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MASTER OF FINE ARTS
RESEARCH PAPER

TURBULENT GEOMETRY: INSIDE AN INFINITY ROOM
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This volume is presented as a record of the work undertaken for the degree of Master of Fine Arts at Sydney College of the Arts, University of Sydney.
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ABSTRACT

David Toop says “air and sound are much the same: we breathe sound and listen to air.” This poetic conflation highlights air as our common living space and a significant medium for sound. We move through air and use sound to locate ourselves and connect to other people. Sound is, however, more than a signifier or a by-product of other activities: it is a kinetic energy that requires a material reading based on its physical properties and implications.

This thesis looks at sound in immersive installation art and performance through the praxis of air. It explores three specific themes: that sound comprises movement; that sound typically travels through air; and that sound’s constant expansion within air invokes tension. This tension is examined from three perspectives: the movement of sound against boundaries (chapter one), the movement of the spectator within sonic territories (chapter two) and the movement of performers instigating and modulating sound (chapter three). I discuss works by several artists – primarily Janet Cardiff, La Monte Young, Alvin Lucier and Phill Niblock - as well as works I have created during my MFA. I also draw on theorists within the fields of atmospherics, installation art and sound including Jill Bennett, Claire Bishop, Stephen Connor and Brandon LaBelle.

Furthermore, this thesis details a creative practice I have developed to explore these ideas. An Infinity Room (AIR) involves positioning multiple consumer synthesizers in geometric formations that define architectural features within different spaces. The keys are weighted or propped open to infuse the air with drones. This establishes self-perpetuating airspaces – ‘infinite rooms’ of sound – that transform so-called negative space into positive fields of activity. The project’s taut parameters instigate and frame emergent phenomena such as sound and movement and engender a dynamic situation I call ‘turbulent geometry’.
FOREWORD

My father died at exactly the age I am now. Inscribed on his grave in country Victoria is the phrase “spin the air.” I only remembered this recently. It sums up the aim of this research, which is to observe and instigate activity within the air through sound.

My father was a musician and loaned me my first synthesizer when I was nine, a small Casio keyboard from the 1980s. It resembles the instruments I have used within my work over the past four years. My father co-wrote and accompanied my first pieces and despite being unemployed paid for my earliest composition lessons. Thanks to his encouragement I began to learn the piano – badly – and went on to first study music at university.

My subsequent artwork is an indirect way of reticulating this history. The practice outlined in this thesis thwarts traditional virtuosity and veers between honouring and denying the keyboard, at times spearing metal rods through its keys. Nonetheless the research emerges from my deep curiosity towards and love of sound first sparked by my father.

This paper is dedicated to him.
INTRODUCTION
BREATHING SOUND AND LISTENING TO AIR

_We live immersed in a vast but invisible ocean of air that surrounds us and permeates us and without which our life must necessarily escape._

Don Ihde¹

_Can man live elsewhere than in air?_

Luce Irigaray²

I write this on what was a quiet spring morning. Four doors down the neighbours are building a garage. The sound of their power saw carries through birdsong across several backyards into my head. I get up and close the door but I can’t escape its drone.

This thesis addresses the movement of sound and people within the specific medium of the air. The paper foregrounds the experience of listening to, and making, sound by emphasizing the physicality of that which it travels through, the atmospheric strata shared by all. Focusing on these invisible yet ever-present phenomena makes notions such as territory, agency and connection more apparent.

Humans depend on air at all times. Billions of people breathe together and live within common spaces. Yet air doesn’t align with human borders, as can be seen (or heard) by the power saw in the garden. Sound is one way to highlight air’s presence and pervasiveness. It is a communicative dynamic energy that spreads through air and connects the bodies within it, refusing social and geographic perimeters. It is innately political and apolitical.

Caleb Kelly says that “sound is now an integral part of art ... yet its presence is too often ignored”³. He highlights the abundance of sound in “screen-based, performance-based and participatory-based practices” but laments that visual arts writers are not often equipped to discuss sound critically. Similarly, Christoph Cox claims “the broader field of sound art has been ignored by

¹ Don Ihde, _Listening and Voice: Phenomenologies of Sound_. 2nd ed. (New York: State University of New York Press, 2007) 3
² Luce Irigaray, _The Forgetting of Air in Martin Heidegger_, trans. Mary Beth Maider (London: Athlone Press, 1999) 8
musicologists, art historians, and aesthetic theorists". He suggests that the problem is that, unlike text and visual art, sound evades contemporary critiques based on “representation and signification” despite its social and historical groundings.

Cox offers a solution. He says that “the sonic arts are not more abstract than the visual but rather more concrete, and that they require not a formalist analysis but a materialist one.” He goes on:

... sound and the sonic arts are firmly rooted in the material world and the powers, forces, intensities, and becomings of which it is composed ... [therefore] we might begin to treat artistic productions not as complexes of signs or representations but complexes of forces materially inflected by other forces and force-complexes. We might ask of an image or a text not what it means or represents, but what it does, how it operates, what changes it effectuates.

This paper embraces materiality and highlights sound in art through the locus of sound’s most common physical medium. This allows us to consider sound’s implications through broader themes such as movement, manipulation and meeting. Whilst it is not primarily focused on physics or acoustics, it looks towards meanings that are physical rather than symbolic.

I deal with three interrelated themes. Firstly, that sound involves and invokes movement. Secondly, that this movement is typically through the air. Thirdly, that sound’s travels engender a tension between movement and stasis. I call this praxis ‘turbulent geometry’. The paper examines this from several perspectives and draws out a creative strategy that deals with its implications, an ongoing project called An Infinity Room.

**Sound and air**

In his book *Sinister Resonance*, David Toop says “air and sound are much the same: we breathe sound and listen to air.” Whilst Toop's conflation is clearly poetic, the basic relationship he evokes is clear. Our most common experience of sound is through air. Wherever we breathe or freely move about - our basic living space - we can absorb sound. Air’s ubiquity can provide a framework to

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4 Christoph Cox ‘Beyond Representation and Signification: Toward a Sonic Materialism’ in *Journal of Visual Culture* 10, no.2 (August 9 2011): 145
5 David Toop, *Sinister Resonance* (New York: Continuum, 2011) 211
investigate the physicality of our bodies, our bodies in space and our relationships to other people, as enhanced by sound.

Brandon LaBelle emphasizes the interconnection between sound and air in his essay “Sharing Architecture”. “As the oscillation of air particles, sound is the diffusion and refraction of energy moving through the medium of air and, further, as structure-borne energy in the form of vibrations passing through walls and floors.” This description highlights several crucial tenets of this paper. Firstly, sound is a form of energy that moves through space. Secondly, this movement is primarily through air. Thirdly, sound operates differently within the more solid structures that contain it, the “walls and floors” of architecture.

Fig 1. Tomas Saraceno, Poetic Cosmos of the Breath, 2007

Focusing on air as a transmission matrix for sound enables further possibilities. We can view sound as trans-disciplinary, aligning it with artwork that deals with atmospheric phenomena like steam, odour and temperature. As such we can compare artwork that uses fog to fill and define spaces, such as that by Kurt Hentschlager, to similar works by La Monte Young and others that use sound. We can use air to understand sound’s notorious promiscuity, attested by countless group exhibitions in which sound works blur with other works. We can

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7 Air can also travel through solids and liquids. Artworks that exploit this include Laurie Anderson’s Handphone Table (1978) and Max Neuhaus’s Water Whistle III (1972).
also separate sound sources from their affect, shifting the emphasis from the objects to the connective tissue surrounding them. This ports with the fields of relational aesthetics and affect theory.

Overall, my research depends on a simple chain of premises. Sound comprises movement in the form of vibration and expanding waves which must occur within space. This space is sound’s medium (its means of distribution) and is most commonly the air. Sound’s movement within this medium depends on several mediating factors including the physical shape and constituency of a space, atmospheric conditions and the presence and movement of people. Sound’s movement within air is thus complicated and can appear unpredictable. Just like wind or temperature, it may be described as turbulent.

As an artist I create situations that engender and capture this turbulence through strategies involving geometry. I position sound sources in geometric formations within enclosed architectural spaces and I also enact performances using strict patterns. This attempt to contain or frame the expanding movement of sound and of people within taut parameters establishes ‘turbulence within geometry’ or a turbulent geometry.\(^8\)

This study examines this tension of sound from three perspectives, each aggregating a form of movement – the movement of sound against boundaries (chapter one), the movement of the spectator within sonic territories (chapter two) and the movements of performers instigating sound before a listening public (chapter three). The focus is limited to homogeneous sound—the distribution of identical sonic units—as a means of ‘containing the spread’.

My focus is not primarily on air. The field is too large, too diffuse and, as Steven Connor asks, “how does one study a substance that is everywhere?”\(^9\) However, true to form, air maintains a consistent yet invisible presence throughout and acts as a kind of background noise to the concepts it elicits.

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\(^8\) This axiom depends on the view that sound always involves some kind of tension. This could be, among other things: the physical tension of the sound source which determines the quality or timbre of the sound; the sound source’s displacement in space; sound agitating its medium (air, water, hard surfaces); sound’s promiscuity disrupting human-defined territories. If we consider air to be a form of “background noise” (Jill Bennett “Atmospheric Affects” in *Carnal aesthetics: Transgressive Imagery and Feminist Politics*, eds. Bettina Papenburg and Marta Zazycka, 102-117 (London: I.B. Taurus, 2013) 107) then sound’s journey through this already-noisy medium is embedded with provocative power.

Considering air

Air permeates our lives and from birth to death remains our constant enabler. However, despite its essential role in sustaining life we tend to take it for granted. We acknowledge its remit only at moments of change or dissipation.¹⁰

Air is synonymous with the troposphere, the thin layer of atmosphere hugging the earth also known as the sky.¹¹ Brandon LaBelle describes this “great emptiness above” as a “nebulous matter rich with so many resonances ... the point of departure not only for imagining but for sound as well.”¹² Air’s significance was articulated in the 6th century BC by the Greek philosopher Anaximenes of Miletus, who believed that “as our souls, being air, hold us together, so breath and air embrace the entire universe”.¹³ For Anaximenes air was the primary substance of the universe, infinite and always in motion, linking heaven and humans.

