First Time

Pat McMaster

Soundscape Composition

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Introduction

First Time invites the listener to boldly plunge "ears-first" into a guided, aural adventure through mysterious, mind-bending soundscapes where not everything is as it seems. Thematically, my aim was to use this compositional opportunity to follow three distinct threads.

First, time. At the end of last year I premiered a collaborative, interdisciplinary performance which was in development over the course of three seasons. While the main work and rehearsals for the final performance were primarily conducted during the Fall, the date of the (outdoor) performance was scheduled for the beginning of Winter. We were interested in juxtaposing the season in which the piece was developed with the season in which it was performed, and so through careful planning, recording - and preservation of foliage - we were able to reproduce elements of a Fall evening during the performance, despite there being virtually no natural representations of that season left.

One of the initial mental pictures I had for this piece was that of a sunny, East Coast beach landscape. In the center of the landscape was an open door, through which a snowy, Gatineau forest scene could be seen. Juxtaposing sounds strongly identified with different seasons, such as boots crunching through snow, or summer insects buzzing by the coast, were among my earliest concepts. The completed piece uses shifting seasons, alterations in time perspective and ultimately loops back in time onto itself in its final moments.

The second thread I wished to follow was the congruence-incongruence continuum. I wished to explore the idea of an embodied listener moving through several distinct spaces in which the collection of sounds experienced fell into the following categories:

- *congruent*, describing sounds could logically be identified as belonging to the greater whole, ie. they sound "natural" within the rest of the soundscape;
- *incongruent*, describing sounds that are identifiable but are clearly "trespassing," unequivocally belonging to another soundscape that would be familiar to the listener;
- *abstracted*, describing sounds that take either congruent or incongruent sounds and through transformational methods render them unfamiliar, difficult to place or surreal;

Over the semester we discussed on several occasions the way in which the proliferation of inexpensive, portable playback devices (phones, bluetooth speakers, etc.) have facilitated sounds from one place being brought into another. As these extrinsic sounds increasingly infiltrate familiar sound

environments, this growing sonic incongruence calls into question where certain sounds truly "belong." I confess that I personally have an extremely low tolerance for such sounds, but am nevertheless interested in how these trespassing, extraneous sounds affect our relationship with the environments we find ourselves listening in.

Lastly, I wished to challenge myself to use my voice and narrative to bring the listener along with me for an adventure they could experience from the comfort of their chair. This choice introduced layers of vulnerability to the piece. Using the sound of my voice indirectly brought together the audience and composer, embedding an element of my personal, physical self within the composition. While in no way unprecedented, it is uncommon, especially in acousmatic works where there is generally a certain anonymity granted the composer and where links between themselves and the audience are virtually nonexistent. The narrative framework and speech elements simultaneously risk being perhaps *too prescriptive* in communicating the intention of the piece - not leaving enough space for the audience to experience it "freely" - or not clearly articulated or sufficiently explained, potentially failing to live up to the inferred promise that a narrative composition makes, steering the listener through a logical, unambiguous experience. I accepted that, especially given the playful, deliberately misleading elements of the piece and the intentional blurring of lines between composer and audience, that any limitations in the narrative's ability to resonate with the listener would be in themselves interesting, experimental developments which could provoke compelling discussions or reflections.

Over the course of 9'30", *First Time* playfully explores these themes by taking the listener through three distinct scenes, after a brief introduction or prologue, and before ending the piece with a short epilogue.

Concept Development

My initial conceptual notes for the piece were:

- Exploration of a continuum of congruency between naturalistic or in-situ sounds to “trespassing” sounds (those from one location convolved to sound like they are in another.)
- Generation of spectrally-related liminal spaces to serve as transitions between different environments.
- Embodied movement through naturalistic and synthetic spaces via discrete portals.
- Forsaking ‘floating head’ moving perspectives, aiming instead for an accompanied journey.
- Conceptual investigation of a disordered headspace, literal and figurative closing and opening of doors and possibilities, subverting expectations of proximity or intimacy between composer/audience identities.
- Varying speeds, directions, intensities and planes of movement.

I wanted to limit myself to three distinct scenes, with a prologue and epilogue, and it took some time to land on what features I was particularly interested in showcasing in each one. Ultimately I decided that aural illusions, convolution and alterations in time perception were the three ‘engines’ behind my scenes, with the use of my voice acting as a through line or anchor for the listener.

Over the course of the development of the piece, I found naturally occurring discrete portals such as stairs, windows and elevators were more effective than the liminal spaces I originally considered. I did use spectrally-abstracted sound sources as major components in each of the scenes,but not as transitions.

Technical challenges relating to spatialization in the Concordia octophonic studio meant that convincingly simulating dramatic, varying physical movement was not able to be realized in a transpicuous manner, and so a less experimental approach to spatialization was used.

