



*This needs a bit before this, to introduce us briefly to the overall diss. project. Otherwise, I'm left wondering what this is about (initially).*

Introduction

“Technology” in common parlance is understood as the physical devices and machines people interact with in the execution of our daily lives. I prefer a definition of technology that focuses on the Greek root “technic” pushing the term toward “technique” — “any method or manner of accomplishing something” (Neufeldt, Victoria and Guralnik, David B.). This concept allows us to understand devices themselves as physical instantiations of human knowledge. Engineering is the practical application of knowledge — our knowledge of how to build our other knowledge into things (Neufeldt, Victoria and Guralnik, David B., “Engineering”). Etymologically, “technology” contains one other feature important for my purposes: the “-ology”. Technology is the study of technique — the study of human knowledge about how to accomplish something.

*possibly reverse these two paragraphs*

The definition of technology we take in the practice of electroacoustic music is important as the field conceives of itself as specifically interested in the use and advance of technology. As an individual practitioner the question is: which of our techniques are we studying and how? This document and four associated musical compositions represent my combined effort to advance electroacoustic musical compositional practices by examining and innovating two key technologies: “listening” and “compositional reflection.”

*This is better as a start (or something like it)*

“Ear training” has a long and important history within musical practices that has lead to the development of pedagogical technologies currently at use in general musical education. The electroacoustic music tradition has long been explicitly interested in listening technologies with the concepts developed by Pierre Schaeffer representing the largest and most influential thread. A variety approaches to listening — often called

*italics*



*of*

“listening practices” or “ways of listening” — are now common in electroacoustic compositional conversation, scholarship, and education. The language is both formal, like Schaeffer’s, and casual: we teach our students “how to hear” or “what to listen to” in a piece. Music has long understood listening as something one needs to learn how to do and can actively practice.

My work intervenes by arguing the benefits of taking these existing conceptions further in understanding listening explicitly as a technology. As technologies — physical or knowledge-based — are fundamentally understood as human products, defining “listening” as a technology firmly positions it as a product of human activity and, more importantly, as <sup>a</sup> practice that we can experiment with and change. Conceiving listening as a technology opens listening to intervention and encourages the intentional development of new strategies for practice. <sup>This</sup> The conception has the added benefit of providing crucial resistance against the ever-threatening sensation that listening is something that happens to us rather than something that we do. The following <sup>chapter?</sup> <sup>concerns</sup> <sup>ok</sup> listening throughout but focuses on it especially in *Reflection I* where I discuss the variety of actions I have taken to intervene in my own listening and in *Reflection II* <sup>where I</sup> that discusses the use of my listening in practice. The associated compositions reveal the effects of these listening innovations.

My interest in “compositional reflection” began with two observations: first, that my keenest moments of learning come when I directly observe the composition of teachers and peers as they create <sup>on</sup> new works; and, second, that the field has a well-developed set of practices for sharing <sup>of</sup> electrical and computational technologies, for sharing the compositional products themselves, and for sharing analyses of music, but

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relatively fewer detailed discussions of how, precisely, electroacoustic composers compose. While our private conversation about composition is robust and many of us regularly teach our students how to compose, I see our public conversation as measured by books, journals, and conference presentations lacking sufficient discussion of our compositional strategies themselves.

I am interested in sharing ~~from~~ <sup>compositional</sup> our practices both for use internal and external to our field. I would apply lessons learned by other composers in my own practice and I suspect that the techniques we use in composing would find broad and beneficial application across disciplines if shared in the right way. At the least, I believe that making our compositional processes more visible will help in promoting the music itself: I observe that the more I share about my pieces and process, the more interested and invested listeners become. Whatever the eventual uses of the techniques, only composers are capable of making our strategies more visible. In the section that follows, I argue for “compositional reflection” and suggest how our field might apply ideas from ethnography as we develop techniques for opening our practices. The following *Reflections I* and *II* provide an example of what “compositional reflection” might look like when performed.

### Developing Compositional Reflection

The electroacoustic community has long been good at sharing the technical aspects of electronic sound (see any program of any major computer music conference — ICMC, NIME, SMC, SEAMUS — for a schedule full of technical presentations) but less forthcoming when it comes to a discussion of the artistic strategies employed in the

creation of works.<sup>1</sup> The quantity of scholarship on electroacoustic music available in monographs (histories alone include (Chadabe; Holmes; Manning; Prendergast; Shapiro and Lee; Toop)) and journals (Computer Music Journal, Organised Sound, Contemporary Music Review, and Leonardo Music Journal to name only the largest ones) suggests that there is no shortage of theorization within the field. There also seems to be no shortage of music as electroacoustic community listservs (EMF and a dizzying array of acronym-rich sub-specialty lists) are replete with concert and recording announcements. The area where I see the least publicly visible activity is in the area of composers and performers recounting and accounting for their experiences in creating and performing their work. So, while the music exists as does the impulse to theorize it, composers have yet to develop a robust set of reflective practices that open the compositional work to more effective critical thought.

From *Talking Music*, the iconic set of composer interviews by William Duckworth (Duckworth), to the approximately 50 interviews published in 34 years of the Computer Music Journal, the interview is the most popular published format for electroacoustic composers to reflect on their practice.<sup>2</sup> There are benefits to the format: Duckworth's book provides a uniformity of format that allows for certain comparisons to be made between composers and their approaches; Duckworth is also likely to generate questions for the composer that they would not generate for themselves. The weaknesses include the limited set of composers interviewed and the tendency to focus on broad career trajectories and generalities about their compositional practices. Detailed conversations about paths taken to individual compositions are virtually non-existent as questions about

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<sup>1</sup> "Artistic strategies" is a term that can and will benefit from expansion and clarification. The current work will hopefully contribute to a data set — examples of artistic strategies as employed — that can help with this work. For now, the term will remain a catch-all for the nebulous group of activities carried out in the course of making creative work.

<sup>2</sup> The figure for CMJ interviews is based on my search of the journal's complete catalog.

the advantages and disadvantages of various computational technologies often dominate the conversation in the prominent electroacoustic journals.

Still, I know composers to be reflective and interested in talking about their practice. I have no shortage of colleagues with whom to discuss sonic phenomena and life experience as used to create work long before topics turn to synthesis or spatialization techniques.<sup>3</sup> I also see abundant evidence of reflective practice in teaching where composers excel at describing how and what they do in both individual and group settings. My work leverages the abundant impulse among composers to reflect on where and how the ideas for their works emerge and channels it to develop a set of practices we can use to perform public conversation about compositional practice. I am not alone in calling for more visible and more detailed explications of practice; my work adds to a growing chorus of voices.

In her Organised Sound article “Conkers (listening out for organised experience)” theorist and artist Katharine Norman argues how, paradoxically, more time spent by the artist considering subjective experience can “[leave] a door open for the listener to participate [in the work], from his or her own experience” (Norman, “Conkers (listening Out for Organised Experience)”). Norman writes of a composer’s “‘moral duty’ to address subjective interpretation” en route to creation where audience “listening becomes an autoethnographic journey made in response to a maker’s autoethnographical response” to their own phenomenal experience (Norman, “Conkers (listening Out for Organised Experience)” 117). Such work reaches out to an audience “whose experiences are not

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<sup>2</sup> The figure for CMJ interviews is based on my search of the journal’s complete catalog.

<sup>3</sup> I do not favor a reduction in the amount of technical sharing, and, like any good geek, I enjoy a good paper or chat that sweats the technical details. I simply mean to encourage an increase in the amount of

simply 'elicited' by chance connections but are in a very real sense 'composed in' to the work" (Norman, "Conkers (listening Out for Organised Experience)" 124). Norman advocates directly for composer<sup>S</sup> to share their phenomenal experiences as a way of creating work that is more open to listeners, and thus, more successful.

George Lewis argues that effective theorization of electroacoustic music requires a robust *body of work* reflecting on practice. Speaking in 2011 at Brown University, Lewis called for more autoethnography by practitioners to assist critical improvisation studies in developing new theories of improvisation (Lewis, George E.). In his 2007 Parallax article "Mobilitas Animi: Improvising Technologies, Intending Chance" Lewis's describes his careful and thoughtful exposition of his improvising musical environment *Voyager* (Lewis, "Interacting with Latter-day Musical Automata"; Lewis, "Too Many Notes") as "auto-ethnography" necessary to "give the work a voice" and to "complement the ethnographies of technology that people such as [Lucy] Suchman and Bruno Latour have performed" (Lewis, "Mobilitas Animi" 113). There are two notable moves in Lewis's configuration: 1) that the path to a successful theorization of improvisation is not an individual one and 2) the requirement of the participation of non-music scholars like Suchman and Latour. In further developing his autoethnographic strategies, Lewis has experimented with pre-concert and, more recently, post-concert discussions in the presentation of musical performances (Lewis, "Mobilitas Animi" 113). Whether oral or written<sup>3</sup> the reflective practices as imagined by Lewis require a conversation between a writer and reader or performer and audience and explicitly acknowledges that "both are engaged in creative acts" (Lewis, "Mobilitas Animi" 113).

