" (Marks 2013, 107).

## **6. The Technological Sublime as Auditory Mise-en-scène**

Both Schulze and Marks reiterate Brandon LaBelle's interest in how the auditory permeates and structures everyday life, that is, how "noise creates a forceful chance for understanding the flows of power as they move in and out of the home" (LaBelle 2010, 82). Whereas

Schulze's analysis tends towards the confrontational (albeit in an endearingly curmudgeonly way), LaBelle's take is more optimistic, stressing the relational aspect implicit in this dense multitude of sonic information. What is relevant in terms of the project and text at hand here, is the shared emphasis on the complexity of acoustic data saturating the quotidian anthropocentric environment, which I would like to characterize as a 'technological sublime'.

The concept of the 'sublime' has transformed significantly since its Baroque incarnation as a form of awe in the face of monumental natural phenomena, this being usually associated with the divine. In correspondence with humans' increasing technological mastery over the natural world, the industrial revolution marked a shift from this largely religious grounding to something more technologized, ambiguous and sinister: eighteenth-century Anglo-Irish philosopher Edmund Burke, for example, would characterize the sublime as a "delightful horror" (Burke 1990, 173). Similarly, Dutch philosopher Jos de Mul recognizes a proliferating technological bias in the 20<sup>th</sup> Century's apprehension of the sublime, stating that "The admiration of the natural sublime ... was replaced by the sublime of the factory, the sublime of aviation, the sublime of auto-mobility, the sublime of war machinery, and the sublime of the computer" (De Mul 2012, 37). This transition was also accompanied by a rising anxiety: American philosopher David Nye remarks that the initial idealism with which Americans embraced the sublimity of techno-scientific progress became dampened by a growing realization that technology also operated as a force which controls and threatens; intertwined with the benefits it potentially afforded, there lurked an uncontrollable, destructive potential, one which he finds epitomized in the Janus-faced development of nuclear technology's twin manifestations in atomic energy and the atom bomb (Nye 1994, Trommer 2015, 37).

Our contemporary, 21<sup>st</sup>-century circumstance has detached itself almost completely from any meaningful, tangible connection with a natural biotope. If one were to evaluate how one engages Maslow's hierarchy of needs, for example, it would come as no surprise to discover that the majority of the levels therein are negotiated electronically, or at least via technological agents. Our communication has become largely mediated via digital networks (my wife has just texted me from downstairs to ask me if I've fed the cat), food is presented to us as meaty missives from origins unknown, shrink-wrapped and bar-coded on white foam trays, and our sense of self-esteem is often assimilated from virtual interactions with individuals we may never meet in the flesh. I mention this not to argue for an atavistic return to a disingenuously idealized 'uncomplicated' lifestyle; rather, I wish to stress that we are irrevocably immersed within a technotope that bears the capacity to both seduce and terrify, facilitate and anguish; it comprises the background sound, the 'room tone'<sup>1</sup> so to speak, of our day-to-day. If the technotope is inexorable in its immanence, we must learn to listen to it more carefully.

It is precisely this technologically-disseminated, immanent and *atmospheric* resonance – the sonic ambience of the technological sublime – that the *Contained* project wishes to foreground. Within traditional audio-visual media, this sound layer is referred to as the 'atmos' – a background track that is generally intended to remain unobtrusive, providing a setting for the more typically content-heavy dialogue, music and sound-effects tracks. This is not to say that relevant cues regarding time, place and mood are not placed therein; rather, it is to stress that within the conventional cinematic narrative hierarchy, the role of the atmos track is of comparatively little prominence and is often relegated to the more functional task of smoothing transitions or inconsistencies in the production audio<sup>2</sup>.

Field-recordist, sound artist and media scholar Budhaditya Chattopadhyay, however, makes a convincing argument for the upending of this positioning, championing the importance of what he terms a cinematic 'mise-en-sonore' – the auditory equivalent of the optical 'mise-en-scène'. The *mise-en-sonore* is predicated upon the recreation of "a site's presence using ambient sounds recorded from that site" (Chattopadhyay 2021, 6) – a foregrounding of "auditory setting" that is saturated with a complexity of environmental and emotional cues. Chattopadhyay positions this approach as an evolution of contemporary artistic field-recording practice augmented by digital surround-sound's immersive and low-frequency recording and dissemination capabilities, technical refinements whose haptic and spatial capabilities facilitate not only a deeply embodied mediation of space/place, but also bear the ability to represent elements that extend outside of and beyond a traditional, perspectival, screen-centric cinematic framing. As a result of the evolution from a relatively low-fidelity, monaural soundtrack to a full-frequency, surround-sound format, "audiences gradually started to shift their attitude towards the cinematic site, from looking at it to living in it" (ibid., 63).

This technologically-enabled *mise-en-sonore* aims to shift the film-sound hierarchy away from its traditional semantically-driven, dialogue-oriented bias towards an emphasis of "place, space and site" (ibid., 19), an approach that Chattopadhyay understands as originating within cinematic realism, specifically its frequent use of 'direct-sound' (in opposition to the studio-created soundtracks of most Hollywood films of that time – and the present, for that matter) and its interest in revealing facets of the 'real' world to which we have become desensitized.: "This creative approach helps shape up a locative embodied sonic experience derived from the reality of life, not in any way escapist or fantastical" (ibid., 54).

A parallel concern for the author is an emphasis on creating an embodied mediation of site, a sense of presence that is based not only on spatial fidelity but also sensitivity to a milieu, that is, a phenomenologically-derived and personal intervention/translation on the part of the sound recordist/artist. Such an interpretation of space/place situates site as character, embracing field-recorded sound and locational ambience as a powerful signifier in its own right, a potent generator of mood and emotion in addition to its more obvious role as a source of temporal, environmental and geographic cues. Chattopadhyay understands such an amplification of the sensorium, its emphasis on the "textural richness, depth, perspective, volume, dynamic range and spatialisation of ambient sounds recorded on location" (ibid., 75) as a psychogeographical gesture<sup>3</sup> serving as an invitation into a complex phenomenal sound-world, one that extends beyond the diegesis offered via the camera lens. Such an approach to cinematic sound, that is, one derived from contemplative and reflective listening on the part of the recordist, ultimately encourages consideration of the broader historical, political, ecological and social narratives that imbue lived spaces.

Chattopadhyay's efforts to "shift the conventional focus in film sound from a 'sound/image' relationship to the rarely discussed 'sound/site' interconnection" (ibid., 150) via an emphasis on the ambient, atmospheric component of locale manifested within a corporeally-experienced, sonically-spatialized post-cinematic context resonates strongly with my own interests. It comes as no surprise that his approach is also derived from a field-recording, media arts-based perspective, one within which the relationship between sound and image need not adhere to conventional cinematic tropes. His hope that "knowledge concerning the ways sound and media artworks are conceived and developed using attentive field recording methods may influence and inspire, if not radically alter, film sound practices"



(ibid., 157) is certainly one that we both share, as are his interests in cinematic realism, the foregrounding of psychogeographical sound-acquisition techniques, and self-aware, sensitive and critical listening practices not to mention the contingencies implicit therein.

Chattopadhyay's emphasis on the importance of contemporary digital recording and dissemination apparatuses to achieve this reorientation of cinematic spectatorship is also paramount to the motives and interests underlying the *Contained* research-creation project. I would also like consider, however, how the adoption of extended auscultation technologies might augment the possibilities inherent in this sonically-centred, atmospherically-oriented recalibration in order to more specifically integrate the resonant emanations of the technological sublime.

## **7. Expanding the Sonic Spectrum: The Electromagnetic and Infrasound**

As we have heard earlier in this chapter, sound studies scholars such as Steve Goodman and Brandon LaBelle argue that sonic topographies necessarily extend beyond that which is conventionally 'heard'. LaBelle devotes a significant portion of his seminal text *Acoustic Territories : Sound Culture and Everyday Life* (2010) discussing the sonic territorialization of the sky, which he characterizes as a vast, institutionally-controlled electromagnetic spectrum through which corporate or state agendas are broadcast (LaBelle 2010, 238). Douglas Kahn's *Earth Sound, Earth Signal* (2013) outlines a similar ecology of electromagnetic vibration, one that fuses the technological and natural. He hears the planet as permeated with a vast array of electromagnetic activity – both natural and man-made – that reveals itself primarily (in many instances even solely) via techniques of expanded audition. For Kahn, the sonic unveiling of these energies comprises an insight into a vast, electrified sublime that is not only cosmic, but

also fraught with the tropes of institutional control. As with Labelle, Kahn considers the anthropic component of this electromagnetic spectrum as largely “marshaled by the power of corporate and state interests. Carrier waves carry consumerism and wave propagation channels propaganda” (Kahn 2013, 241).

For his part, Goodman focuses upon the haptic and largely unheard low-end vibratory spectra of infrasound. Infrasonic waves are oscillations lying below the frequency of 20Hz – acoustic transmissions that can be felt but remain inaudible. The extremely long waves responsible for infrasound require a significant amount of power to propagate; most commonly, infrasound is manifested as a by-product of large-scale human industrial activity, a fact that has led sound artist and researcher Raviv Ganchrow to characterize it as the “bandwidth of the Anthropocene” (“Interview Raviv Ganchrow – The Geologic Imagination Book Launch”). Steve Goodman hears the urban topography as saturated with this vibrational energy, a “colonization of inaudible frequencies [of] control” – power rendered atmospheric, a haptic stratum that “cannot be heard...but still transforms the ambience of a space, modulating its affective tonality” (Goodman 2012, 79). Japanese sound artist Toshiya Tsunoda’s work has been largely predicated on the assessment of space as such a complex vibrational field, revealing immense forces that extend beyond the visible. Paralleling Goodman, he describes the urban topography as an anthropocentric vibratory system in constant oscillation: “Attending to the space around us, we notice an abundance of vibration – an airplane high up in the sky, noise of the city (for several kilometers all around us), subway vibration, water pipes, etc. I believe we can regard these vibrations as the ‘context’ of constructed space” (Tsunoda 2003)<sup>4</sup>.

Although R. Murray Schafer may have lamented the ‘aberration’ of schizophrenic sound as an unwelcome byproduct of the industrial and electrical revolutions (Schafer 1993, 71), I would suggest that it is exactly these amplified transmissions, that is, those that are energized via vast networks of institutional control to “[reach] across time and space” (Schafer 1993, 71) that should bear the closest scrutiny within an acoustemological assessment of a contemporary anthropocentric soundscape.

## **8. Unsound**

Electromagnetic and infrasonic sound, though inaudible, still lie within the vibrational spectrum. But what of the sonic spectra that are non-vibrational? Sound Studies theorists Tom Garner and Mark Grimshaw argue for an apprehension of the auditory that exists as a “creative act within the mind”, explicitly stating that “sound does not require a sound wave...for it to be perceived as sound: (Grimshaw & Garner 2015, 3). but rather that it exists as a “sonic aggregate”, encompassing “brain, body and environment” (ibid., 13). Enter the earworm, the non-sounding yet persistent, looping fragments that exist as echoes of banal musical refrains that are rarely (if ever) auditioned deliberately, but rather exist as the remnants of contingent circumstance and/or sublimated mnemonic associations. Goodman identifies earworms as a mode of socio-economic territorialization— a “mode of audition within a broader operative logic of power” (Goodman 2012, 143), the parasitical emanations of “a *sonic architecture*...[an] environment of ubiquitous audition in which consumption is now routinely submerged” (Goodman 2012, 145, italics mine). This apprehension of urban space as saturated with targeted transmissions of corporate and political control is a condition that is gaining increasing prominence with urban theorists. Rowland Atkinson, for example,

explicitly integrates ‘functional music’ (music disseminated by businesses and workplaces to encourage consumption or productivity, respectively, most commonly referred to as ‘Muzak’) into an urban acoustemological framework, acknowledging its use as an “auditory territorial marker” or “orchestrated sonic ecolog[y]” (Atkinson 2011, 19) deployed for the specific purpose of controlling space for commercial or political gain.

Goodman extends the breadth of functional music’s territorializing effects to the psychological, stressing that “branding theory has already moved on to invest in the modulation of emotion by nonverbal means, signaling a mutation of capital logic into a more subtle colonization of memory” (Goodman 2012, 148). The earworm, in other words, constitutes no less than an intentionally-generated institutional occupation of individual consciousness (as an interesting – and relevant – aside, *Urban Dictionary*’s definition of ‘Muzak’ explicitly refers to its propensity to generate earworms, see <https://www.urbandictionary.com/define.php?term=Muzak>; for his part, R. Murray Schafer describes Muzak simply as “schizophonic musical drool” (Schafer 1993, 272)). Philosophers Jean François Augoyard and Henri Torgue classified such internally-generated mnemonic sonic phenomena as *phonomnesis*– “the capacity to remember a sound or imagine it without necessarily hearing it” (Augoyard 2005, 60) or *anamnesis* – “situations in which a sound or sonic context revives a situation or an atmosphere of the past” (ibid., 21). The integration of phonomnetic and anamnetic sounds into an apprehension of the acoustic environment, which will be examined in greater detail in the following chapter, is essential, constituting an acknowledgement of, as sound studies theorist Salomé Voegelin puts it, a listening subject’s “unseen dimension, the invisible edge of their definition and description” (Voegelin, 2014, p.2).

To summarize, Anthropocentric space can be apprehended as a radiant vibrational field whose characteristics extend beyond the conventionally audible and encompass significant (and dissimulated) infrasonic, electromagnetic, and mnemonic emanations – all of these being acousmatic manifestations of dissimulated power. Furthermore, these sonic topographies are experienced as a fluid, evolving entanglement of subjective and external resonances: generative, contingent remixes of propagated vectors of force.

## **9. Conclusion**

My fascination with the anthropocentric soundscape – and that of the technological sublime in particular – is a long-standing one that has emerged from a thirty-year practice as field-recordist and sound artist. It is, inevitably, becoming an increasingly common preoccupation with many of those engaged in listening-based disciplines. Fellow field-recordist and sound studies scholar Mark Peter Wright, for example, describes a parallel interest in our anthropocentric acousmêtres, remarking that:

“Infrastructures are necessary for local and global economies, yet the material web of how things become things, how they move, and where they end up is often obscure. Infrastructure occupies the backstage to life, yet it is fundamental to the performance going on out front ... In the contemporary realm of cloud computing, physical systems are further obscured. Data is stored in the desert; internet searches are facilitated by subsea cables. Wireless and smart devices, dependent on orbiting satellites, further our estrangement to the sites and resources that create digital footprints” (Wright 2022, 147).

For Wright, the practice of field-recording bears a responsibility to account for the profound

ecological and political entanglements manifested within the quotidian auditory environment, whether directly or circuitously, audible or silent, stressing that “The medium of sound is expertly placed to host this investigation as it is not so much tied to its source as it is to the networks it vibrates, whether heard or not ... It involves tuning the ear to that which we cannot hear.” (ibid., 143).

Given sound’s ability to convey such a complex mix of relational, emotional, cultural, political and topographical information, including that which often lies obscured within a strictly visual environment of an environment, it stands to reason that a recalibration from an optical to an auditory/tactile assessment of the anthropocentric land/soundscape bears the capacity to reveal a great deal of topical information regarding our present circumstance, one whose ecological and political precarity, importantly, urgently necessitates considered scrutiny – this is, after all, our contemporary acoustic ecology. Although the work of established acoustic ecologists such as the WSP has undergone its share of criticism, both within this paper and elsewhere, its foundation upon critical listening as a primary pedagogical principle is certainly one that is worth continued consideration and development. As sound studies scholar Joanna Demers reiterates, a creative deployment of the soundscape, as enacted by the members of the WSP and beyond, “draws attention to the ecological, social, historical, or cultural dynamics of a location, which both personalizes and politicizes the act of listening” (Demers 2010, 120). Broadening the WSP’s definition of what constitutes an ‘acoustic ecology’ to actively incorporate the all-pervasive haptic, electromagnetic, mnemonic and schizophonic emanations of our technologized technotope may ultimately help direct critical attention to the vast, dissociative mechanisms we find ourselves perpetually immersed within.

### **Endnotes:**

1. 'Room tone' is a term used to describe the ambient sound of a locale, that is, the sound of a space without the presence of any foreground audio.
2. There are some notable exceptions to this, however, i.e. David Lynch's eerie soundscapes in films such as *Eraserhead* or his *Rabbits* series as well as Edward Artemiev's nuanced evocations of time-space in Andrej Tarkovsky's films such as *Solaris* and *Stalker*.
3. Defined by The Oxford English Dictionary as "the study of the influence of geographical environment on the mind or on behavior."
4. It is perhaps important to emphasize that the audition of these outlying acoustic territories is a relatively new phenomenon that has been enabled by contemporary recording technologies such as induction microphones (for the electromagnetic spectrum) and accelerometer-based geophones (for the infrasonic component).

### **3. THE SUBJECTIVE RECORDIST: SELF-SOUND AND UNSOUND**

#### **1. Introduction**

*Contained* is an account of contingent exchanges with the multiple spectra of space and place. In order to re-mediate these as genuine, embodied experiences, the deeply subjective nature of these encounters must be acknowledged and, perhaps more significantly, reflectively and equitably re-articulated within the work in question. So how does one accommodate the individual presence, personal history, as well as the physiological and psychological particularities of the recordist, critical factors that define the time/space and broader context of the mediated experience?

As we have heard, these comprise a critically relevant aspect of the corporeal encounter, the profoundly intertwined exchange between self and place. Although the notion of subjectivity is gaining increasing currency in sound studies (particularly within acoustic ecology and phonography/field-recording-related) discourse, current scholarship tends to focus on the contingent embodiment of *vibrational* transmissions, an approach that is certainly relevant to the project at hand and will be explored further in the following chapter. Little or insufficient consideration is given to *unsound*, however – mnemonic sounds such as ear worms and other internally experienced non-sounding sounds – as integral elements of an individual's sonic emplacement. Such *unsounding* sounds govern mood, serve as spatio-temporal markers (mnemonic and otherwise) and are often elicited by environmental inputs (it's late November as I write this and as a result of a brief trip to the local grocery store, I currently have Andy Williams' version of the Christmas 'classic' *It's the Most Wonderful Time of the Year* looping in my brain – unheard, yet nonetheless grating in its banality). This chapter begins by drawing from various artistic precedents to demonstrate how a personal relationship with a specific acoustic locale may guide and inform the work that arises from the reciprocal dynamic established therein. We then



extrapolate upon these examples with an ear to considering how spectra that are wholly unique to the auditor – auditory hallucinations or other internally-experienced sounds – might comprise a particularly important strata of one’s apprehension of site. Finally, we shall interrogate how these heard and unheard frequencies might comprise intentionally disseminated and manipulated by nodes of control and, finally, propose how these might be reconfigured and repurposed as a form of resistance. The aim here is to position self-generated/processed sound, whether vibrational or imagined, as a significant (if not critical) component of the anthropocentric soundscape.

## **2. Field Recording as Auto-Ethnography**

As a creative auto ethnographer, one is engaged with manifesting an implicitly subjective (and therefore biased) interpretation of an external environment or situation. One is tasked, in other words, with reconfiguring the ambiguity of an ephemeral, recondite self within one’s work. The role and effect of the audio-visual documentarian is one that has been problematized and discussed extensively within the context of ethnography and ethnographic documentary film. Although issues of representation are certainly of great concern in this instance, I do not wish to engage in an extensive discussion of subjectivity within cinematic documentary formats as this is a broad topic whose complexity extends beyond the remit of this particular paper. I do, however, believe that it would be useful to briefly gesture to certain theoretical and audio-visual touchpoints that inform the research-creation project at hand: ethnographers such as Allan Hegelund, Shelley Ortner and Veronika Kisvalvi, among others, for example, understand that “applying a particular [subjective] perspective to ethnography, is central and inevitable” (Hegelund 2005, 647) while also recognizing the difficulties inherent in such a position, conceding that within the field “the word *subjective* still serves as a term of abuse” (ibid. 648,

italics in original). Similarly, ethnographer Nick Crossley emphasizes the individual corpus as an agent of inquiry, advocating for a “reflexive embodiment” (Crossley 2006) in autoethnographic research.

As mentioned above, tensions between ‘reality’ and interpretation have also been a prominent fixture within the multiple strands of documentary film. Already in 1926, pioneering documentary filmmaker John Grierson described the genre as “the *creative* treatment of actuality” (Grierson 147, italics mine). Werner Herzog, for his part, appears to have made it something of a vendetta to deride the pretence of objectivity within documentary genres such as Cinéma Vérité, perhaps most famously in his Minnesota Manifesto in which he states that “so-called Cinema Verité is devoid of vérité. It reaches a merely superficial truth, the truth of accountants” (Herzog 2013, 471). Rather, ‘real’ truth (which he terms ‘ecstatic truth’) “is mysterious and elusive, and can be reached only through fabrication and imagination and stylization” (ibid). Chris Marker, a master of the personal essay film, often underlines the assimilation of the contingent individual within broader socio-political dialogues that characterize his work, an emphasis on interpretation that stresses “a process of reflective enquiry into its subject” (Lupton 2005, 10) – an approach that has become his trademark. Similarly, in her essay *Reinventing the Documentary: The Early Essay Film Soundtracks of Chris Marker* (2015), Marker scholar Orlene Denice McMahon reiterates that “Marker ultimately critiques this ethic of the non-intrusive filmmaker for its lack of acknowledging ... the ‘inevitability of subjectivity’ intrinsic to documentary filmmaking” (McMahon 2015, 88).

Similar notions of reflexivity and subjectivity feature prominently within the field of sound studies, most notably in relation to the practice of field recording, an arena in which the role of integrating and evaluating the role of individual contingency within sonic relationships

most often (but not always) remains a critical consideration. The following sections will examine precedents within the field of phonography (and audition in general) in an effort to establish a groundwork for an expanding the frequency continuum that characterizes the *sonic self* within an anthropocentric acoustic ecology, arguing for both the importance of integrating personal resonances that are inherent in the act of audition as well as for acknowledging the unheard frequencies that exist as key, yet often entirely subjective, spectra within anthropocentric environments.

### *2.1 Listening to Another's Listening*

Field recording/phonography finds its roots in an anthropologically-minded, taxonomically-based practice. Early field recording expeditions commonly consisted of university-funded projects that were undertaken in the interests of capturing the sounds of rare animal species (Bruyninckx 2018); these were usually complex group endeavours that involved lugging heavy, awkward equipment to remote locations. Interestingly and perhaps of relevance here, many of these expeditions aimed to find evidence of species that were thought to be on the verge of extinction (if not already extinct) as a result of anthropocentric territorial intrusion – searching for ghosts, in a certain fashion. One of the most widely cited instances of such junkets was a 1935 expedition to the remote swamplands of Louisiana initiated by Cornell University in conjunction with the American Museum of Natural History; its goal was to capture evidence of the elusive ivory-billed woodpecker. The project proved successful; audio recordings of the bird in fact constituted the only known documentation of the species before it was thought to have become extinct in the middle of the 20<sup>th</sup> century. I bring this example forward as it presents a pertinent parallel to the project under consideration within this paper, that is, an undertaking that

concerns itself with a focused listening to the environment in search of anthropocentric acousmètres – invisible, yet audible, (un)traces of human incursions upon lived environments. What is notable in these early instances of field recording, however, is the unidirectional, external focus of the listening: a concern with gathering data for the archive. As sound scholar Salomé Voegelin notes, this was a process that was “entirely transparent to itself, lacking an understanding of the anthropological intrigue of the recordist rather than the recorded” (Voegelin 2014, 16). In his book *Listening After Nature*, Mark Peter Wright further problematizes this asymmetric power dynamic (not to mention any pretence of objectivity), arguing that the audio ethnographer bears a responsibility to divert their ears from the recorded subject and instead acknowledge the importance of both the recordist and listener in establishing relational meaning and extrapolating value from field-recording based work: “I, the elsewhere listener, must be accountable to the distributed meaning-making of [field recording-based work’s] participation. ... We, the listeners, must struggle to hear ourselves among vibrant worlds... Listening-with and without is not therefore a comfortable feeling. The process collapses binaries of the near and far and foregrounds questions of power, accountability, and care” (Wright 2022, 101). Not only the recordist, but also the listener is/are entwined with and accountable for that which is being documented, in other words.

## 2.2 *The Imbricated Listener*

Following Wright, many of the exchanges between contingent and agential planes of relational experience occurring within much contemporary field-recording based work eschews a pretence of capturing the ‘real’, instead shifting focus from the site or source of documentation towards the recordist’s as well as the auditor’s own listening; such an approach emphasizes phonography

as a *transduction between sites of audition*, one that integrates a complex ecology of affective forces. Sound artist and scholar Lawrence English eloquently describes the act of auditing field-recording based work as “listening to another’s listening” (English 2017, 7), stating that “Field recordings are the capture of a listening that unfolds in a relational field of audition”, one that encompasses two “horizons of audition”; the first being “the organic, interior, affective and psychologically shaped listening of the artist-researcher. The second horizon of audition is forged by the microphone” (ibid), the latter being a tool that enables a technologically augmented listening, i.e. the audition of electromagnetic, vibrational and underwater sounds, among others, that would remain inaudible to an unassisted listener. This is not to claim that such an intricate dynamic is present within all field-recording-based productions, though there are certain works that serve as salient examples and are therefore worth further examination, as we shall read below. Furthermore, it is important to emphasize the fact that there exists a third ‘horizon of audition’ – the ‘external’ listener’s (or ‘end-user’s’) site/context of consumption, with all of its variable spatio-temporal particularities.

All of these horizontal positionings and transductions merit consideration. We will begin, however, by unpacking some specific examples of field-recording based work that foreground intricate modes of subjective exchange – cognitive, affective, emotional and historical – that might come into play between site, the recording artist-listener and the individual listening to this person’s listening.

### *2.3 Stephen Vitiello*

In 1999, sound artist Stephen Vitiello settled into a six-month residency on the 91<sup>st</sup> floor of Tower One of New York’s World Trade Centre as part of a cultural initiative funded by the

Lower Manhattan Cultural Council. One of the outcomes of this residency consisted of a series of recordings made of Hurricane Floyd's impact on the structure, most notably the work *World Trade Center Recordings – Winds after Hurricane Floyd* which was eventually presented as an installation at the 2002 edition of the Whitney Biennial. Vitiello recorded the WTC via contact microphones affixed to the building's windows (contact microphones capture vibrations transmitted through material than often remain inaudible to the unassisted ear) – an evocative nexus of interior and exterior spaces. A native New Yorker, Vitiello grew up in Brooklyn and in a 2002 interview describes the iconic towers as 'ever-present' in his day-to-day life (*Steve Vitiello Talks About Growing Up in NYC [Interview]*). Despite his familiarity with the site, Vitiello nonetheless found his transposition to its interior destabilizing, an affective response compounded not only by his method of auscultation (I use the medical term here deliberately to emphasize the intimacy and mechanics of the recording method – Vitiello himself has stated that "Those contact mics became like a stethoscope: I was listening to the body of the building" (Stephen Vitiello, *World Trade Center Recordings*, 1999)), but also by the fact that his tenure happened to coincide with a period of severe stress imposed on the structure by the extreme winds of Hurricane Floyd. The resulting recording presents us with a complex entanglement of personal (from the artist's perspective), architectural, economic (this is the World Trade Centre, after all, and Vitiello's residence space only became available due to the collapse of a Japanese bank that was its previous occupant), performative, temporal, spatial, chronological and environmental dynamics, concentric circles of forces ranging from the intensely subjective and extending to issues of global economics and climate change. While they may not necessarily be audible, these are implicit within the recording and associated museum installation itself; a further level of interpretation is imposed by ramifications and resonances of the events that

would occur two years later on September 11<sup>th</sup> 2001, with its myriad social, economic and political and, in many instances, personal, mnemonic repercussions. Importantly, we must remember that this associative web is further supplemented by whatever personal circumstances are evolving in the listener's specific spatio-temporally situated listening. What *World Trade Center Recordings – Winds after Hurricane Floyd* presents us with, then, extends far beyond a mere audible document of a series of creaks and groans.

#### 2.4 Toshiya Tsunoda

Vitiello's piece is unusual insofar as it presents us with a particularly resonant layering of more-or-less broadly understood associations. Japanese field recordist and sound artist Toshiya Tsunoda's *Low Frequencies Observed at Maguchi Bay* (2007) offers a more nuanced but nonetheless equally compelling documentation of a listener's listening. Tsunoda's work is predicated on intensely personal investigations of familiar locales, most situated in or near his hometown of Yokohama (Pisaro n.d., 2). He records these locales via a variety of contact and conventional microphones, the latter often miniaturized such that they can be inserted in small resonant orifices and fissures. These sites could easily be apprehended as banal – Tsunoda often gives his pieces drily descriptive titles such as 'Air Vibration of the Hollow Part in the Middle of a Navigation Float', 'Solid Vibration of a Glass Bottle at Ship Anchorage Area' or simply 'Drain Hoses' (all of these from the 2019 Erstwhile Records release *Extract from Field Recording Archive*). Yet Tsunoda recognizes that his recording locales are far from static entities, but rather exist as mutable sites that configure themselves according to subjective circumstance, in constant physical and psychological flux from both the recordist's and subsequent listener's perspective. This responsiveness to the contingency of space that has been described as "a form of empathy"

(ibid. 3); in a 2011 *Wire Magazine* interview with fellow field-recordist Will Montgomery, Tsunoda states “I think that the word ‘field’ of ‘field recording’ does not mean only the physical place...place or space always depends on one’s consideration...when I go out to record, it’s like meeting a familiar friend: ‘How are you today?’”.

The *Maguchi Bay* recordings represent the culmination of several years’ research, presenting an iterative, empathic endeavour predicated on a unique and subjective response and relationship to space that has engendered specific, personal fascinations and fixations. Affixing a contact microphone to a pier in Miura City, Tsunoda noticed a persistent low-frequency component that evaded explanation:

“The mysterious thing for me is that this low-frequency vibration doesn’t relate to any sound that one hears in the air. First, I thought that it was the effect of the wind shaking the pier. But then it happened when there was no wind. Then, I thought that the sound was the vibration of a distant ship resonating across the bay, bouncing off the hill and making itself felt under water in the bay. But this guess was wrong too, as it would have been possible to detect the sound with the air microphone. It was so mysterious” (Toshiya Tsunoda interviewed by Montgomery, 2011).

Following some discussions with a local fisherman, Tsunoda concluded that the source of the infrasonic vibration was the interaction of strong unseen currents moving across Maguchi Bay’s deep seabed, vibrations had in fact become part of local lore. Consequently, in both his CD and installation-based realizations of the piece, Tsunoda chose to foreground the purely vibrational component of the locale: the CD version of his research pairs an audible version of a field recording with a companion iteration in which all sounds above 20Hz have been removed. What remains is the ghostly infrasonic presence of the bay, the embodied effects of which are discussed in chapter 4 of this paper. Given that humans are unable to hear anything below this



20Hz threshold, ‘auditing’ these tracks comprises a sensual experience of pure vibration.

Similarly, the installation version of the work consists of a large bare speaker set on the gallery floor pointing upwards. Visitors only become aware that there is a sonic component to the piece once they observe the extreme oscillations evinced by the cone.



Figure 2: Toshiya Tsunoda; Low Frequency Observed at Maguchi Bay (2007), installation view.  
Source: <http://toshiya-tsunoda.blogspot.com/2011/07/low-frequencies-observed-at-maguchi-bay.html>

Although on the surface (pun intended) both Vitiello and Tsunoda’s pieces may seem to be predicated on an objective approach to sound capture, featuring little in terms of arrangement or post-processing (Tsunoda’s removal of audible frequencies is in fact a straightforward intervention), they manage to evince extremely personal responses to intimately familiar spaces, sites that (importantly within the context of the present argument) are understood to contain and manifest complex spectral presences. As auditors, we are drawn into a relational and

participatory act of *listening to another's listening* – in Vitiello's case, to a kind of 'voice of the dead' emanating from the vanished presence of the WTC towers, whereas in Tsunoda's work one experiences a resonance operating on, as Michael Pisaro puts it, a "psychological level...leav[ing] a distinctly ghost-like presence...both there and not. For me there is the distinct feeling of looking out at something from the other side of a shaded window" (Pisaro 2015, 3). Pisaro goes on to remark that "The uncanny nature of this sonic world tells me as much about what is suppressed or hidden (in me, in you) as it does about the physical system. Which is to say that even 'real' objects in the world, have 'virtual' properties and processes" (ibid., 5-6).

### **3, Self-Sound**

"I want to ask these questions," says Tsunoda, "what is 'place' or 'space'? What, where and how is the relationship between our consciousness and bodily experience with 'place'. This remains the key question involved in my recording work." (Toshiya Tsunoda interviewed by Lawrence English, 2014).

In spite of the examples discussed above, the broader discipline of acoustic ecology (the ethnographic area of inquiry within which the practice of field recording has traditionally been considered to be grounded) has tended to maintain a primarily empirical focus, one concerned with a taxonomic auscultation and analysis of environmental sounds and their impact upon humans and other creatures. Soundscape ecologist Almo Farina, to provide a typical example, describes the field as "an ecological discipline that investigates the effects of sounds on the structure and dynamics of animal species at the level of individual populations and community, humans included" (Farina v).

In this section, I wish to counter this factual approach by building upon the personal and interpretive preoccupations evinced in Tsunoda's, Vitiello's, and other sound art-oriented, soundscape-based works, using these as a basis upon which to engage in a critique of what constitutes acoustic ecology's categorical biases. Specifically, I would like to question how the embodied and mnemonic interface between recorder and recorded – the contingent and subjective juncture between the listener and that being listened to – comprises a critically relevant, internalized component with respect to soundscape audition, one that can be particularly revealing of and susceptible to spectral sonic vectors of force endemic to the anthropocentric condition. In other words, if we are to engage with the concepts of presence and embodiment, states that are considered to be fundamental in the articulation of an affective VR ecology (Grau et al.), then it serves us well to consider who and what this receiving body is, examining it as a zone of permeability between internal and external worlds.

We begin somewhat prosaically by addressing the relevance of *audible* self-sound, which I will introduce via an anecdote; this is intended to serve as a starting point for our consideration of sound as a relevant component of the self/space interface. This will be followed by an exploration of unheard self-sound or unsound.

In 2018 I traveled to Iceland to work on the *Bergmál* ambisonic VR project (described in greater detail in chapter 7) with my collaborator and friend Éric Fillion. I was eager to experience the soundscapes of this sparsely populated, geographically striking and isolated island. Not long after my arrival, however, it became clear that field recording in the locale would present a challenge – the constant high winds, a perennial antagonist of the outdoor recordist, coupled with the barren island's sparse biophony (Krause) made for a muted and impracticable sonic

environment. There was no lack of effort, however, and over the course of several recording sessions it began to occur to me that Iceland's predominant (aka 'keynote') sound (Schafer) had nothing to do with external actors in the landscape; it was, in fact, the sound of wind rushing around my own ears, a relentless, modulating, white-noise roar that largely masked the sound of whatever else may have been occurring within audible range.

What initially manifested itself as an annoying hindrance became a fascination, a subject of contemplation that foregrounded a host of issues in terms of contingency, placement, and the body/space interface. *This* was the sound of my immersion into Iceland's topography – the confluence of my embodied self within the climactic, geographic and ecological dynamics that characterize the island's condition. Certainly, my awareness of and concern with this 'sound of self' was not unprecedented, but I found it perplexing that the topic rarely, if ever, surfaced in discussions on listening or phonography<sup>1</sup>. One of the few (albeit according to some sources, apocryphal) examples of an awareness of embodied self-sound within a broader listening context is John Cage's oft-referenced experience of an anechoic chamber (see [https://www.youtube.com/watch?v=jS9ZOIFB-kI&feature=emb\\_logo](https://www.youtube.com/watch?v=jS9ZOIFB-kI&feature=emb_logo)). Cage recounts that in the near-silence of the anechoic space, he was able to discern two distinct tones – a high-pitched whine, which was attributed to the operation his nervous system, and a lower-toned rumble, created by his circulatory system. Regardless of whether what Cage heard was in fact his nervous or circulatory system, tinnitus, or the sinister harbingers of an impending heart attack (Oliveros 2005), the sounding environment stripped of its din revealed the constant accompaniment of the sound of one's self. As Eldritch Priest puts it: "He came in wondering what silence sounds like and left believing that sound would never leave him" (Priest 2013, 248).