Fig 2. Martin Creed, Half the air in a given space, 1998

¹⁰ Air has been considered broadly in various key texts over the past decade such as Oliver Herwig and Axel Thalheimer Air/Luft: Unity of art and science (Stuttgart: Arnold sche, 2005); Monika Bakke, ed. Going Aerial: air, art and architecture (Maastricht: Jan Van Eyck Academie, 2006); ed. John Knechtel, Air (Cambridge, Massachusetts: The MIT Press, 2010) and Stephen Connor The Matter of Air: Science and the Art of the Ethereal (London: Reaktion Books, 2010).
¹¹ This mostly comprises nitrogen and oxygen with traces of argon, carbon monoxide, methane, hydrogen and nitrous oxide (Bhawani Venkataraman, ‘Earth’s Thin Blue Line’ in ed. Knechtel Air, 223). The composition of this space has been in flux over the past 4.5 billion years and has shifted with the earth’s climate.
¹² Brandon LaBelle Acoustic Territories (New York: Continuum, 2010) 104
Air, however, has proven an elusive domain. Steven Connor suggests that the problem is that air is “neither on the side of the subject nor of the object. It has neither objecthood nor essence. ... The air is impression without presence.”14 Similarly, Bettina Papenburg and Marta Zarzyccka denote that “a focus on air undermines the very notion of an ‘object of representation’ by turning to what is conventionally considered the ‘background’.”15 Yet air’s apparent neutrality can be its strength. Jill Bennett looks to Michel Serres in describing the air as “the baseline for aesthetics; for the investigation of sensory perception and the body’s interface with a living environment.”16 Throughout history, air’s pervasion has triggered disputes over its quality, control and borders (which, by association, extends to disputes over sound). Such contention includes concerns around the environment, health and sustainability. Both Peter Sloterdijk and Bruno Latour caution against air’s dangers, drawing on the horrors of World War I and the way air can silently and lethally reveal contamination.17 Air’s ubiquity also allows it to spread into various critical domains: environmental, territorial, geographic, communicative, social, political, conceptual and sonic. Monika Bakke divides artwork about air into three themes: breath-taking, air-conditioning and living aloft. By ‘air-conditioning’ she means air both within and extending the living space including atmospheric factors devised by humans (“architecture, interior design, electronic technologies”) and outside us in the form of weather and cosmic radiation. This addresses “the relations between bodies and spaces ... how spaces respond to the air users, how buildings open and close.”18

Interestingly, theorists on air often acknowledge sound but in passing, as if the relationship is a given. Therefore, this paper delineates three perspectives on air through which to examine sound. Firstly, air is pervasive and allows for the free movement of sound in all directions. Secondly, air is porous and permeable: we can move easily through it, allowing us to consider our agency and the extent of

18 Monika Bakke, ed. Going Aerial: Air, Art and Architecture (Maastricht: Jan Van Eyck Academie, 2006), 118. One of Bakke’s more arresting images is that of the airport as a vessel for respiration, a junction point that receives and broadcasts information. The human body is as a basic example of this in which the tactility of air correlates to the intimacy of breath.
our domain. Thirdly, air is ‘plastic’ and is largely malleable: we can shape, modulate and condition it.\textsuperscript{19}

In order to examine these aspects I have developed a consistent yet malleable creative strategy titled \textit{An Infinity Room} (or \textit{AIR})\textsuperscript{20} which is an ongoing project that uses homogeneous sound to highlight, delineate and define the existing and potential qualities of different spaces.\textsuperscript{21}

Within this work I establish temporary ‘infinite rooms’ of sound within given spaces - galleries, laneways, foyers, nightclubs, living rooms. These situations operate within existing architecture as material and conceptual fields, “hovering as microspaces within an existing space” to borrow a phrase from Brandon LaBelle.\textsuperscript{22} I place matching vintage keyboard-based synthesizers in geometric relationship to one another according to the dimensions of a site: resting against walls, between windowpanes or behind staircases. I use metal weights or rods to induce drones that infuse the space and charge the air.

\textit{AIR} is realized through two outcomes: installations comprising sculptural interventions\textsuperscript{23} and actions undertaken in time. This accords with Steven Connor’s notions of the ‘spatiopetal’ and the ‘spatiofugal’, space delineated through containment and space created through gesture. The works can be broken down further: heterogeneous and homogeneous installations (those involving similar versus identical instruments); delegated and non-delegated performances (group and solo); works that are hidden and works that are overt. The degree of agency also varies between spectator and performer.

\textsuperscript{19} Air ties in with what my collaborator Luke Jaaniste has called ambience. He defines ambience as “\textit{...that which pervades a place} – that which is all-around, surrounding us in our surroundings, completely enveloping us.” He differentiates ambience from salience, that is from background to foreground attention. This extends Brian Eno: “[ambient music is] music that allows you any listening position in relation to it … music that can be background or foreground or anywhere” (Grant 1982:30 in Jaaniste 38). Jaaniste: “Ambience, then, as that which pervades a place, has always been in the air … [it] is a structural condition of our very existence.” Jaaniste, 36.

\textsuperscript{20} The name \textit{An Infinity Room} references work by two artists: Yayoi Kusama’s \textit{Infinity Rooms}, chambers internally lined with mirrors to create the impression of infinite space, and Doug Wheeler’s \textit{Infinity Room}, a white, apparently empty gallery using light. Furthermore, the German word for room – raum - can also refer to space. An Infinity Room might therefore be poetically translated as \textit{Endless Space}.

\textsuperscript{21} Brandon LaBelle, \textit{Background Noise} (New York: Continuum, 2006) 170

\textsuperscript{22} This echoes composer Alvin Lucier’s motivation towards “articulating spaces” through sound (see Peter Blamey, “Sine waves and simple acoustic phenomena in experimental music – with special reference to the work of La Monte Young and Alvin Lucier” [PhD diss.,University of Western Sydney, 2008]. 191)

\textsuperscript{23} Claire Bishop identifies the “fine line between an installation of art and installation art” (my italics) – Claire Bishop, \textit{Installation Art: A Critical History} (London: Tate Publishing, 2005, rep. 2012) 6. My work features objects installed within different spaces and has been referred to as sculpture however I argue that the sound is the immersive element. This shift of focus from sounding object to the sound spill into the interleaving air is at the crux of my argument.
AIR is site-responsive and adjusts to the layout and sociality of each site. The dimensions differ as well as the flavour, varying between large warm gallery, harsh laneway, serene living room or raucous causeway. However, certain parameters remain fixed: drones, instruments of the same class, synthesizers, sine tones. This allows for a consistent ‘mean’ to contrast different spaces and situations.

The character of the works, however, has evolved through the course of my Masters. Their display has shifted from being more ‘museal’, heterogeneous and overt towards being more space-responsive, homogeneous and hidden. Earlier works such as Ceremony (2009-10) feature a diverse collection of vintage synthesizers resting on spot lit plinths and emanating strong chords. Later works like Requiem (2012-13) respond more finely to the space; keyboards are matched, positioned discreetly under natural lighting and often play at or below the ambient noise volume. In earlier works the keys are depressed using heavy bolts; in later works the instruments are forced apart by metal rods that appear

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24 Sine tones are often interpreted as neutral and lacking in affect. Blesser and Salter dismiss “pure tones” as an example of “auditory stimulus that has no meaning or affect”, best confined to a laboratory context: “Exposed to ‘music’ generated by a computer from a concatenation of tone oscillators in an empty space, you may find the resulting sound (‘music’ and ‘space’) sterile and boring” (Blesser and Salter, 14). I argue that these qualities are useful when applied to artistic situations that function as test states, such as my ‘infinite rooms’. Emptying the situation of obvious emotional triggers heightens the embodied experience of the spectator.
to spear the instruments. This introduces the additional element of ‘pinning’ or ‘propping’.\textsuperscript{25}

I will clarify certain aspects of the project, such as the use of drones, later in this study. However, I will briefly address my reasons for using synthesizers. The use of found objects would appear to align my practice within the readymade tradition of Duchamp and others. However, rather than recodify common objects I wish to celebrate their ‘integrity’.\textsuperscript{26} This aligns my work less with Duchamp (who is nonetheless invoked) and more with Jeff Koons:

\begin{quote}
When I’m working with an object. ... I try to reveal a certain aspect of the object’s personality ... I’m placing the object in a context or material that will enhance a specific personality trait within the object. The soul of the object must be maintained.\textsuperscript{27}
\end{quote}

What characterizes the ‘soul’ of a synthesizer? For a start, they can produce long-held tones. They can also sound perpetually with minimal intervention. This suggests a type of sentience: for me there is poetry in autonomous mute objects being allowed to speak through inorganic means.\textsuperscript{28} I use keyboards for several further reasons. Firstly, they are portable and can be used nimbly in new spaces. Secondly, they are mass-produced and thus relatively easy to procure and replace. Thirdly, they are consumer devices with simple interfaces and restricted parameters, which demands resourcefulness. Fourthly, synthesizers from the 1970s and 1980s can create very simple periodic waveforms, or sine tones. I shall detail this parameter later in this paper.

\textbf{Overview}

This paper comprises three key chapters, each centering on a different type of movement - sound, spectator and performer – and each driven by a particular tension. These tensions are enabled by particular aspects of air – its pervasiveness, porosity and plasticity.

\textsuperscript{25} This aspect reflects strategies of minimalist artists such as Richard Serra.
\textsuperscript{26} Focusing on existing instruments also contrasts with the ‘do-it-yourself’ movement in noise and experimental musics exemplified by artists who either build their own instruments or hack and extend existing instruments. My earlier training as a composer has led me to ‘choreograph’ spatial and social situations from the building blocks around me.
\textsuperscript{27} Jeff Koons interviewed by Klaus Ottman, quoted in Michael Archer, Jeff Koons: One Ball Total Equilibrium Tank (London: Afterall, 2011) 88
\textsuperscript{28} One could also argue for their historic signification, as 1970s and 1980s synthesizers are conspicuously ‘retro’.
Chapter one explores the tension between spreading and containing proposed by Steven Connor in “Building breathing space”, which is applied to the movement of sound within enclosed spaces. Chapter two examines the activating and decentring of the spectator outlined by Claire Bishop in 
*Installation Art*, which is applied to sound works that compel the spectator to move. Chapter three acknowledges the distinction between ambient stasis and atmospheric momentum discussed by Jill Bennett in “Atmospheric Affects”, which is applied to the movement of performers undertaking repetitive tasks across time. Overall these perspectives comprise an overall tension, that between stability and instability – the ‘turbulent geometry’ of the title.

The artworks that have emerged sit at a junction between several disciplines: installation, sculpture, performance and sound art. Although I draw on theories and arguments from several other fields – including architecture, acoustics and atmospherics – my expertise is as a creative artist and I do not dwell on these other disciplines. Rather, these references are intended to enrich understandings of my practice and offer useful theoretical and historical perspectives.