Research

I had very much wanted to use concatenative synthesis as a technique throughout the piece. It is a relatively new form of working with sound, and I have heard very interesting results from IRCAM where a considerable amount of the development of this technique is taking place. Using machine learning to categorize a large collection of small sounds or "grains" based on several analysis methods, one can then process a given sound by automatically analyzing its content and selecting the most closely-matched grain from the collection, concatenating as many of the grains as necessary from the collection to match the length of the given sound. The more varied the collection of sounds, and their similarity to the provided sound to process by this method, the higher the fidelity of the reproduction. I was ultimately not able to get the kinds of results I had intended, and will need more research time with the concatenative synthesis tool I have been using: Dillon Bastan's *Coalescence* Max for Live device.

I was interested in exploring serial convolution using impulse responses taken from the same location as the material to be processed. I convolved a very long recording of the ambience of the Concordia Greenhouse with an impulse response taken in the same location, and then convolved that with the same impulse response, again and again, yielding results that are similar in output to auto-convolution, but in which I was easily able to sculpt each stage of the serial process via equalization, dry/wet balance and gain, giving me a great deal of control over the results. Sound examples at each stage of this process, and for all the methods described in this paper, will be available in the appendix.

While *First Time* is my third work for an octophonic speaker arrangement, following *duedo21* (2020) and *VLCN* (2023), it is the first in which the reproduction of natural soundscapes was a priority. Much was learned from techniques employed by Barry Truax and others referenced extensively in the soundscape composition section of the tutorial for the Handbook for Acoustic Ecology, and through Professor Truax's detailed spatialisation notes on pieces such as *Aeolian Voices* (2013), *The Garden of Sonic Delights* (2015-16) and *Rainforest Raven* (2020). This information proved invaluable for understanding various approaches to taking stereo recordings into an octophonic space using positioning, delay and reverberation.

Gabriele Proy's *Waldviertel* (2005) uses recordings made over several seasons to create a soundscape that would not be possible to experience at a specific moment in time, but for which I would venture most listeners would assume as entirely plausible. This inspired me both not to worry too much about

minor incongruencies but also to ‘go big’ with deliberate muddying of time sources if I wanted to get my message across, as the audience may be too forgiving to notice subtle shifts.

Barry Truax’s *Chalice Well* (2009) opened many doors to ways of thinking about the construction of imagined soundscapes, both creatively and technically. The piece takes the listener through discrete environments in which familiar and abstracted sounds are heavily interrelated, and in which one is rewarded for surrendering to the imaginative qualities of the chambers instead of trying to construct a mental map of the experience. Additionally the inventive use of non-traditional convolution techniques encouraged me to follow the results of experimental convolution processes rather than having a prescriptive idea in mind on what should be convolved with what.

Ronald Boerson’s *Silence is Immanent* (2019) makes excellent use of layering and subtle manipulation of sound materials in order to produce an often otherworldly atmosphere, but one generally grounded in listener-approachable field recordings. The effectiveness of this piece served as an inspirational starting point to consider ways in which the sound elements could be used as construction materials to architect a dense, compelling listening experience that transgresses the boundary between nature and the fantastic.

Technical Description

Sound Sources

The primary sound sources for *First Time* were my own field recordings, chiefly:

- The coastal shoreline of the East Coast of Prince Edward Island, recorded in 2020;
- A winter soundwalk through Lauriault Trail, Gatineau Park, Québec, recorded on December 10, 2023;
- The sounds of my voice, skin, the Concordia Greenhouse, John Molson Building, and the 3D-printing room at the Technology Sandbox, all recorded at Concordia University, Montréal, in the Spring of 2024;
- The sound inside an STM metro train recorded at Saint-Michel station, Montréal, in the Spring of 2024;
- Ambience and "foley" recorded at my home in Montréal, in the spring of 2024;

Processing Software and Tools

I chiefly used convolution, granular and frequency-domain transformations on my source materials, employing the following tools to achieve my results:

- Ableton Live's *Vocoder* plugin;
- Anri Kunitake's *Spectlabo2* spectral editing Max for Live device;
- Dnksaus' *Hologram* spectral gate Max for Live device;
- Tom Erbe's *Erbe-Verb* modeless, continuously variable reverb algorithm;
- Eric Thomas' implementation of the Cycling 74 phase vocoder for Max for Live;
- MeldaProduction's *MConvolutionEZ* convolution VST effect;
- MeldaProduction's *MGranularMB* multiband granular VST effect;
- MeldaProduction's *MMorph* spectral morphing / transfer VST effect;

The piece was assembled and mixed in *Ableton Live* and spatialized using Live's *Surround Panner* Max for Live device.

Composition Process

I started with preliminary études exploring techniques which I did not have much prior familiarity with. I used convolution to process a given sound using an impulse response that was captured in the same space, as an alternative to direct auto-convolution of a sound by itself. I then worked through several techniques to process stereo field recordings in a way in which they produced a natural-sounding ambience in eight channels. I built upon the success of these early experiments by producing the first draft of the convolution-centric, second section of the composition.