Jacob Kirkegaard's release *Labyrinthitis* (Touch records, see <https://touch333.bandcamp.com/album/labyrinthitis>) provides a fascinating echo of Cage's anechoic chamber experience. The work, presented both as a CD on the Touch label as well as a live performance, is predicated on otological emissions or 'Tartini Tones' – frequencies that are created as artifacts of the ears' resonant characteristics and "can only be perceived 'intersubjectively': inside the head of each one in the audience" (Kirkegaard 2008). Kirkegaard executed the work by inserting miniature speakers and microphones into his ears while sitting in a soundproofed room. Douglas Kahn describes the process thus: "The speakers are sending tones into his inner ears that create tones generated by the ear itself in response. Two tones are sent in and one, a third tone, comes back in response. These ear sounds are, in turn, picked up by the microphones and amplified" (Kahn, *Active Hearing*). What we, the audience, hear is in fact a hearer's hearing (a trans-subjective analogue to a listener's listening). What's more, we are hearing a specific individual's very particular physiological apparatus at work – the "spontaneous emissions" of the outer hair cells of Kirkegaard's cochlea manifesting "a tiny amount of sound of their own" (ibid.). Rather than experiencing sound in the conventional orientation of outside emissions travelling inwards, we are inverting the process: in *Labyrinthitis* we are hearing is a reverse transduction from the inside out. As Kahn puts it, Kirkegaard's work reminds us that "sounds interact both inside and outside the confines of individual experience, as listening is introduced into the transductive flows of the world" (ibid.).

Toshiya Tsunoda's *The Temple Recording* (see <https://www.soundohm.com/product/the-temple-recording>) adopts a parallel approach to subjective and intersubjective embodied auditory phenomena. In the liner notes to the CD release, Tsunoda describes his process as follows, which I am taking the liberty to quote at length:

“I go to a certain place and choose an object; mainly it is a landscape, which is interesting to me. I fix a stethoscope with a small built-in air mike onto my temples. The position of the air microphone can be set anywhere near the ears, but I feel that our temples are the best and only place for that. The stethoscope captures vibrations of my muscles and blood flows. Because of the nature of the air microphone, environmental noises are recorded, too. If the wind blows, some wind sounds will be recorded when it passes over my head. Recently I set a stethoscope onto another person's temples, too, and the two of us stood side by side and did a recording focusing on the landscape. This work contains an aspect of a strange experiment of stereophonic sound. What was recorded in this recording? This recording reveals the experiences of the landscape shared by two different persons. An evidence of our real experiences of the landscape. We gave a shape to the landscape with our experiences”.

As with Kirkegaard, Tsunoda's work provides a fascinating insight into activity centered upon the body/environment interface, engaging the corporeal membrane in order to generate an apprehensible (I would argue also enlightening, though this is perhaps a matter of taste) version of a self's engagement with space. In these works, “The travel between sound and thought isn't between the physical and mental; they are interwoven, with the tendrils of one reaching into the other...Vibration is a physical thought in a world” (Pisaro n.d.). Tsunoda's *Temple Recordings* manifest a reciprocal exchange between a body and its environment, reminding us that the outside world is apprehended via an internal mechanism consisting of both flesh and thought.

As compelling and relevant as they may be, the cases discussed above ultimately remain rooted within the physiological: Cage's circulatory and nervous systems, Kirkegaard's ears and Tsunoda's head all provide evocative, albeit tangibly vibratory perspectives on the intimate zone between an individual's corporeality and site. Whether experienced as vibration, embodied

acoustic emissions, tinnitus, or the sound of one's own breathing, swallowing and rustling clothing, the point here is to emphasize that the perceived 'external' soundscape is in fact perpetually enmeshed with the acoustic emissions of our own bodies: an individual's experienced soundscape consists of a self-generating and perpetually-sounding entanglement of one's self - sound with the audible and inaudible emissions of the extended physical and mediated environment – the resonances of a singular body interacting with forces and resistances manifested in a particular space and time.

### *3.1 The Hum*

There also exist a number of self-sounding phenomena that evince a shift beyond the material and therefore begin to elude conventional analysis, however. One such nebulous occurrence is colloquially referred to as 'the Hum'. A global phenomenon experienced by an estimated 2 - 10% of the world's population (Deming), those that are haunted by the 'Hum' generally describe hearing a pervasive low-frequency tone usually exacerbated when experienced indoors. Described variously as "the sound of a hefty diesel truck idling nearby" a "car coming" that "never gets there" or, somewhat unsettlingly, simply a "presence" (West-Knights), the earliest documentations of the Hum appear at the beginning of the 19<sup>th</sup> Century but become increasingly reported from the middle of the 20<sup>th</sup>, with the number of cases surging significantly from the mid 1970s to the present day<sup>2</sup>. Those who experience the Hum regularly report suffering from insomnia, dizziness, nausea, headaches as well as anxiety (though the latter may be at least partially attributable to the frustratingly evasive nature of the Hum's source, this despite its persistence, as we shall later hear). Bafflingly, it is not uncommon for one member of a household to suffer from this auditory condition while the others remain immune – a situation

that leads some skeptics to attribute a psychological cause to the affliction. In many cases, however, the dissemination of one or a small number of initial reports will elicit the response of a more significant number of individuals suffering from the same spectral condition. Despite the phenomenon's widespread nature, attempts to investigate its cause remain, for the most part, unsuccessful. This is not to say that theories as to the Hum's source do not abound; hypotheses are varied and numerous, ranging from the vibratory by-product of large-scale infrastructural, industrial or military activity (in some instances this appears to be correct, i.e. the 'Windsor Hum' was eventually attributed to low frequencies generated by blast furnaces operating on nearby Zug island), geographic phenomena, biological occurrences (the sounds of mating fish resonating through metal boat hulls was verified to be the source of another such manifestation), tinnitus, electromagnetic interference, or VLF waves (high-energy Very Low Frequency radio signals most often used for military submarine communication), to more fringe tinfoil hat notions involving, among other things, government conspiracies, god's wrath and alien interventions. One particularly notable effort to document the Hum can be viewed online via Glen MacPherson's *World Hum Map and Database Project* (accessible at <https://www.thehum.info/> and <https://hummap.wordpress.com/>), which now contains over 5000 entries. The lack of a clear-cut resolution as to the origin of the chthonic, phantom sound has quite understandably led to a general feeling of frustration among the growing community of Hum-sufferers, some going so far as to characterize themselves as "wandering spirits" (Dickey) left to contend with a ghostly "presence-absence" that "seems to be both everywhere and nowhere" (Jasen 2016, 58), and who are "waiting to be brought back to life" (Dickey).

Regardless of whether the Hum consists of a tangible vibratory phenomenon or an internally-triggered auditory hallucination, the fact remains that be it persists as an auditory



haunting for a not insignificant percentage of the world's population. In addition, it seems clear that the number of documented cases has surged within the past fifty years, suggesting to many scientists – despite their inability to arrive at a consensus as to its probable cause – that there may be a connection to large-scale anthropogenic activity, most likely technological, industrial or military (Jaekl). All of these observations lead to some interesting questions regarding our sonic environment: firstly, to what extent does sound happen in the mind of the listener? If a sound is internally 'heard' but remains inaudible to those around them, does that bear any impact on the sound's affective capacity? Secondly, to what extent has our shift to living in urban environments, in many instances vast conurbations supported by massive infrastructural support systems, changed not only what we hear but how we hear? The scale and pervasiveness of our transformation to a largely technologized habitat should serve as incitement to extend the notion of acoustic ecology to encompass uncanny emanations such as the Hum and other *unsounds* that appear to bear distinct links to the anthropocentric condition. As a sound artist using field recordings to tune in to the complex extended environments that ground our everyday, how can one extend the self-reflexive approach adopted by sound artists such as Jacob Kirkegaard and Toshiya Tsunoda, that is, one that acknowledges and integrates the complex relational exchange between self and space, in order to foster a more complete and cohesive understanding of the our increasingly distanced, convoluted and increasingly ephemeral rapport with the systems that we are embedded within?

#### **4. Space Invaders**

Regardless of whether one suffers from the Hum or not, moving through urban space constitutes a sonic transit through a territory of sublimated systems, mediated transmissions and intangible

internal thoughts. Infrastructural/architectural elements all emit audible and inaudible energies, a radiant topography of vibration: commercial environments, vehicles, living spaces, and individuals are often accompanied by their own, bespoke soundtracks. In addition, advertising slogans, shop names and signage, as well as quotidian events all bear the capacity to elicit spontaneous, subjective resonances of half- (or fully) remembered songs, forging a bridge between personal memory, contingent experience and embodied terrain. These real and imagined spectra function as silent, yet profoundly multivalent identifiers of space/place, a spectral zone that lies beyond audible emissions. As we shall hear, this liminal zone comprises a particularly salient example of the obscured dynamics of acoustic territorialization at work within the commercialized topographies upon which the Anthropocene is predicated.

In this section, we continue our journey into the spectral zone beyond audible emissions, examining those transmissions that transcend the human auditory range and are thus no longer apprehended via the otological apparatus – a move beyond the vibrational into the realm of mnemonic, non-sounding, yet nonetheless deeply affective audition. Here is a zone of entanglement wherein the concept of immersion and embodiment become fully realized: a realm of psychological infiltration enabled via often intentionally implanted earworms and the excitation of non-sounding sonic memories, vestiges of a singular subject's accrued and ongoing histories. These comprise not only an integral aspect of an individual's experience of a 'soundscape' but can also present particularly salient examples of acoustic territorialization.

I will introduce the sinister mechanics of the phenomenon by means of another anecdote: my daughter and I were running errands together on a section of Queen Street West – a busy shopping district situated in downtown Toronto – on a Saturday afternoon. As it was early autumn and the weather was still warm, many of the local businesses had their doors open, an

extra incentive for potential passing customers to enter their retail – and also acoustic – spaces. As we continued our walk, we became aware that we were both softly humming the same song, a piece of music that neither of us particularly liked. A strange coincidence, we thought. A few minutes later, the phenomenon repeated itself, a different song this time. At this point the notion of this being happenstance or some sort of mutual father-daughter psychic resonance began to appear less likely. Fascinated, we backtracked with the hope of identifying the source of the nagging earworms we were both experiencing, managing to catch the dying strains of the looping refrain we had both been humming emanating from the local *Urban Outfitters* outlet. My daughter, who had recently worked at that particular retail location, mentioned that she used to hear the song several times a day as it was part of the retail chain's prescribed soundtrack, a component of its aural architecture, in other words.

Here, then, we have a salient example of an acoustic territorialization that not only pervades Euclidian space but also extends beyond the spatio-temporal restrictions imposed by traditional acoustic technology, which is bound to and contained by the machinery and acoustic characteristics of a point of dissemination. Instead, we have a schizophonic sonic agent that behaves as an audio parasite, embedding itself into a memory-space, an involuntary internal refrain deliberately deployed as an envoy of the interlaced, networked, market-driven structures of consumption.

#### *4.1 An Unsound History: Harold Burris-Meyer and the Origins of Muzak*

Although it is widely acknowledged that acute proprioceptive phenomena can occur within the auditory realm (Henriques, Jasen, LaBelle, et al.), the suggestion that sound is being deployed in order to psychologically and emotionally manipulate a public, however, might initially seem to

have a disconcerting tinge of crackpot conspiracy theory about it. In fact, it has a long and well-established history, continuing to function as a mainstay technique in political propaganda. It would be unusual to find a political manifestation in which there is no chanting, for example, and loudspeakers blaring patriotic songs, slogans and (dis)information continue to be used in many locales, most notably those under the control of authoritarian leaderships.



Figure 3: A propaganda van in Pyongyang, North Korea.  
Source: <https://www.aisleseatplease.com/blog/propaganda-van>

These acoustic deployments make no effort to dissimulate themselves, however. They are openly visible and audible, their function and purpose evident. What I wish to examine here is a far more covert, nefarious and widespread manifestation of acoustic control.

One of the pioneers in the field of acoustic manipulation was Harold Burris-Meyer, a sound technician working at the Stevens Institute of Technology (SIT) in New Jersey beginning in the 1930s. Burris-Meyer's initial efforts centred on using contemporary electroacoustic technology to create bespoke acoustic environments for the theatre, his goal being to “produce specific emotional and physiological responses in people” that would enhance the theatrical spectacle (Ouzounian 2021, 206). These experiments in what he termed ‘sound control’ involved

the use of spatialized speaker arrays as well as ‘subsonics’ (what we now refer to as infrasound) and in many instances were executed covertly, as Burris-Meyer sought to “manipulate audiences’ emotions subconsciously” (ibid., 205). Burris-Meyer quickly became fascinated by what he observed: audiences could be “made to sit up, or move forward, relax, etc., almost regardless of the visual part of the production” (“Of Sound, Fury, and Stevens Tech” 1941, 1, quoted in Ouzounian 2021, 207) – an ‘involuntary’ sound and music-based behaviourism. Although these experiments understandably caused some consternation among the public and within the theatre press – at least for those who eventually became aware of what was going on – his results elicited the interest of Muzak Corporation, a firm billing themselves as ‘International Specialists in the Physiological and Psychological Applications of Music’ (quoted in Blecha, n.p.) specifically for the purpose of enhancing employee and/or consumer behaviour. Burris-Meyer’s research for Muzak aimed to increase worker productivity via the exploitation of the physiological effects of music he had pioneered within theatrical contexts. Muzak Corporation, however, was taking the technique to a whole new level, not only refining the amplitude and precision of the physio-psychological responses they were aiming to elicit, but also in terms of extending its ability to deploy ‘sound control’ on an industrial scale: “With Muzak, the atmosphere of work, and by extension, the worker in that atmosphere, was controlled, through sound, and on a mass scale” (Ouzounian, 2021, 232).

Burris-Meyer would eventually extend his research in the service of the military, further exploring the applications for ultrasound as well as, among other things, airborne speaker systems for the use of psychological warfare (The ‘Ride of the Valkyries’ helicopter attack scene in Coppola’s *Apocalypse Now* is one of the better-known examples of some of the other type of work he was involved in). Whether working for the military or the more superficially benign

Muzak Corporation, Burris-Meyer's research into the use of sound's affective psycho-physiological properties to enact a form of subconscious social manipulation – a covert application of control in the interests of a deliberately obscured higher power – was pioneering. Complex sound dissemination systems have since become more or less ubiquitous within our branded lived environments, an acoustic architecture projecting music into our bodies and minds when we visit our malls (not to mention the specific retail locations within those malls), enter our workspaces, board a commercial airliner, or dine in a restaurant. Whether emanating from the shops of the high street or the boulevards of Pyongyang, our contemporary acoustic habitats are permeated by involuntarily audited sound; moreover, as Ouzounian is careful to remind us: “In order for sound control to be effective as a means for emotional control, *listeners should not notice the sound effects at all*. Rather, sound should manipulate their emotions subconsciously or subliminally, at the level of physiology. The optimal acoustic environment should be experienced as acoustic ‘scenery,’ a backdrop to the action at hand, masterfully conjured and used for “effect.”” (Ouzounian 2021, 247, italics mine).

#### 4.2 An Unsound Industry

The relationship between the music industry at large and those invested in the evocation of ‘acoustic sceneries’ as an integral component of brand identity and increased sales has evolved from a comparatively straightforward collection and broadcasting of appropriate pre-existing musical material into a reciprocal system: the motivations underlying commercial and industrial manipulations enabled by the bodily and emotive capacities of music have become an integral, even expected, component of popular music. This is, in fact, the entire reasoning behind the use of advertising jingles: as sound scholars Tere Vadén and Juha Torvinen remind us, the “common

meanings of music are experienced un- or pre-consciously, a fact well known by the advertising and film music industries” (44).

As useful as the jingle might still be to advertisers, it persists as a rather primitive instance of musical control – a coelacanth of the promotional world, so to speak. Reference to brand names – within contemporary hip-hop and R&B in particular – has become a commonplace form of co-branding, even evolving into a form of shorthand in terms of market positioning. A relatively run-of-the-mill hip-hop song such as Lil’ Pump’s *Gucci Gang*, for example (see <https://genius.com/Lil-pump-gucci-gang-lyrics>), manages to mention not only the titular brand, but also Balmain (a luxury clothing brand), ‘Red Bottoms’ (vernacular for Christian Louboutin shoes), Percocet (an oxycodone drug manufactured by Endo Pharmaceuticals) and, perhaps most hilariously, WestJet (though the line isn’t exactly complementary), all this in addition to more oblique references such as ‘Hunnids’ on his wrist (luxury watch) and ‘sippin’ Tech’ (cough syrup containing codeine). Those aiming to flex a more approachable mall-brand vibe might drop references to Vans (Lil B’/The Pack), a most uncool Abercrombie & Fitch (Lil Uzi Vert, though his attention has been credited with upping the sagging brand’s cachet) or Levi’s (Drumma Boy feat. Rocko & 2 Chainz). This type of product placement has moved beyond a story-telling-based lyrical name-dropping; it has matured to the point that it is not unusual for artists to approach brands (and vice-versa) in order to advertise them. According to music industry analyst Eliot Van Buskirk, “things have gotten so weird in the music business that high-profile acts are inserting ads into their song lyrics. The next time you hear a brand mentioned in a song, it could be due to a paid product placement” (Van Buskirk, n.p.). Earbud listeners hoping to bypass the imposed generated soundtracks of their acoustic

environments now have bespoke brand messages disseminated to them via their own curated playlists.

Here we hear the role of sound in the articulation of what media theorist Sean Cubitt describes as “the becoming-environment of information” (Cubitt 2013, 489), a suffusion of our spaces with sublimated brand messages working to weave a complex network of associations, relations and, when functioning optimally, emotions, a mnemonic machinery guiding us to make product choices based on half-recognized impressions derived from the subliminal sonic prompts and prods that saturate not only our spaces of consumption and suffuse our homes but are also voluntarily pumped directly into our bodies via our AirPods. After all, how are we left to decide what sneaker brand to buy? It’s unlikely that a typical consumer will be familiar with the tensile properties of the materials used in the manufacturing of a running shoe; what’s far more likely is that we’ve been well-versed by verses themselves, ascribing brand meaning and associated lifestyle value as an echo of half-heard lyrics drifting in the aether of our quotidian soundscape or pumped into our ears via our own bespoke Spotify playlists.

What we have here, then, is an infrastructural element that bears the capacity to territorialize both their vibratory and non-vibratory sonic spectra – an intentionally articulated sonic architecture that “us[es] the words of hits as subliminal advertisements” (Szendy 2012, viii). Furthermore, the system is a self-perpetuating one; already in the 1940s, Theodor Adorno was conscient of the propensity for the ‘culture industry’ to insinuate itself into the soundscape, recognizing that “everything is heard in terms of...the commodities derived from it” (Adorno 1998, 50), and contextualizing popular music as simply a series of predetermined signifiers designed to incite mimetic reflexes. Contemporary cultural theorist Peter Szendy has extrapolated upon Adorno’s incisive analysis of music as commodity, stressing its almost



uncanny ability to parasitically embed itself within the psyche of the listener as a mnemonic haunting:

“Not only would each one of these singing ads claim to say...All of this and more is for you...but it would also just as immediately inspire in you the irrepressible mnemonic effect of which it is capable: A memory proper to you would be attached to each one, an unforgettable yet buried moment that would all of a sudden rise to the surface of your conscious memory” (Szendy 2012, viii).

Herein lies the insidious territorializing capacity of the parasitical earworm; it maintains the ability to not only penetrate but also to weave itself deeply into the very fabric of one’s consciousness.

#### *4.3 The Earworm*

Szendy’s analysis of the commercially generated earworm is a fascinating one. In marked contrast to Adorno, he embraces its banality, suggesting that its affective potential is a direct correlation of its lack of defining characteristics: “What does the triviality of the hit really hide when it can nonetheless move us as no one else can? What singular emotions are in play? What investments, what economies— both mercantile and psychic—are at work in them, and perhaps even what politics?” (Szendy 2012, 3). Evoking Marx, Szendy sees the usefulness (and therefore effectiveness) of the sonic commodity as a consequence of its status as a “social relationship between things” (ibid., 19) rather than a tangible thing in itself. Music negotiates our positioning amongst the objects and events that define our individual existences, a spectral albeit manipulative accomplice in the guise of a doppelganger: “What we might call the musical self or the lyrical ‘I’ of song would then be the voice of the commodity itself, in the midst of speaking about itself” (ibid., 9). The penetration of the earworm is so profound that we ultimately merge

with the musical refrains into an exhilarating haze of commodification – distinctions between the corporeal, earthly individual and a nebulous melodic/rhythmic/textural alter ego dissipate into a fantastical technicolour drift. Admittedly, there may be a certain pleasure to be found in this narcotic meshing of self and sound; there is often also a corresponding reluctance, however, to acknowledge that this intoxicating ‘life soundtrack’ is the product of a deliberate strategy, one that provides the audio agent its formidable strength and enables the sonic machinery to execute its task: “these haunting melodies; they come back in us and in spite of ourselves to speak to us about us. They even make us gain access to ourselves” (ibid., 80). I use the term ‘machinery’ here deliberately, a reminder that popular music is, after all, an industry, creating items of mass consumption, driven by market research, honed in boardrooms, and distributed via massive multi-modal physical and virtual merchandising infrastructures; the notion of it emerging from the creative mind and heart of an emoting human ‘artist’ often functions merely as a decorative conceit. Negotiating and mapping an anthropocentric consumer environment, then, instead corresponds to a drift through a “marketplace of mass melodic articles in the psychic economy”, as Szendy puts it, “For if the hit itself is a question of value, money, currency, and exchange, this is not only because it is a mass musical commodity generating considerable profits but also because it is an earworm, an obsessive melody that continues to reproduce itself in innumerable copies in the souls of the melomaniacs that we are” (ibid., 66-67).

If we are to embrace an acoustemologically-oriented approach to mapping our sonic environments, to “ask how the dynamism of sound's physical energy indexes its social immediacy” (Feld 2015, 12), then this transduction of vibrational energies into the psychological realm merits focused scrutiny. As with previously-discussed sonic phenomena such as self-sound or the Hum, however, it is a layer of acoustics that has remained almost completely unheard

within ethnographic assessments of sonic space. As useful as his ideas may be, Feld himself specifically states that “acoustemology engages acoustics at the plane of the *audible*” (ibid., italics mine). Some acoustic ecologists, on the other hand, do begin to broach the concept; Hildegard Westerkamp, for example, recognizes that “we simultaneously take in the current conditions of the acoustic environment and those of our innermost sound world, our thoughts and emotions” (Westerkamp, n.p.). Furthermore, she explicitly recognizes that this inner sonic space provides a “target for a profit-seeking corporations” but stops short of engaging in a more specific discussion of its articulation and effects.

#### *4.4 An Unsound Taxonomy*

“Deep Listening is exploring the relationships among any and all sounds, whether natural or technological, intended or unintended, real, remembered or imaginary, Thought is included.” (Pauline Oliveros. *Quantum Listening*, 37).

Establishing a taxonomy of internalized sonic affects, however, would be beneficial in order to engage in a broader analysis of the various methods and effects of institutionalized acoustic territorialization. For this, we must turn to sound scholars such as Henry Torgue and François Augoyard, who delve into what they term ‘mnemo-perceptive’ effects with a particular ear to how these may influence an individual’s relationship with the urban environment. Two categories in particular, *anamnetic* and *phonometric* sounds, warrant investigation, not only in terms of how they exist as internally-situated yet integral components of a soundscape, but also with regard to how they might be deployed for the sonic manipulation of space.

*Anamnesis* is described as “an effect of reminiscence in which a past situation or atmosphere is brought back to the listener’s consciousness, provoked by a particular signal or

sonic context” (Augoyard and Torgue 2006, 21). This effect is understood as usually being involuntary; furthermore, it can be elicited via any type of sonic trigger, though it is suggested that music can be particularly effective given its polyvalent nature: “Undoubtedly music, more than other modes of expression, or even other aspects of the sound domain, possesses an evocative faculty that calls at the same time a feeling and a memory” (ibid., 24). Although Augoyard and Torgue do not confine the effect to music, specifically mentioning that “sounds of flowing water, rain, crackling fire, thunder, and singing birds, but also sounds of industrial automatic devices, cars, and urban drones” (ibid., 23) may also elicit anamnesia, they confine their description of extra-sonic triggers of anamnetic sounds to mainly spatial, more specifically, architectural cues: “Spatial configuration, and consequently visual perception, sometimes intervenes to favour the emergence of this effect” (ibid., 24).

*Phonomnesia* is a similar internal, non-sounding sonic-mnemonic effect/affect, referring to “a sound that is imagined but not actually heard” (ibid., 85). Again, this form of listening is stripped of its causal provenance and contextualized as being “most often voluntary”, occurring within creative contexts and forming “one of the great methods of composition” (ibid.).

#### 4.5 *Unsounding Text*

Although useful in that a consideration of non-musical sounds as mnemonic triggers is acknowledged, Augoyard and Torgue’s description of the anamnetic and phonomnetic effects tends toward the unidirectional. While recognizing that the “anamnesis effect is only rarely confined specifically to the aural sphere” (ibid., 24), what appears to be missing from this taxonomical description is the inverse condition, that of a *situational* (visual, tactile, olfactory, etc.) stimulus eliciting a *sonic* memory. The specific effect that I am referring to here can be

witnessed in advertisements that repurpose a section of a popular song's lyric in order to embed a brand message within a potential consumer's consciousness. Typically, this strategy can be witnessed on billboards or other (often outdoor) advertisements, supports that are configured to deliver a condensed yet concise brand message within a reduced timeframe. Someone driving down a highway, for example, will have only a few seconds to notice, read and retain whatever content an ad wishes to convey – a tough ask for an ad executive tasked with relaying a multi-layered yet evocative product and lifestyle message.

The integration of a short lyrical fragment presents an ideal solution to this communication conundrum. In his book *Sinister Resonance*, sound studies theorist David Toop foregrounds the mediatic polyvalency of sound, recognizing that “Dwelling in every written text there are voices; within images there is some suggestion of acoustic space” (Toop 2010, viii). A mere excerpt of a well-known song can immediately imply a larger whole that, in turn, can carry an intricate network of societal and subjective mnemonic cues, as discussed above. Additionally, this strategy capitalizes on the elicited earworm's persistence to enable an insistent temporal elongation, all the while remaining textually and sonically muted. A condensed prompt calls forth an unsounding song, initiating a chain reaction of imbricated associations, a catalyst leaving us to do most of the message-generating work ourselves. This is a condition that permeates urban, and more specifically, commercial retail environments:

Need a break from the dreariness of a Canadian winter? Well hey, “Little darlin', it's been a long, cold, lonely winter, Little darlin', it feels like years since it's been here...Here comes the sun”:



Figure 4: Transat Holidays promotional poster.  
Source: <https://imagineholidays.ca/deals/sun-promotion/>

Fancy yourself as something of a rebel? Someone who yearns to escape the conformity of urban living for wide-open spaces? Well, we just happen to be able to “get your motor runnin”:



Figure 5: Jeep Compass Billboard Advertisement  
Source: <https://www.youtube.com/watch?v=5ByMA3M5owo>

And while we're at it, here's a non-conformist fragrance to make your renegade self even sexier:



Figure 6: Route 66 Fragrance Advertisement

Source: <https://www.fragrantica.com/news/ROUTE-66-Born-to-be-Wild-16778.html>

Marketing material tends to be forthright in terms of acknowledging this sonic emotional manipulation, often foregrounding the benefits of generating earworms, as the following excerpts from the Boston-based Millenium Agency's website demonstrates:

*Advertisers know that consumers form an emotional connection to music, much more so than regular text-based advertising... this is because musical communication creates a deep empathic and neurologic connection in a potential buyer. Due to this, music can be used to evoke an emotional connection.*

*Lyrical content can help achieve the "song-stuck-in-head" syndrome that helps engrain a brand within a consumer's memory. People are far better at remembering things when they can place a beat or rhythm to them. Musically wording a certain message assists brand recall and recognition.* (Source: <https://mill.agency/creative/lyrics-song-can-used-advertise-business/> )

Such instances of deliberately evoking and manipulating an anamnestic response in order to elicit specific consumer behaviours, then, comprise an essential tool for acoustic territorialization – a voiceless voice that transforms into our own, one that detaches itself from its point of dissemination to burrow into our brains. Negotiating urban space has become a drift through (as sound studies theorist Holger Schulze puts it) “the installed entertainment weaponry of sound and image projection” (Schulze 2018, 87).

### **5. Resounding Unsound: Spectral Convolution**

Recognizing and anticipating the seductive yet disruptive song of the marketing sirens becomes of utmost importance if we intend to strategize against them, to deflect their provocative call. Assessing one’s positioning within the spectrum of influence is no easy task given the fact that we are (almost) all consumers and therefore implicitly imbricated within the forces that we wish to begin dismantling. I have no pretence regarding the ability of my research-creation project to enact any significant change in this regard, but I do retain hope that it may enable, perhaps even encourage, a certain degree of reflection on the sounding and unsounding sonic energies that haunt our quotidian spaces and places. How, then, does one address and subsequently incorporate those massive yet muted forces that evade the conventional recording apparatus?

The approach adopted within *Contained* is based on a technique known as spectral convolution. This is a digital process that ‘sounds’ a sound within another via a multiplication of the sonic spectra in the frequency domain. Accomplished through a procedure known as Fast Fourier transform (FFT), spectral convolution multiplies the frequency spectra of two sounds; this results in the amplification of frequencies that are present in both signals along with a corresponding reduction in volume of frequencies that are weak in either input signal (Truax



n.d.). Spectral convolution is most commonly used in audio production for the digital creation of reverberation simulations. In this context, an impulse response is obtained from an acoustic space by emitting a short burst of broadband signal (ideally via a white noise sample, though in many cases simply popping a balloon will suffice) and recording the outcome. The resulting recorded sample can then be used to obtain a mathematical model of the decay times across various frequencies, thereby providing a model of the acoustic characteristics of the locale. In a traditional, i.e. musical, context, the impulse response would be typically loaded into an appropriate plug-in and a dry signal fed through; the output would be a convincing emulation of the sound occurring within the previously sampled space. In this manner, one could recreate sound of a dry, studio-recorded acoustic guitar being played in the Notre Dame Cathedral, for example.

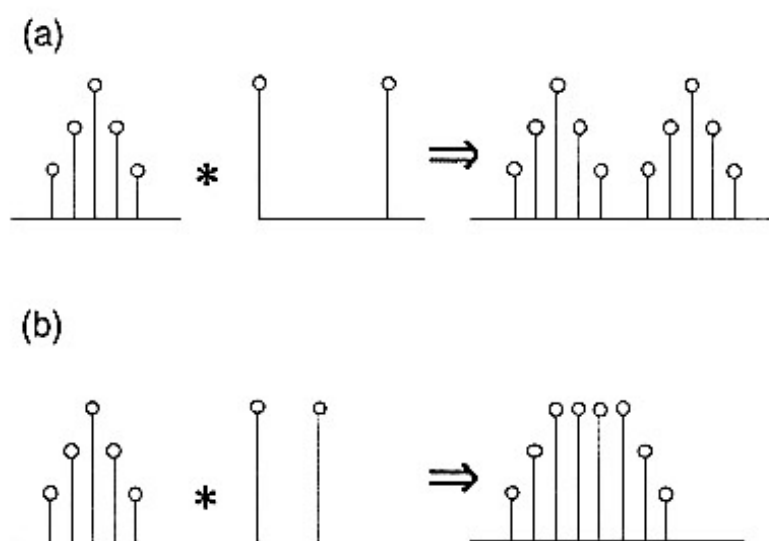


Figure 7: Spectral Convolution. A source sound (left) is convolved with an impulse response (middle) resulting in an elongated, overlaid output (right). Figure 'a' shows an example with more distant impulse signals; figure 'b' presents an instance in which the impulses are closer together. (Source: <https://www.sfu.ca/~truax/conv.html>)

Put simply, this procedure allows one to ‘sound’ an audio file within another; any two sounds can be used, in other words, and they need not be engaged to artificially simulate a real space. In practice, the application of spectral convolution on other audio sources creates a textured and evolving output that is rich in frequency content, retaining characteristics of the source files and occupying an ambiguous space between the organic and synthesized.

In terms of the sound design for *Contained*, spectral convolution provided an ideal process for the meshing of internal and external sonic worlds. A diary was kept of the anamnetic and phonometric sounds – the earworms, of which I seem to be particularly susceptible – being experienced within the spaces represented in the 360 images. In most instances, field recordings containing the songs in situ were employed whereas in other cases the song files were subsequently sourced and spectrally convolved with field recordings obtained concurrently within the same locales. Although an attempt was made to maintain synchronicity between images, location audio and mnemonic sounds, there were instances in which certain earworms were elicited when no production work was taking place; I was simply moving through the site accompanied by a non-sounding internal soundtrack. If these proved to be particularly resonant or persistent, they were used in lieu of the songs that were occurring synchronously. Although this re-representation of internal soundings is inherently ambiguous and highly subjective, it nonetheless manifests a resonant, contingent moment, an invisible and unheard relation. As such, it re-mediate a spatial encounter that bears (or has borne) an impact on shaping an experience of time and space, one that is, as emphasized throughout this chapter, striated with influences of a political, economic, social and environmental nature. As Salomé Voegelin reminds us, “The possible is then, if it is a potential at all, not a transcendental but a contingent potential, not of the thing, but of our encounter. It is its temporal realization dependent not only on the thing and what

it holds before our encounter, but also on the context that frames the confrontation and enables the actions that are its possibilities produced in a creative and reciprocal perception” (Voegelin 2019, 2).

## **6. Conclusion**

We began this chapter by emphasizing the importance of acknowledging the integration and positioning of a contingent ‘self’ within the soundscape; after all, we are not independent of our environments. Not only does the spatial positioning of a listener – the actual vibrational interaction with the acoustic characteristics of locale – bear an impact on what is heard, but also the broader *temporal* aspects; the intricate variables that define the ‘now’ of the moment of audition interacting with an entangled, variable and experientially unstable history. As film scholar Beth Carroll states: “sound’s locus is in the mind of the spectator where it is rendered by the individual... each listener ‘hears’ a different sound...if each listener hears the sound differently then the spatiality of said sound must too be in part dependent upon the listener’s perception, and they thus become a source of meaning” (Carroll 2016, 53-54).

The ephemerality of the sonic subject/environment interface is a topic that sound studies theorist Salomé Voegelin has explored at length, emphasizing its centrality in developing an individual agency within a broader ecology of networked forces, remarking that “To invite the possible into practice and into discourse signals an acknowledgement at once of an object and a subject’s unseen dimension, the invisible edge of their definition and description, and of our limitation at grasping it” (Voegelin 2019, 2).

A complete acoustemological mapping of our contemporary anthropocentric soundscape, then, must accommodate those spectral sonic emanations, the ghostly *unsounds* that permeate

our commercial topographies and populate our psyches, as they comprise an integral and essential component of the mechanisms that are drawing us into environmental, economic, and by default, social decline. Whether enacted through the practice of field recording or simply through the act of considered, reflective listening, situating one's self within the networked vectors of sonic forces that constitute a resonant strata of lived reality implicitly and necessarily becomes a starting point for any agential action that may follow. Although the mediated presentation of a contingent, variable subjectivity risks veering into self-indulgence or abstruseness, to disregard one's placement, to engage in the pretence of being capable of assuming a semblance of objectivity bears its own dangers and limitations. Once again following Voegelin, I am arguing for an appraisal of "hearing as an accessing of different variants of the actual, whose possibility is determined by my position, by my being in the world" (Voegelin 2019, 26), a polyphonic placement that stands firmly in opposition to the "the monochord of rational thought and manifest in neo-liberal capitalism' (Voegelin 2019, 35). Just as the sonics of acoustic territorialization – be it via the acoustic hauntings of the hum or the parasitical infiltrations of earworms – bear the capacity to disrupt and disorient, so too does it retain the ability to unify and mobilize, as we shall hear next.

### **Endnotes**

1. There does, however, exist a surplus of information on dealing with *microphones* and wind noise as well as reducing or *eliminating* the intrusive sounds of the recordist – essentially rendering the creator invisible and inaudible – a model that I suspect has evolved from commercial, rather than artistic, interests.
2. David Deming, one of the few mainstream scientists formally studying the world Hum, states that the first reliable report of the sound comes from Bristol, England in the early 1970s.