My primary research also involves analysing works by other artists, all of which I have experienced first-hand. This allows me to speak from two perspectives, commentator and spectator. I believe that this type of ‘embodied research’ is important when discussing immersive artwork.

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29 At least two other fields could port with this research, environmental politics and relational aesthetics.  
30 In her book *Installation Art* Claire Bishop acknowledges the importance of such immediate experience as “… works of installation art are directed at and demand the presence of the viewer” (Bishop, *Installation Art: A Critical History*, 11). This seems especially important when applied to sound which is notably vulnerable to misinterpretation in the gallery context. For more on this see Caleb Kelly’s paper “Can someone please turn the work up?” *Art Monthly* no. 225 (November 2009): 7-10.
CHAPTER ONE
SOUNDING AIR: DEFINING AND CONTAINING TERRITORY

Sound ... performs with and through space: it navigates geographically, reverberates acoustically, and structures socially, for sound amplifies and silences, contorts, distorts, and pushes against architecture: it escapes rooms, vibrates walls, disrupts conversations; it expands and contracts space by accumulating reverberation, relocating space beyond itself, carrying it in its wave, and inhabiting always more than one place; it misplaces and displaces; like a car speaker blasting too much music, sound overflows borders. It is boundless on the one hand, and site-specific on the other.

Brandon LaBelle, Background Noise

Brandon LaBelle’s description of sound’s apparent agency is the perfect introduction to this chapter which addresses the movement of sound. Firstly I acknowledges that sound inherently involves movement; it is a kinetic phenomenon. Secondly I examine where sound goes, its territory. Finally I address sound meeting opposing territory: borders and architectural perimeters within enclosed spaces, centring on the tension between spreading and containing proposed by Steven Connor.

Constant motion

In the introduction to his book Background Noise Brandon LaBelle emphasizes the “dynamic relationship” between sound and space. He makes three interconnected points: that “sound is never a private affair”, that “sound occurs among bodies” and that “sound is always in more than one place.” By these points he acknowledges that sound always involves movement of some kind, whether between people or points in space.

Movement occurs at each point of sound’s propagation. First the sounding object vibrates, then the surrounding medium (usually air) compresses and expands in the form of sound waves and finally a series of movements occur in the auditory system as the listener processes the sound. Additionally, the sounding and listening bodies – the object/instrument, performer or

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31 Brandon LaBelle, Background Noise xi
32 LaBelle, Background Noise, x
33 Sound travels differently through solids than gases.
‘spectator’/listener - may also move of their own accord, adding further kinetic complexity.

Fig 4. La Monte Young and Marian Zazeela, Dream House, 1993 -

Within his introduction LaBelle uses verbs to describe sound, denoting its inherent activity. Sound “moves”, “operates”, “escapes”, “expands” and “vibrates”; in turn we “hear” and “listen” to it. Sound is a form of energy and as such is never still. It moves not only when being ‘moved’ (for instance, when performers change notes on instruments or move while playing) but is always moving, always in the process of conveying itself as energy through space.

Movement is thus implicit even when sound appears still. A drone (a long-held steady tone) is only apparently static; constant energy is required to maintain a constant output. La Monte Young and Marian Zazeela’s Dream House is a New York loft space filled with loud drones emanating from four fixed loudspeakers. Whilst this chord stays constant the work is not devoid of movement but is in fact defined by movement. The energy within the room constantly renews itself as sound propels through the space and spectators move about to observe the way the sound appears to change with their bodies.

Similarly, works involving multiple sounding objects are spatial not only because the sound sources are positioned so (e.g. the speakers in Dream House) but because sound is by definition spatial: it moves between subjects, encircling them and journeying of its own accord. In Resonances: Aspects of Sound Art
Bernd Schulz says “... the ear puts us at the centre of a dynamic and energy-filled realm.”\textsuperscript{34} Such a realm needn’t be the obvious thrum of a room full of drones. Most spaces are sounding spaces and can be experienced through their aurality. Sound operates in three dimensions and aligns naturally with architecture and installation.

If we accept that sound is a form of movement then we can view sound art as inherently kinetic. A sculpture contains movement if it also contains sound. My work \textit{Requiem}, for instance, involves and demands movement even though it appears to be still. In one of several iterations I prop two synthesizers within a cupboard and allow the sound to permeate the building. The spectator is compelled to interact with the work, partly because the keyboards are at a spatial remove but also because the sound travels freely through the entire space. Nonetheless, \textit{Requiem} has no obvious moving parts and appears rigid.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure5.png}
\caption{Julian Day, \textit{Requiem}, 2012}
\end{figure}

Sounding objects have a complex relationship to space because even when immobile they can assert their presence from afar. In \textit{Acoustic Territories} Brandon LaBelle queries “Where do sounds come from and where do they go?”\textsuperscript{35} Such a question differentiates the source of a sound – the human voice, a trumpet, a synthesizer – from its subsequent journey. By focusing on the

\textsuperscript{34} Bernd Schulz, \textit{Resonances: Aspects of Sound Art} (Heidelberg, Germany: Kehrer Verlag, 2002)
\textsuperscript{35} LaBelle, \textit{Acoustic Territories}, xvii
transporting medium we can partition the sounding objects from their affect. All of my artworks in this paper consciously play with this relationship between sound source and interleaving space.

Positive and negative space

Objects coexist with space and thus the perimeters and properties of an artwork can be easily misunderstood, as identified by Oscar Lopez:

Since the space of installation represents an empty space, it can be all too easily overlooked. As any other space, the space of installation may therefore be filled with diverse objects; it can be entered and offers the possibility to move around freely within it. In this sense, the space of installation would appear as being “immaterial”, indeed, non-existent and thus incapable of assuming the role of a medium of art. It is for this reason that our attention is almost involuntarily drawn away from the empty space itself and rather towards the objects within it. As a consequence, the installation is misunderstood as a specific arrangement of objects within space – and not as the space itself.36

Sound solves this ambiguity in that sound really does exist in space as material energy. Labellé emphasizes that sound “... exists not only within but between and around objects.”37 In other words, sound articulates the air between the sound sources and denotes it a recognizable and palpable space. Using traditional visual art parlance, sound can be seen to activate the negative space between objects by positively connecting them. As sound comprises energy, the negative space of air can be as alive and positive as the objects that inhabit it, in some cases more so. When I perform in a nightclub my body, my keyboards and my listeners (all barely active) are the literal objects of the work. However the most salient feature is the dense swirl of vibrations flooding the available air. The negative space, triggered and received here by the human body, is the most palpable aspect.

This understanding has been a significant pivot in my artwork. My emphasis has shifted from collecting readymades and placing them in space to modulating the intermediary space between them. My works therefore activate both the objects

36 Oscar Lopez and Bernhard Leitner, Sound Spaces. URL: http://www.archdaily.com/168979/bernhard-leitner-sound-spaces/ (01 October 2013): np
and the space between the objects, physically implicating the spectator as they interact with the work. This can be seen in an iteration of *Ceremony* in which I position keyboards about the perimeter of a gallery. This activity is less about museal display and more about maximizing the available floor space afforded to the spectator as they ambulate through the room. In such works, the objects and the air they activate are both foregrounded.\(^{38}\)

In her essay “Atmospheric Effects”, Jill Bennett describes the air as a “vaporous surround – like a background noise”. This noise surrounds us at all times; as Michel Serres suggests “It penetrates our bodies, ears, mouths, noses, throat and lungs, envelopes our skin; it is the medium for every signal that reaches the senses.” Bennett invites us to see air as a pervasive noise field, an all-surrounding baseline matrix for inhabiting space.\(^{39}\)

As energy moving through space, sound is always pushing against something - the sound source, air, other people or hard surfaces. Sound is thus a form of tension and is always in tension. If we think of noise as an agitation or disjuncture between things then we could say that noise is a form of dissonance.\(^{40}\) In turn we might also say that sound itself is dissonant. It causes conflict. As it exists within the “background noise” of air it can also be seen as being a part of noise. LaBelle agrees, that sound “incorporates the dynamics of interference, noise, transgression.”\(^{41}\)

If we concur with Paul Hegarty that noise is that which is unwanted then noise can, paradoxically, include consonance. In my site-specific works, a sustained common chord can be as transgressive as a harsh burst of distortion. Disturbance and turbulence are almost guaranteed, regardless of the nature of the sound. Even similar or identical sounds can cause rupture in tandem. As Richard Glover points out, the closer in pitch two identical sources are – the more similar they are – the more dissonant the result.\(^{42}\)

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\(^{38}\) The distinction here between positive and negative space could also be expressed as foreground and background, object and affect or in the words of my collaborator Luke Jaaniste, salience and ambience. (Luke Jaaniste “The Ambience of Ambience.” *M/C Journal*, vol. 13 no. 2 (2010))

\(^{39}\) Here we could adapt Michel de Certeau’s phrase ‘The Practice of Everyday Life’ as ‘The Noise of Everyday Life’ to describe air as a substance upon which we all rely, yet which remains in the background. (Michel de Certeau, *The Practice of Everyday Life*. [Berkeley: University of California Press, 1988])

\(^{40}\) Paul Hegarty disagrees with this. He says that noise is not the same as dissonance, drawing on Michael Nyman’s famous distinction between the avant-garde (as coming from the classical tradition) and the experimental (Paul Hegarty, *Noise/music: a history*, London: Continuum, 2007. 11). I define noise more broadly and think it is possible to consider dissonance to be a form of noise if we think of noise in terms of disruption and conflict.

\(^{41}\) LaBelle, *Acoustic Territories*, xvi-xvii

Claiming territory

As I type this I listen to Phill Niblock’s album *Four Full Flutes* on which four flutes sound a cluster of sustained tones. In addition to the beating tones I expect in Niblock’s music I hear a dissonance that threads between the notes like a trace of silver among lead. After a while I realize that this is not part of the piece but the returning power saw in my neighbour’s garden.

In a porous environment sound is very difficult to contain. Brandon LaBelle describes sound as “an itinerant movement” 43 that “necessarily exceeds itself, washing over spatial borders.” 44 Sound is notoriously promiscuous in its spread. It typically inhabits all available air until its energy dissipates, mediated by reflective surfaces and such atmospheric conditions as temperature.