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"artistic" conversation for which I believe there is ample space. Both are discussions are necessary and ideally they would intermingle. Here I am advocating for more of the latter to balance the equation.

Lewis's interest in providing the accounts from which successful theory can be drawn points to work like that of Joanna Demers and her 2010 monograph *Listening Through the Noise* that develops an aesthetic theory of electroacoustic music. In the process of her work Demers generates a comprehensive account of music since 1980, including examination of musical work but also of the writing, thinking, and actions of composers. Demers's approach is made possible in part through access to the thinking and writing of composers and her most powerful conclusions are drawn when she compares how composers have worked with the music that results. I see Demers's theorizing as parallel to the work Lewis is advancing. The lesson is that the possibilities of such work <sup>are</sup> ~~is~~ enriched by greater access to compositional practices as exposed by composers describing their phenomenal experiences, intents, and actions. As for composers, our practices can only be enhanced through intense theoretical engagements of our work.

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With a desire to develop strategies for generating reflections on our work that are useful beyond the bounds of our individual practices, where can we look for useful examples? John Levack Drever, writing on soundscape music, suggests that a music interested in "making and presenting representations of environmental sound" would benefit from engaging other disciplines that have "thoroughly questioned what it is to make and present representations in the complex world of today" (Drever 23). Soundscape music is particularly developed in its practice of drawing from work outside of music in service to its methods. Humanistic geographer Yi-Fu Tuan's 1977 book *Space and Place: The Perspective of Experience* has long joined the 1964 translation of philosopher Gaston Bachelard's *The Poetics of Space* on a litany of sound-place

bibliographies. The bibliography of R. Murray Schafer's 1977 book *The Tuning of the World* is diverse, drawing deeply from architecture, engineering, history, philosophy, and literature. Barry Truax, Schafer's student and a leading composer and teacher, writes of benefitting from a position of the World Soundscape Project within an interdisciplinary school based on the social sciences (Barry Truax, "Sound, Listening and Place" 1).

Drever points to Steven Feld's "acoustemology" (which developed most substantially through the 1980s and 1990s) and his work in general (Feld and Brenneis) which includes both written ethnography and field recordings as successful examples of the integration of ethnography and soundscape composition (Drever 25-6). In recent years there have been a number of excellent publications that make an integrated study of sound, presenting musical approaches alongside anthropology, geography, philosophy, and history (Bull and Back; Erlmann; Smith; Howes; Blesser and Salter; Bandt, Duffy, and MacKinnon).

With a multitude of disciplinary perspectives to draw on, I ultimately chose to focus on ethnography because of my own decision to include fieldwork as a part of my compositional process (see *Reflection I: Fieldwork*). Ethnography as a launching point has the added benefit of having undergone a recent methodological crisis that produced a body of texts explicitly aimed at critiquing and renovating ethnography in search of new writing methods and theoretical insights. These texts provide strong examples of how methods can — and should — emerge from practice and fuel theoretical insights.

Looking for the most basic definition of ethnography available, I turned to Conrad Kottak's popular introductory textbook on cultural anthropology which defines ethnography as, "the first-hand, personal study of a local settings" (Kottak 1) and

describes the method as “anthropology’s distinctive strategy” (Kottak 49). What this definition does not reveal is the multi-functionality of the term. The ethnographic method is the data gathering technique, ethnographic writing is the critical act of processing ethnographic data, and an ethnography is the product of the entire process.

The “critical turn” in cultural anthropology dates to the early 1980s when a group of anthropologist<sup>s</sup> became concerned with the positivist, objectivist ethnographic style that had come to typify the field. In response there was a flurry of publication aimed at renovating ethnography, changing both how anthropologists saw themselves and how they saw their research subjects. Anthropologists like James Clifford, George Marcus, and Dick Fischer scrutinized written ethnographic methods and focused on the role, motivations, and visibility of the ethnographer *within the text*. The effort was hugely

influential and has ultimately pushed the discipline into an era where each ethnography is seen not only as a study of a local setting but also as an instance of writing itself a contribution to a field-wide conversation about *how* ethnography might be done both generally and in relation to its particular object of study. Individual works vary in their degree of experimentation and how explicitly they go about these tasks, but it remains essential to understand and *read* ethnographies as interpretations through a given methodological lens (Clifford et al.; Marcus, George and Cushman, Dick; Marcus and Fischer).

As part of their program of ethnographic reform, Marcus and Fischer propose a set of principles that can help identify “a ‘good’ ethnography”: it should give “a sense of the conditions of fieldwork, of everyday life, of microscale processes...; of translation across cultural and linguistic boundaries...; and of holism” (Marcus and Fischer 24–5). In the

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section titled “The spirit and scope of experimental ethnographic writing” Marcus and Fischer discuss the benefits of an *explicitly experimental* practice, suggesting how experimentation might function within ethnography. Writing in the preface to the second edition, the authors clarify their original use of experimental, emphasizing that anthropology’s hybridity as a “human science” positions it to draw simultaneously on the modernist avant-garde from the humanities and Thomas Kuhn’s notion of paradigm shifts from science studies. They see experimental ethnography as ideally drawing on both senses simultaneously with the benefit being that:

The ambiguity cuts both ways: experimentation as critique and ‘pushing the envelope’ of conventional understandings; experimentation as a mode of intervening in the world, and changing it (Marcus and Fischer).

Despite high regard for experimentalism Marcus and Fisher identify potential pitfalls: readers of experimental ethnographies should not hope to find new paradigms but should be able to “[pick] up ideas, rhetorical moves, epistemological insights, and analytic strategies generated by each different research situation” (Marcus and Fischer 41). Ultimately Marcus and Fischer see experimentation as driving “continued innovation,” marking how it “can be a tool in the development of theory” even as they warn of the risk for experiments to be “mistaken for models, that they will establish a mechanical trend of imitators” (Marcus and Fischer 42). Throughout I see important insights useful for developing compositional reflection.

From Marcus and Fischer I generate a number of useful guideline<sup>s</sup> for a nascent compositional reflection. First, compositional reflections should give a sense of the climate and culture in which the composer is operating — a sense<sup>of</sup> the conditions of the compositional work, of the composer’s phenomenal experiences of everyday life, and of the microscale actions of the composer. Second, writing should reflect a pursuit of

← this is the part most missing from your chapters on the works (at least in the first version)

holism: it should attempt to account for the whole set of conditions of the composer and should make an effort to provide a complete picture of the circumstances of the work, not just those that <sup>are</sup> immediately apparent as directly relevant to the compositional output.

Third, positive notions of subjective interpretation ~~notions~~ do not function as a shield from criticism: it is possible to develop criteria for distinguishing "good" compositional reflection from "bad" compositional reflection. Fourth, the development of methods for reflecting on composition and the reading of such reflections should remain in service of the larger goal of generating innovations in composition itself. Fifth, new composition (which uses compositional reflection) should draw on previous reflections as a basis for influencing practice while remaining alert to the dangers of unthinkingly reproducing a given approach with the idea that it will yield a predictable result. The first two guidelines inform the writing of my reflective text while the final three will guide my practice going forward in continuing to develop composition that includes reflection both to contribute to a larger body of composition and literature, and in service to my own ↓

compositional practice.

When it comes to experimentalism, composers have the advantage of having full appreciation for the idea that music can be produced not for its results but for the experience of the sounds themselves. This can be applied directly to the proposed writing practice which should be "experimental" in the same way as discussed by Cage in 1955: "not as descriptive of an act to be later judged in terms of success and failure, but simply as an act the outcome of which is unknown" (Cage 13). Writing compositional reflection *as an experimental process* respects some of the biggest lessons learned in the history of experimental music and demonstrates the application of the compositional technique

Awkward transition initially sounds like a non-sequitur

As a composer I have the advantage...

beyond the frame of composition – in writing, if still in the service of music.

Electroacoustic composition, as a discipline, understands experimentalism as a technique for radically proliferating our options for experience; we should exercise this attitude in reading and applying compositional reflection.

The evaluation of compositional reflection in general and as performed in this document must be considered in relationship to the compositional output. To consider the “study” exclusively through written word would be to miss the music that practices the ideas of the reflection and bears the results of the experiences discussed. The reflective writing generates a text that *accompanies* the musical works. The text should be used to generate new perspectives within the music as the music is used to generate new perspectives within the text. The music and the text, taken together, enact the experiment and should be used in conjunction with one another to refine both the reflective methods and the compositional methods. As the reader/listener engages the music and text, they must work to keep in mind Marcus and Fischer’s warning against developing models — the experimental spirit of the text and music need to be continuously refreshed. In the words of George Lewis writing about *Voyager*:

The aim is to present a glimpse into one way that such pieces might be constructed, not to show how it must be done, or to aver that this program “proves” that this is the way we think about or hear music (Lewis, “Interacting with Latter-day Musical Automata” 110).