## **4. SENSUAL SONICS: A PROPOSAL FOR SPATIALIZED, VIBRATIONAL VR**

### **1. Introduction**

From the subjective and ephemeral acoustemological apprehensions of sonic spaces discussed in the preceding chapter, we now return to a resolutely tangible and corporeal spectrum of the auditory: vibrationally-propagated sound. In this chapter I address the sensual capacities enabled by contemporary spatial and tactile sound dissemination technologies, examining their historical evolution and proposing possible frameworks for their extension into a VR ecology.

The following questions provide a grounding for the discussion that follows:

What does it mean to consider a VR experience as a primarily auditory and vibrational (rather than visual) environment? In what capacities may spatial and haptic sound be used as a mechanism to intertwine subjective (internal) and external worlds within an immersive ecology? As a creator of VR experiences, how can one leverage spatialized and vibratory immersivity in order to engage a more discursive mode? And finally, is it possible to approach immersive VR sound as a tactile environment that bears the capacity to ultimately engender tangible effects in the ‘real’ world?

This chapter aims to position spatial and haptically-disseminated sound as an expansive and corporeal vibrational phenomenon that implicitly and routinely negotiates the liminal territory between interior and exterior spaces. I will argue that these enveloping and tactile capacities can (and should) constitute a key modality within the immersive, yet generally solipsistic environment that is VR. In addition, I hope to demonstrate that a considered deployment of

spatial/haptic sound can be enact a more embodied understanding of contemporary power dynamics, thus engendering a distinct and internalized apperception of obfuscated socio-economic forces imbricated within our everyday spaces.

## **2. (Re)defining Immersion**

To begin, it would be useful to define what is meant by ‘audio-visual immersion’, a notion that is fundamental to this chapter yet also somewhat fetishized within new media scholarship (Chattopadhyay 2020, Mera 2016, Scrimshaw 2017). Whether one talks of ‘presence’ or ‘immersion’ engendered by a mediated work, a sense of sensory envelopment is implicit: the immersed subject finds themselves at the center of an environment and/or experience, a positioning that – importantly – parallels that of everyday audition (Truax 2000; Ihde 2007; Chion 2015). Situating the auditor *inside* the frame as a ‘sonic subject’ (Voegelin 2010), rather than outside the mediated experience as a detached observer, functions in marked contrast to traditional cinematic spectatorship. In conventional film, for example, diegetic audio is often articulated as “the ears of the camera”, disrupting the subjective position of the viewer (Chion, 2003, 49-50). Immersion also connotes a *sensual* mediatic engagement, that is, an embodied cognition (or ‘presence’) that extends beyond the conceptual aspects of a work to foster an emotional, subjective resonance between the auditor and the composed object. Kathleen Hayles remarks that the best projects “have emotional force as well as conceptual coherence” (quoted in Sterne 2019, 86). Similarly, Roland Barthes reminds us that within a work of art “significance...is meaning, *insofar as it is sensually produced*” (Barthes 1975, 6, italics in original).

Although the aforementioned statements may in many respects seem self-evident, contemporary discourse regarding sonic sensory immersion in cinematic contexts often privileges the notion of an intensity of user experience predicated on the *technical* apparatus. As musicologist and researcher in cinematic sound Miguel Mera puts it, with respect to film sound, ‘immersion’ has become “an objective description of what can be delivered by particular technologies” (Mera 2016, 93), a bias that overlooks the fact that said technologies have “frequently been considered tawdry or gimmicky, restricting rather than enlivening” (ibid.). As one of the few academic texts to specifically delve into immersive cinematic sound, Mark Kerins’ oft-referenced *Beyond Dolby (Stereo): Cinema in the Digital Sound Age* (2011) provides a salient example of this predilection; although the author provides an erudite elucidation of the historical evolution of theatrical sound dissemination, his focus remains on surround-sound’s impact on the *production* aspects of the mainstream film industry rather than the *emotive* responses facilitated by contemporary multi-channel, low-frequency-enabled sound systems.

Mera seeks to counter this technocratic bias by arguing for the importance of spatial sound in achieving a sense of “*spatial* presence” (ibid., 91, emphasis mine), a compound phrase he favours over the more conventional ‘presence’ or ‘immersion’, claiming that the term foregrounds a sense of “sensory completeness” (ibid., 96) within a mediated environment. ‘Spatial presence’ is predicated upon establishing a synergistic synchrony between multichannel sound and cinematic visuals. For Mera, such a synchrony is not necessarily based on verisimilitude, but rather on a mutual amplification of audio and image in a manner that heightens empathic investment in the mediated content, a mutually-reinforcing and sensuous form of engagement that he suggests finds its apotheosis in a spatialized, symbiotic “fusion of sound and music” (ibid., 103).



Figure 8: Immersive Cinema as a “system of rationalized, technologically induced thrills”:  
2020 Advertisement for the Samsung Q-Series Soundbar.

Source: <https://www.samsung.com/mm/audio-devices/q-series-soundbar/>

Sociologist and media scholar Tim Recuber presents a similar critique of audio tech-fetishism, stating that ‘immersion cinema’ “emphasizes technical achievement to the detriment of social or artistic relevance and embeds a passive, consumerist ideology within the spaces of contemporary moviegoing” (Recuber 2007, 316). Though Recuber acknowledges the profoundly immersive capacities of modern surround-sound systems, recognizing that “the spectator becomes one with the spectacle through these technological interfaces; one ... experien[ces] it as much viscerally as visually” (ibid., 325), he questions the nature of that which is audited, remarking that it consists largely of an ideologically and conceptually barren form of passively-consumed entertainment, a “system of rationalized, technologically induced thrills” (ibid., 324). Recuber ultimately suggests that if multichannel ‘immersion cinema’ is to evolve beyond a corporately-conceived and produced spectacle, it must emphasize its “relevance to lived, social spaces”



(ibid., 328), rooting the experience within the individual body by adopting “an approach more grounded in spatial and bodily experience” (ibid.).

Mera’s championing of the role of a spatialized, enveloping soundtrack that merges atmospheric and melodic elements to elicit an empathic sensorial investment in the audio-visual experience is certainly relevant to this paper (it also bears a close kinship to Holly Rogers’ concept of ‘sonic elongation’, discussed in chapter seven), as is Recuber’s insistence upon the importance of evoking a realist, sonically-activated ‘spatial and bodily experience’. What is missing in both researchers’ arguments, however, is a discussion of sound’s vibrational, *corporeal* component in establishing somatic relations/resonances within a mediated ecology. This is not unusual; although low-frequency, haptic sound forms an intrinsic component of even the most basic consumer (not to mention commercial) surround-sound audio systems<sup>1</sup>, discussions acknowledging the potency of this tactile, vibrational element tend to appear only as passing references, if at all, within most cinema studies scholarship. This consistent exclusion does come as a surprise, however, as low-frequency audio bears the ability to create a profoundly sensual immersion: whereas spatial sound *enwraps* the auditor, bass’ haptic energy *penetrates and permeates* the listening body, forging a *physical* bond between auditor and audited. Despite its negligible role within film studies discourses, this powerfully corporeal dynamic forms a central component within sonic/musical bass cultures and has become a prominent area of research for several sound studies scholars (Boon 2022, Goodman 2012, Henriques 2011, et al.).

I will continue to explore audio-visual spatialized/haptic listening environments later in this chapter. For now, however, I wish to tune our ears specifically to the sensual, vibrational and tactile component of disseminated audio alone, to examine in it as a medium in and of itself. In the following section, I shall argue that empathic, relational and sensual environmental

immersion, whether generated via music or the quotidian soundscape, has a long history of manifesting itself via the dissemination of low-frequency, vibrational sound. This inquiry will serve as a grounding from which to further explore the integration of haptics within immersive cinematic audio-visual ecologies.

### **3. A History of Low-End Affect**

Paul C. Jasen is one such sound studies scholar who hears the vibratory power of low frequency sound as a vital somatic and social catalyst; in his 2016 text *Low End Theory: Bass, Bodies and the Materiality of Sonic Experience*, he presents a compelling basis for an apprehension of “sound’s material participation in culture: how people engage it sensually, but also collectively and conceptually” (Jasen 2016, 11). For Jasen, vibratory sound works as both a relational and material – yet unseen – sonic agent binding space, self and soul: “vibration modulates thought no less than it does a violin string or building” (ibid. 13). Jasen understands this power as inherently spectral and deterritorializing, a ghostly “presence-absence” (ibid. 16) that bears the capacity to “draw imaginations into bodies and begin influencing perceived reality (the emergence of a haunting)” (ibid.). Jasen coins the term *spectral catalysis* to describe this uncanny transformative/transductive vibratory process/presence, tracing a lineage of low-end body-modulation that encompasses the sacred, political, economic and libidinous, a force that – as we shall soon hear – unhomes, or re-spatializes, evoking embodied auditory virtual realities.

Jasen roots his analysis in religious culture, identifying the proliferation of technologies, both sound-making and architectural, that are deployed to activate ‘sonic bodies’ in order to “catalyse religiously useful becomings” (ibid., 66). He points out that throughout history, the divine has consistently manifested itself via the corporeally-experienced power of bass:

emanations from thunder to religious bells, gongs and church pipe organs, often propagated within bespoke spaces such as curiously echoing prehistoric caves or the deeply reverberant interiors of Christian churches, comprise instances of low-frequency force deployed to activate “the sonic body as a transducer, turning weird energy into belief” (ibid., 79). Moreover, the inherently spectral nature of sound functions as an ideal manifestation of the presence-absence that consistently characterizes the mystical and divine: the receiving body instinctively seeks to attach the feelings of vibrationally-generated ecstasy or, in the case of unheard low frequencies such as infrasound, uncanny sensations of weightlessness, unseen presences and anxiety, to a causal body. For the vibrationally-activated subject, religion “*stands at the ready...to provide an interpretational object*” (ibid., 80, italics in original). Already in megalithic times, cultures were cognizant of the destabilizing effects of low-frequency sound, creating virtual acoustic architectures that were intended to exacerbate the effects of sub-audible acoustic propagation for the purpose of modulating human responses. In their analysis of monuments in prehistoric Britain, for example, archaeologists Aaron Watson and David Keating detected an astute engineering of resonant spaces for the purpose of generating unsettling extra-sensory sonic effects, claiming that acoustic architectural technology was already being wielded not just “for producing visual and acoustic experiences”, but also (in what could perhaps be understood as a premonition of contemporary virtual reality) “*a means of creating different worlds altogether*” (Watson and Keating 1999, 336, italics mine).

Jasen identifies a lineage of coupling sound generators with bespoke acoustic architectures for the purpose of not only conjuring spirits (Jasen 2016, 86), but also for the broader purposes of promulgating power and asserting religious authority, a legacy of ‘sonic dominance’ (Henriques 2003) over subservient sonic bodies that in many respects found its apotheosis in the

church organ. Jasen describes the latter as a ‘monstrous’ apparatus that “boomed and rumbled beyond the walls of the church ... turning the Christian ritual space into a seeping, pulsating membrane ... radiat[ing] a force that ... confronted non-participants and non-believers ... with a striking perceptual encounter combined with the promise/threat of something altogether more transformative ‘inside’” (Jasen 2016, 98-99).

#### **4. A Bas(s)is for Immersive Experience**

This ecstatic encounter, this “modulation of belief by sound” (ibid., 111) is similarly perpetuated, albeit perhaps in a less sinister fashion, within the contemporary fields of sound art and club music. Gallery spaces and dancefloors can be understood to exist as heterotopias (see chapter seven) within which disseminated low-frequency sounds function as powerful, relational “modulators of acoustic space and the bodies that occupy it” (ibid., 128): these spaces effectively consist of *acoustic architectures* that exist within yet transcend the physical territories they occupy. Ultimately, these milieus of vibrational low-end become generators of ecstatic, deterritorializing corporeal forces that engender and merge sonic bodies:

“When bass moves bodies, it puts them at variance with themselves; new inflections of being are sparked in a stream of heterogeneous encounters. When bass permeates and modulates, it binds bodies together (putting them literally *on the same wavelength*), making the contingency and exteriority of their composition an intuitively felt-reality. The *sonic body* begins in material vibration, but it is always potentially the start of something more: an incitement to thought, movement, collective transformation” (ibid. 22).

Jasen’s emphasis on the artistic articulation of these low-frequency, vibratory milieus as “sonic architectures” (ibid., 31), is central to the project at hand, as his thesis distinctly echoes the

concepts of ‘presence and ‘immersion’ as they are attributed to virtual reality. As a case in point, he recognizes that “there is an apparent link between a milieu’s spectral makeup (its sonic materiality) and its affective tone” (ibid., 35), that, when manifested correctly, generates an “anomalous sensation and deterritorialized perception exert[ing] a de-realizing influence on the scene, setting off new tangents of thought, bodily habit and social organization” (ibid.).

Deploying this vibratory, affective potential within a VR-based acoustic architecture, then, can be understood as a direct evolution of the base/bass space of the dance club: both present mediated spaces predicated upon the establishment of a complex, enveloping and embodied multi-sensory (sonic/haptic/visual) encounter. In their analyses of Jamaican sound system and rave cultures respectively, sound studies scholars Julian Henriques and Simon Reynolds recognize low-end sound – as experienced in the dance club – as a mechanism that bears the capacity for embodied immersion, sublime experience and even socio-political disruption. In fact, the authors’ descriptions of the club experience once again bear uncanny resemblances to the rhetoric applied to virtual reality. Henriques, for example, describes the sensually immersive, haptic dancehall encounter thus: “This is the visceral experience of audition, immersed in auditory volumes, swimming in a sea of sound...internal organs resonate to the finely tuned frequencies, as the vibrations of the music excite every cell in your body.” (Henriques 2011, xv). For his part, Reynolds has described the rave experience as one of being “lost in music, out of time...bypassing interpretation... hurled into a vortex of heightened sensations, abstract emotions and artificial energies” (Reynolds. 1998, pp.9-10). For Reynolds, the experience is not restricted to the duration of the event itself but is temporally expansive, extending beyond the nexus of the rave into a broader apprehension of a lived reality. Engendering a reinterpretation of his physical milieu, the bass-fixated rave scene<sup>2</sup> “transformed mundane Britain, with its dreary metropolitan

thoroughfares and placid country lanes, into a cartography of adventure and forbidden pleasures” (Reynolds 1998, 9).

Moving beyond the pure *jouissance* (I use the term here in the Lacanian sense of ‘superabundant vitality’ (Lacan, 1997)) of the dance (while also remaining firmly rooted within its techno-social apparatus), both Reynolds and Henriques elaborate upon how dance culture comprises, in Henriques’ words, “a corpus of knowledge” (Henriques 2011, xv), an apparatus that – in a distinct echo of an acoustemological approach<sup>3</sup> – allows one to make sense of the world. Reynolds suggests that the idealism experienced within the audio-visual immersion of the techno dance floor bears the ability to “spill over into and transform ordinary life...[the] ‘only connect!’ feelings experienced on the dance floor [can] be integrated into everyday struggles to be ‘better at being human’”(Reynolds 1998, 9). For Henriques, sound system culture is a similarly encompassing, relational mechanism that allows for a more fluid mode of representation, one that ultimately functions as “a dynamic model for both raising questions about the world...and understanding itself” (Henriques, 2011, xviii) – a sensual mode of thought that is firmly rooted in the listening body. For both Henriques and Reynolds, a connection is drawn between a physical immersion in sound and the integration into a broader socio-cultural context: “As well as bodily being, heartbeat and blood pulse, this idea of base extends further – into the body politic. The base is the means of production on which Marxist materialist philosophy is founded – as well as society’s ideological superstructure” (Henriques 2011, 14).

## **5. A Politics of Frequency**

Whether one is engaging with a vibrationally-disseminated ‘ideological superstructure’ as identified by Henriques or an institutionally-mediated ‘sonic architecture’, as described by Jasen,

the encounter is an ambivalent one, capable of both unifying and disrupting. Jasen, for example, points out the asymmetrical dynamics of dissemination (and a corresponding subjugation of the corporeal) in the propagation of low-end vibrational force that exists as a byproduct of large-scale industrial activity and infrastructures: “If industrial-era haunts increasingly manifested as anomalies of perception then we can reasonably speculate on the contributing role of industry in new sensory assemblages and new, bodily-held anxieties of affection by unseen forces. In short, new ways to be haunted” (Jasen 2016, 40).

The equivocal nature of vibrational force has become a central area of interest for polymath DJ, producer (under the alias Kode 9), director of the Hyperdub record label and sound studies scholar Steve Goodman. Expounding on the affective potential of bass, Goodman’s take presents a more sinister apprehension of vibrational force, positing a broad-reaching “politics of frequency” (Goodman 2010, xv) that provides a useful transition point between “modulations of affect” (ibid., xiv) occurring within both the club and broader lived environments. Goodman identifies a “A (dis)continuum of vibrational force” (ibid., xv) that spans the political, architectural and personal, a mode of control “that traverses police and military research into acoustic means of crowd control, the corporate deployment of sonic branding, through to the intense sonic encounters of strains of sound art and music culture” (ibid., xv). For Goodman, the LRAD (Long Range Acoustic Device or ‘sound cannon’, a sonic weapon employed by the police and military primarily for crowd control), the use of commercial environmental music (aka ‘Muzak’, which was discussed in greater detail in the previous chapter) and the DJ are all articulations of this politics of frequency; vibration is a fundamental tool deployed and refined by the defense, retail and culture industries alike to “molest the sensorium” (Eshun 1998, 143) and thereby control the behaviour of sonic bodies.

As with Jasen, Goodman recognizes that low-frequency bass pressure is manifested as a byproduct of the turbulent forces of large-scale industrial activity and its related logistical infrastructures, trembling our environments with dense psycho-affective pressures. Infrasound, or frequencies below 20Hz, comprise a particularly potent component of this low-frequency spectrum: these are frequencies that exist below the threshold of human audibility and that are thus felt rather than heard. The extremely long waves responsible for infrasound (cycles spanning up to 171 kilometres) require a significant amount of power to propagate, are capable of travelling vast distances<sup>4</sup> and their contemporary, predominantly human-generated provenance have led this low-end sonic spectrum to be characterized by sound artist and researcher Raviv Ganchrow as the “bandwidth of the Anthropocene” (Interview Raviv Ganchrow – “The Geologic Imagination Book Launch”). Infrasound’s ability to travel long distances with very little attenuation in conjunction with its ability to spread and saturate throughout a topography means that its source can be very difficult to locate (Leventhall 2007) – in many instances (such as in the case of ‘the Hum’, discussed in the previous chapter), individuals can experience profound effects/affects from these bass/base energies while their source remains untraceable.

The psycho-acoustic effects of infrasound can be intense: this spectral, vibratory pressure constitutes a corporeal and emotional presence that has often been likened to a haunting: the physiological and psychological effects can include the experiencing of chills, disorientation, extreme sorrow, anxiety, agitation, paranoia and fear (Roosth 2018) as well as a feeling of “being watched” by “unseen presences in the room” (Tandy and Lawrence 1998, n.p.).





Figure 9: Vibrational control: An LRAD or 'sound cannon' deployed by Toronto police during the 2010 G20 protests. Source: <https://toronto.ctvnews.ca/judge-allows-police-use-of-sound-cannons-with-limits-1.526386>



Figure 10: Voluntary vibrational control: DJ Tiësto at the 2013 Creamfields Festival. Source : <https://www.facebook.com/tiesto/photos/a.358191768545/10151632402523546/?type=3>

Whether deployed intentionally or experienced as an after-effect of the infrastructures required to perpetuate our so-called “first world” lifestyles, low-end, infrasonic frequencies comprise a resonant, embodied stratum of our anthropocentric habitat; their penetrating somatic effects enable both transcendent dancefloor pleasure as well as institutionally deployed “irritation, manipulation, pain, and torture” (Goodman 2012. 17).

Although low-frequency infrasonic sound forms a palpably resonant aspect of our lived, anthropocentric ecology (to provide one more example, anthropologist Sophia Roosth has described infrasound as “a vibration blanketing the modern technologically mediated globe” (Roosth 2018, 117)), it also remains relatively marginalized within the field of acoustic ecology. Field recordist and sound studies theorist Mark Peter Wright provides a rare exception, insisting that “field recording must attend to inaudible specters” (Wright 2022, 152), pointing out that “infra and ultrasound reveal a plethora of actors participating across sensory thresholds” (ibid., 99), thus revealing “assemblages of meaning” (ibid., 152) that disclose hidden vectors of political, ecological and ethical concern. It is precisely for these reasons that vibrational, low-frequency spectra merit foregrounding within mediated immersive audiovisual works documenting the anthropocentric condition, as is the case with *Contained*.

## **6. A Phenomenology of Immersion: Displacing the Ocular**

We now return to a concerted audiovisual context: as we have already heard, the technology required for low-frequency *cinematic* sound dissemination has existed for well over thirty years, having been developed as an intrinsic component of the *Society of Motion Picture and Television Engineers*’ surround-sound specifications. This commercially-driven move to cinematic spatialized sound disseminated with an accompanying dedicated low-frequency channel marked

something of a potential sea-change in terms of how film could be both conceived and audited. Yet despite this, the audio-visual bias in terms of spectatorship (I use the ocular-centric word here intentionally) remains on the image, a hackneyed hierarchy that merits creative interrogation, if not destabilization.

Although he is not referencing cinematic sound directly, American philosopher of science and technology Don Ihde is worth referencing at length here, as his phenomenological deconstruction of the auditory distinctly positions sound's ideological valence in relation to the ocular. He claims that:

“A turn to the *auditory dimension* is thus potentially more than a simple changing of variables. It begins as a deliberate decentering of a dominant tradition in order to discover what may be missing as a result of the traditional double reduction of vision as the main variable and metaphor. This deliberate change of emphasis from the visual to the auditory dimension at first symbolizes a hope to find material for a recovery of the richness of primary experience that is now forgotten or covered over in the too tightly interpreted visualist traditions” (Ihde 2007, 13, emphasis in original).

Stated more emphatically, a foregrounding of sound's ability to forge a primal (even carnal) relation with one's milieu operates in distinct opposition to (and in many respects supersedes) the capacities of the visual. As we have already heard, such an approach is central to Salomé Voegelin's discussion of sonic phenomenology: Voegelin prioritizes the act of audition as a profoundly subjective way of engaging with both the world and media art, heralding its capacities as an aesthetic, generative and contingent practice enabling a deeply tangible and personal embodiment of the relations between phenomena, perception and communication. She hears *all* sound (not just its lower frequency component) as permeating the liminal zone between

internal (subjective) and external (objective) worlds – a ‘re-spatializing’ force that catalyzes “an act of engaging with the world” (Voegelin 2010, 3) that eclipses what might be achieved via the ocular. In her account of auditing a series of sound-based installations, for example, she describes her experience as “meet[ing] the sound as verb and we are both doing: playfully walking through a geography of time and place producing a fiction of our own ... hearing what [one] thinks, as an act of ... unimpeded imagination.” (Voegelin, 2010, 96). Such a fluid, fleeting dynamic intrinsically problematizes the stability (or a priori) aspect of sight: “Sound by contrast [to the visual] negates stability through the force of sensory experience. Listening's focus on the dynamic nature of things renders the perceptual object unstable, fluid and ephemeral...*sounds are like ghosts*” (Voegelin, 2010, 12, italics mine). For Voegelin, *all* sound exists as a spatio-temporal singularity functioning as a nexus between interior and exterior, participation and self-containment, even phenomenology and semiotics.

## **7. Sonic Cinema**

As useful as Voegelin’s advocacy for the sonic component of multimedia art may be to this paper’s arguments, her bias can be somewhat problematic in that it neglects establishing any cogent dynamic between the seen and the heard – a situation that is, of course, intrinsic to any audiovisual context. Film theorist Michel Chion, in particular, is critical of Voegelin’s vague championing of sound as a “supposed, inherently emancipatory force” (Chion 2015, 24), instead insisting that the sonic and visual are inextricably intertwined. Chion’s case for the expansive capacities of sound within an audiovisual context, be this via the *acousmètre*<sup>5</sup> or *added value*<sup>6</sup>, are seminal. He maintains that cinematic sound is intrinsically immersive, pushing at and beyond the boundaries of the screen: “In the cinema to look is to explore, at once spatially and

temporally, in a ‘given-to-see’ (field of vision) that has limits contained by the screen. But...[the] aural field is much less limited or confined, its contours uncertain and changing...sound more than image has the ability to saturate and short-circuit our perception” (Chion 1994, 33). Perhaps unwittingly echoing the research undertaken by Harold Burris-Meyer (albeit in a far less sinister fashion), he describes this sound/image relationship as a powerful tool for “affective and semantic manipulation” (Chion 1994, 34) of not only the image, but also the auditor. Cinematic audio bears the capacity to not only redefine what one sees (“[sound] makes us see in the image what we would not otherwise see, or would see differently”) (Chion 1994, 34), but also affect the audience physiologically (“breathing noises in a film can directly affect our own respiration”) (Chion 1994, 34). For Chion, then, sound (and cinematic sound in particular) functions *in conjunction with the image* as a dynamic, transformative, sensual, and embodied force within a diegesis, allowing for affective, psychological and even physiological manipulation.

Cinema studies scholar Vivian Sobchack presents a more openly carnal approach to cinematic embodiment. Her earlier writing addresses audio mostly in passing, instead exploring the somatic effect of film in a more general manner. Referencing Kracauer, for example, she reminds us that “the uniqueness of cinema [lies] in the medium’s essential ability to stimulate us physiologically and *sensually*” (Sobchack 2004, 55, italics mine). For Sobchack, conventional cinema already presents the capacity to generate a richly immersive experience, one that transcends the limitations of audio-visual mediation and is capable of evoking a complete, subjective sensorium: “We, ourselves, are subjective matter: our lived bodies sensually relate to ‘things’ that ‘matter’ on the screen and find them sensible in a primary, prepersonal, and global way” (ibid., 66). The body, in fact, is constantly engaged in a process of ‘transubstantiating’ externally-generated sensory inputs, whether optical or auditory. This process is, furthermore, a

reciprocal one that operates as a continuum: “we could say that the lived body both provides and enacts a *commutative reversibility* between subjective feeling and objective knowledge, between the senses and their sense or conscious meaning” (ibid., 60). Herein lies a direct, albeit multi-modal, parallel to Voegelin’s phenomenological inquiry into sound: the self is not a fixed entity, in other words; rather, it is in constant flux. This flux, however, is not entirely open-ended; in order to make sense, it must be ‘inhabitable’, referring to and resonating with subjective experience.

It is not until her later essay *When the Ear Dreams; Dolby Digital and the Imagination of Sound* (2005) that we hear Sobchack specifically advocating for the role of sound – in this case, multi-channel Dolby surround sound – in generating a liminal zone of affect that *supersedes* the image and ultimately enables a form of ‘rêverie’. She states that “where it was once a given that vision was the dominant and more nuanced (and hence poetic) element of cinematic experience, of late that dominance has been challenged by shifts of emphasis and attention in both sound technology and our sensorium” (Sobchack 2005, 2). Quoting Bachelard, she presents the surround-sound theatre as a propitious space for “an ear that knows how to dream” (ibid., 3). In contemporary cinema, the deployment of spatial sound allows for an ambiguity of the optical in a reversal of the traditional audio-visual hierarchy. Here, “*the objective ear subjectively imagines the image*” (ibid., 5, emphasis in original), generating a sense of presence that supersedes that found in the screen image alone. Interestingly, Sobchack (along with Chion, for that matter) problematizes some of the characteristics of cinema-based surround-sound, claiming that it presents a form of immersion that is displaced, neither ‘here’ nor ‘there’: “while the amplified, swelling sounds fill what seems like a vast space, that space seems nonetheless discrete, and doesn’t precisely coincide with – even as it intersects with – the actual space of the theatre in

which we sit” (ibid., 8). Nonetheless, the modern film theatre – much like the rave or sound-system – still permits a bodily experience of sound that allows for an internalized, resonant, and affective mediatic encounter.

While largely eschewing Sobchack’s phenomenological analysis, Mark Kerins’ *Beyond Dolby* (2011) similarly gestures to the intensification of subjective experience that cinematic spatialized sound technology has enabled. Building upon Chion’s notions of audio’s capacity to extend the image, he claims that diffusion systems such as 5.1 surround-sound have fostered a new “cinema of immersion” (Kerins 2011, p.129), offering, in the words of Richard Maltby, “a three-dimensional extension of the screen’s two-dimensional image in which the audience is surrounded by sound” (ibid., 133). Such an articulation of audio enables the positioning of the audience *inside* the film: “the idea is that the audience is literally *placed* in the dramatic space of the movie, shifting the conception of cinema from something ‘to be watched from the outside’—with audience members taking in a scene *in front of them*—to something ‘to be personally experienced’—with audience members literally placed *in the middle* of the diegetic environment and action.” (ibid., 130, emphasis in original).

### **8. Good (and Bad) Vibrations: Sound in VR**

For Frances Dyson, this evolution ‘from ‘looking at’ to ‘being in’ (Dyson, 2009, p.2) has become the defining component of the VR experience. While Dyson acknowledges VR’s heritage within the evolution of ‘conventional’ film and audio technologies, she sees the shift to the immersive virtual audiovisual environments (indeed immersive environments in general) as grounded within their own ontology, one that is primarily sonic in basis: “Sound...has provided a conceptual model and set of technologies that together have laid the groundwork for notions of

immersion and embodiment...audio has naturalized what could be called the disembodiment effects of new media technologies, and thus paved the way for further mediations of the embodied subject” (Dyson 2009, 3).

As with Sobchack and Voegelin, Dyson stresses the loss of self and rupture with conventional discursive models that sound enables – sound is a flow, an always-becoming, rather than a tangible object. As a flux, rather than an event, sound is “always multiple, always heterogeneous...never a full guarantor of knowledge” (ibid., 5). For his part, sound studies scholar Christopher Cox acknowledges that such instability is potentially disorienting, stating that “This conception of the sonic flux – and the ontology of events and effects it affirms – is strange. It unsettles our ordinary ways of speaking, sensing and conceiving” (Cox, 2019). For sound studies scholars such as Cox and Dyson – that is, those looking towards the establishment of a sonic, rather than visual, ontology within audiovisual media – sound is continually being lost to a disappeared present, rupturing and thus problematizing the relationship between the sounding object, the sound itself, and the auditor.

## **9. A Return to the Low-End**

Both Cox and Dyson, however, posit physical vibration as a unifying force, one “through which the nagging question of representation, technological mediation, and the distinction between the real and the copy is resolved” (Dyson 2009, 77). As an embodied, tangible force, vibration functions as both object and event, particle and wave, bridging the gap between materiality and immateriality. For Dyson, the results are profound: “hearing becomes feeling and feeling is experienced as the cosmic vibration of life emitted from all things both animate and inanimate... supplying the listener with a prosthetically induced access to the plenitude of an otherwise



inaudible phenomenal life and metaphysical being” (ibid., 99). The parallel to Jasen’s discussion of vibrationally-induced religious affect as well as Reynolds’ and Henriques’ description of the club experience here is clear: whether generated in a cathedral, on the dancefloor or within a VR experience, sound disseminated/apprehended as vibration engenders a state that can both envelop and penetrate, broach interior and exterior spaces, and thus function as an ideal mechanism for inducing states of alterity.

In her essay *Dirty Sound – Haptic Noise in New Extremism* (2013), Lisa Coulthard identifies low-frequency haptic vibration as a key trope within the body-focused cinema of auteurs such as Philippe Grandrieux, Gaspar Noë, Claire Denis, and Lars von Trier. Calling to mind Mera’s argument for a meshing of diegetic and musical sound in order to create a sense of ‘spatial presence’, she characterizes their use of low-frequency (and thus haptically vibrational) drone as an instrument that enables the fusion of an external, urban and industrialized world with the sounds of an inner viscosity, that is, an amniotic rumble that is emblematic of corporeal materiality (Coulthard 2013, 116). Furthermore, she reiterates low-frequency vibration’s capacity for manifesting significant psychological, physiological and emotional effects, in this case eliciting primal associations of “threat, imminent danger and potential nausea” (ibid., 123), responses that are perhaps catalytic in terms of generating an awareness of unseen forces that suffuse our lived environments.

## **8. Conclusion**

As we have heard, vibrational sound functions as a profoundly affective, yet ambivalent, force. On the one hand, sound studies scholars such as Brandon Labelle describe the act of tactile listening as a profoundly affective method of engaging individual and environment (Labelle,

2010), while on the other, theorists such as Steven Goodman outline a vibrational ecology (or “(sub)politics of frequency”) ultimately rooted (both technologically and politically) within more ominous nodes of power such as the military entertainment complex (Goodman, 2012).

Importantly, however, Goodman, also advocates for a subversion of this power dynamic via a return to the dancefloor, reminding us of bass’ capacity to generate powerfully resonant relational environments. Such vibration-saturated settings bear the ability to generate sub- or micropolitical turbulence via a collective individuation, or a melding of “discontinuous entities of matter” (Goodman, 2012, 98).

Cultural theorist Marcus Boon largely corroborates Goodman’s analysis of a politics of vibration’s potential to work in opposition to industrial and military tropes of control and their generation of a vibrational “ecology of fear” (Goodman 2010)), understanding that they can equally be deployed to enact a “transform[ation of] fear into joy” (Boon 2022, 16). He foregrounds the “powerful discourse and practice of love that is operative in the history of queer dance scenes such as Deep House” (Boon 2022, 17), positing that the sensual ‘erotics’ generated by musical vibration propagated within such milieus functions as a space-maker or space-changer (ibid., 11): “What we label as music or vibrational practice is nonetheless truly a practice in the sense of an action in a space that changes the configuration of entities and/or actants in the space” (Boon 2022, 22) – a notion that, as we shall hear, is central to the concept of *sonic atmospheres*, which will be discussed in the following chapter,

Francis Dyson takes a similarly affirmative turn towards the end of her *Sounding New Media*, specifically drawing an analogy between the intensely corporeal and affective capacities of VR and sound studies scholar Michel Gaillot’s argument for “a new metaphysics of being” (Gaillot 1999, 183) enabled by the musical rave. Echoing fellow theorists such as Reynolds and

Henriques, Gaillot sees electronic club culture's convergence between art and technology as the facilitating dynamic in the attainment of states of trance that bear the potential of being profoundly transformational: "the involvement of body in dance...herald[ing] a new form of sociality, a new 'being-in-the-world and being-in-the-body' that in challenging the 'old socio-historic figures of meaning' re-fuses the political and ethnic divisions in the world" (ibid.). For Gaillot, the loss of self that occurs when immersed in the ecstasy of the dance is an alterity generator, a form of deterritorialization that parallels virtual reality in that it *re-spatializes*, providing access to an *extension of the world*, rather than a mere copy or simulation.

Foregrounding the articulation of spatial and haptic sound within a VR environment, that is, displacing the primacy of the visual in favour of an intensely sensual, haptic and enveloping vibrational force, then, bears the potential to recalibrate the oft-questionable hierarchies established within an optically-centred dynamic. As we have heard, it is conceivable that such a re-centering may bear the capacity to transcend the spatio-temporal restrictions of the source media experience and extend into the broader, 'lived' environment. As Salomé Voegelin encourages us, "sound [has] the capacity to be more than a thought, to be a thought engendered through process and participation that has the power to have real effects on the material world" (Voegelin 2018, 31).

## **Endnotes**

1. The ‘low-frequency energy’ or LFE channel comprises the ‘.1’ or ‘subwoofer’ channel of a home 5.1 dissemination system, for example, and LFE channels have been part of the standard specifications for theatrical digital surround sound systems since they were created by the Society of Motion Picture and Television Engineers (SMPTE) in 1987 (Kerins 2011, 330).

2. A perusal of band names and album/song titles of the early 90s techno era in particular (“Basscadet”, “Bass is the Place”, etc.) reveals a quasi-obsessive fascination with bass.

3. I am thinking here of Steven Feld’s description of the field as “an exploration of sonic sensibilities, specifically of ways in which sound is central to making sense, to knowing, to experiential truth” (Feld 1996, 96).