The potentially tense relationship between sound and the built environment leads to issues around territory. Sound is imperviousness to human borders and its propagation can be a bind or a boon. Socially constructed borders can exist for various purposes – “familial, social, economic, or political” 45 – and are often designed to include or exclude sound. 46 However, expanding sound pushes against these and in many cases exceeds them. It supersedes or contaminates existing boundaries in search of a shared social space. Despite efforts at controlling airspace, sound easily defeats such efforts.

Sound’s promiscuity is notoriously problematic in traditional art spaces. Sound naturally overlaps with other works unless specific measures (headphones, built rooms, wall insulation) are taken. As Caleb Kelly points out, “the gallery has been cleared of all unnecessary elements and painted clinically white, but sound is not so easily cleared away. It is invasive; it intrudes where it is not wanted and escapes its confines, rowdily enjoying its freedom to slip around corners and explore corridors and spaces.” 47 Paul Hegarty concurs: “Sound in the gallery is noise – not only inappropriate until recent times, but it spreads beyond its location, or demands more of a sense of location than a painting, say, requires.” 48

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42 LaBelle, *Acoustic territories* xvi
43 LaBelle, “Short Circuit: Sound Art and the Museum,” *np*
45 This ranges between insulating measures such as walls and windows as well as specific aural spaces such as concert halls, recording studios and theatres.
46 Caleb Kelly, “Can Someone Please Turn the Work Up?”: 8
47 Hegarty, *Noise/Music: A History*, 170
When I create sound works in galleries or public spaces I usually meet degrees of resistance from those who manage the site. This doesn’t necessarily correlate to the ‘noisiness’ of my sound. *Ceremony* featured a collection of synthesizers emitting a simple tonal chord for three weeks within a gallery by a busy street. Within a day the office workers upstairs demanded the work be turned down, well below the volume of traffic noise. Despite the conflict, this was a conceptual coup: white noise usurped the foundation of classical music discourse, the common consonant chord.

![Fig 6. Julian Day, *Requiem*, 2012](image)

**Spreading through air**

You step inside an old terrace house. You hear sustained tones drifting from somewhere upstairs and ascend the narrow staircase. The sounds intensify as you near the large front room, empty except for an assemblage of objects at the far end. Close to the floor are two identical keyboards pinned between parallel walls by long metal rods. The brown plastic keyboards blend into the skirting board but the gleaming metal poles stand out. They force open certain notes, creating the drone field you heard from below.

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49 This practice of pairing resembles the work of many artists including Monika Tichacek and especially the work of Rebecca Horn who pairs musical instruments.
Requiem is a work of mine from 2012. This particular iteration was on the first floor of a building in The Rocks, an historic area in Sydney. There are two components to the work. One is the visual intervention of the two keyboards propped apart. The other is the sound itself, which extends well beyond the instruments. It fills the room and spreads not only down the corridor but up and down a staircase into the floors above and below. The whole building feels alive with this sound and as you move throughout you become aware of the entire airborne space available to you. Your agency and physical presence are unavoidably activated.50

Fig 7. Zelvinas Kempinas, O, 2008

A visual parallel to Requiem is an evolving series by the Lithuanian artist Zelvinas Kempinas called O. There are different iterations of this work, most involving two upright metal fans facing one another some metres apart. Their twin blades create an oppositional force which enables a loop of magnetic tape to dance back and forth between the heads.51 These works comprise tangible, recognizable objects that are effected by an invisible yet ever-present additional element, the air, which proves to be the most significant agent. In both O and Requiem the space is forever buffeted by competing yet identical floods of air; O is more visual and contained whereas Requiem spills invisibly in all directions yet both illuminate the space through animated air.

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50 This work was part of a group show. Understandably not all artists saw this spread so positively.
51 O in turn recalls Damien Hirst’s series Mental Escapology (1991-) in which ping-pong balls and beach balls bob perpetually over upward jets of air.
Containing the spread

In 1919 Marcel Duchamp walked into a chemist in Paris and bought a glass medicine jar. He asked the chemist to break the seal, empty the serum and reseal the vial. Duchamp then took it to New York as a gift to his wealthy friends and patrons the Arenbergs, figuring that since they already had everything else why not buy them some Paris air. The resulting work, a suspended glass ampoule, is known in English as 50 Cubic Centimetres of Paris Air or simply Paris Air. It is not Duchamp’s best-known readymade however it has been described as “the fullest development of ideas Duchamp had begun with the first readymades in 1913.

Paris Air is completely silent however its “bottled atmospherics” evokes the way sound operates in enclosed spaces. In a typical room, air fills all the space that is available to it until it hits a barrier or mediating force, something too solid to pass through or inhabit. This is usually the perimeters of a room (the walls, windows, doors, ceiling and floor). In Paris Air it is the curved glass.

Thus we can observe a critical tension between that which spreads – odour, heat, sound – and that which contains – wood, brick, concrete, glass. Architecture is, classically, the art of building structures to restrict and order forces that would otherwise struggle to escape. Paris Air can be seen as a kind of architecture in microcosm; a crystalline meeting point between that which holds within and that which spills forth.

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53 Duchamp realized that the title was inaccurate as the vial held more than twice that amount of air. He later remade the work to its exact specifications.
55 Paris Air contains several of Duchamp’s tropes. Firstly, as a readymade it takes a trivial object from the everyday world and repurposes it as art. Secondly, by focusing on air it expresses Duchamp’s fascination with the phenomena that humans cannot see such as radio waves and X-rays. Thirdly, like other Duchamp works – such as The Bride Stripped Bare By Her Bachelors, Even (The Large Glass) - it is transparent; one can see right through it. Finally, to whatever extent a visual object can be, it is ‘non-retinal’; it’s the concept that counts even when illustrated in crisp visual terms.
56 Connor, The Matter of Air, 224
57 In this paper I largely limit myself to looking at sound within indoor spaces. The behavior of sound within enclosed spaces is very different to that within open environments (or ‘free fields’) in which reflections play a much lesser role.
Steven Connor speaks about the tension between air and architecture in his 2004 essay “Building breathing space”. In it he focuses our attention upon that which is normally unobserved, the largely invisible medium that underlies so much human endeavour.

Air has traditionally been, not the antagonist of the building, but its unobserved complement. Buildings, like utterances, are articulations of the air. No structure that contained no space, had no cavity in it, could qualify as a building. And yet, though buildings include, enclose and admit air, that air is not thought of as belonging to the building.\textsuperscript{58}

Connor outlines two further ways of looking at this relationship which he describes as ‘spatiopetal’ and ‘spatiofugal’.\textsuperscript{59} The spatiopetal is the classic type of architecture, where space is framed by designing and building structures to enclose it. A city block stands empty through which travels wind, dust, smog


\textsuperscript{59} He draws these two concepts from Heidegger and Irigaray respectively.
and noise; a rectangular structure is built upon the block which seals those things off and establishes its own microclimates within. It’s an outside-in approach.

Another way to order space, however, is from the inside out – the spatiofugal. These structures emerge through opening up or exploding space. This is often achieved through movement: the movement of bodies, for instance, or the ever-expanding movement of air, gas and other phenomena. Connor looks to Gaston Bachelard’s *The Poetics Of Space* for the example of the burrow, whose boundaries are intimately shaped by constant digging and by the perimeters of the body. Connor deems the spatiofugal “precipitated space, made of actions in time”.

So, we have buildings that tend to close in or contain the air and building whose living spaces open out from within. The first is planned and imposed upon the air; the second unfolds through gestures and process, shaped by what happens with and within the air. Connor suggests that the tension between the spatiopetal and the spatiofugal is at the heart of architecture, a tension that pits “… enclosure and partition against the swelling incontinence and importunity of sound, heat and odor.”

**Turbulent Geometry**

The twin concepts of the spatiopetal and the spatiofugal have become very important to me in framing my work, which alternates between installations and performances in which stasis and movement are in constant tension. I tag this ‘turbulent geometry’. The turbulence is the continually moving, contingent and ever-expanding sound field and the movement of people instigating and reacting to it; the geometry is the fixed, ordered parameters against which this field agitates. My project An Infinity Room is a means to study this clash between stasis and movement.

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60 Connor, ‘Building Breathing Space’ 122
This duality is exemplified in an installation by this name. *Turbulent Geometry* (2013) inhabited a glass-encased gallery within a large public square in Canberra. It appeared empty from the outside\(^6^1\) but its visual blankness was counterpointed by aurality. The space was in fact flooded with pure tones from two synthesizers hidden within the ceiling at opposite ends of the room. This spatial separation meant that the notes intersected at the central point triggering turbulences within the air and vibrations abutting invisible walls.

*Turbulent Geometry* presented a paradox, a play between apparent materiality and immateriality. The objects were visually ‘dematerialized’ yet the materiality of the space was amplified. All available air became charged with sound which heightened one’s movement as each step invited aural differentiation.\(^6^2\) The spectator, encouraged sonically to experience their entire footfall, typically moved at the far end to look through the floor-to-ceiling glass. The exterior civic space appeared muted yet also hyper-coloured by the constant soundtrack. This experience conjured Duchamp’s love of transparency and indeed *Turbulent Geometry* acted as a giant, sounding *Paris Air*. It exhibited a dance between the

\(^6^1\) *Turbulent Geometry* continues a long trend of apparently empty galleries, a history dating from Yves Klein’s invisible 1957 exhibition in Paris.\(^6^3\) Despite their visual similarities, each iteration of the empty gallery carries a different meaning; some are overtly political, others more conceptual, all taking us beyond the ‘merely’ visual.

\(^6^2\) This dematerialization aligns with a broader trend in art of the 20\(^{th}\) and 21\(^{st}\) centuries toward the ephemeral or immaterial. Minimalist sculpture, performance practices and post-object art have all attempted, in different ways, to dissolve the art object in favour of the environment, context or concept.
spatiopetal and the spatiofugal; the hard geometry of the rectangular glass chamber containing the ever-swirling discharge of expanding sound.

**Summary**

This chapter examined the movement of sound through the air, invoking its territory and interaction with architecture. The key axioms included the movement of sound, transforming negative space into positive and the conflict between sound’s spread and the hard surfaces it abuts. This tension is encapsulated by Steven Connor’s distinction between the spatiopetal and spatiofugal as well as installations of mine such as *Requiem* and *Turbulent Geometry*. By infusing the airspace within enclosed spaces these works implicate the spectator, which is explored further in the next chapter.
If the sole function of architecture is to organize space, then it is not an eminently visual practice, but an experience of being submerged, of movement and physical presence in an interior.