Such ideas <sup>remind us</sup> reinforce that the “goal” of compositional reflection is not to judge the composition: it is to proliferate the options available for the experience of the work. This notion of proliferation — of opening or expanding — is the one that should be used as a criteria for judging the <sup>success?</sup> quality of compositional reflections. The question is: does the reflection serve to open the work to further insight and interpretation, leveraging the phenomenal experiences of both the composer and the listener? If so, it represents good

Are these the best words to use: “quality”, “good”, ... ?  
“bad”

"effective" vs. "ineffective"?

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"good"  
vs.  
"bad"  
seems  
awkward

compositional reflection. Or, does the reflection close the work, stifling alternative interpretations or working to maintain the composers control over the experience of the sonic experience? If so, it represents bad compositional reflection. Successful compositional reflection should open avenues within the work for the listener to exercise agency in listening by creating opportunities for the reader/listener to make connections between experiences of the work (as written and heard) and their existing experiences. The reflection impinges upon electroacoustic composers to read with the same effort they apply in listening to experimental music: they should take responsibility for their own experience of the reflective text, working to discover and play in the same ways that they do when they listen to music.<sup>4</sup>

I am encouraged by the handful of examples that exist in the genre of "artist reflection" and I look forward to contributing to such an effort among composers.<sup>5</sup> While I value more composer reflection, in general, I am arguing here for a more conscious and rigorous practice, both as written and as applied. The pressure for this refinement comes in part though conceiving reflection itself as a compositional technology. This practice is not an exclusively individual one: moving beyond artist description will require not only thoughtful, motivated writer/composers but also diligent listener/readers that respond to the composition/text dyads creating further composing/writing experiments. George Lewis has implicitly identified that his autoethnography is only one part of a community practice that includes both music and theorization and that both participants in a conversation are involved in a creative act (Lewis, "Mobilitas Animi"). In the same way,

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<sup>4</sup> See (Demers) for an extended discussion of the kinds of listening electroacoustic music encourages, asks, and requires.

<sup>5</sup> c.f. (Eno; Weschler and Irwin; Richter, Elger, and H.-U. Obrist; Richter, H. U. Obrist, and Britt; Stiles and Selz; Viola and Violette)

compositional reflection will only reach its full potential when the innovations within a reflection are *read into the reflection* and then taken up and *applied* in subsequent efforts to innovate the practices. If and how reflections proliferate will influence their total impact, but while additional reflections adds value to existing ones, a lack of additional reflections will not reduce the value of individual experiments. If the practice does expand and is taken up for theorization I imagine the potential for a compositional-theoretical practice that would run parallel to ethnology: the development of techniques for analyzing and comparing reflections across composers and sub-disciplines within the field.

Individual benefits to the practice, however, remain and accrue to any composer engaging in compositional reflection — I see diligent reflection as directly serving my own composition. In ~~forcing a more rigorous engagement with my own process than I might be otherwise inclined to,~~ <sup>attempting to engage more rigorously with my own process</sup> I create a more diverse understanding <sup>of</sup> my own compositional techniques. Holism has been particularly important in this: as I revisit my reflections I see evermore ways to draw connections between my broader experiences and the work. Such insights allow me to keep parts of my process I value and to change those parts that I see as impeding achievement of my personal compositional goals. Benefits also accrue to our established teaching practices. Even if the sharing of electroacoustic composition practices remains a primarily oral tradition, my detailed exploration of my own process has already benefitted my students in the classroom and in lessons as I increase and share the available strategies I use in overcoming challenges encountered while creating work.

break? < --- >

The preceding text identifies a need for a technology with which composers can publicly reflect on and share the techniques they apply in their individual compositional practices. It looks to ethnography and specifically to Marcus and Fischer's seminal work *Anthropology as Cultural Critique* with its renovation of ethnographic writing as font on which to draw in the development of compositional reflection. I identify holism and microscale description as key features useful in compositional reflections: accounts should conceive of compositional activities broadly and examine them deeply. I also describe my vision of compositional reflections as experimental, relating the idea to existing composition techniques as I discuss some of the primary benefits of such experimentalism.

The remainder of this documents <sup>^</sup> presents my own initial performance of composition reflection — in the text that follows, I open my own practice and works to examination. The first steps here are imperfect but, as with first steps in life, they are some of the most difficult and profound ones. I look forward, above all <sup>^</sup> to, to continuing the experimental process as my compositional practice continues to develop both though performing as my own reader/listener and as a composer/writer <sup>who</sup> ~~that~~ continues to write and develop compositional reflection.

### Reflection: Introduction

The electroacoustic community is supported mainly by its own practitioners as a kind of "parallel culture", the best result of which is that it is vibrant and open-ended, the less fortunate aspect being that it can be insular and not very self-critical. Being a member of this community, like any community, can be very comforting, but it can also lull you into the complacency of talking to (and composing for) only like-minded colleagues who accept what you do simply because it's like what they do, and not because you actually have anything important to say. Believe it or not, the technical and stylistic questions which provoke the most debate in our community, and fill the texts and research papers, have no importance for our audience (assuming we really hope to have any). You cannot expect them to be interested in what seems to them to be your esoteric concerns. Ask yourself, instead, if what you are doing answers any of their concerns or life issues. That may seem to be too much to expect, but in fact, all of the great art of the past in every culture has done just that, and ultimately we cannot expect to be judged by any lesser standard.

Barry Truax, Letter to a 25-year-old electroacoustic composer (Lewis, "Mobilitas Animi" 113)

The following performs an experimental compositional reflection made in the creation and response to four musical works by the author originally performed in Grant Recital Hall at Brown University on November 5, 2010. The complete reflection combines two sets of text. The first set (*Reflections I*) contextualizes the work within its aesthetic and technical sub-fields of electroacoustic music. It also describes my approach in developing listening technologies en route to the compositions and discusses the related decision to include fieldwork as part of my compositional strategy. The second set (*Reflections II*) presents each of the four musical works from three different perspectives: the context in which the idea for the piece emerged, a description of the sound of the piece as I hear it, and my post-compositional reflections on how or why the piece came to be.

The two-part form is inspired by John Chernoff's experimental ethnography *Hustling is not stealing* in which the author similarly divides his text into "contextual" and "descriptive" sections. The desired relationship between the texts, in Chernoff's words, is that the contextualizing text should "assist readers to enter the world the

[descriptive] text represents without being burdened by too many preconceptions” (Chernoff 8). I’ve chosen this form to reduce my interpretation of my actions placed directly within *Reflection II*. As such, *Reflection II* is intentionally bare of linkages either to the contextualizing text or to the beginning of the dissertation. The approach taken in *Reflections II* highlights how any one individual perspective on the work — no matter how accurate — provides a limited view of the composition. It is only by combining different perspectives on each work that a sufficiently complex understanding can emerge (Adichie, Chimamanda).

In the spirit of limiting my own interpretation with the text, *Reflection I* is also designed to be read as individual descriptive units that resonate with one another but without abundant explicit linkages that I impose. I pursue this strategy in both sets of texts to keep the descriptions *open* as discussed in the preceding section. The benefit of this strategy is that it reduces my ability to impose upon the reader any particular interpretive framework, encouraging and requiring the reader to form their own set of connections within the text. This strategy has the disadvantage of creating an effortful or occasionally disjointed reading experience. I explored a variety of organizational strategies in developing the text and ultimately decided on this strategy because the disjointedness is itself representative of the way that I have created these compositions. I practice by maintaining and pursuing a variety of quasi-independent lines of inquiry that I then combine and crystalize in individual compositions. The structural organization presented here that allows those threads to remain separate yet ~~put~~ in close proximity to one another, meaningfully reflects my practice.

Just as the structure for the reflection is important, it also seems important to discuss briefly my experience of the reflection writing itself: the process of compositional reflection has not, so far, been easy. I have often found it difficult to write about the pieces in the fairly raw way I intend that exposes the benefits and, sometimes, weakness or inconsistencies in my compositional process. In a sense this pain seems unavoidable as exposing the parts that are weaknesses or disruptive inconsistencies is a major goal of compositional reflection. The sensation of a flaw cropping up as I write triggers an impulse to hide the detail, edit it, or rationalize it. I have tried as much as possible to repress these urges throughout the process of writing and editing the reflections. I found it a challenge to account for my time and experiences in a way that leaves me feeling naked to public view. It was difficult, as it should have been, precisely because the texts are explicitly open to reader interpretation and criticism. There is much in the writing process that reflects the sensations I have in composing itself. In composition I, like many composers, have had to learn <sup>to</sup> trust my intuition and respect the work – I have tried to apply those compositional <sup>^</sup> lessons in writing. In moments of fear and doubt I remind myself of the experimental nature of the practice and the idea that flaws, as I see them, can only be changed if identified: the purpose of compositional reflection is for the future of composition, not for its past. I have produced the following reflection as honestly as possible to generate a text that opens the music and music that opens the text. I am able to do so because I know that the text only comes alive through the combination of writing and reading, and because I believe that such a process is a path to both methodological and theoretical innovation in electroacoustic composition.

size

### Reflection I: Technologies of Listening

There are strong links between what a composer hears and composes, and listening experiences form a core part of both music lore and musicological analyses. Listening has had an explicit place in the development of the electroacoustic music tradition from its very beginning. By 1952 John Cage had premiered 4'33" in a moment often hailed as the start of the "opening up of music to all sounds" (Chadabe 21). 4'33 was relatively long in coming, however: as early as 1937, in a talk titled "The Future of Music: Credo," Cage publicly discussed the notion that listening had the primary role in our experience of music (Cage 3).<sup>6</sup> Pierre Schaeffer's experiments with recorded sound began in the 1940s in France with his ideas formalized in the 1966 publication of *Traité des objets musicaux* — the text included the study of listening practices, introduced the notion of reduced listening, and categorized listening into four modes (Demers 26). By the 1960s in Canada, R. Murray Schafer was publishing on listening techniques aimed specifically at teaching composition and by the late 1960s had founded the World Soundscape Project in <sup>he</sup> an interest of drawing attention to the sonic environment (Schafer, *The Composer in the Classroom*; "World Soundscape Project"). <sup>the</sup> (You could mention Schafer's "ear cleaning" exercises.)