4. The 1883 explosion of the Krakatoa volcano near the Indonesian islands of Java and Sumatra reportedly generated infrasonic waves that were capable of circling the earth seven times (Roosth 2018, 109).

5. An *acousmêtre* denotes a presence that is heard but remains unseen.

6. Chion defines *added value* as the phenomenon in which the combination of sound and image exceeds the capacities of its individual parts.

## **5. AURAL ARCHITECTURES AND HAUNTED VIRTUALITIES**

### **1. Introduction**

The previous chapter discussed the complexities immanent in the somatic sonic body/environment encounter, emphasizing the vibrational strata that (re)define an individual's spatio-temporal rootedness within the anthropocentric soundscape. In this chapter, we expand our discussion to more specifically consider how to approach disseminating such acoustemologically-based sonic-vibrational material within a VR ecology. As has been ex/implicit throughout this paper, it is my contention that the formidable capacities of audio-led VR remain largely underexplored and that there remains something of a 'lost future' for the medium<sup>1</sup> – untapped possibilities, abandoned configurations and yet-to-be-imagined manifestations whose latent traces can be discerned not only within the medium of VR itself but also within the sister disciplines of cinema, sound and audio-visual installation. This is not to deny that outstanding, even ground-breaking work has been created for the medium of headset-based VR. Alejandro González Iñárritu's *Carne y Arena* (2017), Char Davies' *Osmose* (1995) and Arte TV's production of *Notes on Blindness* (2019), for example, all serve as examples of audio-visual experiences that gesture towards the unique story-telling capacities enabled by virtual reality environments; furthermore, they are works that would have been greatly diminished if presented via a conventional audio-visual medium. I do wish to emphasize, however, that there yet remains several relevant and promising avenues for exploration. Inverting the traditional audio-visual hierarchy via a foregrounding of the sonic and haptic capacities enabled by consumer VR headsets and peripherals offers one such 'alternative future'.

In the following pages I will present specific strategies for reconfiguring the traditional optically-biased approach to immersive media, suggesting that virtual space be apprehended as a

*sonic architecture* or *atmosphere-generator* rather than as a primarily visual medium. Such a reframing considers virtual space as a distinct *acoustic territory* and broaches the challenging task of determining how to situate audio-led VR within a broader ‘real-world’ ecology, one which is fraught with a network of anxieties and abstracted relationships that the (generally) solipsistic nature of headset-based virtual reality bears the risk of exacerbating. If headset-based VR entertainment is to escape the trap of devolving into a mainly passive, escapist, commercially-defined medium and recover its capabilities as a potentially ‘mind-shifting’ and ‘society-altering’ apparatus (Lanier), it may require a recalibrating rethink that extends beyond the offerings available via the Metaverse. I am aware that this rhetoric may evoke a hyperbole that can readily be conflated with the marketing-speak I am attempting to push back against, but I maintain that audio-visual media does retain the potential for catalysing profound personal reflection; it is through such subjective shifts in perception that a greater momentum and motivation may be established vis-à-vis the broader issues and realities that currently permeate our increasingly abstracted lived circumstances.

## **2. The Rhetoric of the Virtual Sublime**

To summarize and elaborate upon points put forward in the previous chapter: notions of ‘immersion’ and ‘presence’ are regarded as fundamental to the extended reality experience, being foregrounded as factors that distinguish the heightened intensity of a VR/AR/XR experience from more traditional approaches to audio-visual dissemination. In many instances, however, (Bailenson, Grau, Lanier et.al.) the enchantment of the VR experience engages what media theorists James W. Carey and John J. Quirk characterize as a “rhetoric of the electrical sublime” (1970, 121), an effusiveness that is largely predicated upon the technical – and primarily visual –

characteristics of the medium. A common trope in both marketing and academic discourse consists of emphasizing the transcendent capacities enabled via enhanced visual resolution, degrees of freedom, minimized latency, tracking accuracy and other refinements. Such a technically-biased gauging of verisimilitude tends to manifest an indifference to the spectator's manner of subjective engagement with the mediated content, the internally-generated situatedness that must implicitly integrate with the electronically generated milieu in order to establish this condition of 'presence' within a viewer/auditor. In *Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do* (2018), for example, Jeremy Bailenson, founder of Stanford University's Virtual Human Interaction Lab, demonstrates a typical emphasis on the importance of technical refinement within the VR apparatus in creating "that sensation of 'being there'" (2018, 27): "In order to create presence, three technical elements have to be executed flawlessly: tracking, rendering, and display" (ibid., 25). With "flawless" technical execution, the user is thus able to exit the 'real' world and assimilate themselves into the virtual territory: "One second you are strapping on an HMD and the next you are somewhere else" (ibid. 35). This is, of course, a seductive proposition. It does, however, imply a spectral state of detachment within which the auditor is severed from their vibratory, visceral and flesh-bound sensual incarnation and displaced into an "electronic elsewhere" (Sconce 2000); the viewer/auditor appears within the VR experience as a transitory, impotent ghost. This spatio-temporal unmooring gestures to a condition that is to a large degree intrinsic to much electronic media but reaches something of an apotheosis within VR; it is far from surprising, for example, that a common trope within VR advertising is to present the enchanting promise of crossing the threshold into an alternate space-time that 'defies reality'.



Figure 11: Meta Quest Advertisement (2023)

Source: <https://hexus.net/business/news/internet/147970-facebook-plans-introduce-ads-oculus-quest-games-apps/>

The seemingly innate human yearning to transcend, even supplant, our lived reality has been deconstructed quite provocatively by media studies scholar Sean Cubitt, who, following Bazin, grounds the human propensity for image-based virtual representation in terms of an attempt to defy mortality. Although Cubitt's argument is predicated upon a what he sees as a radical sense of detachment engendered by traditional cinema, his underlying premise is one that can readily be transposed to contemporary immersive media. Fundamentally, visual art is understood as a surrogate for that which is no longer or was never there: "art has always been an attempt to cheat or at least outlive death; to secure some record of presence that would fill in for the real absence of the deceased" (Cubitt 2007, 408). The use of the word 'presence' here is perhaps not purely coincidental; furthermore, Cubitt implies that the term 'deceased' can be understood to represent not just the finality of the flesh, but also a more profound form of affective oblivion, as the transductive operation from lived reality to mediated (re)presentation entails a foregoing of the



flesh-borne sensorium: “The realm of shadows ... is the colorless, odorless, flavorless simulacrum of the world stripped of what most makes it real, of sensuous materiality” (ibid., 410). Cubitt goes on to describe traditional cinema as a Faustian pact within which the embrace of illusion and loss of sensory input ultimately implies a foregoing of the subjective self: “The final truth of the realm of shadows is that representing leads not only to the loss of object but to the loss of the self, not just the depiction of death, but depiction as death” (ibid., 411). Cubitt understands this escapist disassociation as emblematic of an overarching system of subjugation; referencing apparatus theory, he suggests that within the cinematic tradition of image-based illusion/re-creation (which he describes on several occasions as ‘virtual reality’), the “machinery of projection [stands] accused of being the ideological instrument of oppression regardless of what material [is] shown” (ibid., 411).

### **3. Virtual Hauntologies**

Although not explicit within Cubitt’s bleak appraisal, the notion of hauntology seems obliquely tacit in his analysis. Brought into the eyes and ears of popular discourse by Mark Fisher via Jacques Derrida, ‘hauntology’ refers to a phenomenon in which both a supposedly ‘dead’ past (along with the lost futures buried within it) come to inhabit the present. For Derrida, this notion arose as a response to the rise of post-capitalism in the early 1990s; in the apparent triumph of neo-liberalism and the right, he recognized a potential catalyst for the resurgence of Marxism and its unfulfilled promise of revolutionary change – a possible future persisting into the present as spectral potential. Derrida went on to extend the concept of hauntology beyond this specific socio-economic circumstance to suggest that haunting was in fact a pervasive condition, one that was intrinsic to our being. Ghosts of possible futures were always lurking on the periphery,

bearing the potential to infiltrate and disrupt the present. For cultural theorist Mark Fisher, however, this latent potential is, in reality, rarely manifested. Fisher's hauntology was an indicator of cultural depletion, an ouroboros-like, self-consuming loop akin to a suspension of time, a purgatory of 'forever nowhere': "the 21st-century culture is marked by...anachronism and inertia...But this stasis has been buried, interred behind a superficial frenzy of 'newness'" (Fisher 2014, 18) – a statement that could perhaps also be applied to current commercial virtual reality offerings.

Both Cubitt and Fisher gesture towards the problematic circumstance in which the emergence of the new becomes stifled by the persistence of the past, arguing that this condition tends to become most clearly exposed within the cultural artifacts that are generated in our post-modern era. Cubitt anchors his concerns within "imaging in general and projection in particular" (Cubitt 2007, 410), whereas Fisher states that when it comes to the "sheer persistence of recognisable forms...Nowhere is this clearer than in popular music culture" (Fisher 2014, 17)<sup>2</sup>. Regardless, there is a somewhat bizarre paradox evident here: why is it that this era of cultural stagnation appears to coincide with a period of accelerated technological momentum? More importantly, how does one extract oneself from this stasis, and how might VR enable a possible exit point?

For Cubitt, the antidote to this crisis of representation is to subjugate the image and its implicit ideological biases to embrace the materiality of the projection itself, to acknowledge its 'pure' mediality as transmitted light. Such an approach reverses the notion of the projected image as an evocation of the absent, becoming instead what he terms (following Hannah Arendt) an art of "natality" (Cubitt 2007, 417). This shift (or reversal) from a medium predicated on mortality – a projection of the dead – to one of emergence – a "medium of copresence rather than one of

mutual absence” (ibid., 421) – is necessary in order to engender in the viewer the “capacity of beginning something anew, that is, of acting...the political activity par excellence” (ibid., 419). As optimistic as Cubitt’s argument attempts to be, and as seductive as his (blatantly modernist, I should point out) return to pure materiality may seem, it ultimately remains unconvincing. The works he brings forward as potential examples of post-cinematic salvation, although interesting, fail to adequately illustrate the paradigm shift being heralded<sup>3</sup>. Furthermore, despite his discussion being grounded within a primarily cinematic, and therefore *audio*-visual, framework, any mention of the potential role of sound in this transcendence of cinematic stasis is conspicuously absent.

Fisher’s description of post-modern cultural purgatory is fundamentally more curmudgeonly, though he is also able to ultimately offer a glimmer of hope. Although he excoriates post-capitalism’s decimation of creative innovation, there remains a Derridean latent potential that retains the ability to subvert, “that which (in actuality) has not yet happened, but which is already effective in the virtual...a virtuality whose threatened coming [is] already playing a part in undermining the present state of things” (Fisher 2014, 27). For Fisher, this virtuality is most present in sound, more specifically, musical sound, which he posits as a broad-reaching cultural force that bears the capacity to destabilize, mobilize and consequently enable societal change: “music constitutes a refusal to give up on the desire for the future. This refusal gives the melancholia a political dimension, because it amounts to a failure to accommodate to the closed horizons of capitalist realism” (ibid., 29). Fisher reappropriates the term ‘hauntological’ from Derrida, deploying it to classify a strain of music that works by “identifying the political failings of the present by returning to those moments when a different path might have been taken, turning points whose promise remains unfulfilled and which continue to offer

us hope for the future” (ibid.), rooting the aesthetic within contemporary electronic music and citing the autarchic, post-rave meditations of Burial as well as the skewed pastoral brutalism of the Ghost Box label as salient examples. In both instances, the allusion to a more literal conception of haunting is manifest; Burial titles one of his better-known tracks ‘Ghost Hardware’ (<https://www.youtube.com/watch?v=LHtNPzaHO7k>) and the name and visual aesthetic of the Ghost Box label both supplement the notion of a collective yearning for a more idyllic future that never came to be (see <https://www.ghostbox.co.uk/>).

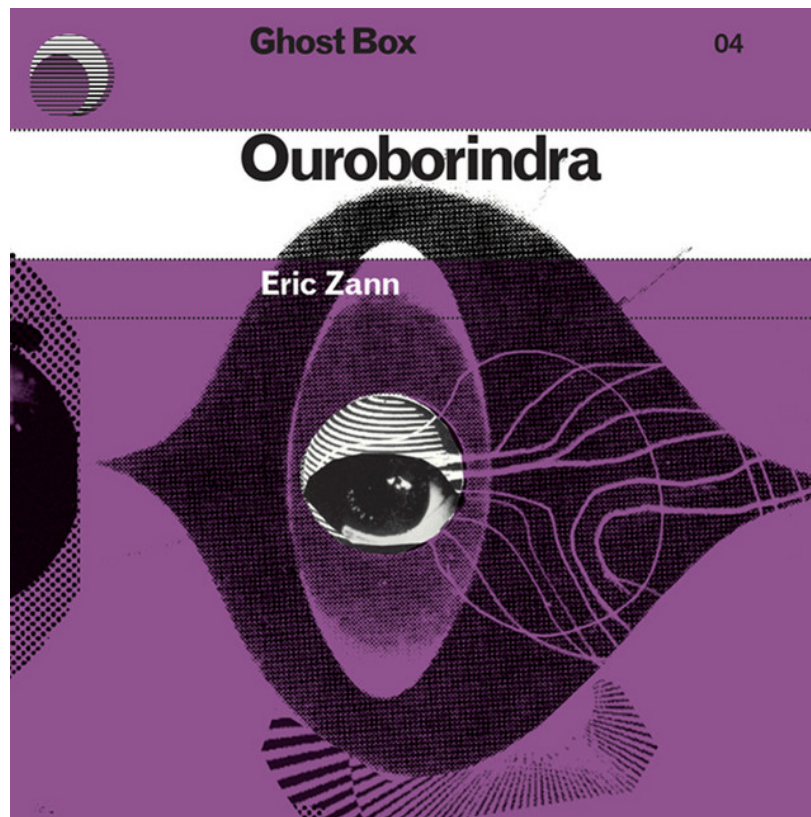


Figure 12: The Ghost Box label’s hauntological aesthetic: Eric Zann’s *Ouroborindra* (2005)

Source: <https://open.spotify.com/album/5AzeLnYYLMOmvdTjkNKvrd>

It is relevant that both Burial and Ghost Box are firmly rooted within an aesthetic predicated on accessible digital technology, whether it be the ‘bedroom producer’ tag used to describe the likes

of the former or the latter's origins selling home-pressed CD-Rs and continuing categorization as a 'cottage industry' label. As Fisher points out, within these niches of production and distribution we find a deliberate bypassing, a subversion even, of the large-scale mechanics of the broader pop culture music industry in the interests of extending into something new. It is also perhaps not coincidental that imbricated in these alternative musical networks there is also a shared fixation on the emancipatory potential of the spectral, the unseen or just-beyond, a hope for a recovery of a lost future that maintains just enough of an ephemeral presence to keep us from 'giving up the ghost', so to speak.

To summarize, Both Cubitt and Fisher lament what they identify as a state of creative depletion within contemporary media, diagnosing the subjugation of artistic exploration as being the result of a collective dumbing-down in the interests of mass-market-driven commercial gain. Both, however, also postulate possible exit points: for Cubitt, it is a reconfiguring of cinema to its pure form as an articulation of light, whereas for Fisher, a reconjuring of our lost futures emerges from the bedrooms of electronic music producers and kitchen-run boutique labels, an autarchically-generated reconfiguration of the present through the lens of the past that maintains links and hopes for a better possible tomorrow.

I contend that there exists a parallel sense of missed opportunity coupled with latent possibility within the medium of VR. Granted, it is never a surprise when new technology becomes assimilated into the large-scale construct of consumer entertainment, but perhaps there remains a remnant of the idealism first bestowed upon the medium that awaits to be salvaged, something beyond the predictable videogame-derived tropes that currently seem to dominate the offerings of the Oculus store. We will return to the topic of spectralities and hauntings later in

this chapter, but I would first like to consider one possibility of what this lost parallel future might sound and look like in terms of headset-based VR.

#### **4. Aural Architectures**

The *Contained* project proposes that one of virtual reality's hauntological lost futures lies in retaining a continuity with the territory that lies outside its immediate ecology – that reality within which one can and should manifest a critical, substantive agency. In doing so, it addresses one of the major problematics of headset-based VR: how do we integrate and/or come back to the real world, this lived space which is in need of thoughtful, cogent and sustained agential input? In fact, why *virtual* reality at all? Why not simply *reality*, the world-out-there with its unpredictably intricate affective interactions, reciprocal exchanges and sensuous materialities? If we are going to consider the immersive audio-visual environment as a mode that retains the capability of not only evading the recycling of established media tropes, but also (more importantly) maintaining a reflective situatedness within a deteriorating and increasingly sublimated *real* reality, perhaps the recalibration and re-orientation that is required involves approaching the VR environment as a *space-within-a-space*, that is, as a medium that not only acknowledges but also foregrounds its existence within (and strives to maintain a relationship with) a broader ecology beyond the headset.

The research-creation project *Contained* proposes that we reconsider the sensorial and thematic balance of immersion and approach the virtual environment as an atmosphere-generating *aural architecture*. Rather than emphasizing a fantastical severance from the real (an approach that characterizes many traditional immersive experiences such as video games), entering an aural architecture instead comprises a process of *re-spatialization*. As a *re-spatialized*

auditor, one foregoes the bias towards “illusionism” (Grau 2003, 14) to instead foster the retention, perhaps even an augmentation, of a coupling – a shared *atmosphere* – with the material world that meshes with yet also extends outside of the virtual. In this approach, the melding of intrinsic and extrinsic milieus, we find a direct parallel to the subjective, contingent act of audition. As we have heard, the sonic environment is ultimately consolidated within an internalized mnemonic space (Wright 2022, Voegelin 2010, Dyson 2009, et. al.), yet this space is actively and inextricably linked to a generative external context; there exists a sonic flow between inner and outer realms that navigates distinctly architectural gaps, opacities and resonances. Although headset-based virtual reality may seem intrinsically resistant to movement outside of its solipsistic ecology, an idiomatic shift from its positioning as a detached, self-contained environment to that of a topography that is approached as sonic and architectural – a space within a space that retains referents and a reciprocal exchange with its adjacent territories – presents intriguing possibilities.

To enter an architectural environment is to engage with a created place/space. Whether material or virtual, the milieu can therefore be understood as a construct, one which encompasses material content – whether tangible or virtual – as well as a broad variety of complex, contingent relationships between occupant and locale. Furthermore, the dynamic between space and its denizens is multisensory; although virtual spaces may not yet be capable of incorporating the full sensorium, they maintain the capacity of disseminating an assimilation of visual, sonic, haptic and therefore *embodied* stimuli. Finally, built spaces/places present an arrangement of interventions that are predicated on power, ecology (both local and extended), and subject to dynamic variances and evolutions. A multivalent combination of natural and constructed features, inputs, movements and influences synergize to endow spaces with a distinct, defining

*atmosphere*, understood here as “an environmental and situational whole, a feeling, in other words that is out there, in the world” (Riedel 2020, 4). The quality of this atmosphere, in turn, is heavily predicated upon and attuned to its aural qualities, that is, the manner in which “music and sound are ... environmental and ... modulate spaces, collectives, situations and relations” (ibid).

## **5. Sonic Atmospheres**

“Music, sound and noise can be seen as spatial and temporal territories [that can have] a profound effect on patterns of social association, physical movement and interaction” (Rowland Atkinson 2007, 1915).

Although sound, and in particular musical sound, tends to be apprehended as a predominantly temporal medium, the spatial aspects of sound have come to form an intrinsic component of sound studies discourse. As Gascia Ouzounian reminds us, “contemporary scholarship on sound is replete with spatial concepts—concepts that likewise traverse physical, sensorial, geographical, social, and political realms” (Ouzounian 2021, 17). The notion of *aural architecture* forms a specific strain of this scholarship, encompassing both tangible, structural space as well as emulated environments. Barry Blesser and Linda-Ruth Salter’s *Spaces Speak, Are You Listening?: Experiencing Aural Architecture* (2007) has become a seminal text in terms of appraising the profoundly affective nature of sonic spaces. Blesser and Salter approach aural architectures as “acoustic arenas” (ibid., 22) that situate the listener at the center of a continuum that stretches outwards towards an “acoustic horizon” (ibid), one that is therefore highly contingent upon the auditor’s placement. At its most essential, sound thus serves to highlight the physical characteristics of a locale, defining its material composition, geometry, textures and resonances. Furthermore, an individual’s acoustic prospect is dependent upon the ‘hi-fi’ or ‘low-



fi' nature of the environment<sup>4</sup> as well as the structuring of its physical, social, technological and temporal properties.

Distinctly echoing Paul Jasen's discussion of the vibrational characteristics of religious spaces from the preceding chapter, Blesser and Salter initiate their exploration of acoustic environments with an investigation of places of worship and concert halls, highlighting these sites' capacity for amplification, reverberation and other modulations of sonic sources as profoundly affective delineations of sonic territories – aural architectures that define and intensify links to a larger cultural topography:

“An aural architect, acting as both an artist and a social engineer, is therefore someone who selects specific aural attributes of a space based on what is desirable in a particular cultural framework. With skill and knowledge, an aural architect can create a space that induces such feelings as exhilaration, contemplative tranquillity, heightened arousal, or a harmonious and mystical connection to the cosmos. An aural architect can create a space that encourages or discourages social cohesion among its inhabitants. In describing the aural attributes of a space, an aural architect uses a language, sometimes ambiguous, derived from the values, concepts, symbols, and vocabulary of a particular culture” (Blesser and Salter 2007, 5).

In effect, this could easily be interpreted as the description of a virtual environment: Blesser and Salter's theorization of sonic space is predicated on a similarly subjective, multi-sensory fusion of spatial, positional and temporal data. To emphasize this parallel further, they recognize that aural architecture bears the capacity to manipulate these sensory and affective potentials to displace – or *re-spatialize* – us into different psychological and emotive planes. Aural architecture articulated within either a material or VR ecology, then, permits an integration of not only engineered, but also subjective factors: “Auditory spatial awareness [includes] the emotional and behavioral experience of space...Listeners react both to sound sources and to

spatial acoustics because each is an aural stimulus with social, cultural, and personal meaning” (ibid., 11). In other words, aural architecture enables a dynamic synthesis of extrinsic and internal topographies.

Although their emphasis tends towards the tangible, Blesser and Salter do extend their investigation to encompass the creation of virtual spaces enabled through sound reproduction technology, pointing out that “aural architecture includes the creation of spatial experiences where a physical space does not actually exist, so-called virtual, phantom, and illusory spaces” (ibid., 6). Furthermore, they stress that an essential component of such virtual aural architectures is the dense informational field provided by electronically-created spatial sound: “spatial spreading makes a more direct contribution to listeners’ sense of their external world” (ibid., 144), though the ‘external world’ that they describe is one that readily accommodates virtuality: “The application of aural architecture to cinema is a good example of aesthetically pleasing spatial rules that never presume a space as a real environment” (ibid., 160). For Blesser and Salter, acknowledging this fragmentation of perceptual space, the blurring of distinctions between the real and the virtual, is understood to provide a more complete rendition of an extended contemporary reality. Using atoms as an analogy, they recognize that what may be perceived as solid and stationary (or ‘real’) is in fact comprised primarily of space and motion (ibid., 163). As such, “The older definition of cognitive maps of space as the internal representation of an external world...becomes fluid, plastic, and even more subjective. Aural architects of virtual spaces are manipulating their listeners’ cognitive maps” (ibid., 166).

Although Blesser and Salter’s integration of virtual auditory spaces into their analysis is certainly relevant to the argument at hand, their discussion of simulated environments restricts itself to relatively conventional contexts, primarily traditional cinema and the digital emulation

of spatial characteristics (delay, reverb etc.) as applied in musical recording studios. As we have heard, such modes of audition may often enact a decoupling from the here-and-now, a severance from one's actual physical circumstance that becomes problematic in terms of retaining an all-important sense of agency. For Blesser and Salter, sounds serve primarily to "illuminate space" rather than to generate it (Fowler 2015, 61). In our transition from Euclidian to virtual space, we appear to return to our initial dilemma: if the auditor of a 'conventional' cinematic experience is to successfully immerse themselves into a generated diegesis, it is implicit that they must not remain aware of the physical (theatre, living room, bedroom) and broader (emotional, social, political, ecological, etc.) circumstance within which they remain physically rooted. Furthermore, this perceptual unmooring is not only spatial but also temporal; cinematic narrative dictates its own chronology and (generally) requires a linear, contiguous and complete presentation, one that exists outside the logic of real-world duration. The link between filmic time-space and that of the physical locale from which we are witnessing the filmic event is meant to be obfuscated, if not completely severed.

How, then, might one retain a grounding within a more emphatically embodied circumstance? How can one assimilate the augmented narrative capacities of an immersive audio-visual ecology while maintaining an agential awareness of a corporeal, situated here-and-now? Moreover, how can one retain the relational aspects of sound within the isolation of headset-based VR and effectively preserve a responsive relationship with one's milieu?

## **6. In-between spaces: Sound Installation**

If we wish to gain greater insight (I use the ocular-centric term here reluctantly) into how an aural architecture might enable an immersive simulated experience while also remaining rooted

in the real, we can turn an ear to certain key sound and audiovisual installation works, the genre and practice from which the *Contained* project has evolved. In an effort to distinguish sound used in an installation context from musical sound disseminated via more traditional supports (CD, digital file, etc.), sound artist and scholar Brandon LaBelle has defined sonic installation as sound that unfolds in space rather than in time (LaBelle 2015). For her part, Gascia Ouzounian hears spatial sound installations as being designed for the body as much as for the ears (2006, 70), emphasizing the ontological positioning of the situated listener, stating that: “Situating sonic practices take into consideration not only aspects of the built environment, architectures and social spaces, but also the temporal dimension of space as expressed through memory and history. They thus privilege contested modes of knowledge such as ‘the experience of sound’ and other embodied objectivities and ‘situated knowledges’” (ibid., 72).

Sound art and film sound scholar Holly Rogers hears sound and audio-visual installation as a marked departure from traditional cinema due to its expanded interrelationship with locale, citing audio-visual artist Bill Viola’s claim that within immersive audio-visual installation works, “all the senses exist simultaneously in our bodies, interwoven into one system that includes sensory data, neural processing, memory, imagination, and all the mental events of the moment... *field perception is the awareness or sensing of an entire space at once*” (qtd. in Rogers 2005, 199, italics mine). Using the immersive audio-visual environments of Viola as a basis for her argument, Rogers emphasizes the fact that the abandonment of the cinematic frame for the three-dimensional space of the installation locale presents an important movement away from pro-filmic diegetic restrictions; the auditor steps over a threshold into an “acoustic architecture” (ibid.) that provides “a continuous diegesis not possible in other moving-image-based artforms....the viewer becomes totally immersed in ... a film world with no frame” (ibid.,

202). This abandonment of the cinematic frame, however, presents an ambiguity in terms of where the auditor is ultimately localized – to what extent do we remain (or, perhaps more importantly, are we encouraged to remain) tethered to the world that remains beyond the exhibition locale? Referencing Barthes observations on photography, she suggests that what is manifested in Viola’s installations consists of “a spectral residue that creates a new category of ‘space-time’. Such ‘real unreality’ ... *initiates external contemplation rather than encourages absorption into magical or fictional possibilities*” (ibid. 206, italics mine)<sup>5</sup>.

Rogers understands spatial sound dissemination as an instrumental element that works to decisively distinguish immersive installation work from its frame-based counterparts<sup>6</sup>. Basing her argument on an analysis of Bill Viola’s four-channel audio-visual installation *The Stopping Mind* (Viola 1990), Rogers points to the soundtrack, a quadraphonic soundscape comprised of urban field-recordings accompanied by a low-volume overhead speaker broadcasting a whispered text, as the defining component of the work. Deployed in conjunction with multi-channel projected images, Viola’s integration of audio intentionally disrupts audio-visual boundaries, creating an infinite space in which “the furthest reaches of the matrix are occupied by sound” (Rogers 2005, 209). We may recognize therein a distinct reprise of Blesser and Salter’s description of sonic space as an ‘acoustic arena’ with the subject at its centre, although in Viola’s case, the sound is intended as a catalyst to an alternate state that within which “the fourfold visual polyphony smashes its confines, spilling out of the screens into the space between, into the non-diegetic gap – [the] ‘imaginary’ off-stage” (ibid., 214). Viola’s self-described ‘acoustic architecture’ is deployed to enact a sonic collapsing of interior and exterior boundaries, most notably between body and environment: “The installation does not extend beyond reality but, rather, into it, reconstructing it as it plays, the viewer becoming not only part

of the experience but also a vital part of its creation” (ibid., 216-17). The ‘real’ that Rogers recognizes in Viola’s work is a dream-like one, existing in the further reaches of the psycho-analytic continuum that extends beyond the quotidian into the deeply subjective, enacting a phenomenological modulation of the psyche that sound studies theorist Michael Fowler recognizes as a direct correlation to the central tenets of acoustic ecology as put forward by Truax and Schafer: “The power of soundscape theory thus lies in its suggestion that new modes of communication for architecture exist and, moreover, that there is a potential for generating new and meaningful relationships between people and the built environment ... we will design urban sonic experience anew” (Fowler 2015, 65-66).



Figure 13: Bill Viola: *The Stopping Mind* (1990). Four-channel video installation with five-channel sound.  
Source: <https://www.imdb.com/title/tt9886938/>

If one is to accept the possibility that architecture need not only be material but can also be enacted virtually, that is, if one is to consider the approach taken within Viola’s audio-visual installation work as a stepping-stone to a headset-based immersive experience, the notion of

aural architecture evokes tantalizing potential in terms of how to approach the creation of VR spaces.

## **7. Sound as Atmosphere-Generator**

Although not stated explicitly, what Rogers is recognizing as the salient characteristic in Viola's aural architecture is the generation of an integrational *atmosphere*, one that is evoked via a synergy of visual and auditory cues. Media theorist Friedlind Riedel has been a seminal figure in terms of drawing the often-diffuse concept of atmosphere into the conceptual foreground. Riedel's definition of the term reaches for a holistic articulation of what she hears as a unifying and profoundly affective force, one within which sound functions as a defining element. Put simply, atmosphere is intrinsic to all architectures, spaces and environments – it is what both unites and transcends bodies and space:

“I propose that ‘atmosphere’ or an ‘atmospheric situation’ describes a ‘feeling’ that fundamentally exceeds an individual body or conscious subject, and instead pertains primarily to the overall situation in which a multiplicity of bodies cohere. Atmosphere thus challenges a notion of feelings as being private or even as being the mere mental states of a cognizant subject, and instead construes feelings as spatially extended, environmental, collective, materially tangible, culturally inflected or ‘asubjective’” (Riedel 2020, 4).

For Riedel, atmosphere constitutes a sensual tension that exerts its influence upon a subject both directly and indirectly, manifesting itself as a modulation that acts contingently upon individuals via a broad totality. In other words, it manifests as a distinctly sonic ontology, a reciprocating, relational agent that not only impacts but is also enacted by that which lies within its territory. Encompassing Augoyard and Torgue's recognition of the mnemonic properties of ‘ambience’

within built spaces (and echoing Rogers' discussion of sound's disruption of time/space in Viola's work), atmosphere disturbs spatial and temporal distinctions between "near and far, of event and duration" (Riedel 2020, 11) as well as of perceiver and perceived. While experienced subjectively, it also exists as a shared feeling, an "amalgamation [of] individual and environment, matter and mind, body and self, discourse and feeling ... fused into seamless continuums" (ibid., 13). We can recognize therein distinct correspondences to the ecstatic transcendence of the musical club experience discussed earlier in this paper – the linguistic and sartorial codes, dances, embodied knowledges and relational bonds and behaviours exhibited by the dedicated club-goer and tribal adherents of a specific musical sub-genre demonstrate the potent and permeating integrational valence of the dance club as a sonic (not to mention also heavily multisensory) *atmosphere-generator*.

Riedel places a strong emphasis on the acoustemological attributes of acoustic ambiances – in particular their ability to enact "affective stirrings, unsayable feelings, collective resonances, embodied perceptions and suggestive motions" (ibid., 7). Although she understands sonic atmospheres as embodied states bearing the ability to establish affective bonds among its subjects, she also warns that these are not necessarily ubiquitous among those sharing its territory; they can encourage nodes of resistance among those for whom the relation remains inoperative or ineffective. More significantly, these transformative and spectral sonic energies can – as described in chapter four – equally be deployed to manipulate, oppress and abuse: "they can be conducive to genocide (Philippopoulos-Mihalopoulos 2016), and concentration camps are suffused with and controlled by atmospheric relations that are maintained through music and sound" (ibid., 19).



The conveyance of atmosphere, then, is a task that sound is particularly well suited to, whether configured as ‘music’, in the broadest sense of the word, or experienced as environmental sound. In their treatise *The Aesthetics of Atmospheres* (2017), philosophers Jean-Paul Thibaud and Gernot Böhme succinctly state that “atmosphere may be defined briefly as *tuned space*” (2, italics in original). They go on to emphasize that “Atmosphere is something which affects us deeply, that means on the level of bodily feeling” (ibid., 3), a statement that is synonymous with a description of musical influence. They eventually engage in a more explicit discussion of sound as atmosphere, highlighting the relational capacities inherent in the acoustic deployed as a spatial intervention, pointing to its role in defining broader cultural identities as well as intensely personal territories, such as a sense of ‘home’.

Thibaud and Böhme identify a turn from the temporal to a spatial/atmospheric ontology of sound as fundamental to its reappraisal as an ‘atmosphere-generator’; this shift was enabled by electronic recording and dissemination technologies that “ha[ve] moved music into the realm of an aesthetics of atmospheres” (ibid., 170). Specifically referencing the influence of R. Murray Schafer and the World Soundscape Project in this transition, they recognize that as a result of this development, sound has evolved into “the fundamental atmospheric art form...[it] is the transformation of physically sensed space. Music shapes the way the listener finds him- or herself in space, it intervenes directly in his or her physical economy” (ibid., 170-171). Although Thibaud and Böhme may laud the manner in which sound in its various guises has the ability to function as a transformative shaper of ‘feeling-space’, they are also careful to identify the dangers inherent in such a capable manipulative agent, recognizing that it can just easily lead to “acoustic pollution of our environment” (ibid., 172) in the interests of nefarious commercial interests.

Sound Studies theoretician Holger Schulze understands atmospheric acoustic presence as not only aural ambience but also as a haptic and material manifestation, a vibrational force that extends from a subject's surroundings directly into the feeling body, describing these emanations as "movements of the tiniest kind that propagate through the material or ephemeral substances out of which this situation is made" (2020, 150). This touching from afar incorporates an elaborate confluence of intertwined, reciprocally resonating components, from lifeforms (including the self) to apparatuses to the earthly and geological to the intangible network of thoughts and emotions emanated therein. Schulze reminds us that "the protagonists and causes of these vibrations are actually these vibrations...vibrations are not thoroughly separated from their sources" (ibid.). Matter and energy thus perform a perpetual and corporeal atmospheric embrace. Unsurprisingly, Schulze also recognizes the dangers inherent in such a pervasive yet nebulous mechanism, recognizing that "Ideologies of today are not represented by arguments, theories or proposed societal utopias – but by sensory, perceptual, corporeal and technological practices that incorporate entertainment industry formats and networks of post-democratic governing at the same time" (ibid., 160).

Whether manifesting as socio-cultural agents of collective engagement or instruments of malevolent intent, sonic atmospheres function as both relational generators and ghostly aural architectures, non-dimensional "feeling-spaces" that wander unmoored, eliciting affective states that "originate in [individuals], but must be external to them – and therefore alien" (Riedel 2020, 24). They are hauntings. *Contained* seeks to sound both these internal and external resonances: an affective, atmospheric mode of knowing is engaged to stir a recognition of the occulted ambience of post-capitalism's vectors of control.

As sound studies researcher Michael Fowler eloquently inquires in his critique of Blesser and Salter's analysis of aural architecture, how does one establish an "encounter in which sensation (detection), perception (recognition), and effect (meaningfulness) provide a basis for which an external environment becomes an internalised auditory experience?" (2015, 65). Expanding upon the sonically-generated immersive aspects evinced in audio-visual installation work such as Bill Viola's via an emphasis on Friedlind Riedl's concept of acoustic atmospheres, I am proposing that the VR ecology be approached as *aural architecture*, an *atmosphere-generator* that works to fold outer space into the inner realm while simultaneously functioning as a catalyst to incite a subjective reaching-outward into the polyphonic complexity of the quotidian anthropocentric environment. If one is to adopt this approach, one must firstly be cognizant that the auditor can never be truly known, thus acknowledging that a vector of subjectivity is intrinsic to the virtual experience.