Juan Elvira

You step through a cold industrial chamber into what appears to be an infinite abyss of fog, flashing light and sound. You cannot see further than several centimetres and you hold your hands out to garner a sense of depth. With no visual outlines your attention turns to your breathing, your sense of balance and the perimeters of your body.

Although not solely involving sound, Zee by Austrian artist Kurt Hentschlager emphasizes two axioms explored in this chapter. Firstly, as a spectator you are offered autonomy. In fact, the work only makes sense when you move about. However, you cannot easily locate the source of the sensorial information and your freedom is challenged by a lack of destination. This imperative between movement and stasis echoes Steven Connor’s notion of the spatiopetal and spatiofugal and is a crucial duality in this chapter.

Whereas the last chapter looked at the movement of sound through the air, this chapter looks at the movement of the spectator. Further, it examines how sound within immersive installations can both liberate and undermine this movement. Firstly it acknowledges notions of space as anthropocentric. It then introduces sound as a tool for locating the body within space. Finally it examines how this can be thwarted through engulfing or coercive strategies that implicate the movement of the body.

The chapter pivots on a tension articulated by Claire Bishop: the activation and decentering of the spectator. This axiom is applied to sound by looking at La Monte Young and Marian Zazeela’s Dream House, Janet Cardiff’s The Forty Part Motet and several works of mine that activate the spectator yet disorient through the heterogeneous or homogeneous distribution of sound.

63 This work formed part of an established tradition of art using fog or steam, both in open and closed environments, by artists such as Ann Veronica Janssens, Fujiko Nakaya and Olafur Eliasson and Anthony Gormley.
In his 1963 book *Human Space*, the philosopher Otto Friedrich Bollnow set about systematizing what he called ‘experienced space’.

This theory differentiated “between the abstract space of the mathematician and physicist and specifically experienced human space.”

Bollnow considered mathematical, or Euclidean, space to be homogeneous, unstructured, regular and neutral, a type of space that “extends in all directions into infinity”. In contrast, experienced space centres on the human body with “qualitative differences” based on one’s physical and emotional experience of space. Human space begins firstly as “a closed finite space” and through “subsequent experience ... open[s] up to an infinite extent”.

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64 There is not room to go into depth about the history of spatial theories in this paper. These include theories by Euclid, Descartes, Newton, Liebniz, Einstein and many others. However, it is useful to consider the turn towards people-oriented space made by phenomenology and by such writers as Bachelard, Bollnow and Lefebvre.


66 Bollnow, *Human Space*, 19
Similarly, in his book *Real Spaces* art historian David Sommers proffers that “real space is ultimately defined by the human body, more specifically by the body’s finite spatiotemporality. ... Real space is to be distinguished from the co-ordinate, mathematical space of classical modern physics, the metaoptical space.”

These anthropocentric views of space resonate with Steven Connor’s broader notion of the spatiofugal. They also challenge the idea of the ‘void’: space as abstract, neutral or empty. When Yves Klein emptied a Paris gallery in 1957 he replaced its interior with “ambiance”. His initial motivation was to negate the need for paintings and instead fill the room with “the medium of his own consciousness and energy”. Those who turned up, however, discovered that his act was not purely conceptual. They could physically enter the construct; The Void was not empty but comprised actual space.

Fiver years earlier John Cage made a similar point in 4′33 in which a pianist sits silently inert, drawing attention to the surrounding rush of ambient sound. This evokes the Buddhist precept: “form is emptiness and the very emptiness is form; ... whatever is emptiness, that is form”. In this work Cage also emphasized human experience by prioritizing the act of listening. As Juan Elvira offers, in reference to architecture:

> ... architectural space has been considered the negative of an architectural mould containing interior ... [however, emptiness] is a purely metaphoric notion. It might be understood as immaterial, but in reality it is a substance that occupies the architectural interior, it is a dense space where air takes on a new relevance.

Indeed, in the years after emptying the gallery Klein ‘re-materialized’ space in proposing 'air architecture' – chairs, tables and buildings made of air.

As a material reading of empty space, the binding agent here is the air. As Steven Connor observes, “take away the air, and the empty space you have left still seems to retain most of the qualities of air. The air is unique among the elements in having this affinity with nothingness, in signifying the being of non-

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being, the matter of the immaterial." Through air, space can be viewed not as abstract but as material and centred on human experience.

**Auditory spatial awareness**

Human space is defined, in part, by the means to relocate through space and this is aided by sound. It imparts information about the space (the extent of the territory, its physical constituency) and where we are within it. In their book *Spaces Speak, Are You Listening?* Barry Blesser and Linda-Ruth Salter examine auditory spatial awareness and emphasize that “people can hear passive objects and sense spatial geometry” that we can “‘see’ with our ears.” They use the striking example of blind cyclists who ride through dense forests using verbal clicks as a form of sonar. This notion echoes artist Bernhard Leitner’s term “bodily hearing”.

The authors use the term ‘aural architecture’ to describe the listener’s “emotional and behavioral experience of space.” Aural architecture is “adaptive and dynamic, even though the physical space may be static”. This relates to my methodology of designing adaptive systems within existing architectures, the ‘infinite rooms’ of sound that underpin this research. My work responds to the layout and sociality of a space however it overtakes its acoustic properties through dispersing homogeneous, continuous sound.

A sound’s distinct timbral quality and physical location helps us separate it from the ambient soundscape and affords information about how or where to move. This is compromised when sounds are similar, continuous or evenly distributed. This is illustrated by two sound installations that encourage or discourage movement through space by distributing multiple identical sound sources.

Janet Cardiff’s *The Forty Part Motet* features forty loudspeakers positioned in a large oval. Within each speaker a single vocalist sings their part from Thomas Tallis’s 1573 choral work *Spem In Alium*. Cardiff’s stated intention is to open up the experience of communal singing and allow the spectator to be “intimately connected with the voices. It also reveals the piece of music as a changing construct. As well I am interested in how sound may physically construct a

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70 Connor, *The Matter of Air*, 31
space in a sculptural way and how the viewer may choose a path through this physical yet virtual space.*

When I experienced this work my first impulse was to wander about. I delighted in being able to ‘break apart’ the choir as a unit and instead experience each component up close, differentiating between female and male voices, high and low, solo versus the mass. My movement continually differentiated the sound creating a kaleidoscopic fragmentation of the whole.

Cardiff says that she “wanted to be able to ‘climb inside’ the music”. This echoes the famous inclination of composer La Monte Young to “get inside of a sound.” The spectator is invited to do this in Dream House, an installation within a loft-space in downtown Manhattan created by Young and Marian Zazeela. Large loudspeakers sit in the four corners of a room sounding loud tones that thicken the air with complex vibrations.

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As with Zee you must immerse yourself within the space. Stepping inside, I was overwhelmed by the volume and the massive rush of air from the speakers. The room was alive with sound and the sound changed radically with every step. It was only gradually that I realized the notes were notionally static and that any change was due to my movement. The smallest gesture warped the sound and intimately connected my body to the all-consuming sound field, the “whirlpool of pitches” as Kyle Gann puts it.

Brandon LaBelle describes the experience thus:

... the Dream House is formed at the moment an individual enters the sonic field – Immersed as in a fluid, sound oscillates across a range of frequencies through the movements of the body, enfolding the self in a sonic architecture that cannot be said to either exist or not, for while dimension is articulated, space recedes as predicated by walls.

This spatial ambiguity is due to the maximal distribution of the identical sound sources and the lack of any change to indicate depth of field. There is no beginning to any note to mark out time or space.

Both of these works offered a great sense of agency yet paradoxically compromised this. Within the Cardiff I quickly realized that there was an ideal place to listen. The circular array encouraged me to gravitate towards a central point where I could hear all speakers equally and ‘complete’ the fragmented choir. In Dream House I initially moved about until I discovered that the smallest movement instigated a major bodily effect: simply shifting my head slightly was enough. Furthermore, there was little reward in moving in any particular direction. From moving about freely I ended up sitting, then lying, on the floor in the centre of the room. As I ‘got inside the sound’ I became at one with it and my sense of ego reduced. My initial freedom stalled and I became simultaneously enhanced and diminished.

The Forty Part Motet and Dream House exemplify what Claire Bishop calls ‘mimetic engulfment’, works that “dislodge or annihilate our sense of self ...
space is diminished, because this space is obscured, confused, or in some way intangible.”

Unlike minimalist works that seek to heighten one’s sense of self, such works reduce this by overwhelming and ultimately eclipsing the body with endlessly repeating mirrors, darkness, light, viscous fluid or sound.

*Dream House* initially heightens the physicality and boundaries of your body. However, the unchanging drones, replicated exactly in the four speakers, quickly subsume you into the non-differentiated sound mass until you “coincide with the space”. This invokes the ‘ganzfeld’ favoured by Doug Wheeler and James Turrell, a type of “perfectly homogeneous visual field ... void of temporal and spatial information.” Such spaces thwart any sense of temporarily or spatial depth through an excess uniformity of information, a “uniform emptiness”.

Both works demonstrate two core yet conflicting conditions of installation art outlined by Claire Bishop in her book *Installation Art*. Firstly, as a spectator you are activated. You are impelled into action with the agency to move about and choose where you go. Your experience of the work is the work. Bishop argues that because installation art presents elements such as “texture, space, light” (rather than representing them, as with traditional painting and sculpture) the viewer is engaged and emancipated. They are “addressed directly” and are invited to experience the work in an embodied way, by entering into and participating in the work.

At the same time, however, this autonomy is challenged. Installation art manifests a poststructuralist tenet of ‘decentring’ the spectator through fragmentation and destabilization. In contrast to classic visual perspective that positions you in the centre of the world, works like *Dream House* dislocate your sense of ego. Instead of drones happening in front of you, drones happen all around you. You become just one component within the overall work and must consider that your perspective is one of many possible perspectives, along with those of other participants. Of Cardiff’s work in general, Bishop says that “the ego is ‘penetrated’ by sound (rather than space), and is dissolved, as a discrete entity, into its environment”.

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81 Bishop *Installation Art: A Critical History* 82
82 Scott Daly, “The Ganzfeld as a Canvas for Neurophysiologically Based Artworks” in Leonardo Vol 17, no. 3 (1984): 1
83 Daly “The Ganzfeld as a Canvas for Neurophysiologically Based Artworks” : 1
84 Bishop, *Installation Art: A Critical History* 11
85 Bishop *Installation Art: A Critical History* 130
Implication

The Forty Part Motet and Dream House, then, set up a contradictory position. By dispersing the sound they invite the spectator to choose their path through the work yet by relying on symmetry or homogeneity they depend either on an ideal listening position or a reduced motivation to move. Furthermore, by establishing the sound sources at the periphery of the space they demand the spectator’s involvement (there are only two options once you enter the room: engage or leave) and are in this sense coercive. The spectator enters the work and through peripheral engulfing is forced into movement regardless of their will.