These ideas all come into being with and though compositional practices that make use of real-world sounds. By the 1990s it is <sup>well-established</sup> ~~codified as a given~~ that "composers working with real-world sounds are, naturally, acutely aware of, and concerned with, listening" (Norman, "Real-World Music as Composed Listening" 1). This is due in part to pedagogical practice <sup>in the field</sup> ~~in the field~~. Early on Schaeffer acknowledged the ability to perform reduced listening as requiring both conscious choice and practice (Demers 28) and he

encouraged musicians to learn a *new solfege* focused on strictly sonic features (Kane 19).  
~~Now~~<sup>Today</sup> the practice of developing a variety of listening modes, styles, or techniques is at the core of electroacoustic compositional training.

Beyond this group of founding thinkers, we find “listening” deeply embedded in a wide variety of practices. Listening forms the core in the practice of contemporary and long-practicing composer Pauline Oliveros<sup>^</sup> who has become famous for her listening approach and for the associated workshops and retreats where it is taught and practiced. The website for Deep Listening (a registered trademark) describes it as a “philosophy and practice”<sup>^</sup> distinguishing between “the involuntary nature of hearing and the voluntary selective nature of listening” (Deep Listening Institute). The influence of “ways of listening” has grown so broad that even composers with primarily acoustic practices have developed and incorporated listening techniques. I recently met an Eastman-trained<sup>^</sup> composer on faculty at a major university who introduced his practice to me by describing how he uses recording and digital manipulation techniques to hear acoustic instruments in new ways. Having expanded his conception of the instrument through augmented listening he generates new extended acoustic instrument techniques that he can apply in his acoustic music. In her Contemporary Music Review article “Real-World Music as Composed Listening” Katharine Norman writes that music drawing on real-world sounds requires “listening participation and invites us — through active, imaginative engagement with ‘ordinary’ sounds — to contribute, creatively, to the music” (Norman, “Real-World Music as Composed Listening” 2). Through imaginative listening, Norman argues that we “expand our understanding of both familiar sounds and

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<sup>6</sup> “Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating.”

experiences, and of music itself” (Norman, “Real-World Music as Composed Listening”  
2). Norman goes on to discuss a variety of *ways of listening*: referential listening,  
reflective listening, contextual listening to name a few.

This limited accounting of “listening” evidences electroacoustic music’s ongoing preoccupation with listening practices. It is not exhaustive but it does establish the broad acceptance and importance of what I would term *listening technologies*. Norman’s text, for example, inserts into listening an opportunity for a) human activity and for b) engagement in the activity to yield a result. This move pushes Norman’s conception into the realm of a technology: human knowledge about how to do something.

The treatment of listening as a technology is important here because listening is one of the primary technologies of electroacoustic music that I engage both in my practice and in this reflection. While the above deals primarily with *ideas* about listening it is necessary to constantly remember that these ideas emerge in and through practice. In their primary contexts, the above ideas are deeply connected to accompanying musical examples. This document functions similarly: the ideas contained herein cannot be effectively understood absent the musical context of my compositions.

Acknowledging listening as a technology of electroacoustic music is useful because it creates a lens through which certain aspects of my compositional process can be more deeply understood. It provides a way of understanding the musical fields I use as inputs in the development of my own listening apparatuses and motivates an explanation of the primary computational technologies I employ to practice alternate modes of listening. Computational technologies, like spatialization software or sensor-based digital instruments, allow me to manipulate sound to explore listening directly. Other sections of

this reflection present the technologies employed in the course of the project but should be understood as they are relevant to articulating the path of developing my own listening technology.

### Reflection I: Listening and Perspective

My compositional work assumes the possibility for sound to be organized by listeners from a variety of different perspectives simultaneously. <sup>ok</sup> ~~At the least this means~~ that for a given a set of sounds with more than one listener, each listener can be and is likely to be listening to a different aspect of the sound at a given moment and, furthermore, is drawing on a different set of experiences and ideas in processing the sound. At the most, it means that a particularly skilled and practiced listener could cultivate the ability to listen to a given set of sounds in more than one way at a time. Sound can be organized by listeners at a variety of times: before the sound occurs through sonic imagination in response to expectations; during the duration of the sound in the listening space; and, after the end of a sound through sonic memory.

For the average musical sound there is a set of explicitly differentiated listening perspectives influencing how the sound is ultimately organized by each listener: there are composers conceiving the sound, performers producing the sound, and listeners hearing the sound. Organizers of musical sound can (and often do) hold multiple roles simultaneously: listeners compose through selective attention, performers adapt based on their own listening, and composer-performers (especially improvisers) are common. Not all listeners have an equal role in the process, however; a performer, for example, is (usually) charged explicitly with a the task of actively changing the sound waves

funny label  
(what is the "average musical sound"?)

produced where as an audience member (usually) organizes primarily through shifting their attention. Any listener of any sound can consciously or unconsciously change the way that they are organizing the sound at any time, and anyone can create musical sound at any time through their attention to the sounds around them. Depending on how active a role a listener takes in manipulating the way that they are organizing sound, they may be thought of as occupying any or all <sup>of the</sup> ~~of the~~ three roles.

My work accounts for a diversity of listening perspectives and creates a space in which listeners can hear a multiplicity of simultaneously perspectives. My pieces form an experiential basis for me to explore different notions of organizers — I create them in order to directly occupy different listening perspectives. I find it more fulfilling to create and occupy the roles as a way of “thinking” them than ~~find it~~ to “think about” what the roles could be or how they work. Composition is a way for me to engage the composer-performer-audience listening entanglement through practice. When a piece goes well, performers and audience members also explore this matrix of perspectives. Throughout the compositional process, keeping in mind that the perspectives are fluid, I try to account for questions such as: what are the perspectives in this work? How are they related to one another? How can and do they influence one another? The prompt to remember and to *try* to account for the variety of listening perspectives at play simultaneously creates a pressure I experience as positive.

One of the chief benefits to working in this way is a constant challenge to my authority in the work. Another is the prompt to seek out and remember both the effects and limitations of my own perspective. As I write, think, and compose, I regularly

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<sup>7</sup> Interpreted and understood are potential synonyms for organized in this case, but I prefer the openness of “organized.”.

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WRONG  
PAGE

This doesn't seem to relate to topic of paragraph. Strike, or rewrite?

substitute the term “organizer” for “listener” reinforcing the idea that “listening” always involves selecting and that selection in listening always happens whether or not it is an active process. I try to create opportunities within the work where one sonic element is audibly in response to another or where one sound is heard as the processing of another clearly audible sound.

My interest in listening perspective stems, in part, from frustration at the frequency and degree to which my own perspective is invisible to me. I think of my perspective as the way I see and hear the world — the set of lenses and frames I use to condition my own experience (to use a visual metaphor). I feel that I cannot understand how the lenses shape my understanding of the world if I do not understand the lenses themselves adequately.

In an attempt to examine my own perspective I have been cultivating a listening practice for examining my abilities and habits. In it, I work to do two things: 1) to listen from more than one perspective at a time and 2) to observe myself listening. While I initially began with the former by listening to the world around me, I have increasingly incorporated the latter. I have begun to create sonic circumstances in which I am forced to respond to a sound through sonic action. My actions generate sounds I can record and, in listening back to them, I am able to observe my own responses to a given set of sounds. The hope is that by comparing the original sound and the response I can gain insight into how the former is related to the latter by my perspective. I see this as a way for my listening to leave a set of traces that I can examine. I have extended this practice beyond its role as a listening exercise to my public composition. The effect of is most visible in the pieces that use my controller, Gourdo. I think of my controller pieces less as

this does relate to this

the performance of a composition or improvisation and more as a public performance of my own listening where the audience can hear the original material and they can *hear my listening* through the ways that I choose to process the original sounds.

In a search for techniques that will allow me to observe my own perspective in the musical actions I have taken, I have turned both to soundscape music and to live electroacoustic musical improvisation. I am drawn to soundscape music because it begins with recordings of the world (sonic circumstances) and because it understands that both the self and the other are revealed in any encounter between the two. I appreciate the way that soundscape music, generally, understands perspective and foregrounds the idea that a variety of things that are revealed about site *and* composer as recordings are made and manipulated (Norman, *Sounding Art*).