German philosopher Gernot Böhme explicitly describes sound as such an individually malleable atmosphere-generator, acknowledging audio and architecture's parallel abilities to shape space in a relational manner: "Both spatial concepts have in common that they deal with spaces in which there are bodies and that they are considered in relation to bodies. ... This is the space that we experience through our spatial presence, that is, the space that we feel bodily or with our own body" (Böhme 2016, 180). He considers sound installation and 'environmental art' as tuning mechanisms (ibid., 5) in which this emotive relationship is foregrounded, generating contexts within which "space is experienced affectively" (ibid., 170) and as sites that "radiate atmosphere" (ibid., 6). Interestingly, Böhme points to theatrical and cinematic stage design as an apotheosis of constructed atmosphere, as the practice constitutes a multi-mediatic arrangement of sound, lighting and space that reflects a universality in individuals' understanding of affective

topographies: “stage design is a kind of a paradigm for the whole theory and practice of atmospheres... The art of stage setting again proves that atmospheres are something quasi-objective” (ibid., 2). The parallels between the construction of theatrical sets and virtual environments are conspicuous: they differ primarily in their materiality.

## **8. Virtual Hauntings**

If our aim as VR authors is to incite thought-provoking, atmospheric sonic architectures that establish resonances with the ‘real’, our endeavour necessitates a considered appraisal of what constitutes this external realm of the everyday. A fundamental point to foreground here is that this ‘external environment’ is already largely virtual; information comprises a major element in its atmospheric composition. Our brick-and-mortar social spaces, formerly a nexus for human contact and interaction, have to a large extent become virtualized and many of our daily decisions and financial exchanges have long become dematerialized into a series of taps and clicks. In addition, even common tasks and leisure activities (reading, cinema, etc.) are being subtly governed by the covert machinations of AI. One can therefore apprehend our anthropocentric atmosphere as being infiltrated by an ‘other’ that is not communal or necessarily present, but that exists in a parallel yet dynamic and persuasive realm. Furthermore, it is often unclear exactly where the virtual begins and where it ends: Sean Cubitt describes a “becoming-environment of information” (Cubitt 2013, 485) wherein data assumes a ghostly presence, an agential computational atmosphere of human origin but transmogrified into something alien and obscured. Corroborating Cubitt, in *Echoes of Other Worlds: Sound in Virtual Reality*, Tom Garner states that “the virtual [exists] as a component of reality, countering the widely held

assumption that a virtual world is an alternative to a ‘real world’”(Garner 2018, 4). Laura U. Marks, for her part, adopts an even more wary stance, stating that:

“I fear that the most important perceptual decisions are being taken, by market-driven powers, for the rest of us. “We” are not able to come into our own contact with the infinite and its innumerable connections when Google is mapping it for us, when cameras are programmed on the basis of statistics of what consumers probably want to look at, ... where the teeming infinity of the world is quantified and commodified before it reaches our perception. ...a world that comes to us as pre-perceived” (Marks 2013, 106).

Marks describes a state of data-driven vertigo precipitated by a seemingly infinite void of information, one that so thoroughly permeates our quotidian lives that it ultimately generates a rupture with the material world: “Something that we perceive corresponds directly to something ‘out there.’ But most perceptibles have been mediated before we ever perceive them” (ibid., 103).

I must underline here that Marks’ and Cubitt’s delineation of the virtuality that characterizes our contemporary condition bears an uncanny similarity to descriptions of hauntings. In the introduction to her collection *Spectral Spaces and Hauntings: The Affects of Absence*, editor Christina Lee describes hauntings as “the ‘appearance’ of absence, emptiness and the imperceptible [that] can indicate an overwhelming presence of something that ... is (t)here ... the complicated ways absent presences can manifest and be registered” (Lee 2017, Preface). It is perhaps not a coincidence that a significant portion of her anthology is dedicated to an examination of the “screens where ghosts materialise” (Lee 3).

Jeffrey Sconce’s *Haunted Media: Electronic Presence from Telegraphy to Television* (2000) provides illuminating insight into the correlations between electronic media and the

spectral, examining the manner in which anxieties surrounding the increasing level of disembodiment inherent within the development of modern media have been consistently apprehended as ghostly and haunted. He reminds us that “In media folklore past and present, telephones, radios, and computers have been ... ‘possessed’ by such ‘ghosts in the machine,’ the technologies serving as either uncanny electronic agents or as gateways to electronic otherworlds” (Sconce 2000, 4). Sconce understands these coincident fears and expectations as being rooted in the “increasingly disassociative relationships among body, mind, space, and time” (ibid., 7). Virtual presence enables both an empowering transcendence of the materiality of the flesh as well as a potential vanishing – a distinct echo of the rhetoric and critique surrounding virtual reality: the decorporealized subject can be projected into a quasi-limitless ‘electronic elsewhere’, yet this elsewhere also retains the somber possibility of existing as a “lonely realm of distant and estranged consciousnesses” (ibid., 14). Although Sconce’s text is largely focused on electronic entertainment media predating and leading up to television, his exposé of a legacy of disquiet surrounding the rupture between reality and its representation, a communal apprehension of the phantom agents inhabiting “a haunted landscape of vacant and shifting signifiers” (ibid., 171) provides a direct antecedent to the more contemporary fears of the data void manifested by Cubitt and Marks.

In each of these instances, there is a simultaneous fascination and fear of those unseen forces that have become inextricably intertwined our quotidian lives. This, in turn, has engendered a desire to reconfigure the same technology to establish contact with these ethereal presences in order to reveal who or what these phantom agents might be. Sconce points to the sonic practices of ‘ghost broadcasting’ as well as the sonic investigations into EVP (Electronic Voice Phenomena) undertaken by audio researchers such as Friedrich Jürgenson and Constantin

Raudive as salient examples of attempts to penetrate this spectral void. Both practices involved listening for spectral transmissions on empty radio carrier signals; in the latter instances, this technique was supplemented by the auscultation of superficially empty spaces (often locales that had already established a reputation for paranormal activity) on the newly-available medium of magnetic tape. The *Contained* project evinces a similar desire to uncover a hidden dimension existing alongside the perceived, everyday world, making the inaudible audible and the transforming unseen into an object that can be contemplated.

## **9. Liminal Locales**

Our anthropocentric ghosts are not restricted to the electronic ether, however; they assume some decidedly more palpable manifestations in the empty spaces and liminal locales that have come to form an intrinsic component of post-capitalist built environments such as those that feature prominently in the *Contained* VR project. The non-space of the data void finds a tangible corollary in the architectural non-places that similarly undergird our consumer landscape, in other words. These sites manifest a similarly eerie atmosphere of transient and transitory ‘in-betweenness’, a sense of existing as an opaque intermediary between the self and a vast unknown (even obfuscated) authority. Marc Augé’s *Non-Places: Introduction to an Anthropology of Supermodernity* (1995) describes a disorienting and homogenized contemporary consumer-scape rife with spectral presences, emissaries from an invisible, authoritarian other: “individuals are supposed to interact only with texts, whose proponents are not individuals but 'moral entities' or institutions ... sometimes their presence is explicitly stated ... sometimes it is only vaguely discernible behind the injunctions, advice, commentaries and 'messages' transmitted by the

innumerable 'supports' (signboards, screens, posters) that form an integral part of the contemporary landscape” (Augé 1995, 96).

The spectrality of these non-places is further compounded by their disposability, as evidenced in the phenomenon of ‘ghost malls’ and other abandoned commercial sites. An October 2022 *Business Insider* article claims that the number of extant malls in the United States has dropped from 2500 in the 1980s to 700 as of mid-2022; this number is predicted to further plummet to a mere 150 complexes within the next ten years (Levin). The longevity of retail giant Walmart’s physical locations is so ephemeral that online trackers exist in order to provide consumers with closure updates (see <https://www.rather-be-shopping.com/blog/all-the-walmart-stores-closing/> ) and the company have created their own realty division to manage them (Peak): <https://www.walmartrealty.com/> . Liz Millward’s article *Un Aéroport-Fantôme: The Ghost of Mirabel International Airport* (2017) examines the legacy of the archetypal Augéian icon of supermodernity, an international airport, in this case Montréal’s now-abandoned Mirabel. The author describes the uncanniness of a structure that in which “entire days go by without a single passenger passing through the terminal. The granite floors are squeaky clean, the carpets look brand new, the aluminum trimmings are polished” (Krauss 2004, n.p.). Millward sees Mirabel not only as a fiasco borne out of poor urban planning, but also as a hauntological manifestation of a lost future: “the absence of Mirabel is filled with ‘emotions and imaginations’ brought into being (in the future) and reanimated (from the past) through the intense meanings attached to it” (Millward 2017, 110).





Figure 14: The interior of Montreal's abandoned Mirabel airport.

Source: <https://www.ctvnews.ca/canada/montreal-s-abandoned-mirabel-airport-too-costly-to-repurpose-1.1967712>

## **10. Virtual Reality as a Heterotopia**

“...sound is a haunting, a ghost, a presence whose location in space is ambiguous and whose existence in time is transitory. The intangibility of sound is uncanny — a phenomenal presence both in the head, at its point of source and all around — so never entirely distinct from auditory hallucinations. The close listener is like a medium who draws out substance from that which is not entirely there. Listening, after all, is always a form of eavesdropping” (Toop 2010, xv)

In this chapter, I have argued for an approach that engages the VR headset as a sonic *atmosphere generator*, that is, a machine that is ideally suited to the shaping of *haunted aural architectures*.

If, as Blesser and Salter point out, the effective aural architect deploys a “language” (or

atmosphere) that should by necessity resonate with a milieu's socio-temporal inhabitants, then this language (or ambience) must therefore adapt to reflect a post-capitalist culture predicated upon a socio-economic infosphere that remains, by its very nature, largely (and arguably intentionally) opaque to a strictly optically-centered appraisal.

As an aural architecture or 'space-within-a-space' that has been articulated with an ear and eye to invite commentary and critique on a broader milieu, *Contained* is intended to function as an essentially *heterotopic* environment. The use of term *heterotopia* within the context of spatial relations is most commonly attributed to Michel Foucault and is predicated upon his understanding that there exist specific forms of "relations among sites" (Foucault 1986, 23). Heterotopias bear a peculiar autonomy, however; they are spaces "that have the curious property of being in relation with all the other sites, but in such a way as to suspect, neutralize, or invert the set of relations that they happen to designate, mirror, or reflect" (ibid., 24). Brothels, prisons, but most relevantly (in the context of this paper) theatres are brought forward as examples of contemporary heterotopic spaces – sites that function as a destabilizing commentary upon a prevailing systemic hierarchy. Foucault scholar Robert J. Topinka understands these environments as "space[s] where the telescoping of many spaces in one site leads to the intensification of knowledge and the revelation of the governing principles of its order" (Topinka 2010, 56). Such a positioning directly corresponds to *Contained's* approach to the 'headset theatre' of VR: it exists as a re-spatializing and atmosphere-generating aural architecture, a node of commentary that emphasizes obscured links to the broader environment, a juxtaposition that is configured to sonically reveal the phantom frictions and tensions that exist within a broader system with an ear to "making [them] legible" (ibid.).

## **11. Conclusion**

If the notion of spectrality has appeared as a motif throughout this chapter, it has done so to emphasize not only the notion that our post-capitalist environments are populated by phantom forces, striated and administered by unseen energies that manifest themselves via increasingly chimerical spatial, social, economic and personal transactions, but also to foreground the idea that the VR environment in itself can be apprehended as a polyphonically haunted space, a generator of heterotopic ephemeral architectures and ghostly atmospheres. Furthermore, the spectral thematic has served to remind the reader that VR remains a medium (pun intended) imbued with hauntological lost futures – abandoned or unfathomed possibilities – maintaining the potential to reinvent itself with an ear to reorienting its audience towards a more profound understanding of our ghostly habitats.

To summarize, in its critique and rethinking of how the creation of virtual reality spaces might be approached, this chapter has sought to emphasize three central points:

First of all, virtual reality presents a *hauntological ecology*. As VR pioneer Jaron Lanier states, it has yet to completely fulfill its promise as “a new art form that must escape the clutches of gaming, cinema, traditional software, New Economy power structures, and maybe even the ideas of its pioneers” (Lanier 2017, 203). As a possible response to this depleted state of affairs, this paper and associated research-creation project proposes that VR re-establish the medium’s links to its progenitors in audio-visual installation art, that is, those sonically-centred environments that aim to foster “an increased ‘auditory spatial awareness’ among the technologically mediated general population in the Western world” (Fowler 2015, 62) and, as with Bill Viola’s audio-

visual installation work, function as a ‘space within a space’, deploying audio to pull the outside in, in a stratified relational tension.

Secondly, approaching VR space as an electronically-generated *aural architecture* facilitates a prioritization of its atmosphere-generating potential. Returning to Blesser and Salter’s assessment of the assimilation of virtual spaces into the broader field of aural architecture, they acknowledge that “In this new art form, the aural architecture of a virtual space is more important than the architecture of a real space” (2007, 183), bearing the ability to orchestrate ambiances that – like ghosts – penetrate, suffuse and stick, extending and reconfiguring themselves, seeping into what we see, hear, feel and do, both individually and as a society.

Thirdly, as discussed in chapter two, the immateriality of sound, its ability to conjure the myriad acousmêtres – those unseen presences that saturate our virtualized anthropocentric zeitgeist (which can be translated from the German as ‘time ghost’, incidentally) – provides a powerful and cogent thematic continuity between the aforementioned spectral characteristics of VR spectatorship and the pervasive virtuality of our everyday environments. Augmented with haptic interfaces capable of transmitting the ghostly infrasonic frequencies discussed in chapter four, the phantom presences of our quotidian milieus become manifest within the sonically-centred immersive experience. We come to populate the virtual environment as reverse-spectres, *re-spatialized* presences engaging with the ephemeral, yet profoundly affective and atmospheric audio-visual emanations generated within the VR ecology in order to gain a greater understanding of the equally abstracted ‘real’ spaces that extend beyond the headset.

### **Endnotes.**

1. Although spatialized sound is commonly recognized as a key component in the creating the all-important sense of immersion, academic scholarship and marketing place a preponderance of their emphasis on the optical aspects: a glance at the index of a text such as Samuel Greengard's widely read *Virtual Reality* (2019), for example, reveals a grand total of zero entries under the entries of both 'audio' and 'sound'.

2. In fact, if one is to appraise hauntology as a perseverance of the past, it would seem that all recorded media implicitly bears a hauntological aura.

3. The works Cubitt discusses specifically (Gina Czarnecki's melodramatic 2005 piece *Nascent* and David Hall's *A Situation Envisaged: The Rite II (Cultural Eclipse)* from 1988–90) offer little to distinguish themselves from the vast majority of contemporary multi-media installation work. More importantly, remains rooted in a decidedly cinematic paradigm, which makes his omission of sound within his examples somewhat baffling. Were he to espouse a more convincing argument of cinema as an art of pure light, perhaps Edwin van Der Heide or James Turrell would provide more salient examples.

4. R. Murray Schafer was the first to define acoustic ecologies in these terms: a 'hi-fi' environment is one in which there is very little extraneous noise, thus offering the possibility for extended acoustic prospect and the audition of sonic detail. A 'low-fi' environment can be described prosaically as being 'noisy' with an overabundance of loud, proximate sound sources obscuring both sonic detail and the possibility of long-distance audition (Schafer 1993).

5. In her argument, Rogers is in many respects echoing Siegfried Kracauer's championing of the (traditional) cinematic apparatus as a tool that retains the potential for a deeper contemplation of reality, that is, that the "evasive contents of inner life" can, in fact, be attained via the "experience of surface reality" (Kracauer 1997, 287) as manifested in conventional film.

6. It must be noted, however, that her discussion omits any mention of cinematic spatial sound dissemination, i.e. Dolby Surround-Sound, Atmos, etc.

## **6. CINEMATIC DWELLING: DEFINING A VISUAL APPROACH**

### **1. Introduction**

As we have heard in the preceding chapter, *Contained* positions cinematic VR as a *space-within-a-space*, an *aural architecture* that is predicated upon an evocation of *sonic atmosphere*.

Sonically, this approach foregrounds the mnemonic, acoustic, haptic and electromagnetic components of our quotidian ecology, but there remains the important question of addressing what this constructed space might *look* like. Even within an inverted audio-visual hierarchy, the optical nonetheless retains a critical role in terms of guiding narrative positioning, context and evolution. What becomes the (paradoxically) visible counterpoint to the acousmètre? What are the tangible manifestations of the liminal forces that populate our lived ambiances and what visible elements might convincingly represent the atmospheric component of locale?

This chapter will introduce the conceptual groundings and developmental precedents that have informed the *image* acquisition and generation processes that accompany the virtual aural architecture of *Contained*; it will outline the project's lineage in terms of visual aesthetics, in other words. I wish to emphasize that what follows is a largely subjective taxonomy; it is by no means intended to provide an exhaustive list of antecedents and/or possibilities, but rather to present a personal genealogy and rationale for the visible elements within *Contained*. The manner in which the optical component has been assimilated with the audio, that is, the specific audio-visual production strategies employed in the final iteration of the *Contained* research-creation project, will be addressed in the following chapter.

## **2. From Street Photography to Slow Movies**

As put forward above, given *Contained's* grounding as an audio-led, field-recording based approach to audio-visual creation, a central question for the project became how to articulate an optical corollary to the sonic components. Accordingly, our trajectory in the following pages outlines the project's basis in terms of images. Two of the project's key conceptual, methodological and personal inspirations originate in photography: firstly, the peripatetic, observational and extemporizing masters of street photography, most notably Eugène Atget's cataloguing of Paris' Haussmannian urban transformations – the socio-economic disruptions that would later occur on a much larger scale as a consequence of neo-liberal politics. Atget's photographs present a melancholic yet also strongly personal political perspective on the architectural and infrastructural turmoil that was unsettling not only the life of the artist himself but also society as a whole. The second photographic influence comes from the *New Topographics*, a movement that explored the social anxieties embedded in the depleted territories and human-altered landscapes of the mid-70s United States. A third touchpoint for *Contained* roots itself within the tenets of cinematic realism as put forth by Siegfried Kracauer. In terms of technique and subject matter, Kracauer provides a connecting thread between the approaches adopted within the aforementioned photographic movements and key strands of contemporary experimental and documentary cinema that inform the project at hand. Most notable here is the conviction that the "evasive contents of inner life" can, in fact, be materialized via an "experience of surface reality" (Kracauer 1997, 287) – in this case, both still and moving celluloid film. Relevant contemporary evolutions of cinematic realism range from the reductive, meditative documentary works produced by Harvard's Sensory Ethnography Lab (SEL), the landscape-based eco-cinema of James Benning, Heinz Emigholz's languid meditations upon

architecture and temporality as well as other practitioners and auteurs within what has come to be termed the ‘Slow Cinema’ movement, these comprising the final group of precedents for *Contained* project. These films can be characterized by their use of duration (more specifically, long shots often featuring static or reduced camera movement), minimal editing as well as a diminution or in many instances, a total absence of character engagement via dialogue or emotive acting (in some instances, i.e. in many of Benning’s or Emigholtz’s films, there are no visible human presences at all). All of these aforementioned approaches evince a contemplative (as opposed to restless, as in much Hollywood cinema), reflective aesthetic, as well as a deliberate eschewing of artifice and conventional (dialogue-driven) script; rather, they engage the viewer-listener in a more prolonged and immersive experience, a ‘cinematic dwelling’ (Lam 2015) that invites them to notice the nuanced yet eloquent facets of the everyday that generally remain muted.

### **3. The Perambulations of Psychogeographers**

We begin with a brief overview of street photography, which in its early days was notable for its renouncement of a controlled studio environment in exchange for the unpredictable and texturally rich narrative of urban streets, an approach rooted within “perambulation and its peculiar world view” (Scott 2020, 3) and a responsive embeddedness within a mutable milieu. As with field recording, street photography is predicated on the act of walking/wandering; a human pace provides a measured exposure to the topography that enables a reflexive, reflective relationship with a site and its unfolding narratives. One can trace a distinct link between the street photographer’s ambulatory métier and the Situationist’s psychogeographical *dérive*, itself closely associated with the Benjaminian notion of the *flâneur*. The *dérive* can be defined as a



strategical movement through the “varied ambiances” of urban spaces, a drift guided by the terrain’s “psychogeographical contours” (Debord 1958, 62), ‘psychogeography’ being defined by the Oxford dictionary as the “influence of geographical environment on the mind or on behavior”. Although the *dérive* serves primarily as a method of pedestrian urban exploration, it does accommodate fixations with locales that provide a particular psychogeographical fascination, sites that Debord refers to as ‘habitual axes’; in the case of *Contained*. Toronto’s downtown underground pedestrian network or PATH system is an apposite example of such a fascination or fixation.

Although the Situationists fail to directly mention the *flâneur*, perhaps due to its decidedly antithetical associations with bourgeois Dandyism, this Benjaminian permutation of the urban wanderer fascinated by the attractions of the marketplace and “the pomp and the splendor with which commodity-producing society surrounds itself” (Benjamin 2002, 15) is nonetheless distinctly recognizable as a fellow psychogeographical explorer. For both the Situationist psychogeographer /*dériveur* and the *flâneur*, a central function of the act of perambulation is to renegotiate, rediscover and re-evaluate the complex stimuli generated by “industrially transformed cities...rich centers of possibilities and meanings” (Debord 1958, 63), zones of affect described by Debord as “unities of ambience” (ibid., 66).

Street photography, a practice that was enabled by the technological development of small-format, lightweight cameras (Scott 2020, 57) espoused a parallel (and roughly contemporary) fascination with “what the photograph provides in the way of a purely psycho-sensory contact with the world” (ibid., 17). Perceived as a subjective, contingent method of bypassing textually-based forms of urban narrative, the practice predicated itself on an affective, self-reflexive mode of pedestrian exploration:

“The generator of interior monologue, as of street photography, is the act of walking, wandering without particular objective, so that mechanisms of reception, and the mind’s readiness to associate, are at a maximum. Walking the streets releases the walker from the obligations of narrative, the need to get from here to there. Words and images are free to inhabit the mind, the eye, without their being appropriated to serve an ulterior purpose” (ibid., 41).

Much like field recordists, street photographers, then, can be regarded as *ambience collectors*, documenters of a milieu's generalized *zeitgeist*, attuned to whatever signals present themselves within a particular spatiotemporal zone<sup>1</sup>.

#### **4. Eugène Atget**

As street photography presents a vast practice encompassing an array of practitioners and approaches, a thorough examination of the field lies beyond the remit of this essay. Instead, we will focus on one artist and an aesthetic movement that bear particular relevance to the acquisition of images for the research-creation under discussion within this reading. Generally known as an “opaque” and “ambiguous” figure (Szarkowski 2000, 11), Eugène Atget was active in the late 19<sup>th</sup> to early 20<sup>th</sup> Century, a period of rapid urban change in both his native Paris as well as in photographic technology, most notably in terms of photographers being able to independently shoot, develop and print their work. The invention of the dry-plate development process enabled a level of productivity and mobility (the latter also being occasionally supplemented with the support of the newly-available automobile) that had hitherto been nigh-impossible with the cumbersome, unforgiving and therefore largely studio-based wet-plate process. Atget was one of many French photographers who exploited the potential for remuneration enabled by this new portable technology: a common description of the man by

those that knew him is of a “wandering, tramp-like photographer pushing a handcart through the streets of Paris” (Reynaud 1996, n.p.).

Eugène Atget’s photographic practice was covertly political, largely predicated on documenting the urban changes that the Haussmann plan was imposing on Paris’ working class. The Haussmann plan was a gentrification process that consisted of the forced displacement of an unruly, unhygienic proletariat (one that was furthermore prone to revolution) in order to make room for a more orderly, structured and sanitized vision for the city, one which prioritized the decidedly bourgeois opulence of the Palais Garnier, home of the Opéra National de Paris, and Les Halles marketplace (Willsher 2016). Though some viewed the Haussmann plan as a grand vision for a modern, technologized Paris, many others saw it as an act of imperialist megalomania by Napoleon III (a polemic that continues to this day). Although scholarship regarding Atget generally remains ambiguous regarding the exact motivations behind his images, it can be surmised that his sympathies likely lay with those that were facing involuntary removal: Atget researcher Françoise Reynaud in fact states that “we know ... that Atget had favourable opinions of the socialist and revolutionary movements of his epoch” (Reynaud 1996, n.p.). Regardless, the fact remains that his oeuvre provides a poignant documentation of the turmoil and transformation of Paris and its environs, a radical change that Atget chose to examine primarily via the architectural features of the city rather than through images of its inhabitants. Atget scholar John Szarkowski states that “It might have been that Atget found the things that people make more interesting than their makers” (Szarkowski 2000, 30). estimating that less than 2% of Atget’s images prominently featured individuals, and of these almost none could be considered portraits – a bias distinctly echoed in *Contained*. Instead, his photographs demonstrate a consistent preoccupation with the city’s features that were on the verge of

disparition; in fact, he would often label his architectural documents with notes stating ‘will disappear’ (Reynaud 1996, n.p.).



Figure 15 : Eugène Atget: *A Corner, Rue de Seine* (1924)

Source: <https://www.moma.org/collection/works/43286>

In addition, many of Atget’s photographs prominently feature commercial signage or graffiti, these existing as a pervasive textual presence, one that echoes the commercial motivations behind the radically transforming cityscape. Street photography scholar Clive Scott specifically

recognizes Atget's fascination with Paris' billboards and advertisements as a critique of the impending gentrification, enacting a "bringing to consciousness of appetites, desires, anxieties ... these close-packed adverts seem to express the need of the consumer psyche to fill its spaces with a rich chaos of pulsions and fantasies, in order to banish psychic vacuums and to rebel against submission to an ordered existence" (Scott 2020, 187).



Figure 16: Eugène Atget: *Rue St Jacques at the Corner of rue Saint-Séverin* (c. 1900)

Source: [https://www.artnet.com/artists/eug%C3%A8ne-atget/rue-saint-jacques-angle-rue-saint-s%C3%A9verin-mWYJNis96\\_CcDqqNiBFfkQ2](https://www.artnet.com/artists/eug%C3%A8ne-atget/rue-saint-jacques-angle-rue-saint-s%C3%A9verin-mWYJNis96_CcDqqNiBFfkQ2)

Throughout Atget's extensive oeuvre, there exists a consistent sense of spectrality. In addition to his pervasive erasure of human presence, there manifests a palpable tension arising from the

unseen forces at work behind his façades – melancholy exteriors of doomed locales that are soon to be erased due to impending bourgeois territorial encroachment.

### **5. The New Topographics**

Though arising under a somewhat different social, economic and political circumstances, the (mostly) American New Topographics photographers were openly influenced by the work of Atget – albeit occasionally indirectly, via the work of Walker Evans, who was an ardent admirer of Atget’s work – and shared a similar concern with the environmental and architectural traces of socio-economic shifts. In this instance, however, the focus was trained on the very visible (rather than implicit, as is the case with Atget) evidence of the political and economic anxieties permeating 1970s America. Photography scholar Britt Salvesen identifies the central preoccupation for these artists as “the impact of human construction and consumption on the American landscape: to what extent can it be controlled, and who is responsible” (Salvesen 2010, 11).

As with Atget, New Topographics photography presents a distinctly spectral landscape, one characterized by emptiness and the vestiges of industrial decay. Photos of tract housing, empty and gridded streets, the non-places of industrial and trailer parks, shopping malls and banal highway landscapes invite the viewer to gaze upon the mundanity of urban and suburban sprawl, a vista that has been described by photography critic Sean O’Hagan as “troubling in its matter-of-factness” (O’Hagan 2010, n.p). Once again, living human presence is conspicuously absent: individuals have been evacuated from the frame, leaving us with architectural and textual traces of unseen agencies that appear to be in a state of terminal decline and depletion. As photography historian Claire O’Neill puts it, these are photographs “with man as the focus, but



out of the picture.” (O’Neill 2009, n.p.) The viewer, a surrogate for the photographer, is, in fact, the only human present.



Figure 17: Steven Shore: *Beverly Boulevard and La Brea Avenue, Los Angeles, California, June 21, 1975, 1975.*

Source: <https://pier24.org/lecture/stephen-shore/>

Photographer and researcher Wendy Cheng succinctly points out that the New Topographics photographers “photographed everything that had previously been cropped out of American landscape photographs: the ‘spaces in between’” (Cheng 2011, 151), indicating that this both signaled and played a role in a broader epistemological shift in critical inquiry, most notably the ‘spatial turn’ evidenced within social sciences and the humanities during the 1990s. Furthermore,

Cheng emphasizes that “a critical analysis of space, after all, is essential to the questions of empire; local, national, and global flows; and power relations that ground contemporary iterations of American, cultural, and ethnic studies” (ibid., 153). Such a concern with unveiling traces of broad and profound territorializing forces that can be detected within the mundane features of our urban, suburban and ex-urban topographies is one that is similarly foregrounded, both aesthetically and conceptually, within the *Contained* VR project.

## **6. The Static Gaze: From Kracauer to Slow Cinema**

Whereas photography may implicitly invite a static gaze, and, in doing so, task the viewer with unravelling an often-ambiguous narrative thread (“What is happening here? What has happened prior to this moment and what will happen next?”), such an approach tends to be rare once makes the transition to cinema: conventional or popular film tends to prioritize an “industrially produced, action-centred, narrative-driven style” (Lam 2015, 209) as evinced in typical Hollywood productions. *Slow Cinema*, on the other hand, presents a “a visual strategy that encourages an attentive mode of observation and the development of an ecologically oriented gaze” (ibid, 207), a form of spectatorship that is arguably more akin to the demands of the aforementioned photographic approaches.

The aesthetics of stillness have a long-standing cinematic history. One could, of course, put forward the (admittedly somewhat disingenuous) argument that film is by nature comprised of a series of stills (Beckman & Ma, 2008), but, perhaps more helpfully, one could also point to the early Lumière films and trace a lineage which encompasses Chris Marker’s *La Jetée*, Michael Snow’s *Wavelength* and Andy Warhol’s *Empire*, leading to contemporary auteurs such as James Benning, Heinz Emigholz, and finally to a so-called ‘new breed’ of audio-visual artists such as



the Sensory Ethnography Lab, who are working within a variety of audio and visual media and disseminating their work via non-traditional cinematic platforms such as gallery installation and on-line platforms.

### *6.1 Kracauer and Cinematic Realism*

Regardless of their provenance, slow movies tend to “underscore aspects of contemporary existence rarely foregrounded...mirroring a wide range of humanity” (Jaffe 2014, 10-11). One can find therein a lineage to Kracauer’s ideas concerning cinematic realism, not only in his desire to allow the viewer’s gaze to “caress one single object long enough to make us imagine its unlimited aspects” (Kracauer 1997, 66), but also in his critique of our technologically abstracted lifestyles, which he claims engender “at best a shadowy awareness of things in their fullness” (ibid., 291). Protagonists in slow films – if they are present at all – tend to observe rather than act, often engaging an immersive state of contemplation that is echoed in the spectator: “As both the spectators of such movies and the fictive characters who appear in them sidestep the frenzy of modernity, a slow, perhaps mythical past is invoked and a future more contemplative than the present is envisioned” (Jaffe 2014, 24). Although the notion of cinematic ‘slowness’ is not one that Kracauer directly discussed, one can certainly discern within his writing a call for a type of reflective thinking mediated through the filmic medium. The cinema, he claims, can allow us to overcome our inability to notice the “streets, faces, railway stations [that] lie before our eyes [yet] have remained largely invisible so far” (Kracauer 1997, 299). Similarly, observation supersedes narrative: “Street and face...open up a dimension much wider than that of the plots which they sustain” (ibid., 303).

Kracauer's arguments for cinematic realism, then, are grounded in an understanding of film as a medium that is entwined in a material embrace with a broader diegetic reality. In her introduction to the 1997 Princeton University Press edition of Kracauer's *Theory of Film*, Miriam Bratu Hansen remarks that "by insisting on film's 'photographic nature,' Kracauer stresses the indexical dimension of film, the trace of a material bond with the world represented (the camera having been there at a certain point in time, light rays having linked the object with the photochemical emulsion)" (viii). As we shall hear, therein we can recognize a distinct premonition of slow cinema's (and in particular eco-cinema's) integration of the cinematic experience into a broader arena of lived experience, that is, as a genre that encourages a form of spectatorship that "insists on the consistency and continuity between the framed, profilmic event, and the world beyond (behind) the camera" (Pick 2013, 11).

Kracauer, then, sought to champion cinema's capacity to generate a critical awareness of the pervasive complexity imbricated in the quotidian. A progenitor of sorts for cinematic auteurs such as James Benning, Heinz Emigholz and the SEL, he understood cinema as a tool for piercing the vacuum of apathy that characterized contemporary society's technologically-abstracted lives, a state of psychological depletion perpetuated by institutionalized ideologies that leave us with "at best a shadowy awareness of things in their fullness" (Kracauer 1997. 291). Through film, Kracauer maintains some hope, stating that in ideology's abandonment and the redemptive medium of cinema "we stand a chance of finding something we did not look for, something tremendously important in its own right – the world that is ours" (ibid., 296). Kracauer's idea of spectatorship, then, implies a thoughtful, critical form of engagement, for "we cannot hope to embrace reality unless we penetrate its lowest layers" (ibid., 298).

Following this, Kracauer describes how film can function as an ideal medium with which to confront and expose the intricacies (including some of the horrors) of life/humanity. It is a tool with which to penetrate the layers of ideology which wrap themselves around our material world, one which can allow us to overcome our inability to notice the complex narratives embedded in the everyday. Cinema also allows for the unearthing of “psychophysical correspondences” (ibid., 300), but here, Kracauer gives us an apparently tautological caveat: “in order to make us experience physical reality, films must show what they picture” (ibid.). Film must eschew the artifice of constructed narrative and allow the images to tell a story largely on their own, in other words: “Street and face...open up a dimension much wider than that of the plots which they sustain” (ibid., 303). In doing so, raw, non-ideological film “brings us face to face with all the things we dread” (ibid., 305).

In order to achieve this, Kracauer lays out five key spatio-temporal modes within which films should (or shouldn't) be articulated, approaches that are shared by the contemporary filmmakers discussed later this chapter and that are fundamental to the tactics adopted in the production of the *Contained* VR project:

*1. Staging:* Kracauer argues that films can “conform to the cinematic approach only if they acknowledge the realistic tendency by concentrating on actual physical existence” (ibid., 60).

Staging, then, is a contrivance that subverts the intrinsic capacities of film.

*2. The Fortuitous:* Kracauer stresses the role chance can play within certain narrative constructs, a recognition of the cinematic importance of genuine happenstance. As with street photography,

he focuses on the urban environment as a context that generates a filmically-enriching unpredictability.

3. *Endlessness*: Here, Kracauer advocates for the durational and temporal capacities of film, finding that it affords a potential for scrutiny that can “expose what our conventional notions of [life] conceal from view” (ibid., 64). He goes on to list five modes (or “routes of passage”) within which cinema can accomplish this:

- a) Encompassing “vast expanses of physical reality” (ibid., 64) – linking spaces that would otherwise be physically (and therefore temporally) disparate as well as including a consideration of what lies outside the cinematic frame.
- b) Following the sequences of cause and effect underlying a specific event. Here, Kracauer seems less interested in the use of moving images as a vehicle for traditional scientific analysis, but rather as a medium that can allow for the unpacking of situational complexities and random coincidences leading to a given outcome.
- c) Applying duration, allowing the viewer’s gaze to “caress one single object long enough to make us imagine its unlimited aspects” (ibid., 66).
- d) Layering experience – laying out the convoluted array of processes (the “texture of impressions and expressions which reaches deep into physical existence” (ibid., 68)) underpinning certain cinematic moments via access to an expanded temporality and multiple viewpoints, and finally,
- e) Revealing a rhythmic coherence that underlies many material phenomena.