My work Ceremony followed this strategy in the first of two iterations. Seven keyboards were distributed equally around the perimeter of a large dark gallery. Each keyboard was a different model and sat on spot lit plinths as in a museum. Heavy bolts weighted different keys on each keyboard – all Cs, all Ds and so on. Collectively the keyboards sounded a chord comprising seven slightly different timbres that shifted kaleidoscopically as the drones intersected in mid air over time.

As with the works by Cardiff and Young/Zazeela, Ceremony offered initial freedom. All possible airspace in the room was delineated through sound, highlighting the ‘negative’ space as a positive space to ambulate. The listener became a conduit of the sound, completing the circuit by walking around and absorbing the emergent patterns. Journeying through the room shifted the ‘weighting’ of the chord as you neared more Cs, for instance, or Gs. However, the best position to absorb the overall sound was in the centre of the space. This created a sense of gradual inertia, like water in the bath running towards the drain. It also created a tension when more than one person occupied the space as the drive to the centre was thwarted by the physical, and implied social, distance between listeners. The space here was structured around the human and, as Bollnow points out, all points in human space are not equal.
The second iteration of *Ceremony*, however, followed a different strategy led by the long and narrow shape of the gallery. Here six keyboards were positioned in parallel sequence a metre or two apart throughout the front gallery of a multi-gallery space. Here the spectator was impelled to take in the breadth of the work to access the other galleries in the exhibition. Moving thus created a similar kaleidoscopic effect to the first iteration except there was no central point to take in the sound. The physical array demanded multiple, shifting viewpoints and a fragmentation of the spectator’s attention.
This coercion has occurred in several other works in which the spectator is afforded freedom whilst implicated in certain pathways of action. Lovers featured two set of matching keyboards pinned vertically between floor and the ceiling by long metal rods. Each pair sat hidden on either side of a doorway leading into the main space of a gallery. By walking through the door you entered into an immediate stereophonic relationship with the work regardless of your intention. More subtly, a recent iteration of Requiem positioned two pairs of pinned keyboards within a busy public thoroughfare. One pair was propped within a window and the other within a hidden nook behind a staircase. The spectator was immediately implicated in the work by entering the doorway; they necessarily took in the window work but then had the choice to seek out the other keyboards if they chose. The chords in each pair were slightly different which added a further reason to move through the space; coercion and agency are themselves paired.

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86 This confrontation echoes Marina Abramovic and Ulay’s Imponderabilia (1977) in which the spectator must pass through a doorway between two naked performers. In Abramovic’s work the spectator must not only confront their attitude to nudity and proximity but also choose which gender to face.
These works depend on transitory spaces such as doors, causeways and corridors. These spaces implicate movement and, further, invoke Marc Auge’s notion of the non space or spaces without history. Paul Hegarty refers to Robert Morris’s *Passageway* (1961) and Bruce Nauman’s *Sound Corridor* (1969) as examples of work that “restructures the space around it, as minimalist sculpture
aims to, introduces listening, and alters the movement of the visitor, setting up a disjunctive space. A performance I gave in a busy laneway using two keyboards and four equidistantly placed speakers implicated the spectator who was required to acknowledge the shifting tones as they journeyed to their destination. The notion of the passageway encapsulates human movement as driven and transitory but open to influence.

As with La Monte Young, a key component of these works is the use of drones. Although they imply stasis, sustained tones induce several forms of movement. Perpetuity affords the spectator time to explore the space. This movement is counterpointed against an unchanging backdrop. Complex patterns of sonic intersection within the air emerge over time. At the same time, flooding a space with drones reduces depth of field and disrupts our knowledge of where we are and how to proceed. As Blesser and Salter acknowledge, “the focus of hearing is on dynamic events” and we navigate through sonic difference or heterogeneity. As drones have no perceivable ‘start’ they are difficult to acknowledge as sound events which compromises one’s position within space. Drones thus create the impression of weightlessness; stepping into a drone field is like stepping into an infinite room in which movement and difference is both highlighted and diminished. Humans move within an already kinetic field, a turbulence housed within the geometry of built space.

**Summary**

As seen in this chapter, air is a pervasive and porous living space. Humans move throughout airspace using sound and vibration as a key navigational and informational tool. Such movement can be triggered, shaped and thwarted through different sonic strategies including equidistant and peripheral positioning, constant tones and homogeneous sound sources. This is emphasized in transitory spaces. These conditions fulfill Claire Bishop’s notion of the conflict between activated and decentred spectatorship in installation art, maximized through the ‘mimetic engulfment’ of endlessly repeated material such as darkness, mirrors and sound.

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88 Starting from simple sounds allows complexities to emerge as wave patterns intermingle over time. The principle of emergence is very important to my practice. In other words, emergence is a kind of complexity that arises out of the combination of simpler processes, related to chaos theory. There is not the scope to delve into this field in more detail in this study however its principles can be seen within almost all the examples of work within this paper.
CHAPTER THREE
PERFORMING AIR: MODULATING AFFECT ACROSS TIME

Where do we see air? Where we encounter its force. The air ripples grass, scuds clouds, and crashes breakers against the shore ... Air suspends, escapes, pressurizes, equalizes.\(^9\)

Doug Knechtel

Hundreds of people stream through a complex of industrial spaces. Several vast halls share the same roofline, separated by porous walls of iron girders. As the public walks through they encounter an expanding sonic territory created by repeated simple gestures. Six performers stand peripherally at different girders, loudly striking the steel skeleton with lengths of wooden dowel in a systematic pattern of attacks. The sound grows and spreads through the available air like a vicious haze. The differentiated roof shapes and irregular maze of rooms trigger a complex halo of overtones that infiltrates the interconnected spaces.

\(^9\) Knechtel, ed. *Air*. 20


*Soundland* is a work created by Luke Jaaniste and I in response to the industrial structures on Cockatoo Island on Sydney Harbour. Across thirty minutes a group of volunteers continually transform the air within the site by undertaking
similar gestures such as repeated rapid strikes that crescendo in intensity. This has an immediate and expansive effect. Their activity sculpts the spectators’ experience of the site and is a further example of the spatiofugal, space generated by continual expanding movement. The accumulation of actions across the duration of such works modulates the quality of the airspace.

This chapter acknowledges air’s plasticity and the potential to manipulate its quality through performance. I focus on performers who instigate complex sound fields by operating, triggering or agitating multiple sound sources that are either identical or very similar. In doing so I deal with a form of ‘air conditioning’ or, to borrow a term from Bruno Latour, “atmospheric manipulation.”91 Whereas the first chapter looked at the movement of sound and the second chapter addressed how audiences change their perception of sound by moving through an airspace, this chapter examines sound that is itself moved via the actions of performers. The spectator may still change their position within a space as they do in Soundland but the emphasis is on the agency of the performer.


This chapter looks at two works by Alvin Lucier and Phill Niblock, composers who deal with the transformation of energy within space through performances involving homogeneous sounds, and several works of mine.

91 Latour, ‘Air’ 105-107
Differentiated air

The past century can be seen as a push towards climate control. Post-industrial society has sought to stabilize the atmosphere by monitoring airflow within work places and temperature within the home. Ironically, this urge to control has coincided with increasing evidence of global climate change. Rebecca Williamson notes recent resistance to such homogenization, pointing to researchers who seek a more “differentiated understanding of our atmospheric environments”. She reminds us of traditional cultures that categorize different qualities of air; in the Mediterranean, for instance, one thinks of the hot Sirocco wind, and the ‘mal aria’ or bad air that infects the body.92

We can control our immediate space by manipulating positive material (objects, hard surfaces) and the so-called negative space between objects, the air. This has always been a factor in architecture – windows, for instance, not only modulate light but also monitor airflow. Factoring the atmosphere, however, seems especially resonant now with trends towards more environmentally sustainable design and the work of architects such as Philippe Rahm who focus on atmospheric differentiation. As Juan Elvira notes, “air has logically been an important part in the technical process of conditions of the human space given the need for it to be sanitized and attemperated.”93

Steven Connor describes air as a “mutable material” and its porosity and plenitude affords us some degree of control. We can manipulate its density (‘thick’ air versus ‘thin’), its pressure and its transformation into other forms such as steam and fog. A useful means to shape such difference is through the spatial energy of sound. Bernd Schulz describes the sense of hearing as “what gives visual space its actual plastic quality”.94 This is demonstrated in sound works that noticeably adjust the density, pressure or intensity of the surrounding air within a space.

Still And Moving Lines

A clarinetist stands in the middle of a darkened room, surrounded by an immediate semi-circle of listeners then a periphery of four loudspeakers. A constant sine tone emanates from the speakers, against which the clarinetist plays a single repeated gesture – a series of long tones followed periodically by

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92 Rebecca Williamson “Al fresco: when air became fresh”, in Knechtel ed. Air 190
93 Elvira “Dense Space” 266-268
silence. Each long tone is almost identical to the last except that the performer changes the relationship between their internal air pressure and the shape of their mouth (their embouchure). This shifts each pitch slightly higher or lower.

This is a work by Alvin Lucier from a collection of installations and performance works called *Still and Moving Lines of Silence in Families of Hyperbolas* (1972). The clarinetist undertakes a very simple activity, a series of long breaths mediated through their instrument. The slight differences between each breath, however, create extraordinary shifts in effect. The sine tone is smooth but whenever the clarinetist plays the surrounding air warbles in tight repetitive waves. The rate at which it does so depends on the proximity of the performer’s pitch to the constant electronic tone. This is a phenomenon known as ‘beating’ where the differences between similar pitches create alternating aural bumps as the sound waves physically collide.

Lucier explains that this work, like others of his, is designed to demonstrate the “spatial characteristics of sound itself” which in this instance is the way beating tones encircle different spaces. However, these tones only move at the behest of the performer who modulates the type of pressure within their bodies and consequently within the space. The listener remains inert but perceives movement in the form of pressure within the air and around their ears, a pressure which tightens or contracts with each note. Such activity is triggered directly by the repeated actions of the performer.