#### Reflection I: Soundscape Music

The closest visual analogy to the concept of “soundscape” is “landscape.” Every site has a soundscape which simply includes all of the sounds that can be heard in that environment. If you pause for a moment and try to listen to all of the sounds around you, you’ll be listening to the soundscape of your present space. Soundscapes exist inside and outside of built environments, though the term usually conjures a scene out-of-doors. Though western concert-hall music has a history of incorporating real-world sounds going back at least to the early 1900s, soundscape music emerged as a distinct practice through the work of R. Murray Schafer and his students at Simon Fraser University in Canada beginning in the late 1960s. Schafer’s group began with an effort to record and preserve “endangered,” mostly “natural” sonic environments (Schafer, *The Tuning of the World* 3–4). The music has increasingly taken form as composers experiment by

— manipulating recording<sup>s</sup> of natural environments, seeking different ways of representing the spaces they had recorded (Barry Truax, "Soundscape Composition as Global Music" 104-6).

Composers initially began manipulating the recordings both in musical interest and in an effort to preserve a given sense or experience of a place.<sup>8</sup> This experimentation gave rise to a variety of techniques for manipulating recordings of real world sounds. In many cases the manipulations lead to transformations of the original experiences that were utterly new and distinct phenomena though still related to the original (Barry Truax, "Genres and Techniques of Soundscape Composition as Developed at Simon Fraser University"). An analogy for this effort can be made with fruit. If you wanted to share with a friend the experience of an orange but could not take them an actual orange, how might you share the experience? You might make a portable version of the orange by drying, canning, juicing, jelling, or synthesizing a chemical facsimile so that you could share it. From the beginning soundscape composers were developing techniques to communicate and share their experience of sounds. An added benefit of manipulating the recording is that, like with the example of the orange, the processing is able to concentrate or distill individual features of the experience for the listener. Schafer's student, Barry Truax, has since proposed and developed a set of principles that typify "soundscape composition," placing it on a continuum ranging from "found sound" (unedited sound) to "abstracted sound" (highly manipulated compositions which use recordings of the real world but which contained few or difficult to recognize sources) (B. Truax, "Soundscape Composition").

I'm sorry,  
but this is  
too weird,  
suddenly  
popping up  
like that.

!  
come up  
with a  
less clunky  
way to  
fit this  
in.

Soundscape music as a field is commonly thought of as being concerned with representation of geographic place (even if that place is situated culturally and historically) (Drever). Some, however, effectively imagine soundscape as moving well beyond geographically-based concerns and affording “the possibility of reflection on ... sonic experience through the mediations of memory, ideology and technology” (McCartney 1). *Kits Beach Soundwalk* by composer Hildegard Westerkamp (also <sup>a</sup> student of Schafer’s) provides an excellent example of soundscape composers’ ability to draw a listener’s attention to particular aspects within a soundscape recording. The narration in the piece foregrounds the kinds of listening, thinking, and manipulation commonly performed by soundscape composers. In foregrounding technique, the work highlights how soundscape compositions often reveal as much or more about a listening perspective than about the place itself. Here the sounds of Westerkamp’s site Vancouver, Canada, become the impetus for a rich sonic meditation, <sup>although</sup> ~~but~~ the city itself functions more as a source of generic and oppressive city noise than it does as a specific place (though it never ceases to be someplace specific — a hallmark of successful soundscape work).

Westerkamp’s journey through a dreamed and imaginary soundscape arms and empowers listeners against a barrage of noise to demonstrate listening strategies that city dwellers might employ in reclaiming primacy <sup>?</sup> in the experience of the sounds around them. The piece is representative of the soundscape work in which I am most interested — work that is more about *how* we listen to place than it is about *the place* to which we are currently listening. In this way, the piece serves as one strong example of an alternative way for soundscape to use environmental sound. The demonstration of the

<sup>8</sup> Like some of the theory with which it has entangled itself, soundscape understands “place” as situated phenomenal experience — as something expressed in an interaction between a particular geography and

possibilities of how listeners can use the sounds around <sup>them</sup> draws my interest in particular.

The specific lessons in the piece are the hints it offers about how we can transform and blend our own sonic experiences and guide listeners' experiences. <sup>New paragraph</sup> My compositions draw natural comparisons to soundscape music because of the way they privilege long, unedited (if processed) field recordings, but my musical works are, similarly, less about a particular place than they are about the perceptive means we use to experience place.

Though my works are situated within Angolan field sites, they are situated more prominently within contemporary electroacoustic music's interest in listening. While it is possible to learn some things about Angola through an experience of my music, the main <sup>s</sup>topic of the works are more common questions drawn from experimental composition: what is music? How does listening work? And, how do we experience space and place?

Soundscape music's written engagement with the relationship between listening and composition is nearly as rich as the sonic one. Katharine Norman's 2004 monograph <sup>italizes, not quotes</sup> "Sounding Art" presents an experimentally written text that serves as "an invitation to listen to music as sounding art" and as a prompt to hear music in a way that allows it to change the way we listen (Norman, *Sounding Art*). <sup>3</sup> Chapters 3 focuses on the musical use of recorded sound as it traverses Norman's personal hearing of a variety of electroacoustic music works. Her sonic journey and description of the pieces serve a meditation on how "*listening* is the 'medium' that is composed [emphasis in original]" (Norman, *Sounding Art* 55), on how we might "make listening into art" (Norman, *Sounding Art* 58), and how we might "develop a composed *listening* to the world [emphasis in original]" (Norman, *Sounding Art* 65). Norman's exploration of the question of "composed listening" stems from her 1996 article on that topic (Norman, "Real-World

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a particular subjective perspective.

Music as Composed Listening”). In the 2004 text, Norman ultimately concludes that, “Making music from listening, through the medium of recorded sound, is a composed listening that takes work from both the [composer and listener]” (Norman, *Sounding Art* 72).<sup>9</sup> This thread is taken further in a 2010 article that develops a proposal for key elements of a “listener-responsible approach to making communicative sound-based art” (Norman, “Conkers (listening Out for Organised Experience)” 124) — a path to making work that:

Not only provides a hint of the maker’s intent but also invites the listener’s associations (that is, elicits a ‘personal’ journey on both sides), gives the listener permission to ‘keep going’ in whatever direction his or her responses may lead (Norman, “Conkers (listening Out for Organised Experience)” 119).

Soundscape music is attractive to me, then, for a variety of reasons such as its understanding of the role of perspective, the way that it foregrounds listening, and the way works themselves can be seen as examples of listening techniques. But I am especially drawn to the set of notions developed by Norman in seeking ways for listeners to be invited into the piece. To do this I have created what amounts to soundscape music for live, improvisatory performance. The goal in shifting to this performance style is to create a moment in which the listener can more easily maintain a sensation of indeterminacy, directly and continuously observing that the sonic output is the result of active choices on the part of the improviser. I believe that audiences understand intuitively that an improvising performer is responding to something that they hear and I mean to encourage audiences to listen both for the sound of the improviser and for the precipitating sound. Put another way: I hope for the audience to have a direct experience of the performer’s listening.

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<sup>9</sup> The original uses the term “map-maker” and “map-reader” in fulfillment of a metaphor Norman develops throughout the chapter”.

### Reflection I: Electroacoustic Improvisation

The techniques I use to create live improvisations are drawn both from the broad genre of electroacoustic improvisation and from the specific thread of practice developed in and around the Studio for Electro-Instrumental Music (STEIM) which is self-proclaimed as “the only independent live electronic music centre in the world that is exclusively dedicated to the performing arts” (STEIM).<sup>10</sup> In 1985 founder and then then-director Michel Waisvisz invited improviser George Lewis to spend a year at STEIM. I regard this as a seminal moment as my work is indebted, in particular, to the resonances created by the thinking of these two individuals that deeply influence my philosophy.

I am interested in improvised music for the way it privileges listening and the active role it takes in making a direct response to sound. Interviewed in 1990, Waisvisz ~~self~~ described himself as a “composer of timbres” and advanced the belief that composers need “to make immediate compositional decisions based on actual perception of sound.” This idea imposes the requirement that he also be a performer – allowing him to listen and think on stage “where the music actually reigns” (Krefeld and Waisvisz 28). An attitude that requires live performance in turn forces the composer to directly confront the audience’s expectation and attention in the moment of composition. My work is interested in shifting audience attention to *listening* through observing the relationship between sound and action. This is partially in response to Waisvisz’s hope that:

‘Listening to’ the composer/performer’s decision-making process as merged with his/her physical movements will become a crucial part of the audience’s musical experience (Waisvisz 123).