4. *The Indeterminate*: Kracauer posits that objects are privileged with an almost infinite capacity to trigger networks of “psychophysical correspondences” (ibid., 68). Film must be shot with a view to acknowledging (and exploiting) this subjective open-endedness, by (here he quotes French philosopher and political activist Lucien Sève) ““offering not much more explanations than reality itself” (ibid., 69). Kracauer recognizes the disruptive nature of the editing process in this regard but goes on to state that “It is possible...to integrate shots of indistinct meaningfulness into a narrative” (ibid., 70), thereby maintaining an evocative ambiguity.

5. *The Flow of Life*: Kracauer describes the ‘flow of life’ as emanating from the material and extending into the psychological, encompassing “the stream of material situations and happenings with all that they intimate in terms of emotions, values, thoughts” (ibid., 71). He understands this flow as indeterminate, and once again presents the reader with the analogous concept of the urban street, “eternally dissolving the patterns which it is about to form” (ibid., 72), as a representative territory and filmic subject.

Ultimately, Kracauer is encouraging a form of spectatorship that *understands narrative as being embedded within all material things*. In directing the contemplative gaze to the intricacies of the lived environment, then, film “challenges us to confront the real-life events it shows with the ideas we commonly entertain about them” (Kracauer 1997, 305). Although never outlined explicitly, there is a form of reflexive eco-critique that is strongly implied in Kracauer’s concept of cinema, a recognition of the oft-sublimated chronologies that characterize our post-capitalist lifestyles, a desire to foreground those intentionally-obfuscated stories of extraction, labour and disposal that should necessarily complicate our relationships with the consumer objects that we

surround ourselves with. As such, Kracauer's tenets of cinematic realism are strongly relevant to the *Contained* research-creation project, which trains the ears and eyes on precisely these histories and mechanisms that undergird our quotidian lives but are rarely intended to become the object of focused, extended aesthetic contemplation.

## 6.2 Contemporary Cinematic Realism

In this section, we examine the work of three contemporary practitioners that provide salient examples of cinematic realism in practice, all of whom function as influential aesthetic and conceptual touchstones for the project at hand: James Benning, Heinz Emigholz and the filmmakers of Harvard's Sensory Ethnography Lab. Though their output varies stylistically (not just amongst each other but also in terms of their own respective bodies of work), the approaches adopted within their oeuvres present profoundly enlightening interpretations of Kracauer's contemplative immersion into the 'real' and gesture to intriguing and exciting potential for transposition into the medium of VR cinema. A key characteristic shared by these artists is an avoidance of what film theorist Michel Chion terms 'vococentrism', that is, the manner in which "the presence of a human voice instantly sets up a hierarchy of perception" (Chion 1999, 5).

These practitioners instead prefer to let the images, and many instances also the sounds, unfold to offer a non-didactic, open-ended narrative structure that assigns a significant component of the meaning-making to the auditor. As film critic Jonathan Rosenbaum remarks in a review of James Benning's 1997 work, *Four Corners* (but which could be applied to any of the works discussed in the following section): "In most so-called narrative films it's normally assumed that story is a conveyor belt taking goods (stars, production values, special effects, explosions) to an audience" (Rosenbaum 2022, n.p.). He goes on to state that Slow Cinema such as Bennings', in contrast,

engages the auditor by engendering a more reflective form of spectatorship, leaving much of the meaning-making to the viewer-listener: “the most interesting story of all is the one each viewer winds up telling in the course of combining, juxtaposing, and synthesizing all these stories [in the beautiful landscapes and precious glimpses of everyday life].” (ibid.).

### 6.3 Heinz Emigholz

We shall discuss Benning’s work in greater detail below, but first we will examine the slow cinema of Heinz Emigholz, an experimental German auteur who I once heard amusingly described as the “most famous unknown living contemporary experimental documentary filmmaker” (heard during the introduction to his work *Streetscapes [Dialogue]* at the 2018 edition of Toronto’s *Images Festival*). The festival’s programme eloquently describes the artist’s aesthetic as “reflect[ing] on the durability of time through space from the link between architecture and cinema” (source: <https://desistfilm.com/category/images-festival/page/2/> ). I begin with Emigholz as a significant portion of his work dedicates itself to prolonged, static-camera investigations of idiosyncratic, often lesser-known architects’ structures. In many respects, the films are highly evocative of Eugène Atget’s work. His series *Photografie und Jenseits* (known in English as *Photography and Beyond*) bears a particular resonance with his French predecessor’s work in terms of its preoccupation with the temporal dimension of architecture articulated via the penetrating and personal static gaze of an embodied camera: “Mindful of the effects of time and human activity, they show ... structures within their surroundings, as they exist at the moment of filming” (Lim 2018, 205). To further emphasize the relevance of temporal placement, Emigholz will usually include interstitials introducing the structures’ architect, date of completion and also indicating the specific date of his filming. There

is often little that distinguishes the film from a still photograph other than the small movements of natural intrusions within or surrounding the built space: cobwebs swaying in a light breeze or the rippling leaves of a neighbouring tree are often the only indicators that we are watching a time-based medium. With Emigholz, there exists an understanding that “seeing a place in time affords a different understanding than seeing a photograph of the same place” (ibid). Narrative becomes revealed in minor architectural details and the wear of the elements; we are provided with fragments of space-time and encouraged to become active viewers, weaving these into a broader, more comprehensive narrative. Ghosts of past traumas are often embedded, sublimated within the structures that we are shown, implicit and rarely made overt. History continues to haunt the present; what we see and hear is resonant with the unseen presences – a persistence of time, rather than Atget’s erasure. Emigholz has described his work as “hardcore documentaries” (quoted in Lim 2018, 205) and, as film scholar Dennis Lim reminds us, in Emigholz’s work there is a subtle personal politic constantly at play: “To see the world through a viewfinder, after all, is to make a decision about the framing of reality, to take a position on the representation of space and time” (ibid., 210).

Importantly, Emigholz recognizes that the sound of a space in an intrinsic aspect of the architecture, seeking instances in which the spaces are activated by vibration: scrapings, distant voices, city soundscapes and percussive hits of an unseen provenance often feature in his segments (in particular his 2014 film *The Airstrip* ) to convey an impression of dimension, material and mass that cannot be imparted by image alone; the static structures are activated and made temporal via the use of diegetic sound.





Figures 18 & 19: Stills from Heinz Emigholz's *The Airstrip, Photography and beyond - Part 21 / Decampment of Modernism - Part III* (2014)

#### 6.4 James Benning

The overall effect of Emigholz's architectural films is that of incorporating the viewer/auditor as a ghostly, contemplative observer/listener of place, creating “an encounter, an engagement on the part of the filmmaker with a specific space, his process of apprehending and moving through it” (Lim 2018, 209). As film scholar Emily Richardson further emphasizes, in relation to the personified articulation of space “The use of embodied camera, the particularity of the static shot, the readability of objects, surfaces and textures ... and depopulation of the image have proved to be effective methods used by artist filmmakers” (Richardson 2019, 60). In this respect, the landscape films of American filmmaker James Benning serve as something of a paradigm. Here we have “another filmmaker who prefers the filming of streets, machinery, and landscape to that of individuals” (Aitken 2013, 404). Although humans may not be visible, their presence remains palpable as a kind of haunting, not only within the obvious anthropocentric incursions within the filmed landscapes and off-screen sounds of human activity, but also via the implied presence of the filmmaker himself: “there is [a] spectre that these films make palpable; that of Benning himself” (Ravetto-Biagioli 2018, 145). In reference to Benning's *13 Lakes* (2004), for example, Scott MacDonald recognizes that “Benning's choice of lakes also seems to be related to his personal history, at least to the degree that some lakes seem chosen in part because of Benning's psychic investment in certain geographic regions” (MacDonald 2013, 34). As with Emigholz, a defining characteristic of Benning's films is an emphasis on “place as a function of time” (Lübecker and Rugo 2018, 5). Many of his works are iterative, revisiting the same locales (i.e. *One Way Boogie Woogie* and *27 Years Later* (1977/2005)), pointing to shifts, erasures and variances that have occurred within the temporal gaps between film shoots. Whereas Emigholz's preoccupation tends towards the architectural/historical, Benning's gaze presents broader

concerns, echoing the New Topographics photographers' interest in landscape and the effects of human activity upon the natural environment: "what we could (once) call the 'natural environment' in Benning is a complex, ambiguous, politically charged field, which is both always entangled with man and technology and is capable of resisting and reversing man's designs." (ibid., 2).

Benning has described his filmmaking process as a type of durational, iterative performance, a record of how he felt in a particular place and time captured in a pro-filmic event (Gardner 2018). In this respect, there are distinct parallels with street photography, field recording and the *Contained* VR project: as with Atget's street photography, Benning's films are often the result of solitary peripatetic wanderings, frequently revolving around Situationist 'habitual axes' and employing iteration to tease out complex affective relations that would evade a casual gaze. Film scholar Tanja Virvilo foregrounds this parallel, recognizing that in Benning's films "People are missing, landscapes are the faces. A historical trace of the strategy for this politics of landscape [lies in] Atget's photos of empty Parisian streets from the beginning of the last century, recording the empty sites as crime scenes" (Virvilo 2014, 180). Similarly, Benning's personal relationship to what lies in front of the camera/microphone and his emphasis on stillness and subtle shifts of light and atmosphere parallels many field recordists' approaches to the spaces/places they are recording; sound artist Felicity Ford, for example, speaks of how "field recording is a particular way of engaging with a site or context...that forces you to be still and concentrate. Field recording and listening are so key to understanding the physical world, the materiality of a place" (Interviewed in Lane & Carlyle 2013, 87).



Figure 20: Still from James Benning's *13 Lakes* (2004).

Source: <https://www.imdb.com/title/tt0445158/>

Such an approach results in works within which any conventional form of narration is almost entirely eschewed; instead, Benning uses duration as a central strategy to weave subjective (in terms of both his own experience as a film-maker as well as that of the thought-world of the auditor) and pro-filmic worlds into a profoundly political relational encounter: “‘Since we can’t become absorbed in the narrative, we become taken by the experience...One is rather drawn in by the time it takes. It is in this experience that one finds the most forceful political point of the film ... one can call Benning’s films “perceptual environments”’ (Rugo 2018, 169).

Furthermore, this audio-visual relationship stresses a context within which the filmmaker’s presence and the extended environment are made immanent. Film theorist Stephanie Lam has

eloquently characterized Benning's diffusion of narrative into a charged, extended atmosphere as eliciting a *cinematic dwelling* (Lam 2015, 209), understanding it as a form of elongated viewership that is essential in order to glean a more profound understanding of the types of long-term ecological shifts that are impacting our terrestrial ecosystems. Documentary film theorist Scott MacDonald sees Benning's films as a specific genre that he terms 'eco-cinema', "*new kinds of film experience* that demonstrate an alternative to conventional media-spectatorship and help to nurture a more environmentally progressive mindset" (MacDonald 2013, 20, italics in original). As stated above, this notion of immersion into a temporally extended environment or atmosphere, however, is predicated on the auditor-viewer doing a certain amount of work in order to elicit meaning from the experience. Importantly, such patience, reflection and commitment "can model fundamental changes in perception not only in terms of what we see in movie theaters, on television, or online, but in how we function in the 'real world'" (ibid.). Or, as Daniele Rugo succinctly puts it. Benning forces us to confront the fact that "Something is going on and this something matters" (Rugo 2018, 170).

In Benning and Emigholz, then, we find a form of active cinema that aims to elicit the awareness of an affective continuum between maker and viewer, locale and extended global/historical contexts, their films functioning as complex atmosphere-generators, "forger[s] of collective identities ... manifested through the landscape [or, in Emigholz's case, architecture] as a form of spatiotemporal *ambience* that both 'envelops' and extends its surroundings" (Gardner 2018, 90, italics mine).

Although both Emigholz's and Benning's respective interests in the temporal aspects of architecture and landscape capitalize extensively upon the use of diegetic, atmospheric sound as a tool for animating static camera positions, discourse regarding their work tends to be strongly



biased towards the visuals rather than the sonic aspects. In the case of the Sensory Ethnography Lab, however, the auditory component is foregrounded to a much greater extent, largely due to the role of sound designer Ernst Karel.

### 6.5 *The Sensory Ethnography Lab (SEL)*

Benning's work has acted as a significant and overt influence on the films produced by Harvard's Sensory Ethnography Lab (hereafter referred to as SEL) (MacDonald *Surveying James Benning* 33). On its website, the SEL describes itself as:

“An experimental laboratory that promotes innovative combinations of aesthetics and ethnography. It uses analog and digital media, installation, and performance, to explore the aesthetics and ontology of the natural and unnatural world. Harnessing perspectives drawn from the arts, the social and natural sciences, and the humanities, SEL encourages attention to the many dimensions of the world, both animate and inanimate, *that may only with difficulty, if it all, be rendered with words*” (source: <https://sel.fas.harvard.edu/>, italics mine).

This concerted avoidance of textual content resurfaces repeatedly in interviews with SEL filmmakers and in particular with its director, Lucien Castaing-Taylor. Castaing-Taylor emphasizes that; “we’re trying to ... make films that don’t say anything. ... to imagine that they are about something that could be expressed in words, outside of the fabric of the film itself, is kind of ludicrous, because then you wouldn’t make the film, you would write it” (Redmon 2019, 68-69). Reducing film to a mere audio-visually manifested textual concept is, for Castaing-Taylor, irrevocably compromises the rich, sensuous complexity of the world, reducing it to mere ‘statements’ (ibid).

This focus on the ineffable instead situates itself in a profoundly reflexive and sensuous practice, which, as with Benning, is characterized by the use of a subjective, embodied camera/recording apparatus. Many of the SEL's practitioners have described the experience of shooting/recording as a deeply relational process; Verena Paravel (co-director of the award-winning 2012 SEL documentary *Leviathan*), for instance, has described her filming process as intensely incarnate: "I surrender to it body and soul. It colonizes my whole being" (MacDonald 2019, 469). Instead of approaching a subject discursively (with its implied dangers of enforcing a closed didacticism), Castaing-Taylor prefers an approach that is "immersive and first person and experiential ... there's no explanatory apparatus" (Redmon 2019, 70). In an interview with documentary film scholar David Redmon, SEL filmmaker J.P. Sniadecki reiterated that the images in his documentaries "are also images of the body behind the camera and its relation to the world ... [my own] experiences of urban life, ephemeral relations, media representation, and technology that were instigated by the very act of filming" (ibid., 50). In effect, the filmmaker comprises a constant spectral presence throughout the SEL's work, a positioning that not only effectively helps situate the audience within the pro-filmic (and sonic) experience but that also integrates the unseen and "takes seriously notions of ghostly haunting and cosmology as gestures of ethnographic lived experience" (ibid., 70).

Importantly, the sensual capacities of audio are routinely foregrounded as an essential aspect of films produced by the SEL. In interviews, repeated mention is made of the equal (in some cases even audio-biased) balance between what is seen and what is heard: J.P. Sniadecki, for example, has stated that "Sound has an allure all its own, and in all projects I'm equally focused on sound and image. Sound-making (and recording) is also place-making, because sound both flows from and floods into bodies and environments, forming a kind of sonic orientation

and meaning” (MacDonald 2019, 470). With almost no exception, the soundtrack is strictly diegetic and deployed spatially in 5.1 surround in the interests of evoking intensely enveloping aural atmospheres. As described above, dialogue tends to be minimal, if present at all, and often functions as texture rather than as generator of any kind of meaningful content. In addition, diegetic surround-sound often alludes to what is off-frame, integrating a far broader context than what can be contained within the boundaries of a traditional film or video projection, thus encouraging a relational form of engagement with content. In a 2013 interview with music journalist Mark-Peter Wright, sound designer Ernst Karel (who has been responsible for the majority of the SEL’s soundtracks) states that:

“With sound work, a temporal space of productive ambiguity is created in which the mind’s associative or imaginative faculties may be fully engaged. There is the potential for the mind to wander, to create its own visual images, to make connections or associations, as well as the important possibility for abstract, ungrounded aesthetic experience — all these are aspects of human experience that can be evoked, represented, or enacted through sonic ethnography, coaxing the understanding of multiple kinds of knowledge, and generating a kind of critical awareness of the phenomenological grounds of aesthetic experience” (Wright 2013, n.p.).

As such, the soundtrack’s effect is to invite a participatory form of spectatorship: the audience is compelled to constantly re-orient themselves, to ask where they are, what is happening and why, an acoustemologically-oriented approach to sound that is essential in terms of creating the sense of sensual immersion that is so distinctive in the SEL’s filmography.





Figure 21: Still from Lucien Castaing-Taylor and V  r  na Paravel's *Leviathan* (2012)

Source: <https://dafilms.com/film/9288-leviathan>

This abandonment of conventional information-based documentary approaches for a slower, contemplative and open-ended aesthetic can be understood as standing in conscious opposition to the audio-visual acceleration evinced in contemporary commercial media, particularly in the United States (MacDonald 2019). In doing so, SEL documentaries implicitly present an oblique yet compelling critique of broader trends of unbridled consumption that lie at the source of environmental and, ultimately, socio-political decline. As with Emigholz and Benning, filmmakers of the SEL understand narratives as being profoundly embedded in the landscapes, objects and non-human actors of our lived environments; their work encourages us to slow down, pay attention and focus upon “a quiet experience of being and atmosphere, and a meditation on the relationship between the environment and human development” (MacDonald 2019, 460). As with Benning, SEL practitioners’ intentional embracing of the diffuseness of the questions broached within their works demands that the viewer/auditor to do the work of making

sense of what they see and hear; in doing so, they must draw from their own subjective knowledge and experience to join the narrative and conceptual threads presented by the images and sounds they are provided. Therein lies a deeply sensuous knowledge that bears a capability of transcending the often-problematic discursiveness of the textual.

## **7. VR's Hauntological Lost Future: A Return to Cinematic Realism**

What distinguishes the work of Emigholz, Benning and the SEL (as well as Atget and the New Topographics, for that matter) is a clear concern with the precepts of cinematic realism as put forward by Kracauer, that is, the forsaking of conventional, discursive structure, instead allowing the complex narratives embedded in the quotidian to manifest themselves via the use of duration, diegetic sound, and an embodied, intuitive, at times even improvisatory approach to acquiring content. Film scholar Ira Jaffe ascribes these tendencies to the broader category of 'slow cinema' in general, identifying a shared interest in the "natural continuity of time" as well as "the spaces of everyday life" (Jaffe 2014, 112) via the long take. Several scholars have recognized therein a hearkening back to lost futures evinced in the exploratory halcyon days of early cinema and the work of the Lumière Brothers, in particular. SEL filmmaker Véréna Paravel, for example, acknowledges that "Many of the concerns of works coming out of the SEL go back to the beginnings of cinema, [such as] Lumière" (quoted in Nayman 2013).

Kracauer's championing of a form of filmmaking predicated upon – as in the films of the Lumière Brothers, Benning, Emigholz and the SEL – a forgoing of staging, acting and artifice in general evokes a distinctly hauntological lost cinematic future that stands in clear opposition to the dominant contemporary aesthetic of Hollywood-style, celebrity-focused and hyper-edited CGI-driven cinema. His insistence on the indexical nature of celluloid film, its manifestation as a

temporally-fixed encounter of emulsion and light, however, may seem problematically anachronistic in this digital age of quasi-ubiquitous AI-enhanced image manipulation. In his essay “Video games, cinema, Bazin and the myth of simulated lived experience”, however, Mark J.P. Wolf makes a strong case for the persistence of realist ideals into the digital era and expanded dissemination platforms such as VR, specifically referencing a “love of realism, uninterrupted long takes, and widescreen imagery that *let the viewer decide where to look*” (Wolf, n.p., italics mine). Wolf states that:

“Today, while...an ever-increasing number of image alteration technologies would seem to work against an increase in cinematic realism (although special effects have at the same time allowed for the increase in the realism of what they depict), other technologies, like the recent return of 3-D, and cinematic technology exploring higher resolution imagery and projection with higher frame rates, suggest that the Myth of Total Cinema is alive and well, as does all the hype surrounding the history of virtual reality technology and its cinematic imaginary” (Wolf n.p.).

Wolf argues that if the realist ideal is predicated upon the “reproduction of experiences indistinguishable from lived experience” (ibid.) then, by default, the increased realism that digital technology affords (including computer generated animation) brings us closer to this model. In fact, Wolf suggests that the quest for realism is “not dependent on any particular medium, but rather only on the idea of the existence of media and their revelatory ability” (ibid.). In a nod to Sean Cubitt’s understanding of environment as information, Wolf suggests that “[simulated lived experience] could be a way to experience the real world afresh, through comparison with its simulation, and even to begin to consider the real world itself as a simulation of a higher-order world to come, with earthly things analogous to spiritual ones” (ibid.). Wolf

sees the simulation of the real as based not only in mechanisms of perception<sup>4</sup>, but also in psychological dynamics – emotions and thoughts – a trope very much aligned with the aesthetics of slow cinema: “Slow movies often provoke new thoughts” writes Ira Jaffe (while also conceding that “not all of which feel good”) (Jaffe 2014, 18).

While Wolf’s argument is mainly predicated upon traditional digital media’s potential for creating a visual hyper-reality, that is, its capability to replicate the ‘real’ with an unsurpassed level of sonic and optical fidelity, the parallel technological evolution of high-resolution immersive 360 digital cameras, spatial and haptic sound in conjunction with the availability small, portable and affordable audio-visual acquisition/dissemination technology indicate further possible evolutions – or ‘lost futures’ – of cinematic realism. To begin with, the accessibility of modern audio-visual tools bears the ability to nurture a reflexive, performative, responsive, not to mention deeply personal form of filmmaking ideally suited to foregrounding Kracauer’s tenets of cinematic realism as outlined above. Relevantly, field recordist Mark Peter Wright stresses a close affinity between field recording, a practice greatly enabled (even strongly predicated, I would argue) on the accessibility of affordable, high-resolution recording technology, and slow cinema, remarking that “I reobserve and become a participant within the construction and representation of fieldwork ... ‘slow listening’ might be the logical conclusion to such matters: a sonic sibling to the cinematic genre that promotes durational events as they unfold over time” (Wright 2022, 89). If one is to apprehend the slow cinema aesthetic as a natural evolution of cinematic realism with its emphasis on spectatorship as “a space for meditation, for immersion in an image, for sober reflections on the nature of movement and stasis, time and space, cinema and art” (Remes 2015, 56), liberating the viewer from a frontal, perspectival frame and approaching auditor/spectatorship instead as an embeddedness within an immersive 360 audio-visual space –

a virtual aural architecture enabling a reflective and reflexive form of ‘cinematic dwelling’ – suggests enticing possibilities for an eminently sensual, thought-provoking, affective and accessible lost sonic-cinematic future. In the following chapter, we examine the specifics of how such an approach is manifested within the *Contained* VR project itself.

### **Endnotes:**

1. Field recordist and scholar Mark Peter Wright recognizes the close kinship between street photography and field-recording’s (often referred to as ‘phonography’) psychogeographically-oriented explorations, summarizing their common interests succinctly: “Ambulatory sonic journalism promotes explorative responsibility; it galvanizes communicative stewardship. Combining a documentarian appreciation of practice frees the veracity demands of traditional journalism and accommodates the multiple truths and agencies that construct the field. Both contexts help forge a new type of observation ... where informatic knowledge is necessary yet also understood as partial and contingent. Critically reframing observation is not, therefore, in disavowal of the frictions that field the field. It meets them head-on in an attempt to rewire knowledge” (Wright 2022, 89).

2. Robert Adams, Lewis Baltz, Bernd and Hilla Becher, Joe Deal, Frank Gohlke, Nicholas Nixon, John Schott, Stephen Shore, and Henry Wessel, Jr. were the ‘original ten’ artists to be exhibited under the rubric.

3. Cinema scholar Tom Gunning notices a similar preoccupation with visual contemplation in Kracauer’s fellow advocate of cinematic realism, André Bazin, who championed a return to cinema’s origins as “a total and complete representation of reality ... the complete reconstruction of the outside world, in sound, color and relief.” (Gunning 201, 13). Gunning goes on to explain that with Bazin there was a modernist anxiety about a separation of the senses, which film – and sound film in particular – sought to reintegrate. As with Atget and the New Topographics, the preservation of sight and sound in film served as a response to this obsession with erasure and disappearance.

4. Although one could argue that since there are no long, medium or close-up shots in 360 cinema, the point of audition simulates that of a 'real world' viewer by default.

## **7, VR PRODUCTION: LISTENING TO ANOTHER'S LISTENING, LOOKING AT ANOTHER'S LOOKING**

### **1. Introduction**

In this chapter, I synthesize the theoretical and aesthetic approaches described earlier in this paper – the notions of aural architecture, sonic atmosphere, re-spatialization, vibrational embodiment, hauntings/hauntology, cinematic realism, and slow cinema – explaining and expanding upon how they were articulated within the *Contained* research-creation VR project. Whereas previous chapters have delineated an overarching framework for the work, this section will delve into specific production strategies, both procedural and conceptual, that have informed the final piece.

As described throughout this paper, *Contained* roots itself within a field-recording based sound art practice; it presents itself, in other words, as an immersive work within which “sound originates, dominates, and shapes the image rather than the image dominating and grounding (or anchoring) the sound” (Sobchack 2020, 115). As such, the work presents an inversion of the traditional optically-led audio-visual hierarchy articulated with an ear to thematically addressing our culture of excess and exposing the vastness and pervasiveness of the unfathomable systems that underpin our quotidian existence. This foregrounding of spectral forces embedded within the familiar can be understood to bear a kinship with French philosopher George Perec’s championing of the *infra-ordinary* – listening to/looking at the patterns of ordinary everyday life in order to “question the habitual”, in this instance, an overarching atmosphere of conspicuous consumption that obfuscates deeper concerns pervading neo-liberal society<sup>1</sup>.

In *Contained*, sound functions as an embodied “touching-at-a-distance” that exposes the ghostly unseen beyond the seen; articulated spatially and haptically, it comprises an acoustic architecture that dissolves and dissipates the façades that occlude the complexities of the infra-ordinary from our perception. In the *Contained* VR experience, the optical begins to emulate the sonic, the auditor-viewer experiences a dissolution into a spatio-temporal flux: the opaque becomes permeable, tangible and, hopefully, more affectively apprehensible in a manner that may ultimately catalyze a response to the phantom forces that permeate our lived topographies.

## **2. Autarchic Production**

Given the embodied and reflective premise of the work, it follows that the project should embrace an autarchic mode of production, emphasizing the acquisition of content as a responsive, contingent and solitary interaction with(in) a quotidian milieu. Such an aesthetic is predicated on technological accessibility, that is, on the use of affordable equipment that permits an individual to acquire, manipulate and edit audiovisual material in an independent, intuitive and responsive manner. In her essay *Sonic Elongation: Creative Audition in Documentary Film* (a key conceptual reference for *Contained*, as we shall hear later in this chapter), film sound theorist Holly Rogers stresses the important role that accessible digital technology plays in a reframing of how soundtracks can be approached, particularly within a documentary or ‘realist’ context, reminding us that “Recent developments in filmmaking equipment and post-production software have troubled the traditional philosophical boundaries of sound ... resulting in a radically altered aesthetics of sonic realism” (Rogers *Sonic Elongation* 90-91). In particular, she points out that new digital recording and



production technologies “are conducive to single-person operation” and, as such, “have opened up new and accessible alternatives to the customary and highly-skilled division of labour in soundtrack construction” (ibid 100). Film sound theorist Budhaditya Chattopadhyay, notable for his advocacy of the importance of field recorded environmental sound in establishing immersive cinematic context, places a similar emphasis on the role of accessible digital recording technologies: “lightweight and accessible digital equipment has made recording more democratic and widespread ... [allowing filmmakers to] develop a more nuanced impression of the site ingrained with many complex social, cultural, political and ethical issues” (Chattopadhyay 2021, 156).

### **3. Adopting a Compositional Approach**

VR’s capacity for the integration of interactivity presents an enticing prospect. As discussed in further detail below, however, several prototype works for *Contained* as well as test iterations of the final piece did explore the use of user input but were deemed unsuccessful by the artist(s). The reasons for this are twofold:

1. The integration of ‘real’ 360 camera footage – a key visual complement to the field-recorded sounds – was of paramount importance and compromised the capability to introduce user control. LiDAR-scanned content, however, was investigated as an alternative mode of image acquisition: arrangements to borrow and test LiDAR systems from Montréal’s Hexagram Centre (a research centre affiliated with the Université de Québec à Montréal as well as the Université de Québec à Chicoutimi, more commonly referred to as ‘UQAM’ and ‘UQAC’, respectively) were made, but

tests needed to be curtailed due to access restrictions imposed by the COVID pandemic. Although the experiments executed prior to these constraints yielded interesting results, the output lacked the level of veracity that was desired for the piece. Furthermore, the computing capacity required for the timely rendering of these images was not readily available. An iPad-based LiDAR scanner was acquired late in the production phase and some limited content has been integrated into the final render.

2. It was found that the lack of a conventional narrative structure rendered the interactive user experience overly vague (one tester went so far as to describe it as ‘pointless’). This became particularly noticeable when attempting user-initiated transitions between sections: sonic continuity and logic were disrupted in a manner that compromised the overall effectiveness of the piece. This is not to say that interactivity is not an aspect that warrants exploration in future works; rather, it is to stress that it was deemed superfluous to the approach and aesthetic espoused within the *Contained* project specifically.

Given the aforementioned considerations and *Contained*’s premise as an audio-led exploration rooted within a pseudo-documentary, field-recording based idiom, it was determined that a sonically-situated *compositional approach* would be most appropriate. This implied that the narrative structure would forego interactivity and instead be configured ‘on rails’ (a term that denotes a predetermined narrative evolution), evolving in a predefined *arrangement* (I use the musical term here intentionally) that bypasses user any input other than head-tracking. This ‘composed’ mode of presentation reflects evidence of the work’s lineage within audio

composition and video installation art, the latter moreover being an idiom within which “many video artists use sound as their starting point, often basing whole works on a musical structure” (Rogers 2005, 197). Rogers understands this digitally-enabled audio-centric approach as being increasingly adopted within experimental documentary film, citing examples such as the Sensory Ethnography Lab’s tendency to treat their soundtracks as experimental music, or, more specifically, *musique concrète*<sup>2</sup> compositions that (in many instances) intentionally function to invert a conventional, optically-biased audio-visual hierarchy, a concern that is, of course, central to the project under discussion here.

#### **4. Sonic Elongation/Aporia**

Rogers defines this approach to the cinematic soundtrack as *sonic elongation*, a phenomenon in which a fusion of sound and music occurs and “location sound ... undergoes a transformation so radical that the connection with its associated image is troubled encourage[ing] a process of creative audition, by which an audience is encouraged to use interpretation and imagination to construct new audiovisual relationships.” (Rogers 2020, 88-89). Sonic elongation, then, foregoes the tight audiovisual and textural synchronization between acoustic setting and profilmic content that typifies sound design in conventional documentary films; instead, it draws acoustic focus away from the traditional film-sound layers of dialogue, music, and sound effects towards consideration of the soundscape as the central, “poetic” musical component: “environmental sound is heightened and enlarged until it gathers together into a musical flow” (Rogers 2021, 429) – a distinct echo of both Miguel Mera’s advocacy for a “fusion of sound and music” to engage a sense of spatial presence as put forward in chapter four as well as Budhaditya Chattopadhyay’s championing of the

foregrounding of sonic atmospheres in a ‘mise-en-sonore’. Such a reconfiguration of the soundtrack creates a tension with the visuals; this destabilization, in turn, works to engage the audience, encouraging a subjective relationship with the work that “lead[s] us deep into the heart of the fiction, generating moments of intense interiority through the gradual dislocation of sound from image” (ibid.).

Rogers expands this concept of *sonic elongation* – a tactic that maintains a stability (albeit abstracted) between what is seen and what is heard – into a condition she designates as *sonic aporia*, a phenomenon in which the soundtrack stretches the audio-visual relationship to a point of rupture, eliciting “an alternative, or parallel, world to the one we see” (ibid., 430). Rogers identifies cinematic auteur David Lynch’s use of atmos (sounds conveying atmosphere and environment) and room tone as a salient example of this condition (see/hear his deliciously eerie and bizarre – even by Lynch’s standards – *Rabbits* series, for instance: <https://www.youtube.com/watch?v=drjQfQtv2BQ>), recognizing that “the sounds are taking us not deeper into interior states, but beyond them ... the sounds reveal the presence of an absence so strong that we are compelled to search for a source; yet the source is constantly withheld” (ibid., 440) – *sonic aporia works to conjure acousmêtric ghosts*, in other words.

Both *sonic elongation* and *sonic aporia* create cognitive gaps and fissures that serve to transform typically passive content-consumers into active spectator/auditors. In addition, these strategies can be configured to produce decidedly spectral feelings of uneasiness, uncanniness or discomfort should the audio-visual fragmentation remain unresolved, as in the case of sonic aporia. Rogers stresses that there exists extraordinary affective potential in the aforementioned phenomena, claiming that “visuality [can] be refocused to include not only different sensory experiences, but also new forms of sonic comprehension” (ibid., 434).

Although it is never stated overtly, Rogers' compositional notions of sonic elongation and aporia essentially consist of transposing field-recording and sound art-based strategies into the domain of the documentary film soundtrack<sup>3</sup>. Perhaps tellingly, despite leaning extensively on examples such as the Sensory Ethnography Lab's *Leviathan* to illustrate her concepts, she neglects to mention its sound designer, renowned field-recordist and sound artist Ernst Karel (instead attributing the film's audio treatment to its directors Lucien Castaing-Taylor and Verena Paravel). Despite this, her recognition of the creative potential inherent in the digital processing of environmental sound presents a refreshing and provocative shift in terms of both film sound scholarship and documentary sound design, as has her emphasis on the role that affordable digital technologies and autarchic production strategies have played in enabling this shift. Her strategies are, of course, highly relevant to the creative approach undertaken within *Contained*, which has evolved from sound art-based field recording installation and production practices firmly grounded within the aforementioned strategies of sonic elongation and aporia.

Rogers' arguments do invite further expansion, however, particularly given her foregrounding of the creative sound design possibilities enabled by technologically-enhanced cinematic production and post-production strategies. Firstly, Rogers fails to acknowledge the pivotal role played in artistic audio capture (cinematic or otherwise) by the proliferation and adoption of expanded *audio auscultation technologies* such as contact microphones, geophones and induction microphones, tools described earlier in this paper that have been essential to the soundtrack of *Contained*. The use of such equipment distinguishes itself from the approaches described above (which are largely the outcome of creative manipulation in digital post-production) in that the sounds they acquire remain resolutely tethered to the

profilmic event. In this instance, in other words, the ‘making strange’ effect that Rogers recognizes in sonic elongation/aporia is no longer the result of studio-generated artifice: *the things that we see are actually making the sounds that we hear* – we simply aren’t generally able or accustomed to listening to them in that way. The use of these augmented listening/recording technologies enable access to the equally uncanny and unsettling ‘natural’ infrasonic, ultrasonic and materially-transmitted vibrational emissions that persistently saturate our anthropocentric environments, ghostly spectra that are simultaneously present yet incorporeal. Secondly, Rogers neglects to delve into the increased efficacy that sonic elongation and aporia might obtain within the context of *spatialized and haptic audio dissemination*, a surprising omission given her argument’s aforementioned bias upon the potentials inherent in digital audio, an innovation that, as we have heard previously, has also been a central factor in enabling an expansion of the cinematic soundtrack into multi-channel formats.

### **5. From Superfield to Ultrafield and Beyond**

Given that foregrounding a relational, subjective sense of presence within a cinematic environment is central to Rogers’ argument, specifically, techniques that “[draw] filmgoers into attentive and immersive modes of reception” (Rogers 2020, 94), the effects of expanding the perspectival mono or stereophonic audio-visual frame into an enveloping 720° environment demands consideration. In his seminal treatise on cinematic sound *Audio-Vision: Sound on Screen* (2019), sound studies theorist Michel Chion discusses the effects of acoustically expanding the pro-filmic world beyond the confines of the rectangular screen, coining the concept of the *superfield*, “space created, in multitrack films, by ambient natural

sounds, city noises, music, and all sorts of rustlings that surround the visual space and that can issue from loudspeakers outside the physical boundaries of the screen” (Chion 2019, 150).