This directive was echoed in a performance work of mine, *Big Space* (2011). In a small dark auditorium I sat before two identical small keyboards, each plugged into a large loudspeaker on either side of the stage. For thirty minutes I placed metal bolts on different keys in strict sequence, repeating each gesture on each keyboard in turn so that the notes unfold in ‘canon’ (the exact pattern repeated at the same time lag). Such simple gestures amplify into disproportionately large sonic consequences. For the listener the intensity of the room changes dramatically throughout the performance. When two sets of bolts sit four notes apart (generating a ‘perfect fourth’) the air flows more or less smoothly as the

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95 Quoted in Blamey, “Sine waves and simple acoustic phenomena in experimental music – with special reference to the work of La Monte Young and Alvin Lucier”, 224.

96 This is discussed in Lucier’s liner notes to this recording. In these notes he lists other such works as *Vespers* (1968), *Reflections of Sounds from the Wall* (1982), *Directions of Sounds from the Bridge* (1978) and *The Shapes of the Sounds from the Board* (1980). (Alvin Lucier. *Still and Moving Lines of Silence in Families of Hyperbolas*. Lovely Music CD1015. CD. 2002)

97 As with my approach, Lucier directs his performers to assume “task-like” roles. This services what Peter Blamey deems the “impersonality” of Lucier’s approach which responds to John Cage’s aesthetic lead as well as being an important strategy in framing acoustic phenomena directly. (Blamey, “Sine waves and simple acoustic phenomena in experimental music – with special reference to the work of La Monte Young and Alvin Lucier”, 194-195)
waves interrelate in relative consonance. When sixteen bolts sit at varying intervals across the breadth of the keyboards the air in the room becomes uncomfortably thick with heavy beatings and a writhing sense of weight.

Like Lucier’s piece, *Big Space* seeks to differentiate space across time through shifts in density and pressure. The performer instigates this by colouring the surrounding atmosphere with their actions, carving out a changing space that unfolds around them and engulfs the listener. Space is created here through gesture and whilst the effect is more exaggerated than the Lucier, with bigger and wider densities, it is no more distinct. Again, the emphasis is on simple and logical performative tasks; the performance aesthetic is one of serenity and mindfulness, diverting attention from the performer to the busyness of the sound within the space.

Chapter one noted Gaston Bachelard’s image of the burrowing animal, highlighted in Steven Connor’s description of spatiopetal space. Here we might augment this further with images of the nest and the shell. In *The Poetics of Space* Bachelard looks to Jules Michelet for his thoughts on “bird architecture”, evoking the nest as a form that is “commanded by the inside”. As quoted by Bachelard, Michelet says:
On the inside the instrument that prescribes a circular form for the nest is nothing else but the body of the bird. It is by constantly turning round and round and pressing back the walls on every side, that it succeeds in forming this circle.

A nest is created through the “repeated pressure” of the bird in action whose home develops around it. This resembles how a snail creating its shell “contorts itself in order to advance and grow.” Similarly, in Still and Moving Lines and Big Space the architecture of the work emerges from the constant self-similar gestures of the actioner or performer. In Big Space the motions are determined by arithmetic however the resultant shapes are mediated through their articulation by the human body. The effect is that of organic sonic materiality that infuses and at times overwhelms the room.

**Atmospheric momentum**

In her essay “Atmospheric Affects”, Jill Bennett distinguishes between installation art that comprises “ambient stasis” and that which fuels “atmospheric momentum.” Ambient art risks becoming “an end in itself, a warm bath of indulgence”; the alternative, however, is to harness “dynamic environmental effects, not only spatial but temporal”. Atmospheric momentum might involve “the phenomenon of transition” and activate either the spectator, as in the previous chapter, or the performer. By this definition, a consistent atmospheric condition such as a performed drone is less about stasis and more a form of heightened energy that must exert more than itself (a channelled surplus value) in order to appear still. A drone can result from repetitive action and expended energy.

Like his slightly younger counterpart La Monte Young, Phill Niblock is a New York-based composer who works primarily with drones. His works typically involve pre-recorded long tones that are multi-tracked to create “sustained tone textures”. These result either in stand-alone recordings or works in which musicians perform live against a pre-recorded part.

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99 Bennett, “Atmospheric Affects,” 108
98 Glover “Phill Niblock: Identity through instability”. np
101 Whilst there are obvious similarities between Niblock’s and my works there are also key differences. Niblock primarily records live acoustic or amplified instruments and uses these recordings as the basis for his compositions, which might then be played alongside live instruments. He specifically eschews synthesized instruments, ostensibly to introduce an element of chaos into the beatings whereas I feel that there is enough chaos in the environment.
As with Lucier, the performers in Niblock’s pieces undertake their tasks with apparent detachment and performances can appear visually and aurally static. However Niblock’s work maintains momentum in the form of different energies: the energy of aural beatings within the air, the sustained energy required of the performers and the broader structural energies that gradually emerge. The composer often underscores this implicit movement by pairing performers with large multi-screen projections of workers in fields performing such tasks as gathering and shelling grain.102

![Image](image_url)

**Fig 19.** Phill Niblock, *Guitar Too, For Four*, 1996

Researcher and composer Richard Glover considers Niblock’s work to operate in dialogue between stability and instability. The units of construction, the long tones, stay fixed however the harmony and density of sound changes as notes are added or subtracted from the mix. Glover says that the structure of Niblock’s music typically moves between convergence and divergence. This transformation from one state to another only reveals itself over a long period.

An example of this structural momentum can be heard in Niblock’s electric guitar quartet *Guitar Too, For Four* (1996) which begins with a simple, open set

102 Niblock began his career as a photographer and filmmaker.
of notes (octaves and unisons) and gradually, over thirty minutes, fans out into a more complex array of related notes. The effect is a relatively static drone that gradually changes in shape and complexity over time. Similarly, the album *Four Full Flutes* (1991) features four pieces, each lasting approximately 20 minutes. Each tends to contain a single core note that lasts for the duration of the work, to which other notes are added.

Despite its surface, therefore, Niblock’s music is not necessarily about stasis. Glover suggests “the flux between parametric change and parametric stasis ensures our perception of both experienced and recalled temporality are also in flux.” This links to artists working primarily with space and light for whom “perceptual art is likewise necessarily a temporal art.”

Similarly, the long tones in my works are not about stasis but about contrasting densities of sound. Whilst drones are the ‘units’ or compositional building blocks of the work, they are consistently replaced. Thus the density ebbs and flows and the overall energy of the piece fluctuates. The overlapping long notes constitute an overall mosaic of tones that constantly modulate the space.

Two examples are *Ceremony* (2009 and 2010) and *Pentagon* (2013). These performances involved five synthesizers and a delegated team of volunteers. These performers placed bolts upon the keys according to simple but strict patterns according to visual cues (such as coloured notes) or game-like instructions. The works are spatiofugal in that they carve out space through “actions in time”. In both, long tones were overlaid systematically and built a slow drive.

*Ceremony* was performed within the installation of the same name. This created a binary: the exhibition comprised a fixed layout within which the spectator moved about; the performance comprised moving sounds with a stationary audience. The performers surrounded the audience who sat on chairs or beanbags or lay on the floor.

103 Glover “Phil Niblock: Identity through Instability”. np
The performers all followed the same instruction in their own time. Each keyboard featured different degrees of timbral complexity (sine tone, square wave, etc) and reverb so that the same harmonic material contrasted as the notes intersected within the air. The overall shape of the work was of divergence-convergence structure that gradually delineating the tessitura (pitch range) of the instruments. The texture began very thin with all players placing bolts on the same notes and gradually thickened over time as more notes were added.

The performers undertook their tasks efficiently and the audience remained still throughout. Minimal actions thus contrasted with the maximum activity within the air. The slow but steady activity contributed a growing sense of momentum within the atmosphere. The listener heard immediate stasis due to the slow rate of change but over any five-minute period the harmonic ground noticeably shifted from one density and colour to another.

Pentagon involved five keyboards positioned in the centre of the space linked to five loudspeakers at the periphery. The audience sat or walked within the space between keyboards and speakers.

Like Ceremony the performers treated the keyboard as a physical territory of successive white notes. They began by placing bolts on the central notes of the
keyboard and slowly added more bolts in a fanning pattern, introducing notes below and above the centre geometrically until they encompassed the outer reaches of the keyboard. As with Niblock this created a divergence, in this case from the centre to the periphery of the keyboard which echoed the physical layout within the room. The crystalline opening consonance grew into a thick dissonance throughout the rest of the work, pulling downwards and upwards like twin forms of gravity.

The volume was very loud and the air warbled as similar notes clashed. The keyboards were tuned very slightly apart which rendered the air thick and rich. The sound quality was monolithic but morphed consistently across the hour-long performance. Listeners sat, stood or walked about throughout the work; like Dream House the affect varied dramatically from one listening position to another.

Both of these works inverted the spectator relationship discussed in the previous chapter. Here the listener sat and received the sound over a specific period while the sounds are modulated before them. The performances occur over a specific duration and demand both performer and spectator endurance. By contrast, the duration of an installation is theoretically endless and your experience of the duration is driven purely by where you choose to walk and how long you choose to stay.

Oscar Lopez draws a distinction between these two types of listening. In both, the airspace might be completely filled with sound but in the concert the listener is “territorialized ... being seated in front of the music”. Because of this separation – the performers and listeners “visually divided in two” – the listener cannot fully experience their body as being part of the work and must also accept that the end of the concert means the end of the work as well.

In my work the role of the spectator varies from being necessarily active in the installation form (the sound sources are static; the movement is in the sound as it travels and within the spectator as they move) to being passive in the performances (the sound sources are effected by the performers and the work evolves across a specific time period).

In these works the ‘turbulent geometry’ is the slippage between the algorithmic and the bodily: the air pressure lifts, drops and surges as the mechanical tasks of the performers alter the number of sounding notes. There are different types

105 Lopez and Leitner, Sound Spaces. np
of geometry at play: the arithmetic of the patterns of drones that unfold; the quantized rhythmic interplay between tightly beating chords; the simple, logical parameters of a task. Likewise there are different types of turbulence: dissonance between similar notes (beating); the free movement of performers or spectators throughout a space; the disjuncture between inert performance practice and listenership and the activity of the sound within the space.

Summary

This chapter demonstrates that air’s quality can be directly modulated by performers. This exemplifies Steven Connor’s notion of the spatiofugal in which space is created through repeated gesture. Such instigation can be seen, and heard, in works by composers such as Alvin Lucier and Phill Niblock who frequently use repeated homogeneous long tones. As Jill Bennett warns, however, simple stasis risks self-indulgence whereas forward momentum offers a material purpose behind works utilizing atmosphere.