Improvisational practices help me move toward my desired listening technology in part because they focus attention on human activity. Writing on improvisation, Lewis

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<sup>10</sup> For excellent overview of improvisatory modes employed in electroacoustic see (Dean).

an  
^ How does this citation relate to STEIM?

highlights human capacity for “[finding] structure in existing encounters and [creating] new structures” (Lewis, “Interacting with Latter-day Musical Automata” 101). He describes improvisation as a structure-generating activity and advocates for it because of its ability to open a musical space “characterized according to its interactional, social or intentional role, acknowledging how intentionality of process affects the musical result” (Lewis, “Mobilitas Animi” 107). A lifetime of improvising combined with a desire to develop critical improvisation studies has lead Lewis to advance the idea that “listening is itself an improvisative act engaged in by everyone” and a belief that there is much to learn by finding and observing the improvisatory in the mundane (Lewis, George E., “Interactivity and Improvisation” 461–3).

My compositional work follows this thread and leverages the link between the actions of improvised performance with daily listening practices by demonstrating listening in performance and by doing so with recordings that feature everyday sounds. Combining improvisation with soundscape recordings allows me to demonstrate listening and responding on the stage in real time. The combination serves the goal developed in my original listening practice: it gives me a way to make sonic actions in response to real sounds. In the output, the audience can hear how I decide to organize a given set of sonic material. They observe how the original sound conditions my response: in listening to the output they observe my listening.

Done live, the audience is asked to perform active listening and invited to join me in contemplating the role we take in our own listening. In demonstrating listening as an act of attention I hope to empower audiences to engage with the world around them more directly. Lewis also describes listening as an “active engagement with the world, where

we sift, interpret, store, and forget in parallel with other actions and intentions and fundamentally articulated with them” (Lewis, George E., “Interactivity and Improvisation” 461). By creating performances I regard as listening on the stage — public listening or performed listening — my goal is to encourage audiences toward the realization that their listening/improvising can be conscious *and* active.

### Reflection I: From Listening to Attending

One of the differences between soundscape and improvisational musics is that the listening occurs on very different time scales. Soundscape work has traditionally been done in a studio, which affords repeated listening and allows for a slower, more measured response to sound. The improvisatory practice compresses the timeline for response to the moment in which the sounds are created plus the memories of sound one can create in the initial moment of listening. In pursuing both practices, and combining them, I have learned that the way that I listen changes depending on the timescale at which I am responding to the sound. When I listen to recorded sounds I regularly choose a sound or thread to follow through the recording as I feel free to filter out or ignore other sounds, relying on the ability to always rewind and listen again. When improvising I listen to the total sound more and exert a large amount of mental energy in creating and accessing musical memories from the duration of the performance in search of ways to structure the emerging sounds.

Whatever the timescale, soundscape music and improvisation share an intense interest in and use of listening. In the case of soundscape music, listening is important as the composer selects a recording site, makes the initial recording, and edits and processes the recording to create the final piece. In improvised music, listening is important as the

performers listen, throughout, to the sounds emerging from their performance (solo or group) so that each player can support or resist the direction of the music. In different ways, both musics reveal a close relationship between the act of listening and the act of composing. This observation pushed me on a search for a way of developing concepts that would allow me to explore the various ways that the two processes can be tightly integrated.

Following this path, I return to the idea of “organizing” from the earlier section *Reflection I: Listening and Perspective*. I say “organizing” as a shorthand for the kind of description Lewis makes of listening, but I see the term as problematic: it risks giving the impression that the process is positivist, hierarchical, or overly orderly. Given the musical activities I observe in soundscape and improvisation practices, I’m inclined to substitute the term “composing” for “organizing.” Throughout the day we continuously shift our focus, consciously and unconsciously, from one thing to another. By controlling our focus and attention we take the materials available to us and compose our own experiences. My work takes that idea a step further in the belief that we all have the power to enrich and expand our experience of the everyday world around us by intervening in our own perception through careful and attuned listening – I advocate for us all to compose more often.

In my music, most of the processes I use on stage focus or highlight sounds in a particular way — they are essentially superhuman versions of things that many of us can do already. For example, I try to find and highlight rhythms and melodies in the everyday sounds of my recordings. It is easy to imagine listening to any choir of voices and picking out one voice to focus on in particular. My music highlights the degree to which this is

possible not only with things like choirs or cocktail party conversations but with every sound we encounter in everyday life.

When I first began combining soundscape and live improvisation I said that my work demonstrated “listening as composing.”<sup>11</sup> I like the phrase and the work that it does, but there is something dissatisfying about conceiving it in this way — listening *as* composing; I feel it reinforces an artificial separation between the acts. I would prefer to find a way of describing how listening and composing are entangled and inseparable — a way of crystalizing the idea that composing is only possible through listening and listening is only meaningful when composed. In pursuit of this concept I began experimenting with nomenclature to see how changing my language would influence my practices of listening and composing. Changing and shifting terms in this way has become a part of my practice; I play with words to generate different ideas about perception that I can test in listening and ultimately use in the creation of works.

One of the first changes I explored was to flip the relationship between listening and composing. Instead of thinking <sup>of</sup> listening as a part of a compositional process, I began foregrounding listening. This pushed me to consider “composition” more as a *result* of my practice than the *activity* of my practice. Framed in this way, I might think composition not as a product in and of itself but as a trace or effect that remains from the execution of a given listening process. Here “the composition” is not the primary object (as is so often the idea in the Eurological music tradition) but is understood as an artifact produced from a given way a “composer” has decided to hear the world.

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<sup>11</sup> (Norman, “Real-World Music as Composed Listening”) describes some works as “composed listening” and (Nagai, Michelle) labels some works as “composed from listening.”

Before this shift, I was composing which required listening. After the reversal, I am obligated to listen carefully because I am always composing. I feel this idea as a pressure, which is one thing I like about the switch: the way that it encourages me to take care in how I listen to the world. In practice I have tried to carry this idea around with me, reminding myself of it regularly: *I am always listening and, as a result, I am always composing*. In the decisions I take about how to pay attention, I leave traces in my own thinking and in the world. I believe those traces have a tremendous power — they affect those around me and shape the world in which I live. The traces are not absolute: like scars, they can fade and there are ways to retain control over the depth of the cut or to influence the indelibility of a trace. For example, through musical performance I ask an audience for direct attention and, therefore, the impact of the listening performed might be greater — the trace might be cut more deeply in an audience member that intentionally opens him or herself to inscription. It is always the case, too, that the listener plays an active role in the process and greatly influences the impression that is made. Under the pressure of this idea, it remains important to keep in mind that the way that I pay attention and respond, everyday, to the world I encounter is always impacting those around me. My close friends and family, for example, are deeply affected by the way I pay attention to them. Practicing the idea cultivates in me an obligation to listen carefully.

Reflecting on this sense of obligation or care in listening I have also been practicing another language substitution: I've tried replacing the phrase "listening as composing" with the term attending. In a 2011 symposium entitled "Improvisation as a way of life" hosted at Brown University, George Lewis proposed substituting the word "attending" for the word "listening." In the course of two separate public conversations Lewis said

that he found “listening” to be a “horribly impoverished” term to describe what improvising musicians do (Lewis, George E., “Improvisation as Way of Life”). I like the term attending because it creates space to acknowledge the degree to which non-sonic phenomena can and do influence listening and composing. I also like it because of how it prevents listening from ~~being~~ becoming a receptive act and focuses it ~~as~~ <sup>into an?</sup> an active process — attending is something one engages in. The definition of attending from Merriam-Webster’s dictionary has become a primary focus for my practice with the term — words on which I meditate:

- to pay attention to
- to look after
- to go or stay with as a companion, nurse, or servant
- to visit professionally especially as a physician
- to be present with: accompany
- to apply oneself
- to apply the mind or pay attention: heed
- to be ready for service
- to be present
- to direct one's attention: see (Mirriam-Webster)

This shift to “attending” as a way of describing my listening practice represents a sort of a return to the beginning of electronic music history and the way that Schaeffer originally categorized hearing and listening practices. Schaeffer’s third listening mode <sup>italics</sup> “(entendre) describes hearing while attending to particular aspects of sound; Schaeffer describes it as ‘I hear, as a function of what interests me, from what I already know and what I seek to understand’” (Demers 27). *Entendre* is not a direct analog to attend (*attendre* is closer), but the words share the Latin root *tendo* which includes the definitions such as: stretch, stretch out, distend, extend, proceed, strive for, reach for (“Tendo”).

Schaeffer’s ideas are developed en route to a “prescription for how to listen better” and while my interest is not so value-laden, the general desire to change listening remains

(Demers 27). The practice of changing terms has generated subtle but important reconfigurations in my attitude and conditions my behavior in ways that have been an intensely rewarding for my practice. This all stems from the idea that there are a variety of different potential perspectives available to us if we develop techniques for accessing them. Play with words and taking seriously the implications in action now creates a set of tools I use to generate new perspectives for myself. Through this practice I am able to experience directly the differences between ideas and because I can inscribe in sound the effects of a given listening practice I can hear the impacts of the attitude I take in perception.

#### Reflection I: Fieldwork

As I explored the impacts of nomenclature on my listening perspectives, I became increasingly interested in finding other ways to expand my perspective and to examine closely the perspectives on which I relied habitually. It seemed that one of the easiest and most interesting ways to do this was to go to a place where my existing set of assumptions would not function in the same way. I decided to go abroad with the goal of being discomforted and self-conscious about relying on my existing set of assumptions.