Although Chion acknowledges that such an offscreen space can be sonically mobilized even in films with monaural soundtracks – a *acousmatic* phenomenon he understands as *active extension*, in that it “bring[s] objects and characters into a scene by means of sound, then show[s] them” (ibid., 85), he elaborates upon the manner in which multi-channel audio can be particularly effective in extending *atmosphere*, contexts in which “sound ... envelops and stabilizes the image” (ibid.). To elucidate, he points to how the complex and evocative aural ambiances in Ridley Scott’s *Blade Runner* (1982) work to evoke “the presence of a huge spatial context” (ibid., 88). For Chion, this amounts to much more than a simple enhancement of perceived space, but rather constitutes a groundbreaking augmentation in the sensorial capacities of the cinema. Cinematic multichannel sound bears the potential to become architectural, engendering “a sort of participation, a communication between the audience shown in the film and the audience in the movie theater. The space of the film, no longer confined to the screen, in a way bec[omes] the entire auditorium” (ibid., 151). Notably (and perhaps importantly, given the premise of this paper and project), Chion goes on to lament the fact that this potential remains underutilized, stating that “Very few [filmmakers] today are innovators ready to meet challenges of new technical possibilities, especially concerning Dolby sound” (Chion 2019, 152).

Chion’s *Audio-Vision: Sound on Screen* was written in the comparatively early days of the ‘superfield’ of cinematic multichannel sound; it was originally published in 1993, the early days of Dolby Stereo, which has by now become superseded by a plethora of spatial sound technologies such as metadata-based Dolby Atmos. Nonetheless, he recognizes the

profound impact that spatial sound quickly enacted: “The cinema has been the talking film for a long time. But only for a short while has it been worthy of the name it was given, a bit hurriedly: sound film” (ibid., 156). Mark Kerins’ *Beyond Dolby (Stereo): Cinema in the Digital Sound Age* was first published in 2011, a period in which far more complex multichannel sound dissemination systems had not only become the norm in theatrical settings but also relatively commonplace within people’s homes (Kerins 2011). Spatial immersion had become enhanced due to increasing numbers of discrete playback channels, while at the same time, audio resolution in recording, editing and playback systems had also undergone significant improvements. This permitted the reproduction of deeper, more profound silences and far more subtle, detailed ambiances and sound effects. Kerins conceptualizes this supersedence of Chion’s ‘superfield’ as the ‘ultrafield’:

“Where the superfield maintains a sonic continuity, the ultrafield constantly shifts sounds around the multi-channel environment ... it encompasses a much broader array of sonic elements than its predecessor. Where Chion limited the superfield to ambient sounds and noises, the ultrafield encompasses not just these background sounds but the entire aural world of the film” (Kerins 2011, 92).

In other words, Kerins understands the ultrafield as having the capacity to communicate an extraordinarily nuanced impression of space, supplanting the need for the visuals to do so: “An ultrafield-based soundtrack ... can accurately place all the sounds of a space (ambient and otherwise) in their proper locations, taking the burden of explaining spatial relationships off the visuals” (ibid., 95). For Kerins, this atmosphere-creating capacity of spatial sound marks a major shift in the manner in which cinema can be conceptualized, “shifting the conception of cinema from something ‘to be watched from the outside’—with audience members taking in a scene in front of them—to something ‘to be personally experienced’—



with audience members literally placed in the middle of the diegetic environment” (ibid., 130) – an aural architecture, in other words.

Of course, in conventional, perspectival cinema, the manner in which either the superfield or ultrafield is articulated is contingent upon the chosen point of audition, which Chion remarks is either *spatial* – from the point of view of a non-diegetic and mobile camera-spectator – or subjective, in which a “character in the story is (apparently) seeing what I see” (Chion 2019, 89). Within *Contained*, the auditor is emphatically situated within a subjective point of audition. Furthermore, 360° video preempts any of the traditional cinematic techniques that might be used to create an interplay between sound and vision: close-ups, panning, focus-pulls and other camera-based choreography. Tension needs to be devised otherwise, through an exploitation of sonic situatedness.

## **6. Ambisonic Audio**

So how does one convincingly articulate this ‘sonic situatedness’? Although this paper is meant to foreground conceptual rather than technical research into spatial sound dissemination, an overview of the technical approaches deployed within the acquisition of spatial audio material for *Contained* merits a review. *Contained*, as well as the research projects that preceded and informed it (described below,) employs *ambisonic* recording and production techniques to create a spatialized, head-tracking, immersive sonic environment. Initially developed in the 1930s, ambisonic recording has enjoyed a recent resurgence due to its adoption as the de facto standard for virtual reality applications; these include headset-based (i.e. Oculus), mobile-phone based as well as online dissemination platforms such as Facebook 360, YouTube 360 and Vimeo 360. Although extended ambisonic spatial resolutions

do exist, *Contained* employs four-channel or *first-order* ambisonics; this is due to both the constraints imposed by the recording equipment used for the project (all ambisonic microphones used were of the more affordable first-order variety) as well as the versatility of the four-channel format (as of the time of writing, very few consumer hardware and software platforms are capable of disseminating higher-order ambisonic content). Ambisonic microphones employ four omnidirectional capsules arranged in a tetrahedral array, each recording to its own audio track; the resulting sound files are then used to calculate a spherical sound field via a hardware or, more conventionally, software-based matrixing system – a process referred to as *decoding*. Ambisonically-recorded audio can easily be *decoded* into a variety of formats to be integrated into a virtually unlimited number of playback ecologies; these include conventional, channel-based surround arrays such as 5.1, 7.1.2, etc., metadata-based systems such as Dolby Atmos as well as conventional stereo or mono formats. Headset-based VR applications typically employ a *binaural* decoding algorithm, which produces a realistic spatial sound field specifically for headphone-based audition. Conventional monophonic, stereo or surround-format files can similarly be *encoded* in order to be integrated within an ambisonic playback ecology. Finally, ambisonic audio can be extensively manipulated in post-production: rotation, directivity, spatial bias, radiation patterns and movement can all be easily controlled during the editing process, making ambisonics an extremely powerful and flexible audio format.



Figure 22: Tetrahedral capsule array on the Rode NT-SF1 ambisonic microphone

Source: <https://rode.com/en/microphones/360-ambisonic/nt-sf1>

## **7. Haptic Sound**

The exploration of haptic cinematic sound dissemination technologies largely coincided with the migration to spatialized digital sound recording and reproduction that began in the late 1970s/early 1980s with the arrival of Dolby Digital. As discussed in chapter four of this paper, the incorporation of a vibrational component presents intriguing possibilities in terms of augmenting mediatic immersion, yet the technology remains somewhat stagnant in relation to the developments made within the field of audio spatialization (not to mention largely undertheorized within film and media scholarship, as we have heard). In his seminal treatise on cinematic surround sound *Beyond Dolby*, for example, author Mark Kerins, emphasizes the importance of the low-frequency (or LFE) channel in freeing up frequency loads in the conventional surround channels (thus enabling more accurate spatial reproduction) rather than

as a tool that can be deployed in the interests of achieving a unique and powerful form of acoustic embodiment: “most of the time its [the LFE channel’s] effects are designed to go consciously unnoticed” (Kerins 2011, 83).

*Contained*, on the other hand, aims to foreground the immense low-frequency energies that are radiated by our anthropocentric structures and apparatuses. Low-frequency and infrasonic audio has been recorded with specialized microphones such as the LOM Geofón (a type of transducer originally designed to monitor seismic activity) in order to be disseminated via a wearable Subpac M2x haptic interface. In the case of *Contained*, the Geofón has facilitated the auscultation of the reverberation of high-rise office towers, the extended networks of rail systems as well as the trembling territories of large-scale industrial parks. In many instances these sites were found to generate a significant infrasonic component that – due to the frequencies lying below the range of audibility (approximately 20Hz for humans) – only became evident when viewed on a spectrographic display (see figure 24) and/or experienced using the Subpac.



Figure 23: LOM Geofón Seismic Transducer  
Source: <https://store.lom.audio/products/geofon>

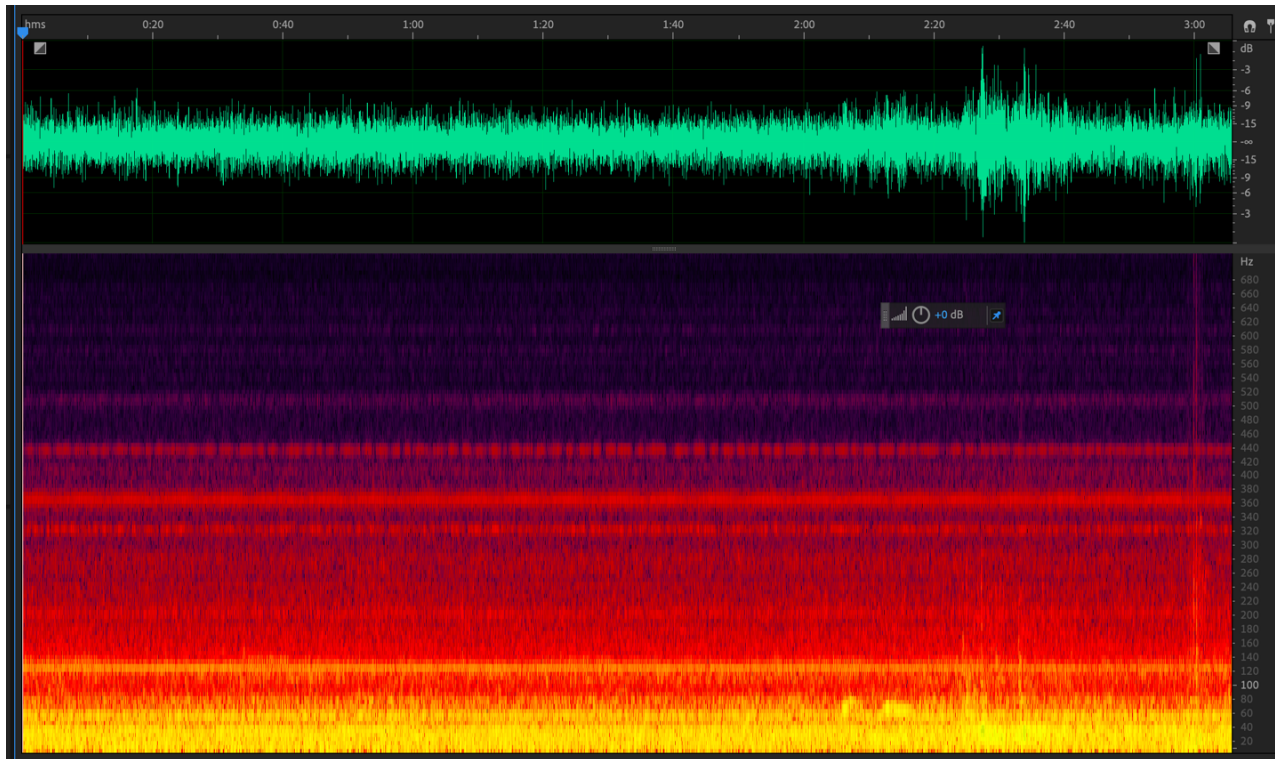


Figure 24; A spectrogram (bottom coloured portion) of a Geofón-sourced recording of First Canadian Place financial tower. Numbers on the right of the spectrogram denote frequency, and higher amplitudes are indicated by brighter colours. In this instance, a significant component of the spectrum lies below the audible threshold of 20Hz.



Figure 25; Subpac M2 wearable haptic interface.

Source: <https://ask.audio/articles/subpac-m2-is-a-wearable-tactile-audio-system-that-immerses-the-body-in-sound>

The Subpac’s efficacy unfortunately did leave something to be desired, as (according to the company website) it has been designed primarily for the monitoring of percussive, transient sounds (kick drums, synthesized bass) favoured by electronic music producers and the similarly transient envelopes prevalent in first-person shooter video games such as gunfire and explosions. The Subpac has proven less effective at reproducing the sustained mechanical drones that comprise a significant aspect of *Contained*’s soundtrack. Alternative dissemination mechanisms such as the Basslet bracelet-based transducer (no longer in production) and Woojer vest systems (see <https://www.woojer.com>) were tested, though all yielded comparable or inferior results. Ultimately, the Subpac appeared to present the best compromise, though significant post-production work in terms of equalization and amplitude adjustment were required to achieve a satisfactory mix.

## **8. Precedents and Prototypes**

*Contained* has evolved from a series of preliminary projects that were undertaken over the course of my doctoral studies. All of the works situate themselves within a field recording-based approach – an auscultation of a specific acoustic territory – that has been adapted to encompass a visual component. As emphasized throughout this paper, a primary concern has been to foreground a sonic, rather than optical, emplacement within both the mediated and material environment, an approach that is strongly predicated upon the use of head-tracking, ambisonic spatial sound and haptic audio. Given contemporary culture’s propensity towards the visual, however, such a shift towards an apprehension of mediated space as a sonically-led, vibrational aural architecture demands a certain recalibration on the part of its audience, particularly given the “aural attitudes [that have evolved] from the spatial and sensory legacy

of now several generations of aurally impoverished listeners” (Blessner & Salter 2007, 332), a condition the authors attribute to the overwhelming predominance of optically-transmitted media content. However, as Blessner and Salter also remind us, “it is up to us to enrich that legacy” (ibid.), precisely what the following projects sought to achieve.

### 8.1 *Bergmál* (2018)

Link: <https://nokami.com/Bergmal.html>

The *Bergmál* VR/multi-channel audio-visual installation is a research-creation project that was produced by Éric Filion (visuals) and myself (audio) in collaboration with the Montréal-based *Hexagram* Research-Creation Centre, which is affiliated to the Université de Québec à Chicoutimi’s (UQAC) NAD (École des arts numériques, de l’animation et du design); production was undertaken in Iceland during the spring of 2018. It is intended as a meditation on a specific peoples’ bond to the land – the locus that roots their connection to broader notions of life, death and spirituality. In doing so, it seeks to capitalize on the cognitive disruption inherent in the experience of overwhelmingly vast, perilous landscapes and exploits the embodied affective capacities of low-frequency tactile and spatial sound to evoke the natural environment as a sublime, awe-inspiring force imbued with quasi-mystical powers.

Visually, the project depicts the monumental scale of the Icelandic landscape, using drone footage to provide an omnidirectional and immersive overview of the geological features characteristic of Iceland’s central plateau and Mid-Atlantic Ridge. A specific focus is the zones of penetration that characterize the geography’s hydromagmatic fissures – the geysers, volcanoes and springs that function as conduits between the earth’s depths and its surface. *Bergmál* functions as a vehicle for the exploration of spatio-temporal (dis)location,

seeking to elicit a profound, self-reflexive response to a transcendent volcanic landscape – one which has resonated deeply (and continues to do so) with those who inhabit it.

Sonically, ambisonic field recordings replicate the three-dimensional acoustic effect of being within the vast spaces, whereas infrasonic/tactile elements are intended to constitute a corporeal and emotional presence – that of the chthonic pressures embedded in the landscape.

*Bergmál* comprises my initial foray into ambisonic/haptic cinematic VR; it was foundational in terms of determining various production and post-production workflows, most notably with respect to hardware options, software implementation, and dissemination possibilities.



Figure 26: *Bergmál* promotional poster



## 8.2 *Points Further North* (2019)

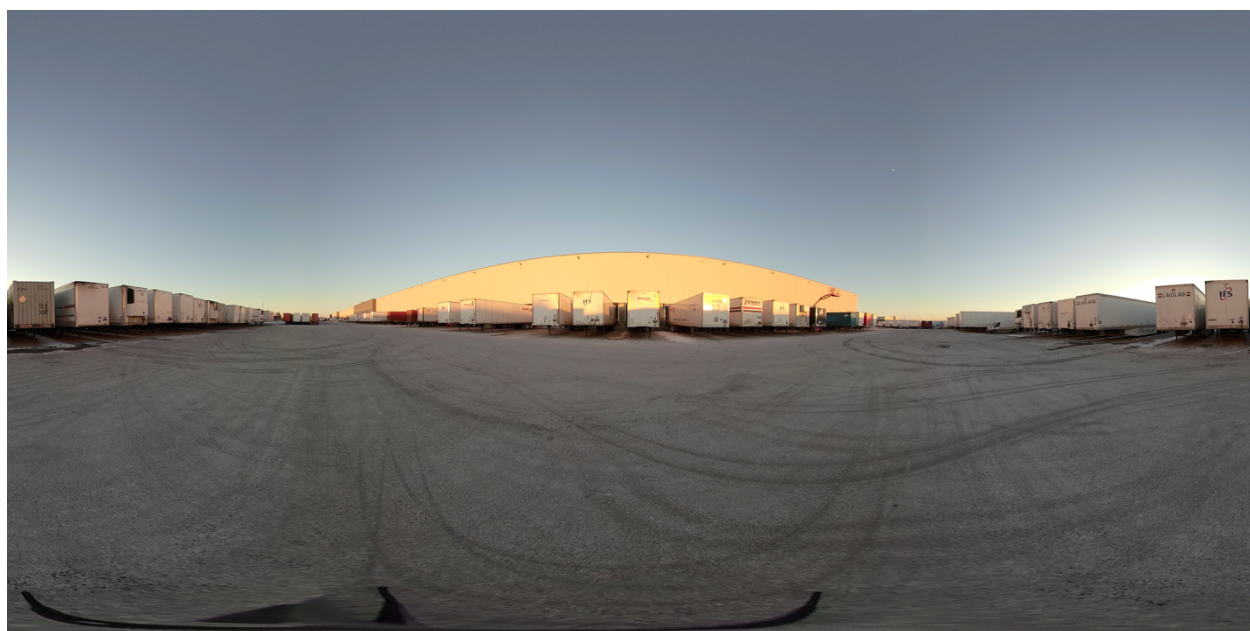
Link: <https://vimeo.com/318639740>

*Points Further North* is an experimental VR documentary that was undertaken with a view to foregrounding how sound can be deployed as the primary mechanism for laying out the complex, often subjugated relationships manifested between large-scale commercial distribution networks and those who make use of them. A direct precursor to *Contained*, it examines how head-tracked ambisonic sound and haptic audio's profoundly affective emotional, tactile and topologically enveloping capacities can be articulated within an acoustemological framework in order to evoke a heightened sense of awareness of the vast systems that undergird the consumerist lifestyles that are endemic to the developed world. The project exploits the possibilities inherent in the amplification of the vibratory and electromagnetic spectra that permeate our urban, suburban and ex-urban environments: infrasonic/tactile elements are disseminated via the Subpac wearable haptic interface in order to constitute a corporeal and emotional presence, and the radiant (yet invisible) transmissions of our information, manufacturing and distribution networks are captured and sonified via the use of electromagnetic transducers. Both sonically and thematically, *Points Further North* seeks to sonically delineate the ethereal topographies engendered via the monumental, sublime – yet sublimated – logistical infrastructures that have become essential to our materialist culture.

Specifically, the project investigates the northern Toronto suburb of Vaughn/Concord, a location chosen due to its prominence as a major node within the largely abstracted machinations of e-commerce (a fact surmised due to its frequent appearances on my own on-line package tracking information). The project's title is intended to reference remote railway destinations: the

anonymous, outlying locales on the periphery of a far-reaching hinterland. I was curious to unveil the topography of this enigmatic transfer point: an initial Google Map satellite inspection of the area (a disembodied perspective if there ever was one) revealed a sprawling conglomerate of large industrial buildings clustered around the MacMillan rail yard, Canada's second-largest classification yard. The project sought to reveal what this space – a locale that was never intended to exist as a site of aesthetic contemplation – might sound and look like on the ground.

*Points Further North* was my first independent foray into cinematic VR; it was essential in terms of determining how to create a visual correlative to my field recording material, that is, determining how an optical investigation of industrial non-places might inform or augment the phonographic content. In addition, it served to further test and familiarize myself with ambisonic and haptic recording hardware and software acquired in response to deficiencies noted while working on the *Bergmål* project.



Figures 27 & 28: 360° stills from *Points Further North*

### 8.3 *Johatsu* (2020)

Project link: <https://nokami.com/johatsu.html>

*Johatsu* is a short VR narrative produced by Éric Filion (animation) and myself (ambisonic/haptic sound design) under the auspices of the Montréal-based *Hexagram* Research-Creation Centre. The project examines the plight and condition of Japan's titular *Johatsu* or 'evaporated people'.

Although exact numbers are difficult to assess, it is estimated that every year approximately 100,000 Japanese disappear without a trace, abandoning their previous lives (including jobs, families, friends and possessions) for reasons of shame, desperation or despair. In many cases the *Johatsu* will withdraw into marginalized underground communities such as Tokyo's Sanya or Osaka's Kamagasaki neighbourhoods – seedy locales often run by the local Yakuza, but within which anonymity and social invisibility can be preserved.

The *Johatsu* VR project draws its inspiration from this phenomenon, proposing a virtual experience of an individual's 'ghosting', that is, a dissolution from a familiar milieu into an urban underworld of social and personal perdition. The visuals emphasize the urban desolation that is characteristic of these topographies; they are configured with a view to capitalizing on the manner in which senses recalibrate themselves within the VR phenomenon, that is, the anxiety and intuitive, primal switch into defensive mode that occur in the face of an 'unknown', a response that characterizes the experiences of both personal crisis-response – as evidenced in the face of social collapse, for example – as well as that of virtual reality. Narratively, the virtual environments exist as empty sets activated by sound; they await the arrival of a participant's emergent perception. Spatial and ambisonic audio are deployed as a central narrative element in the piece. Spectral convolution – a digital technique

which allows sound to be enfolded (or ‘sounded’) within another sound and that has been employed extensively in *Contained* – emphasizes the sense of dislocation and deterritorialization of the Johatsu. This dissolution and reconfiguration of interior and exterior acoustic spaces is supplemented by an infrasonic component, which is disseminated via the Subpac wearable haptic interface. These frequencies constitute a corporeal and emotional presence – an acoustic haunting, in other words, which echoes the anguish that characterizes the plight of these ‘evaporated people’.

*Johatsu* provided a test bed for working with 3D animation and object-oriented sound design within a collaborative Unreal ecology. Several different versions of the project were generated; initial iterations provided an interactive experience but were deemed unsuccessful due to a lack of narrative cohesion. Subsequent versions that articulated the storyline ‘on rails’ (movement was predetermined with no auditor/viewer agency) were determined to be clearer and more compelling in terms of user experience. *Johatsu* was also adapted to a conventional (perspectival) 4k format with 5.1 surround-sound in order to be screened at various festivals that were unable to provide VR viewing capabilities.





Figures 29 & 30: Still images from the 4k version of *Johatsu*

#### 8.4 *Shanawdithit VR*

*Shanawdithit VR* is a six-minute remix of *Shanawdithit*, a Canadian-Indigenous opera created by the acclaimed Algonquin playwright Yvette Nolan and the celebrated composer Dean Burry. This remix was produced by fellow CMA graduate student Sarah Choi in conjunction with Nikolay Michaylov (cinematography) and Racelar Ho (digital editing); I was responsible for the ambisonic sound design.

Intended as a meditation on the resilience of the Indigenous voice, this 360-cinema project investigates the potential of VR in experiencing presence. Spatio-temporal immersions can facilitate personal reflections on marginalized spaces and peoples on a deeper level, offering a sensorial way of experiencing and learning Indigenous history. *Shanawdithit VR* features choreographer-dancer Aria Evans (Mi'kmaq/Black/settler) as well as mezzo-soprano Marion Newman (Kwagiulth and Stó:lo) singing the refrain of one of Nolan's arias: "How can I sing to descendants I will never have?" In a way, this film is a response to her anguish-laden cry – our generation's acknowledgment of the painful, forgotten history of the original caretakers of our land – allowing us to hear her song today.

*Shanawdithit VR*'s soundtrack is an ambisonic, spatialized mix comprised of raw and processed field recordings of maritime Canada, foley, and, most importantly, Marion Newman's performance of Yvette Nolan's libretto composed for the Tapestry Opera's production of the original *Shanawdithit* opera. The ambisonic mix enables the audio to be head-tracked – in other words, sound is heard in correspondence to the placement of visual elements within the 360-degree virtual space. As *Shanawdithit*'s tale – one of cultural uprooting imposed by colonialist oppression – manifests itself as a series of extreme erasures, overlaps and reconfigurations manifested within a resonant yet intransigent locale, the

soundtrack to *Shanawdithit VR* attempts to sonically re-imagine these mnemonic, geographical and narrative vectors of the protagonist's fate. As such, the piece served an intensive investigation of how digital audio processing might be engaged to intertwine subjective and objective sonic spaces: Newman's performance of the libretto was enveloped within the soundscape of maritime Newfoundland – homeland of the Shanawdithit's Beothuk people – using spectral convolution techniques, described in chapter three of this paper. Sounding Marion Newman's performance of the libretto's lament through the maritime soundscape in which Shanawdithit's tragic story unfolded therefore enabled an enwrapping of internal and external acoustic spaces, creating a site of intersection between a deeply tragic subjective circumstance and an unforgiving, yet sonorous topography.



Figure 31: VR still from *Shanawdithit VR*



### 8.5 *Ancient Thoughts and Electric Buildings* (2021-22)

Project link: <https://vimeo.com/392800165>

*Ancient Thoughts and Electric Buildings* is an experimental, audio-led, virtual reality (VR) documentary that examines a portion of Toronto's downtown core that extends along the city's Gardner Expressway. This site traverses Canada's financial nexus and has been the recent locus of extensive commercial development; simultaneously, it exists as a region that is (and has historically been) occupied by a significant number of unhoused individuals.

Seeking to build and expand upon Brandon LaBelle's notion of 'acoustic territories', this project foregrounds sound as a key sensory modality distinguishing the conditions of the locale's urban dispossessed from that of the privileged. To this end, spatial and haptic audio dissemination are deployed to emphasize the relentless cacophony – both audible and vibratory – within which the unhoused remain perpetually exposed, a stark contrast to the acoustically sealed, climate-controlled, humming structures of the financial towers and condominiums that their habitat is surrounded by.

Visually, the documentary investigates the displaced population's reinterpretation of their imposed topography: beneath the towering cathedrals of commerce, highways become roofs and scrap material is reconfigured as walls and furniture in a surreal contemporary echo of feudal dynamics. Further emphasizing the socio-economic disconnect, fragments of local condominium marketing copy have been composited into the 360° space in order to highlight the disconcerting paradoxes inherent in the clash of these spatially overlapping, yet antithetical territories.

*Ancient Thoughts and Electric Buildings* provides a direct antecedent to *Contained* in terms of both subject matter (the conflation of urban encampments with the architectural

features of Toronto's downtown core) as well as its investigation of how environmental text – in this case condominium marketing copy – might operate as an additional unsounding territorializing agent.



Figures 32 & 33: VR stills from *Ancient Thoughts* and *Electric Buildings*

### 8.6 Radiograms (2022-23)

Project link: <https://nokami.com/radiograms.html>

*Radiograms* was once again created in collaboration with the Montréal-based *Hexagram* Research-Creation Centre; Éric Filion generated the 3D visual component in Unreal and I was responsible for the ambisonic, haptic and multi-channel sound design.

*Radiograms* is an investigation of anachronistic sound and radio-based cold war communication technologies that have persisted into the present. This project foregrounds the electromagnetic and radio spectra of a militarized ether and revisits the depleted landscapes within which the technology remains situated. It seeks to render that which is invisible, inaudible, hidden yet omnipresent, into something which can be contemplated.

We remain largely unaware of these spectral systems which infuse the radio spectrum; their ephemerality leads us to disregard the vastness, power, and sinister intent which underlie their existence. As such, *Radiograms* can be seen as a continuation/extension of the parapsychological investigations of EVP or 'electronic voice phenomenon' – the search for spectral energies that remain concealed in the ether.

This project served as another testbed for collaborative Unreal workflow, multi-format adaptation and interactivity. As was the case with *Johatsu* described above, the interactive version remained unconvincing in terms of how and why auditor agency might augment the experience, which was intended to be predominantly atmospheric rather than plot-driven. *Radiograms* also functioned as a prototype for dome and quadrilateral dissemination; as such it was tested (and exhibited) extensively at York's Betaspace dome facility as well as adapted to a four-channel rectangular immersive format, the latter version being exhibited at InterAccess gallery in April and May of 2023.





Figure 34: *Radiograms* – Production Still



Figure 35: *Radiograms*: Installation view at InterAccess Gallery, April 2023 (Image courtesy of the gallery)

### 8.7 *Country Living* (2019)

Link: <https://vimeo.com/365974721>

*Country Living* was created as a private project intended to prototype various textual and textural approaches for eventual use in *Contained*. It is a two-episode series (the first episode was shot on a conventional cellphone in rural New Brunswick, the second in 360° video in Georgian Bay and North York) focusing on the 'near north', rural areas where the encroachment of civilization has clearly begun, but in which nature has yet to be suppressed as a dominating force. Drawing from precedents such as the work of the Group of Seven, the stories of author Algernon Blackwood and First Nations mythology, it seeks to invoke their notion of the natural environment as a fearsome, awe-inspiring force imbued with quasi-mystical powers. In doing so, however, it also looks to contrast this mythos with the hackneyed Canadian conceit of this milieu as a paradisaal mechanized playground for the wealthy. Both iterations of *Country Living* integrate advertising text sampled from cottaging periodicals found in situ as well as online pharmaceutical marketing copy, seeking to foreground and critique manufactured, idealized notions of well-being.



Figures 36 & 37: VR stills from *Country Living*

## **9. Contained**

The *Contained* project consolidates many of the thematic and production approaches discussed above. Of these, however, *Points Further North* and *Ancient Thoughts and Electric Buildings* bear the greatest methodological and conceptual relevance, having been specifically developed as prototypes for the final work.

Thematically, *Contained* is intended to constitute a haunted aural architecture, an atmospheric evocation of the spectral yet monumental mechanisms, stresses and structures of late capitalism. The work foregrounds the use of spatial and haptic sound within an immersive cinematic ecology in order to engender an embodied awareness of the massive and overpowering – yet largely concealed – infrastructural networks and mechanisms upon which our first-world lifestyles are predicated. Furthermore, the work presents a persistent dissolution of self and space into the expansive systems that are imbricated within our personal, social, ecological and commercial circumstances: interior/exterior, mediated/immediate and actual/virtual mesh and dissolve, evoking the complex, blurred boundaries between individuals and their anthropocentric milieus.

As described earlier in this chapter, the work deploys head-tracking ambisonic sound in order to replicate the diegetic soundscapes of the featured locales. This has been augmented with contact microphone and geophone recordings of the vibrational components of the sites as well as induction microphone recordings of the electromagnetic spectra, most notably of the electronic advertising systems that comprises a major visual component of the spaces. Additionally, spectral convolution was employed extensively throughout *Contained*'s soundtrack to mesh mnemonic and heard acoustic environments, as discussed in chapter three.



Visually, the 360° cinematic environment presents depleted topographies and non-places permeated with the humming structures and apparatuses of the Anthropocene – the vast fields of stacked shipping containers, rail networks and office complexes that are endemic to a globalized consumer society. In addition, the project integrates extensive 360° footage, LiDAR scans and photograms of urban encampments, the disregarded and subjugated by-product of the impersonal logic that undergirds our everyday circumstance.

## **10. Production Strategies**

*Contained* presents an evolution of an ongoing field-recording practice predicated upon acoustemological investigations into familiar (to the writer) spaces and the politics imbricated therein. It is the outcome of iterative perambulations through a familiar terrain, the solitary act of walking being a key methodology in terms of auscultating and observing a specific locale and the rhythm analytical variations and modulations occurring therein. Most of the spaces within the work comprise archetypal Situationist ‘habitual axes’ – areas that hold a particular fascination, in this case, due to their psychogeographical characteristics or their status as anthropocentric ‘non-places’ or neglected nodes in a complex, multivalent habitat. Both audio and video recording were undertaken as acoustically guided performances: intuitive, iterative and solitary *dérives* through resonant topographies with a view and an ear to capturing and archiving audio samples and visual footage of sites which elicited a particular sonic or visual fascination. Procedurally, this was a very modest production, one predicated on improvisation and the ability to infiltrate the subject spaces in an expedient and covert manner. To reference Salomé Voegelin: “DIY is a practice of self-reliance that rejects the idea of a right way ...in favour of a more contingent making” (Voegelin 2019, 4) – or, as Robert Bresson advises more



prosaically: “Set up your film while shooting. It forms for itself knots (of force, of security) to which all the rest clings’ (Bresson 1977, 13). The production approach was generally straightforward: once a compelling location was identified, video and audio recorders were mounted statically and simply left to run for extended (five to ten-minutes was typical) takes.

Spatial audio was captured using a Røde NT-SF1 Soundfield ambisonic microphone and Sound Devices MixPre6 II audio recorder as well as smaller Zoom H3-VR and H2n ambisonic portable recorders. A variety of other recording devices and conventional microphones have been employed to acquire air-borne sounds: low-frequency infrasonic and vibrational spectra were captured using a LOM Geofón vibrational transducer as well as AKG C411PP, Barcus-Berry and home-made contact microphones. Aquatic sounds as well as some material-borne audio was acquired with Cold Gold and Aquarian Audio hydrophones, whereas the inaudible electromagnetic spectra were captured via a Soma Electronics Ether induction microphone. Haptic content is disseminated via a SubPac wearable tactile interface.

The various audio formats have been combined into a four-channel ambisonic final mix using the Reaper Digital Audio Workstation and the Ambisonic Toolkit (ATK), SPARTA and IEM freeware plug-in suites. Visuals for the piece were captured with a GoPro Fusion 360 camera, cellphone-based photogrammetry, and a LiDAR-equipped iPad, which only became available as the project was entering post-production. Animated features were rendered in Blender, a free, open-source 3D software suite. The LD-Log logging app was used to document positional and visual reference data, as well as for note-taking, i.e. recording mnemonic responses to locale (such as earworms) for later integration into the piece. Finally, audio and visuals were integrated in Adobe Premiere for the final output.

I wish to emphasize here that the production strategies and techniques used for *Contained* were intentionally autarchic, deliberately placed in opposition to the calculated, scripted and generally large-scale practices employed by what film scholar Scott MacDonald terms the cinematic “culture of distraction” (MacDonald 2014, 923). Rather, the intention was to partake in the role of a singular, silent and embedded participant in the sensual and contingent audio-visual evolution of a site’s topography (Trommer).

### **11. Recording Sites: What Was There**

“Documentary images are not separated from what is depicted in them; they are part of the world. The immanence of the world to the work and the artist is an ethical and ecological issue. Images are not just visual...The filmmaker or artist, the work and the ‘context’ or the ‘environment’, all belong to the same plane of immanence” (Panse 2013, 44).

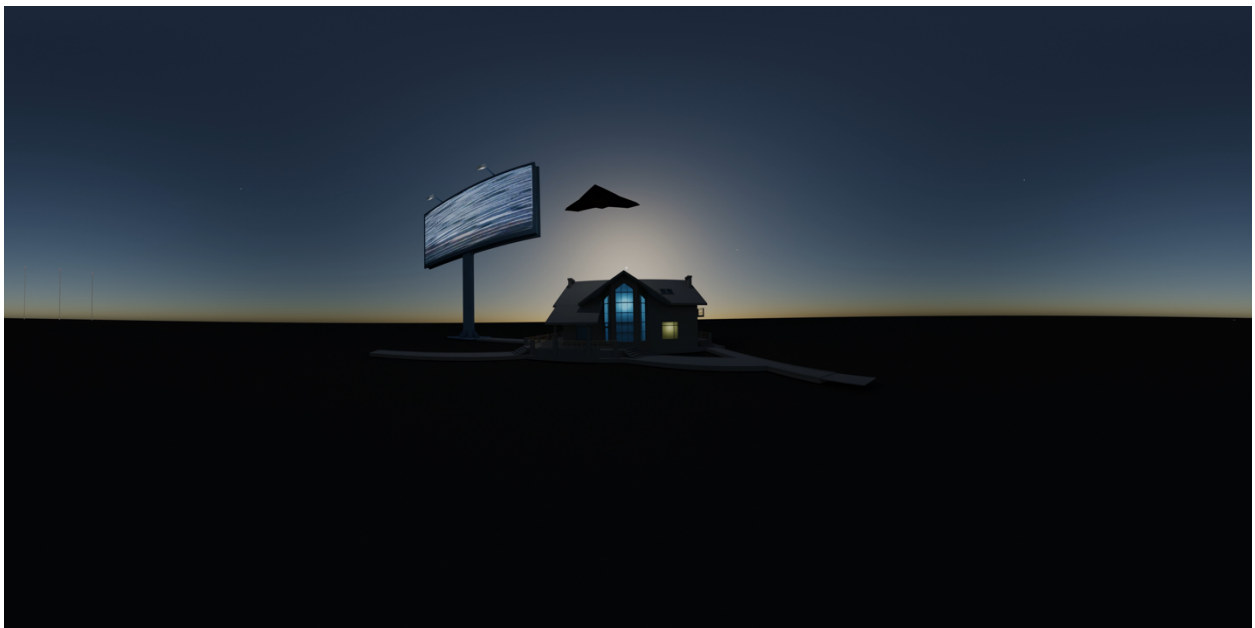
This section outlines the rationale underlying the choice of the sonic and visual source material for the *Contained* project. The main locations heard and observed in *Contained* comprise:

1. The PATH system, an underground pedestrian network that traverses Toronto’s central business district. Serving as a connection between Toronto’s many banking and financial towers, this convoluted multi-level amalgam of walkways, corridors, malls and food courts extends over 30km and encompasses over 1,200 retail locations (see <https://www.toronto.ca/explore-enjoy/visitor-services/path-torontos-downtown-pedestrian-walkway/>) and several major road and railway transit hubs.