My performances works discussed here involve matching synthesizers played by a delegated team who undertake simple repetitive tasks that slowly but consistently alter the density and constitution of specific performance spaces. Unlike installations that encourage the spectator to move, these works invite listeners to sit and receive slowly moving sound fields that result from the performer’s repeated gestures.
CONCLUSION
FROM READYMADE TO THE SOCIAL

Sounds lasting and leaving from different places and forming a sounding sculpture which lasts.

Marcel Duchamp

This paper has sought to establish and elucidate a materialist reading of sound by focusing on the air as a transmission medium. This addresses the problem of how to examine sound in art. Sound is present in much contemporary art, as Caleb Kelly suggests, but as a non-visual medium it frequently eludes critical attention and understanding.

Air, as a physical substance, is thus a useful lens through which to examine sound and its affect. Air’s pervasiveness allows for sound’s spread, its porosity affords the plentiful movement of people and its plasticity allows us to sculpt its density and quality. Air acts as a conductive tissue between objects and hard surfaces through which people orient and connect. Above all, air is a largely neutral “baseline for aesthetics” that enables the distribution of various energies.

My research rests on the simple observation that sound moves, as a form of energy in space. This is observed even in apparently static situations such as rooms full of unchanging drones (Dream House, Ceremony) in which sound spreads from its source and people move within and against it. I have focused on immersive installations and performances by interdisciplinary artists who, like me, work between visual art and music: Janet Cardiff, Alvin Lucier, Phill Niblock and La Monte Young. The works I have looked at disperse homogeneous sound sources, usually constant tones, which enables various complexities to emerge.

The study contained several tensions articulated by theorists in the fields of architecture, installation art and affect theory. Chapter one addressed the conflict between sonic expansion and containment exemplified by Steven Connor’s notion of the spatiopetal and spatiofugal. Chapter two examined the problem of human movement and inertia identified by Claire Bishop in her paradox between spectator activation and decentring. Chapter three

107 Jill Bennett “Atmospheric Affects” 102
acknowledged the difference between structural momentum and stasis outlined by Jill Bennett.

Together these tensions comprised an overall tension between stability and instability – the ‘turbulent geometry’ of the paper’s title. The works addressed use geometric strategies – simple arrangements of sound sources, arithmetic behavioural patterns – to capture and frame emergent phenomena. The paper showed that even apparently benign sonic situations – consonant chords that sit below the ambient volume floor – engender turbulence in the form of sound and people moving freely within built environments.

The chief creative outcome has been my ongoing project called *An Infinity Room*. I place found keyboards in geometric relationships within different spaces and establishing drone-based airspaces that implicate the spectator in different ways. It is site specific and has yielded varying sonic and social situations, from embodied contemplation in the gallery to subconscious coercion in public causeways.

Over the course of my Masters the emphasis within this work has subtly but crucially changed. At first I focused on the readymade, collecting and arranging sets of heterogeneous vintage synthesizers within classic exhibition spaces as a form of ‘enabling museology’. Following the lead of artists such as Jeff Koons, I celebrated and elevated these inexpensive instruments through conspicuous display on spot lit plinths in galleries. Weighting the keys afforded these otherwise mute objects an apparent sentience.

My later aim, however, has been to choreograph ‘situations’ through a closer attention to the physical and social implications of different spaces. The pivot was shifting my attention from the objects and towards the surrounding space as air, following the lead of minimalist installation art from the 1960s. Recent works are more discreet and focus on activating the intermediary material between the objects. I match the keyboards identically and precisely delineate the architecture of each space, wedging paired instruments between parallel walls, window frames or doorways. I attend more finely to beating tones and dissonance as a way to modulate the air and implicate the spectator more strongly within each space.

*An Infinity Room* now functions as a consistent methodology to test physical spaces and analyse the social situations that develop. It uses sound as a connecting tissue to colour the air: energies in the form of spreading constant
tones demonstrate the extent of one’s ambulation and differences are neutralized to emphasize and problematize agency. Thinking of sound as material energy helps release it from disciplinary limitations and align it with broader atmospheric phenomena such as fog, temperature and odour. It also helps explain some of the conflicts that arise through what Blesser and Salter call “overlapping acoustic arenas”. These range from sound works bleeding beyond their boundaries in group exhibitions to dissonances of personal space and noise pollution within city living.

In other words, sound reflects an aspect that quietly emerged within this paper. Chapter two looked at people’s movement through the air whilst chapter three looked at people instigating shifts in the air through movement. This introduces the element of sociality which suggests the next step in this research: observing human interactions within the porous environment of air.

This would build on theorists such as Brandon LaBelle who declares that “sound is intrinsically and unignorably relational ... it leaves a body and enters others.” David Sommers adds: “architecture is the art of social space because it both encloses and includes institutions; it is the means by which human groups are set in their actual arrangements.” Jill Bennett points out that the air has traditionally been studied as a natural rather than a social science. She calls for an “aesthetic conception of air” that affords “the intimate study of human interaction” and invokes the idea of “social atmosphere” as a kind of density of affect which can mount and subside with the presence of people within a given space.

Future research into relationality and sociality will extend a strand of work undertaken during the MFA, exemplified by Soundland in chapter three. This was part of an ongoing collaborative project called Super Critical Mass (SCM) which brings together temporary communities of people to undertake simple sonic tasks in public places. The volunteers use the same class of instrument (e.g. all flutes) or make the same kind of sound, following simple sets of instructions. Many SCM works undertaken during the Masters involved wind or breath, a further literalization of air. They brought together many of the concerns discussed such as long tones distributed throughout a space, sound and people delineating architecture, spectators moving about and performers creating space through repeated gesture. SCM is akin to performances of An

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108 LaBelle Background Noise ix
109 Sommers Real Spaces: World Art History and the Rise of Western Modernism 43
Infinity Room however the focus is more on interaction, displaying a triune of sonic, spatial and social factors.

In summary, air is a physical domain through which much human activity takes place. We use sound as one way to locate ourselves and understand the way we operate within built environments. Although certain strategies (of homogeneity, of ‘mimetic engulfment’) can thwart or frustrate movement, air remains a key way of identifying sound as a fundamental property of being. Early on this paper quoted David Toop who says “air and sound are much the same: we breathe sound and listen to air.” This fundamental permeation between sound and its medium has stayed with me throughout this research. I hope through my works and examples I have foregrounded airborne sound as material, embodied, sensory and fundamentally social.
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APPENDIX 1

LIST OF WORKS CREATED DURING THE MFA (2010-2013)

Key
AIR = An Infinity Room
LAS = LOUD+SOFT (# = with Luke Jaaniste)

2010

Flow
Delegated performance
Judith Wright Centre for Contemporary Arts, Brisbane
Burnett’s Lane, Brisbane
Liquid Architecture Festival of Sound Arts
SCM

Ceremony
Installation
Delegated performance
Firstdraft Gallery, Sydney
AIR

Little Ones, House Music, Ceremony
Delegated performance
Sydney Conservatorium of Music
New Music Network Mini Series
AIR

Resonate
Performance
Grantpirrie Gallery, Sydney
AIR
Quiver, Glow, Swell
Delegated performance
Arts House Meat Market, Melbourne
SCM *+

Tight Spaces
Video, photographic exhibition
Allan’s Walk Artist-Run-Space, Bendigo

2011

Ceremony
Delegated performance
Jugglers Art Space, Brisbane
under_scored
AIR

Quiver
Delegated performance
Het Nutshuis, The Hague, Netherlands
TEST Extra
SCM

Turning The Tables On ... Franz Bruggen
Installation
Het Nutshuis, The Hague, Netherlands
TEST Extra
LAS

AIR
Installation
Het Nutshuis, The Hague, Netherlands
TEST Extra
AIR

SWELTER
Delegated performance
The Lake, Central Park, New York, USA
MATA Festival, Make Music New York
SCM *+

Vaporisation
Delegated performance
Old Museum Brisbane
Queensland Music Festival
SCM *+

House Music
Performance
Graffiti tunnel, The University of Sydney
AIR

Big Space
Performance
Whitechapel Gallery, London
AIR

Big Space
Performance
Café Oto, London
AIR

Big Space
Performance
City University, London
AIR

Big Space
Performance
Madame Claude’s, Berlin
AIR

AIR
Performance
Kings Cross Hotel, Sydney
FBI Social
AIR
2012

Lovers
Installation
Performance
Wollongong City Gallery
Near Earth Art
AIR

Halo
Delegated performance
Sydney Opera House
SCM *

AURA
Delegated performance
Blacktown Arts Centre, Sydney
Aurora Festival
SCM *

Vocal Field
Delegated performance
Manchester Cathedral, UK
FutureEverything Festival
SCM *

Quays
Delegated performance
Salford Quays, UK
FutureEverything Festival
SCM *

Low End
Delegated performance
Spitalfields Markets, London, UK
Spitalfields Music Festival
SCM *
Quiver, Detourne
Delegated performance
The Horse Hospital, London, UK
Monochrome
SCM *

GOLD METAL
Installation
Campbelltown Arts Centre
Transmission

Within Striking
Delegated performance
Arts Centre Melbourne
Aural Architecture
SCM *

Bells
Delegated performance
Jugglers Art Space, Brisbane
under_scored
SCM *

Bells
Delegated performance
King George Square, Brisbane
SCM *

2013

The Regret Tree
Sculpture, participatory performance
Performance Space, Sydney

Ilboard
Video
3 parts: 2' 2' 2'
Performance Space, Sydney
Turbulent Geometry
Installation
Canberra Museum and Art Gallery
AIR

AIR
Performance
Canberra Museum and Art Gallery
You Are Here Festival, Difficult Music Series
AIR

Requiem
Installation
Australian Experimental Art Foundation (AEAF), Adelaide
AIR

Pentagon
Delegated performance
Seymour Centre, Sydney
VIVID Festival
AIR

Pivotal (from me to you and back again)
Six channel video installation
Delegated performance
Casula Powerhouse, Sydney
SCM

Soundland
Delegated performance
Cockatoo Island, Sydney
Underbelly Festival
SCM *

Requiem
Installation
Chatswood Concourse, Sydney
Willoughby Sculpture Prize
AIR
Together We Breathe
Delegated performance
Library of Birmingham, UK
SCM +

Turning The Tables
Monash University Museum of Art, Melbourne
LAS #

Requiem
The General Store, Sydney
AIR
APPENDIX 2

FINAL INSTALLATION: LOVERS, SYDNEY COLLEGE OF THE ARTS ENTRANCE


Fig 22. Julian Day, Lovers (detail), 2013