While in some ways it seems I could have gone anywhere that was culturally distinct from my home where I have little knowledge of the language, I arrived in Angola though a series of conscious choices imbued with a sprinkling of chance. I had long been interested in the imaginary of Africa and my search began there. I was introduced to Angola specifically through my spouse, an anthropologist who was also in search of a field site. Rebecca was developing plans for one to two years of living abroad in Lusophone Africa; we had a preference for finding a field site where we could do our

research together, but it was not assumed that we would go the same place or spend the same amount of time there.<sup>12</sup> The more I considered Angola, the more interested I became in it. In particular I was attracted to the way it had until the mid-2000s been closed to tourism by a series of prolonged conflicts dating back to the independence war that began in 1961.

The length and severity of the conflicts left the country's wealth intensely concentrated and its infrastructure decimated — many buildings and roads received little or no maintenance for a 30-year period. Conditions in Luanda — a city of 4 million — were especially poor for a capital and a place that saw little direct conflict. Getting to Angola is difficult: the visa process is complicated and unsure, requiring a letter from an in-country sponsor — paradoxically, if you haven't already been there it's hard to get a letter to go there — and flights are few, full, and expensive. Once you arrive, the conditions are particularly difficult. Even hard-travelled development professionals are shocked at the road quality and lack of services in the city. They hate it when their jobs take them to Angola where costs are astronomical and the usual respites from the difficult conditions of their difficult work (cheap bars and lodging on beautiful beaches) are virtually nonexistent.<sup>13</sup>

I was, in part, drawn to Angola for the difficulty of the conditions — I was searching for something that would challenge me and disrupt my experience. I experienced the usual changes that come from learning a new place and a new language as the stochastic availability of power and, more importantly, water in the city disrupted

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<sup>12</sup> Lusophone African countries are the Portugese-speaking former colonies of Portugal: Angola, Mozambique, Guinea-Bissau, Cape Verde, and São Tomé and Príncipe.

<sup>13</sup> Beautiful beaches are plentiful in Angola, but they are often hard and sometimes dangerous to get to. Few have services nearby; those that do are unaffordable except to elite Angolans.

my daily rhythms. The inconsistent availability of produce and bread required me to remain flexible in my expectations about how I could carry out basic tasks.<sup>14</sup> These experiences fulfilled my sensation of a need for change that could push me toward changes in my compositions.

Despite the difficult conditions, Angola is intensely resource-rich. Since the end of conflict, under the pressure of record high world oil prices, there has been a rapid development of Angola's vast offshore oil reserves. Money from oil, from oil companies, and from Chinese loans made in exchange for future oil has fueled large-scale infrastructure and societal change as the country's elite try to develop the country and expand their already massive accumulations of wealth. The conditions and the money have created circumstances for impressively rapid change and it is the pressure of these changing conditions that I was interested in experiencing and observing. The changes observed are numerous, both large and small. Influxes of previously unavailable technologies like computers, Internet access, and even photocopiers (along with the generators to run them) have remade the businesses and thus facades of neighborhoods like the middle-class Bairro Popular where I lived. The influx of the generators necessary to run these new toys along with an explosion of cars and air conditioners has completely remade the soundscape of the neighborhood between 2005 and 2008. Political changes included the first national elections since 1992, a tense period during which people were stressed about what and how free and fair the government would allow the elections to

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<sup>14</sup> There was usually some produce to buy, but what and at what price was unpredictable. Bread availability was subject to the function of the neighborhood's one large bakery. Bread was baked daily and disruptions were common during our first visit — if not eaten by end of the second day the bread was stale and probably moldy because of the climate.

be.<sup>15</sup> I chose Angola for the potential and experience of such changes. To date I have made three trips to Angola: 8-week trips in 2005-6 and 2007, and a 12-month stay from 2008-9. I look forward to a long-awaited return in 2013.

Going to Angola, I had a set of concrete goals for my time that centered around meeting artists and writers in search of texts upon which I could base compositions and individuals with whom I could form long-term collaborations. These missions were largely successful. During the shorter preparation trips I had created a network of contacts. Working from these connections during the longer stay, I made friends within the Angolan Writers' Union, in the television and film industry, and with influential popular musicians. Power and privilege are relatively concentrated in Angola, and my uniqueness as a foreigner-artist contributed to my social mobility. I also developed connections with young artists from the middle and lower class in Luanda and Huambo. These connections have already become the foundations for my next compositional project. I met and recorded a group of youth poets from the Bairro Popular that use poetry to develop social connections, exercise an identity within an important national literary tradition, and advocated publicly for the improvement of conditions in their neighborhood. In 2010, using recordings from 2009, I edited a CD of their live poetry readings and since have been communicating with one of the group leaders about live performance collaborations upon my return.

Still, my broadest mission during my time abroad was to experience new things and to pay careful attention to how I responded to them. My goal was to experience

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<sup>15</sup> The 1992 elections were the product of a peace accord but eventually lead to a renewal of fighting and to the most violent and vicious periods of conflict. People have many reasons to be fearful of the government and of violence. See reporting and commentary by Lara Pawson (Pawson, Lara, "Angola Is

difference and see how I responded — to find out where my mechanisms for perception and action in the world are flexible and rigid, and to see how new experiences might create possibilities for generating new perspectives I could ultimately cultivate and adopt. Some of this work was very clear and conscious, and some of it remains invisible to me. Among the more clear aspects is the degree to which, for me, listening really *is* composing. There are a number of direct connections I see between my experiences and the compositions I created in response. I have learned that walking around in day-to-day life (wherever I live it), just being in the world, is when I perform my most important compositional acts. In many ways the moment of “writing” a piece — creating the software or score — is more one of documentation than of active composition. The invisibilities that remain in accounting for the effects of my experience motivate, in part, the account I give later in this document. Generating these texts is a step for me in the process of continuing to tease out the relationship between my perspectives and compositions.

On the relationship between living and improvising, George Lewis often quotes Charlie Parker as saying, “Music is your own experience, your thoughts, your wisdom. If you don't live it, it won't come out of your horn.” For Lewis “the clear implication is that what you do live does come out of your horn” (Lewis, “Improvised Music After 1950” 119). This sentiment is perhaps the simplest way of understanding my motivation for doing fieldwork: I was interested in finding a way for new things to “come out of my horn” so I sought a path that would not only expand the set of perspectives and experiences on which I drew but would also allow me to investigate my existing habits.

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Stirred by the Spirit of Revolution”; Pawson, Lara, “The 27 May in Angola: a View from Below”; Pawson, Lara, “Angola: The Politics of Exhaustion”).

While my approach may occasionally seem odd from the standpoint of electroacoustic music, I see it <sup>as</sup> ~~is~~ perfectly in-line with the interests and practices that typify the development of the field. The search for new sounds and new experiences as well as the desire to generate new ways of hearing and thinking about the world are at the core of the musical practice as carried out by electroacoustic composers. My practice expands the places and ways that electroacoustic composers search for new sounds — by demonstrating the value of looking up from the machine in addition to looking ever more deeply in and through it.

#### Reflection I: Gourdo

Music, as an art, has always made use of the fact that sound physically disrupts the space in which it occurs and composers have long been understood as influencing the experience of space through the use of sound. Electroacoustic music has extended its practice though enhanced possibilities afforded <sup>by</sup> the ability to use digital technologies to <sup>^</sup> sample, manipulate, and then resynthesize materials from the real world. As an electroacoustic composer, these techniques are at the core of my compositional practice. The technologies invented and implemented in my work, like those of any electroacoustic composer, “are not ‘objective’ or ‘universal,’ but instead represent the particular ideas of their creators” (Lewis, “Too Many Notes” 33). As such the presentation of computational technologies within this document is deeply situated in relation both to the thinking in which they emerge and the contexts to which they respond. Bearing this larger context in mind I will discuss two of the particular computational technologies implemented specifically for the musical compositions of the dissertation. The first is an alternative controller called Gourdo that I designed and built to perform the works and the second is

the sound spatialization technique I used to distribute the sounds over a multichannel speaker system in concert.

My interest in imprinting the effects of my listening on the sounds themselves and my desire to develop a live improvisatory practice fuel an interest in alternate controllers. My developing performance practice ultimately lead to the need for a customized device I could use to control my developing sonic processes and related performance practices — Gourdo is the outcome.