2. The MacMillan railyard and its associated arteries, feed lines and storage facilities (these being located throughout the Toronto municipalities of Concord/Vaughn and North York). The MacMillan Railyard is Canada's second-largest rail classification yard and serves as an important node in metropolitan supply chain logistics, most notably those related to e-commerce.

3. Urban encampments located along Toronto's Gardner Expressway corridor as well as Toronto's Queen West district (primarily within the Trinity-Bellwoods and Alexandra Park areas). These proliferated extensively during the COVID epidemic and continue to constitute a prominent presence in my day-to-day experience.

Easy access to recording locations was of paramount importance during production, which occurred during the COVID pandemic; this was not only due to the logistical complications of travelling during this period but also stemmed from a desire to acquire repeated audio-visual documentation of spaces that maintained a relatively direct connection to my own quotidian circumstance. Correspondingly (and as discussed above), it was important that all locales be accessible on foot, by bicycle or via public transit. The iterative nature of these junkets also enabled the documentation of significant changes that were affecting the recording locales; these ranged from the infiltration of large-scale urban development to the extensive displacements among marginalized populations that were occurring as a result of the COVID epidemic.



Figures 38 & 39: VR Stills from *Contained* (2024)



Figures 40 & 41: VR Stills from *Contained* (2024)

## **12. Audio-Visual Motifs**

### **A. Shipping Containers and Associated Logistics Networks**

A primary sonic, visual and conceptual motif for the work is the titular shipping container, the ubiquitous format for international multi-modal commerce and thus a (if not ‘the’) key material component of the global economy; as such, it has been configured within the work as an icon of the Anthropocene. Container storage areas as well as rail networks used in the local (to Toronto) logistics of the global supply chain feature prominently in the work; never intended as the focus of aesthetic contemplation, my fascination with these systems have evolved from regarding the opacity of these objects and systems as emblematic of the mechanisms that comprise our online shopping, manufacturing and distribution infrastructures – what do its localized extensions look and sound like? What’s inside the box, exactly? The pervasiveness of e-commerce transactions during the COVID pandemic served to further pique my interest in terms of gaining a more embodied insight – at least in terms of local manifestations – into what formidable mechanics were called into play when clicking the ‘Buy now’ button on an Amazon item. Simultaneously (and paradoxically), shipping containers also exist as a form of surrogate or emergency housing, thus functioning as an oblique gesture to the issues of displacement, migration and access to housing within a globalized economy that also comprise an audio-visual theme within the work, as described below.

### **B. Urban Encampments**

The encampment footage, though superficially divergent from the logistical commodities described above, in fact documents a resolutely parallel circumstance. In many respects, the

unhoused exist as yet another strata of the unseen, a kind of socio-economic acousmêtre.

COVID, however, precipitated a dramatic increase in the visibility of the unhoused population living in downtown Toronto; although this was due to a combination of factors, the sharply reduced availability of shelter spaces as well as the dangers of living in close proximity to unknown individuals during the pandemic are understood to have played key roles in this large-scale displacement (interview Jesse Upton, *Parkdale Encampment Support Network*).

Two neighbourhood parks – Trinity Bellwoods and Alexandra, both in Toronto’s Queen West area – became major encampments until the residents’ forced eviction by municipal police in June 2021. Simultaneously, some unhoused individuals began to occupy (and continue to do so) an abandoned property adjoining our own, which has offered me an opportunity to gain some extended insight into what their living situation entails. I had already become familiar with some of the encampment residents while filming the *Ancient Thoughts and Electric Buildings* project (described above), which focused on tent complexes extending under and along the Gardiner Expressway, a major commuter artery traversing Toronto’s downtown core. Most of these were (once again) forcibly cleared in March 2019, though scattered tents remained in some outlying areas and along the Don Valley Parkway (DVP) trail, a forested ravine running parallel to another major traffic artery which intersects the Gardiner (some of these sites feature in *Contained*). Although my encounters with encampment residents were regular but sporadic pre-pandemic, they became an everyday occurrence after April 2020.

Some of the individuals I had come to know when recording under the Gardiner resurfaced in the park encampments and were eager to relate stories relating what had transpired amongst both themselves and their former neighbours within the last year. These discussions, along with conversations with our backyard residents, have proven to be profoundly enlightening,

emphasizing the vulnerability that characterizes the residents' actual and ongoing living situations, exposing the precarity of seemingly 'normal' lives (one of the park residents I came to know well had been a fellow PhD student, for example) and the rapidity with which a series of unfortunate events could precipitate a shocking upheaval in circumstance and, most importantly, foregrounding the unsettling chasms that exist between physically adjacent or even overlapping subjective territories.

It is of vital importance that I clarify that I do not presume to present *Contained* as a manifesto in support of the unhoused. Though there certainly exists a plethora of excellent reasons for undertaking such a project, as a privileged, white, middle-class academic, I am not qualified to speak for those who have no voice. My approach in this instance has instead been to simply relate a subjectively (deafeningly) resonant paradox that has persistently presented itself as a salient component of my lived surroundings. The clash of wealth and abject poverty continues to be imbricated in my day-to-day, a condition that emerges from the systemic structures I (and they) am/are embedded within, abstracted yet formidable pressures emanating from the obscured forces which comprise the focus of this research-creation project.

### C. PATH network

The underground PATH system has been the object of a longstanding personal fascination. In many respects it encapsulates the notion of non-place, existing as a commercialized axis of pedestrian transit during the work week but standing eerily quiet and empty at night as well as during weekends (when the majority of the recordings were made). It is during these off-hours that one becomes aware that this is a site that is perpetually permeated by background drones:



the soft humming of electrical and climate control systems forms an ethereal and unremitting acoustic accompaniment. The soundscape is also characterized by a significant low frequency component, one that can be audited quite distinctly via the hearing prosthesis of contact microphones and geophones. In addition, the PATH network is a site that is saturated with electromagnetic emanations; the ‘always on’ electronic billboards (whose sounds feature prominently throughout *Contained*), security systems, information infrastructures and electrical networks relentlessly emit distinctive, audible traces. These are directly symptomatic of our technologized environment, comprising the vibrational radiance of our technological sublime; the overall effect is of a space that is haunted by unknown agencies; the structures that tower above unseen assert an audible yet unfathomable presence.

#### D. Billboards and Interstitial Texts

Advertising billboards form a prominent feature throughout both the outdoor and indoor spaces featured in *Contained*. These are striking in terms of their semiotics, comprising a form of acousmatic voice emanating from unseen agents, often accompanied by images of individuals looking directly at the viewer. In most instances they offer abstracted (and occasionally euphoric) promises of happiness, fulfillment, a better life or, conversely, a salve for those not fully experiencing the benefits of the first-world, privileged lifestyle we should all be presumably enjoying. I was struck not only by the disingenuous pervasiveness of these intrusions, but also by the often-jarring contrasts between the mediated messages (both textual and visual) they disseminated and the depleted states of the physical locales they were often situated within. As discussed in Chapter three, the unsounding voices emanating from the choirs of billboard ads were apprehended as non-cochlear sonic material and activated as a

central feature within the work. This is intended to be understood as a form of textual sampling, a parallel to musical sampling insofar as the displacement and reconfiguration/recontextualization of content serves as a commentary, perhaps even a provocation. The phrasal insertions appearing within *Contained* have been directly sampled from billboards that appear within the video footage; slogans and catchphrases become detached from their physical supports to haunt the virtual environment autonomously, cajoling, prompting, soothing and occasionally patronizing the auditor/viewer, accentuating their status as ghostly missives emanating from unfathomable, unseen forces. The sampled text has been rendered in Helvetica, a font that is emblematic of non-places such as airports. Sonically, these digital billboards were found to produce extremely complex electromagnetic emanations. These would modulate extensively according to pixel colour and movement, producing dense (not to mention often piercingly strident) harmonic and rhythmic variations that in effect comprised the actual (and disconcertingly alien) voices of these advertising mechanisms.

A further trope that was conspicuous within the archetypically anthropocentric built spaces of the PATH system was the pervasive evocation of idealized natural environments, uncanny instances wherein manifestations of the 'natural' sublime – bucolic forest scenes and benign fauna – converged with their technological counterparts – massive LCD billboards situated within towering cathedrals of commerce. These juxtapositions were jarring not only in terms of their spatial disjuncture, but also in relation to the very tangible form of outdoor camping that was occurring in the tent cities that lay disregarded just a few meters away.



Figure 42: Conflated territories: A billboard advertisement for Pattison Outdoor Advertising observed within the PATH system in spring 2022.

### E. Animated Interstitials

*Contained* incorporates several animated sections; these are interspersed within the camera-captured segments as pseudo-advertisements, presenting ur-objects in featureless landscapes that function as warped subversions of their real-world corollaries. The smooth blandness of their computer-generated surfaces also serve to demarcate the stark contrast between the virtual spaces and the visceral abjectness evident in many of the material milieus depicted in the work.

### F. Self-Sound

Subtle instances of bodily sounds such as breathing, sniffing, swallowing, etc. are interspersed throughout the soundtrack. Recorded binaurally, these are intended to incite an uncanny response, sounding as they would have had the actions been performed by the auditor themselves. They thus function as an embodied reminder of the recordist's corporeal presence within the disseminated environments. The auditor, in other words, comes to inhabit the carnal container of the work's author.

### G. Spectrally-convolved Soundscapes

As discussed in chapter three, spectral convolution has been deployed extensively throughout the work in order to mesh the internally-sounding, mnemonic soundtracks experienced within the recording locales with their audible, diegetic soundscapes. Anamnetic and phonometric sounds were noted in situ (using the LD-log mobile app) then subsequently sourced online. Steinberg SpectraLayers, Argeiphontes Lyre, Soundhack and F-scape were the primary software tools used to perform these spectral manipulations.

## **13. Conclusion**

Rooting itself within a field recording based practice, *Contained* aims to extrapolate an analogue between the sonic and visual characteristics of spaces that are both intimate to the creator yet also characteristic of the complex tensions and power relations that define our anthropocentric circumstance. It does so via an emphasis upon the notion that “Knowledge percolates through a multiplicity of signals and meanings, both heard and unheard, depending on the situated context of listening” (Wright 2022, 94). The unfathomable scale of our

consumer supply chains, the proliferation of sonic and visual advertising systems into a virtual urban atmosphere, as well as the unsettling juxtapositions of cacophony and quietude, abjectness and privilege, all speak to an anthropocentric asymmetry of power relations that tends to be overlooked rather than overheard. It is, however, a circumstance that urgently demands our attention. To quote sound studies theorist Mark Peter Wright once again at length:

“Anthropogenic sites and sounds are connected to a supply chain of cause and effect, histories and futures, humans and nonhumans. Recording and listening become stretched within the demand of following the flow: acoustically, geographically, critically, and imaginatively, in practice and pedagogy. ... The realization that we humans are as much within sound, as we are outside, disrupts perspectives and the veracity of the field” (ibid., 101-102).

By adopting a reflexive, autarchic mode of audio-visual media production, that is, one that is self-reliant and inverts the traditional optically-dominated hierarchy in order to privilege sound and all of its immersive, embodied and affective potential, *Contained* aims to ‘make strange’, that is, to reorient and recalibrate its audience in a manner that invites a reappraisal of an environment we have largely become deaf to.

### **Endnotes.**

1. In a paragraph that is worth quoting at length, Perec asks: “What’s really going on, what we’re experiencing, the rest, all the rest, where is it? How should we take account of, question, describe what happens every day and recurs everyday: the banal, the quotidian, the obvious, the common, the ordinary, the infra-ordinary, the background noise, the habitual? To question the habitual. But that’s just it, we’re habituated to it. We don’t question it, it doesn’t question us, it doesn’t seem to pose a problem, we live it without thinking, as if it

carried within it neither question nor answers, as if it weren't the bearer of any information. This is not longer even conditioning, it's anaesthesia. We sleep through our lives in a dreamless sleep. But where is our life? Where is our body? Where is our space?" (Perec 1973, n.p.). This deconstruction of the habitual – the unpacking of the complex and relentless yet obfuscated forces imbricated within our habitats – can be understood as the central thematic thrust within *Contained*.

2. *Musique concrète* is a form of electroacoustic composition that uses primarily recorded or found sound as its source material.

3. I am thinking here of Francisco López's acousmatic approach to field-recorded sound as an autonomous form of 'sound matter', to provide one example.

## **8. CONCLUSION AND RECOMMENDATIONS**

### **1. Introduction**

In his essay *Sound Thinking: Looped Time, Duped Track* (2013), Garrett Stewart remarks that “In conventional cinematic realism ... it is seemingly a case of sound from image” (Stewart 2013, 465). He goes on to inquire “Can that priority be reversed, with sound mediating image? And how might the newness of electronic media be involved in this inverted hierarchy? What would such a thing look like, sound like...?” (ibid.). The *Contained* project provides one response to this question; as such, it has also been a search for one of headset-based virtual reality’s ‘lost futures’. If VR is to establish itself as an ‘useful’ ecology that transcends existing audio-visual paradigms – a medium that starts afresh and seeks to expand beyond a mode of mere passive entertainment, in other words – then rooting it within an audio-led, haptically-enhanced acoustemological ontology presents some auspicious possibilities. In this instance, *Contained*’s audio-led approach has sought to foreground our embodied relationship to a complex anthropocentric environment, accomplishing this via a synthesis and extrapolation of theoretical and aesthetic strategies found within the practices of field recording, sound installation and street photography, as well as within the filmic genres of cinematic realism, slow cinema and video ethnography, consolidating salient components of these idioms into a sonically spatialized and haptic 360° cinematic environment.

More specifically, *Contained* has investigated how approaching immersive, durational audio-visual space as an *atmospheric aural architecture* might enable a uniquely affective form of spectatorship – a type of ‘cinematic dwelling’ (Lam) – that fosters an augmented relationship with the multivalent everyday environments that extend beyond the headset. Such an approach considers VR space as an integral component of an already highly virtualized ‘real world’,

acknowledging the presence and subjectivity of both the creator and auditor in their material and electronic habitats.

In *Contained*'s case, this repositioning has entailed a consideration of *process* as well as product; a strong emphasis has been placed on a site-sensitive, responsive and autarchic form of making, borrowing significantly from not only field recording's self-reflexive receptiveness to the complex nuances of space but also from the sensory ethnographer's broad-ranging approach of being "immersed in experiential situations of ongoing relationships between the filmmaker [sic] and the objects and persons within the frame and outside the frame – the seen and unseen, heard and unheard, the visible and invisible" (Redmon 2019, 92).

Importantly, in *Contained* the subject is not a conventional ethnographic 'other' – we, and the haunted spaces many of us function within on a daily basis comprise the field of investigation. The project's virtual environments are intended to function as empty sets that become activated by the listener/looker, who is tasked with (re)synthesizing a multi-modal remix of sounds, texts and images gathered from everyday urban environments. In doing so, they transform into a temporary, invisible occupier of ambiguous, malleable territories, its spectral, slippery inhabitant, becoming engaged as an active generator of meaning. Their human guide/creator has vacated the space, remaining only as a void: the auditor/spectator is left to assume an embodied perspective that parallels that of audition: listening to another's listening, looking at another person's looking, and, by extension, both vibrationally and metaphorically feeling another's feeling; they become a ghost.

Such a contingently generated approach is inherently and intentionally ambiguous in both its effect and affect. As David Redmon puts it in his discussion of the broader discipline of video ethnography: "The open-endedness of images and sounds naturally opens them up to additional,



unstable, and indeterminate understandings and interpretations.” (Redmon 2019, 96-97).

Correspondingly, a persistent editing tactic within *Contained* has been to augment this uncertainty, to capitalize upon VR’s capability to allow space and time to be manipulated in an uncanny manner, disrupting the hierarchies governing what can (and can’t) be heard and seen: sites are constantly displacing, spilling over and “telescoping” (Topinka 2010, 56) into one another. The temporal and spatial ruptures that characterize the mediated strata of the Anthropocene become foregrounded not only sonically but also visually and vibrationally. Such a positioning consists of a *re-spatialization*: it not only acknowledges but also emphasizes a subjective, hybrid and extended apprehension of space, seeking to draw in what lies ‘outside’ into the sounding, vibrating ‘inside’ of the headset ecology. Analogously, durational editing establishes a temporal flow that is more akin to ‘real-world’ listening/viewing, directing a lingering ear and eye to subject matter that is generally not intended to comprise the object of aestheticized, reflective listening-viewing – a contemporary evolution of cinematic realism. Situating spectator/viewership in such a ‘space-within-a-space’ for the purpose of interrogating the habitual can be understood as a mediatic manifestation of a *heterotopia*,

## **2. A Critique of a Critique**

So what is being critiqued from within this virtual heterotopia? *Contained* addresses the stresses and ruptures of the anthropocentric condition via both mode of production, a DIY form of making that presents an opposition to hyper-edited Hollywood-style “industrial” cinema (Chattopadhyay 2021, 155), as well as its content, which centers upon the abstraction of our consumerist technotopia. In *Contained*, we are eliciting the spectres of our technological sublime, drawing them closer in so that we may get to know them better. But *to what extent are*

*we actually exorcizing them?* Who is to say that we aren't, in fact, exacerbating the condition we aim to expose? Certainly, there are some paradoxes inherent here: firstly, how might one reconcile pretences of environmental and social accountability with the fact that *Contained* is a project that, regardless of how self-reliant and small-scale the production might be, is emphatically predicated on the use of digital tools that are the outcome of harmful resource extraction, questionable manufacturing conditions, and immense logistical systems? Field recordist Mark Peter Wright, who has been referenced extensively throughout this paper, highlights this contradiction within his own, ecologically-aware practice. He remarks that "Within the very moment of capture, recordists consume and are consumed. The monstrous and horrific is not only located in histories of colonization or the manufactured landscapes of the Anthropocene. The locus for such trauma is also found in the fields of recordists themselves; they too must become sites of exploration" (Wright 2022, 41). Indeed, the importance of a self-reflexive and questioning ethnographic approach to a personally-relevant territory has been emphasized throughout this paper and research-creation project.

However, is it not naïve to propose that an artwork (one developed within the privileged confines of academia, no less), even if successfully realized, might function as a salve for the anxieties and stresses resulting from the unfathomably complex state-of-affairs that define the anthropocentric condition? To push this point even further: to what extent is *Contained* simply another escapist seduction, another technologically-enhanced instance of media self-indulgence? Though VR is often referred to as an 'empathy machine' (Milk, Bujić, Bollmer et. al.), one has to wonder to what extent it may actually be the opposite, a mechanism that mutes the sense of engagement that is required in order to exist responsibly within the 'agential' world. Perhaps this attempt to virtually 'pull the outside in' is in fact merely inciting a sinister oscillation between

being and non-being? When we are so easily seduced by the authority of the image (as argued by Cubitt) and decisions are increasingly made for us by the virtual mechanisms of AI, the distinctions between what helps and what harms easily become blurred. We enter into a VR ecology from a complex, contingent and very real ‘elsewhere’, an immanent and inevitable point of departure /return for an electronic, dream-like virtual doppelganger, and the rupture with reality can in some instances be profound. We find an epitome of our paradox therein: VR existing as a seduction enabled by nebulous tropes of power that imbue our lived milieus: what if what happens in VR, stays in VR? Ultimately, one has to ask: why ‘virtual’ reality at all? Why not simply ‘reality’, with all its messy, unpredictable, yet incomparably immersive, multi-sensory entanglements? It’s where things actually get done, after all.

The answer is, in fact, simple: because sound and virtual reality, when attentively realized, retain the capacity to teach us novel and important things, extending our horizons such that not only fresh thoughts but entire new sensual ways of thinking can be accessed. Media can reorient, recalibrate, and motivate. It creates a starting point for emergent ways of thinking and being. Furthermore, it can do so in a manner that bypasses a conventional, language-based didacticism and instead “fosters a *sensory* response to lived experience so that audiences become immersed in the sonic and visual elements ... and experience political and economic, animal, and ‘other’ lived experience in *direct, visceral ways*” (Redmon 2019, 99, italics mine). In *Generation Ecstasy*, Simon Reynolds ponders similar issues. questioning the value of the unabashedly Dionysian yet supposedly ‘transcendent’ electronic dance club experience in relation to a broader lived reality, asking “Is rave simply about the dissipation of utopian energies into the void, or does the idealism it catalyzes spill over into and transform ordinary life? Can the oceanic, ‘only connect!’ feelings experienced on the dance floor be integrated into

everyday struggles to be ‘better at being human’?” (Reynolds 2013, 10). Once again, the answer is a resonant ‘yes’: for Reynolds ultimately finds “this ‘mindless’ music endlessly thought-provoking. And despite its ostensibly escapist nature, rave has actually politicized me, made me think harder about questions of class, race, gender, technology.” (ibid.).

These ‘questions of class, race, gender, technology’ are ones that we urgently need to be engaging with. The often-abstracted nature of these issues (at least to those who continue to enjoy a position of socio-economic privilege) might benefit from a more embodied comprehension of what is at stake. Using immersive experiences to address questions that are ultimately profoundly corporeal is certainly not without precedent; one can think of Alejandro G. Iñárritu and Emmanuel Lubezki's immersive VR installation *Carne y Arena* as a case in point: recreating an encounter between Mexican migrants attempting to cross into the U.S. and American border officials – an everyday occurrence in Southern Texas – the experience is billed as an attempt to “explore the human condition ... and claim the space to allow the visitor to go through a direct experience walking in the immigrants’ feet, under their skin, and into their hearts” (see <https://www.eyefilm.nl/en/themes/carne-y-arena-virtually-present-physically-invisible>). Visitors have described the piece as harrowing, but also as a profoundly moving insight into a human condition they had (presumably) already been aware of, but failed to truly, affectively apprehend; in some instances, the experience brought auditors to tears (Kwong 2018, n.p), a welcome and perhaps necessary instance of VR living up to its reputation as an ‘empathy machine’.

*Carne y Arena* is, of course, a large-scale production directed by a well-established and well-funded director, one who in many respects is a stalwart of the mainstream Hollywood film industry. This is not to say, however, that enormous budgets need be a requirement for the

generation of genuine affect. Sound offers a similarly resonant starting point in terms of achieving a sensual assimilation of the ineffable aspects imbricated within daily realities. Pedagogy scholar Walter S. Gershon, for example, recognizes that “sounds combine to form systems of meaning that can serve to simultaneously transmit, reify, challenge, or reinvent sociocultural norms and values” (Gershon 2011, 66). Drawing heavily from the discipline of acoustemology and its interest in how sounds form powerful systems of meaning, Gershon identifies that “such meaning systems have lead to a reconceptualization of how people interact with one another and their environments as well as a reconsideration of the ideas and ideals that contextualize those interactions” (ibid.) – a distinct analogue to the experience and intentions evinced in both the blockbuster *Carne y Arena* and *Contained*. Gershon goes on to unequivocally claim that “sounds are educational systems” (ibid.) and that when deployed under a broad, multi-sensory umbrella, are particularly well-poised to draw together “disparate threads ... from the fields of sociology, cultural studies, media studies, anthropology, cultural history, philosophy, urban geography and musicology” (ibid.), a list to which I would add ‘politics’, ‘science’ and ‘ethnography’. To summarize, sound has the capacity to disrupt conventional ways of thinking, offering perspectives (I use the ocular term here intentionally) that are perhaps not ideally served by the visual; this is, in short, the key premise of the *Contained* project. When deployed in its sensually-augmented spatial and haptic form and allied with an immersive visual corollary, one can assume (or at least hope) that a corresponding intensification of resonant sensory effects and affects that ultimately inform our understanding of the real world might be the outcome.

### **3. Audio-led VR as a Pedagogical Tool**

The empathic and expansive capacities of audio-led VR suggest that it might be ideally suited for articulation within an educational context, not only as a dissemination platform but also as a forum for creation. The integration of VR technology into school classrooms is certainly beginning to occur, though still on a limited level and with a bias towards traditional applications. The website for VR tech company *i3-Technologies* (which specializes in supplying virtual reality systems for businesses and education), for example, is representative of an uninspired approach that remains somewhat typical: “besides making virtual museum visits much more immersive, it can help chemistry or biology students conduct experiments in a safe environment” – nothing of the sensuous and potentially mind-bending, experiences that immersive environments might enable here, kids. On the other hand, several studies examining the educational capacities of virtual reality do stress its efficacy in terms of generating a more embodied awareness and a corresponding, all-important sense of agency with respect to pressing issues that tend to remain abstracted from many individuals’ daily realities. In many instances, the perceived remoteness of these problems, such as environmental depletion, also remain resistant to traditional ‘descriptive’ textual or video-based interventions. Research into behaviours involving environmental accountability undertaken at the University of Georgia, for example, found that the significantly increased corporeal stimuli experienced in Immersive Virtual Environments (or ‘IVEs’) had a significant pro-active impact on user behaviour: “The effect of IVEs on environmental locus of control and behavior was consistently stronger than print and video”; the researchers go on to note that “the affordances of the medium that allows users to viscerally experience and interact with the mediated content may lead to greater behavioral changes compared to simple visualization” (Ahn et. al. 2014, 242). The study

concluded that “As a result of this increasing ubiquity of the hardware and the software among general consumers, the future holds much promise for using IVEs to develop and disseminate messages to promote environmental behaviors” (ibid., 243). A promising start, certainly, but an approach that could easily be extended to encompass a broad range of both small and large-scale circumstances that consistently elude much-needed reflective and reflexive consideration. Furthermore, the integration of a sonic component in such experiences continues to evade scrutiny (again, a visually-oriented word that I use intentionally) – there is still much that remains to be explored.

Such are the benefits in terms of virtual spectator/auditorship, but, as stated at the beginning of this chapter, *Contained*’s concerns also lie in questioning modes of media *production*: how might *making* audio-led VR generate an active – even activist – engagement with sound and the world-at-large? A pragmatic approach would be to begin with sound: integrating field recording as a component of school curricula (perhaps initially as a way of supplementing ‘conventional’ music classes) with an ear to fostering a deeper understanding of the diverse, yet often unnoticed environments and realities that overlap and penetrate our own would be a relatively straightforward matter. The near-ubiquity of cellphone ownership, for one, could be leveraged to this end: most current smartphone devices are capable of recording high-quality audio files and professional-quality audio software (such as Audacity and Reaper, among many others) is available for free. In the event that a student may not have a capable smartphone device, higher-quality recorders (such as the Zoom H1n) can be purchased for very reasonable prices to serve as permanent classroom resources<sup>1</sup>. Establishing an early awareness that cellphones can be engaged as political tools also bears some consideration; after all, smartphone-captured video has already played a significant role in raising issues of and mobilizing responses

to institutionalized police brutality<sup>2</sup>. Smartphones' audio capabilities remain subjugated to the optical, though there is no reason to think that an active foregrounding of their latent sonic capabilities might not generate similar instances of citizen engagement and empowerment.

Emphasizing smartphones' multi-modal recording and playback features would perhaps also help alleviate one of the more common criticisms regarding the educational integration of VR: the perceived cost of implementation. Low-cost smartphone-based dissemination systems such as Google Cardboard present an extremely practicable entry point; they can, in fact, potentially offer audio/video resolution as well as head-tracking capabilities that are comparable to their more expensive, purpose-built counterparts. Although tools for VR production might initially appear to be less accessible, freeware apps such as DaVinci Resolve, Unreal and Blender offer powerful editing capabilities that in many instances rival those of their paid counterparts. Granted, these platforms can be somewhat lacking in user-friendliness, thus compromising their usefulness at early education levels, but in the absence (for now) of more uncomplicated software platforms, this is an issue that can be overcome, at least to some degree, with the use of free downloadable assets and scenes. Having worked as a media arts educator for several years, I find that the ability of young people to grasp the workflows of new technologies is consistently underestimated. I am convinced that enabling early access to media production tools would lead not only to a promising new generation of creators but would also help foster a more critical ear and eye with respect to the consumption of media content.

#### **4. Recommendations and Possibilities for Further Exploration**

Whether articulated in an educational context or not, the efficacy of a medium ultimately remains grounded in its conceptual and aesthetic execution. With respect to the sonic-cinematic



theoretical and artistic methods adopted within *Contained*, there exist several hauntological unexplored permutations and extrapolations that warrant further investigation.

Firstly, there is the question of spectatorship; *Contained* has been optimized for a headset-based ecology, this largely due to pragmatic issues such as ease of access to the dissemination technology during the production process (a concern greatly exacerbated in this particular instance by accessibility limitations imposed as a result of the COVID epidemic), the facility with which haptic accessories can be integrated, and maintaining consistent and predictable sound reproduction characteristics. Headset-based audition is, however, a solipsistic and self-contained environment that is somewhat at odds with the relational capacities of sound that this project aims to foreground. Consequently, further investigation into dome-based or quadrilateral dissemination (which has already been initiated with the *Radiograms* immersive project described in chapter seven) is warranted: how might user interaction with ‘real’ space and fellow auditor/spectators be assimilated into the narrative flow of an immersive work?

My own experience with projected immersive AV works has so far been mixed; in a predominance of instances (most recently during a series of multi-channel dome-based projects presented for the 2023 edition of the MUTEK festival’s ‘Satosphère Series’), the audience has either remained passive, as in a traditional cinema-based context, or, conversely, treated the sound/projection as club backdrop rather than content to be engaged with. This is not necessarily problematic; rather it suggests that the modes and expectations of spectatorship continue to remain grounded in traditional audiovisual formats. Durational ambient films such as Andy Warhol’s *Empire*, however, gesture to some intriguing (albeit in this particular instance, unfortunately also soundless) ideas in terms of how spatial audiovisual content might be re-contextualized. Justin Remes has stated that eight-hour works such as *Empire* “are best

understood as *furniture films*, works that open up new ways of thinking about cinematic reception” (Remes 2015, 64, italics in original) – atmosphere-generators, in other words. I am convinced that there are many other possible manifestations of such ‘in-between’ audio-visual spaces – architectures of image and sound – remaining to be (re)discovered. One might also consider how such multisensory spaces can be articulated as a type of cinema for the sight (or otherwise) -impaired, optimized to engage multiple senses via the integration of haptic floors, furniture and objects, fragrance dispensers, even bespoke cuisine and so on. This is in many respects a hearkening back to the ideals and provocations of the multi-disciplinary and participatory ‘happenings’ of the 1960s as well as the future-thinking cinematic architectures of Montréal’s Expo ’67 – not new ideas, simply lost futures.

Secondly, the integration of interactivity also merits further consideration. *Contained’s* audiovisual environments are static, offering only three degrees of freedom (rotational movement around the x, y, and z axes). Extrapolating the liminal spaces of this project into an open-world environment offering six degrees of freedom (commonly referred to as ‘6DoF’), that is, a virtual space that can be freely explored and interacted with is an obvious next step. As described earlier in this text, prototype works investigating user input (movement but no interactivity) underwent testing during production but were compromised by several factors, most significantly the lack of a long-range scanner that would enable the incorporation of accurately-rendered ‘real’ spaces into the work (a long-term loan of such a device from Montréal’s Hexagram Research-Creation Centre had to be curtailed due to COVID) and difficulties articulating a cohesive and compelling narrative component. These issues, however, are certainly surmountable. Furthermore, 6DoF audio recording technology (such as the Zylia system, see <https://www.zylia.co/zylia-6dof.html>) is now being offered that enables the

simultaneous capture of sound fields from multiple points in an environment, essentially allowing the sonic (re)creation for a 3D acoustic space. Such technology presents fascinating possibilities in terms of field recording as well as for supplementing, perhaps even replacing, traditional object-based audio within interactive immersive environments.

Thirdly, the tactile component as presented within *Contained* remains rudimentary. This is largely the result of the limitations of current consumer haptic technologies, which have not yet been optimized for the more nuanced tactile responses that are required for an audio-led virtual reality project such as *Contained*. All of the mass-market haptic interfaces tested for the project were configured with a single, localized transducers (on the Subpac, for example, the driver is located on the wearer's back), rather than distributed over the user's body; as a result, the somatic effect was unconvincing as it failed to replicate the enveloping sense of vibration that would characterize the source experience. Furthermore, the haptic response was primarily concentrated within a relatively narrow frequency range, one that favoured a rhythmic musical mix or percussive video game sound-effects such as gunfire, rather than a sustained, textured source. As a result, the experience often proved to be harsh and distracting rather than immersive<sup>3</sup>. Wearable haptics is a field in which significant developments are being introduced, however: new devices such as the Teslasuit (see <https://teslasuit.io/>), which integrate haptics with motion capture and biometric sensors offer some tantalizing possibilities in terms of enabling embodied, immersive, audio-tactile-visual interactive experiences.

Hardware such as the Teslasuit and Zylia 6DoF recording system remain extremely costly, however, so what of the latent potential residing in the accessible, reflective, and autarchic mode of audio-led VR production such as that espoused with *Contained*? My hope here is simple: that this project might serve as impetus to encourage others to do something

similar. I am aware that this may initially smack of naive idealism, but there are precedents here that are worth considering. One could turn an ear to the revolution in music production that occurred as a direct result of the democratization and repurposing of supposedly obsolete hardware tools that occurred in mid-1980s suburban Detroit as well as in the later, cracked software-initiated wave of bass music that emerged in mid-to-late 90s East London. These surges in hardware/software accessibility initiated profound sea-changes that continue to resound, resulting not only in new forms of music, but profound transformations that have extended beyond the boundaries of art and entertainment to bear significant impacts on both individuals and society as a whole. I would like to think that instead of repurposing old Roland drum machines or using cracked copies of Fruity Loops on second-hand PCs, the next revolution in production will involve people scavenging old LiDAR-equipped iPhones and iPads to create new worlds in freeware programs such as Blender and Unreal, mixing immersive soundtracks in Audacity and Reaper and uploading a new form of immersive microcinema to Vimeo and YouTube<sup>4</sup>. I believe that it is the role of us educators to facilitate this; I can't wait to hear what happens.

### **Endnotes:**

1. Smartphone-based sound recording is something that I've integrated into many of my own syllabi, though these have been at the graduate and undergraduate university level. What I am suggesting here is a significantly earlier introduction to the practice, i.e. at the elementary school level.
2. The *Wall Street Journal* even went so far as to publish an article stating that cellphone recordings of police violence against African-Americans 'changed history', see

<https://www.wsj.com/articles/they-used-smartphone-cameras-to-record-police-brutalityand-change-history-11592020827> and <https://www.youtube.com/watch?v=-FEGcJeGeBg>

3. The immersive vibratory effect *Contained* sought to achieve proved to be far more convincing when audio was disseminated through a conventional (i.e. 5.1) LFE-enabled spatial sound system or studio-quality closed-back headphones.

4. This wresting of artistic control away from corporate structures is, of course, a matter of degree and far from absolute. YouTube, Vimeo, as well as all the networks, hardware and software involved are still the products of large, globalized institutions. This is not to say, however, that low-cost and effective subversion of established protocols cannot occur from within these same systems. I would in fact argue that there is no other possible position to take.

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