Gourdo is an alternative controller I designed and built to manipulate the playback of sound recordings in live performance (Wanderley and Orio 62). Gourdo has become a set of technologies that I build into individual spherical gourds between six and eight inches in diameter. It's primary sensors are accelerometers that I use to measure how fast the gourd is being moved, when it is being tapped, and how much it is being pitched or rolled (Bongers, Bert 63). Joel Chadabe has described mapping as “the way a performer’s controls are connected to sound variables” (Chadabe, Joel 1). Dividing traditional acoustic musical instruments into three components: “a controller, a sound generator, and a link that connects [the two]”, Chadabe highlights the close coupling in such instruments between the sound controlling and sound generating mechanisms (Chadabe, Joel 1). The experience of this tight link has become one of the dominant concepts guiding electronic instrument development. In electronic instruments, however, each of these components function as independent units with tremendous “structural and functional flexibility” (2002: 1). Gourdo is an instrument designed to leverage such flexibility — it is mapped dynamically in performance, meaning that sometimes Gourdo controls one part of the sound manipulations and sometimes it controls another. Whatever else it’s doing in a

given moment, Gourdo's tilt regularly controls a fade between two different sounds or sound manipulation; watching Gourdo pitch and roll can help cue listeners for large-scale sonic changes. In response to being tapped, Gourdo sometimes produces sounds and sometimes it "re-maps" its controls, moving to a new section of a piece.

Gourdo's design takes inspiration from the gourd-based percussion instruments of a variety of indigenous musical traditions found throughout the African continent. Early instrument and gesture designs were drawn from experiences with instruments and from images of gourd instrument performance available in instrument collections such as the one at my alma mater, Grinnell College (Grinnell College Department of Music) where I first played such instruments. The original instrument was designed for musical games and early rhythm education. As I tested different versions of the instrument and iterated the design, however, I found the gourds with dual-axis tilt sensors as particularly useful for controlling the sound-processing modules I had been building for my compositional practice in Max/MSP. As I experimented I became interested in how the size and shape of the gourd afforded my ability to create performance gestures both with the instrument held away from my body and close to my body, hugging it and moving my entire torso.

Perhaps the greatest strength of the design is that it is small and comfortable enough to hold that it supports free-moving gestures as it has enough volume and weight to give my body something physical to respond to. Because of this combination I have found that I am able to perform accelerometer gestures similar to those found in sensor gloves with more accuracy and precision with Gourdo.

The software that Gourdo controls are custom implementations of common electroacoustic music processes. The software is custom-created for each musical piece,

If this is the first time you mention Max/MSP, you should cite it - (website)

though there is overlap in the techniques used between the compositions that employ Gourdo. Some of the techniques include frequency filtering (Roads 184–94), additive synthesis employing banks of sine waves (Roads 134–56), a subtractive synthesizer (Roads 196–7), a granular synthesis engine (Roads 168–84), FFT-based time stretching and pitch shifting (Roads 444–5), and a variety of vocoders (Roads 134–56). The use of these processes is described in the context of its implementation in each piece in *Reflection II*.

### Reflection I: Spatialization

My interest in the spatialization of sound is rooted in my interest in listening perception. I see manipulation of the spatialization of sound as a powerful way <sup>to</sup> create <sup>^</sup> disruptions in our everyday listening experiences and to challenge our existing perspectives. Though I had long been interested in sound spatialization I had not seriously explored it compositionally until one of my field experiences propelled me down the path.<sup>16</sup>

The sense of disorientation I initially experienced at the large, informal Os Congolenses market near our home in Luanda's Bairro Popular was profound and drew my attention to the relationship between my sonic perception of space and other sensory experience. I initially experienced my disorientation at the market as an inability to localize sounds that augmented my general spatial confusion. Observing the activity of those around me made clear the degree to which I was alone in my experience. I told my neighbors I was baffled by the market and they responded with disbelief; my son's nanny was confused as to why I wasn't able to find specific goods or sections of the market and

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<sup>16</sup> See (Lennox, Peter) for a representative conceptual overview of current issues in computer music

surprised at the degree of stress I seemed to experience on the trips. I seemed to be the only one unable <sup>to</sup> structure my experience reliably and satisfactorily while there.

The market temporarily became a space in which I could explore new listening experiences and observe the way my experiences changed as my body found a way to make sense of the scene. My initial suspicion was that I needed to filter out more of the sound arriving at my ears, listening more selectively within the environment. After multiple trips to the market, however, my sonic experience wasn't changing appreciably even as I was <sup>starting to</sup> ~~start~~ figure out the layout and organization of the space. Still, I grew frustrated at my failure to figure it all out and the impact it was having on my missions to procure goods for our household.

Despite my growing frustration I persisted and I now have a very clear memory of the moment in the market that everything seemed to slow down. I had ventured out on my own, something I had done little up to that point, as my ability in Portuguese was still limited to greetings and counting. I had started to feel trapped, however, both by too much time at the house and by my limited independence. I went hoping to find more produce than was available from the sellers on our corner, some batteries, new music, and a hat. My expectations were well calibrated — I was determined only to go and to return. Finding something I wanted and successfully negotiating a transaction were independent, bonus accomplishments.

In the heat of the late-morning sun with lunchtime traffic picking up, the market area seemed as bewildering as ever from a distance. I entered the main section and elbowed my way into a line I had previously discovered that both consistently existed and meandered in the general direction I wanted to go. Jostling against fellow shoppers as we

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spatialization.

weaved between the goods and sellers sprawled around on the ground, I gained a little bit of height above the crowd on a small dirt rise. Looking out over the market it all suddenly made sense. I could see which crowded paths would take me through the purses and clothes, past the kitchen implements, around the meat, and to the area where the ladies with produce were gathered. In the very moment that I could see how the market was organized it also seemed as though I could suddenly localize sound. When a vendor called to me, I could tell she was talking to me and which direction she was shouting from. I could hear the individual voices of the people around me and could suddenly make out words and sentences.

great  
story!

Until the breakthrough moment, my inability to see an organization dovetailed with my inability to <sup>italics</sup>hear an organization. Once I had a conception of the larger market's organization and a visual understanding of the space, my ability to localize the sound returned to me. I wasn't successful at using sound as a primary way of orienting myself in the space — either my ability to localize sound was dependent on my understanding of the space or I was only able to use sound as a way of verifying other perceptual information. Inspired by this experience, I now use the spatialization of sound in my work in odd or unpredictable ways to productively disrupt listener perception as I create pieces focused on changing or questioning our listening perspective.

In addition to the individual spatialization covered for each work in *Reflection II*, the concert order created a spatial gesture through the entire program. *Tilt, Shift* is for stereo speakers, distributed to a left-right pair in the front of the hall. *Awakenings* begins with focused sound from front-center and slowly expands to include the eight channels surrounding the audience, enveloping the audience in sound. *When the water returns*

carries the sense of diffuse sound further with the eight channels surrounding the audience playing one sound while a set of eight speakers at the back of the stage reproduce a barely-audible field recording. This piece carries the sound beyond the concert hall as audience members often question if sounds of the piece are coming from inside or outside the space. The final piece on the program, *Ombela*, begins in the eight speakers surrounding the audience and slowly shifts to a position set immediately behind the performer at the rear of the stage, moving from diffuse environmental sounds to the focused sound of single human voices. The concert begins and ends at the front of the performance space having filled the space in the middle.

This design creates a compositional arc for an experience of space that mirrors my own listening experience in fieldwork. At the beginning of my time in Angola, I had the sense of hearing sounds close to my body. As I expanded my listening, my listening ability, and my listening practice I began to hear a broader and broader sound world. As I learned how to pay attention to and to interpret the wider environment, my listening shifted through space and context to and ability to listen more empathetically to my friends and neighbors. It seemed as though I necessarily began focused on myself, slowly expanded my listening until able to hear the environment when I could finally shift my listening position to account for the perspective of others.

Except for the customized system described in the section for *When the water returns*, the spatialization software in the compositions is built around ambisonic technology using an implementation of Max/MSP objects by Philippe Kocher and Jan Schacher (Kocher, Philippe and Schacher, Jan). As opposed to amplitude-based panning techniques, which are concerned with the distribution of a *sound sources*, ambisonics is

concerned with synthesizing or recreating entire *sound fields* (Malham and Myatt 58).

— One of <sup>the</sup> its most important features of ambisonics is its separation of the encoding of the sound field from its decoding. The advantage of this for electroacoustic music is that it allows for an appropriately encoded spatial composition to be accurately reproduced over a wide variety of loudspeaker setups with the appropriate decoder settings. This innovation helps address a problem of portability for multichannel electroacoustic works (Austin 22–3) though there are challenges and flaws with this system like any other (Otondo and Barrett 12).

— In reproducing the sound field, ambisonics uses all of the available speakers in the array to reproduce direction sound cues. This means that the system, more than other techniques, effectively “get[s] the sounds to move out of the speakers” (Austin 23). The other main advantage of ambisonics I exploit in my work is the need to encode and decode the sound field, but not for the purposes of portability (though that’s nice, too) but for the fact that the Max/MSP implementations provide an opportunity to process the encoded sound signals directly — opening a way to experiment with and process the spatialization of the sound in new ways (Wakefield, Graham 126). In the associated concert works I effectively apply reverb to the entire sound field by adding reverb to only two of the encoded signals — a shockingly efficient and effective method of adding reverb to 8-channel sound. I look forward, in future compositions, to exploring the possibilities of performing further, and more exotic, processing on these composite signals <sup>in</sup> creating disruptions of spatial sound to further perceptual experiences.

[Reflection II begins here with the edited descriptions of the 4 works.]