I next set my sights on the first section of the piece, using sinusoidal amplitude changes on noisy recordings made inside an STM metro train to simulate cyclic wind or surf. I embedded these sounds within the coastal, Summer field recordings from Prince Edward Island and created the first *trompe-oreille* or aural illusion of the piece.

Next, I finalized the script after a long revision process and recorded my voice and the foley sounds of locked doors, windows opening, creaky stairs, elevator doors and the quiet ambience of my apartment.

I continued my convolution experiments, incorporating further transformations in the form of phase vocoding, spectral gating, vocoders and Tom Erbe's reverb algorithm. These resulted in the raw materials for the final section of the piece, which I embedded alongside a seemingly endless descent in the Concordia music building's elevator.

I then brought together the narrative and foley elements, and presented it to the class as a first full draft. Based on the feedback of Professor Truax and my fellow students during this and subsequent listens, I made tweaks to the script, re-recorded some of the vocal elements and tightened the pacing of the piece.

My final tasks were centered around improving the spatial gestures, equalizing out unwanted resonance, and adjusting the balance between tracks. As each scene was composed and produced separately, this process was not without its own challenges, but by going this route and using submixes the final mixing session in my DAW was far less unwieldy than it would have been to have the entire piece contained in one session.

In discussions with Valentina Plata about the composition, I listed all the approaches and techniques that I was exploring for the first time. First time using convolution as a compositional tool. First time building a piece around field recordings. First time using my speaking voice in a composition. First time recording and using foley. As I was listing these, she suggested that *First Time* would be a great title for the piece, referring both to the new techniques and considerations I was employing in its composition and to the narrative of taking the listener on a first-time expedition through the imaginative and puzzling soundscapes I was building.

Collaborations

I owe a great debt to my fellow students, Valentina Plata, Paul Scriber and Fin Sontag for their support, feedback, encouragement and generosity throughout the past months. Valentina especially has been an invaluable collaborator, having been my co-field recordist for soundwalks which contributed source material to the piece, having engaged with the materials in the studio, listened to the many drafts I developed and offered both practical and creative advice throughout the entire process. Professor Truax's openhandedness in sharing his experience, observations and insights encompassing the technical, compositional and philosophical in equal measures was absolutely invaluable to the development of *First Time*. His belief in the achievability of the piece and my aims was a tremendous source of strength and both helped to bolster my boldness in pushing into uncharted territory and reinforce my confidence in being able to realize my vision.

Final Work

Prologue / Ascensus

My voice is used to build a narrative around a shared adventure into a mysterious unknown. The listener is encouraged to choose an intention for the experience, something they hope to encounter, a feeling they'd like to experience or something they'd like to explore. The aim of this is to encourage the development of a personal lens inside the mind of each listener, one unknowable to myself, through which the experience of listening to the piece will be in some way compared, connected or contrasted. One of my hobbies is performing improvised comedy, and most of our scenes start with a suggestion from the audience that will in some way inspire what follows. For *First Time,* my narration instead suggests that the audience generate and hold onto a private, ephemeral *something*, and my hope as a composer would be that the relationship between that personal, momentary choice and the fixed structure of the piece may yield interesting points of connection. This was also heavily influenced by the relationship between John Cage and Merce Cunningham, who would bring separately-produced, fixed music and choreography together only at the moment of performance.

The sound of a door unlatching, followed by two sets of footsteps on a staircase move the listener and narrator out of the neutral space of the prologue and into the experience itself.

I - Trompe-oreille

A Summer soundscape recorded on the shore of Prince Edward Island's East Coast positions the first scene as being outside, in "nature." An oscillating noise source that could be either waves or wind is heard. As this scene continues, the whirring, sometimes musical sound of 3D printers appear and recede into the background. Layers of auto-convolved samples of the STM's end-of-the-line Metro train announcement start to build, with the earliest-heard layers corresponding to those samples which have had the auto-convolution process repeated the most times. As we reach the original, unconvolved recording, the noise source is revealed not to be wind or surf, but the clamorous interior of the Metro train itself.

The narration resumes, asking the listener as to whether the train's unlikely arrival might have something to do with their intention, before attempting to guide the listener through a nearby door. This portal is locked, and so an adjacent window is opened, and the listener is encouraged to "go ahead," passing through into the next scene. The window suddenly slams shut behind, and the muffled voice of the narrator indicates that it's fine to proceed ahead alone.

II - Convolution

The crunch of boots in snow opens up this second scene, in which the sounds of Gatineau Park in Winter are the foundational ambience. Ravens make their presence known, as if in response to the intrusion of the listener, before flying off, and the sound of gentle metal scraping / brushing emerges. This sound was part of an improvised performance recorded inside a large, corrugated steel culvert on the Mackenzie King Estate, in which drumsticks, brushes and mallets were played by myself against the metal walls of the circular tunnel. This performance was then convolved using an impulse response recorded in the tunnel itself, and various generations of repeated convolution were layered together as the metallic, resonant centrepiece for this section. In the background, the similarly "re-convolved" Concordia Greenhouse ambient field recording takes on a drone-like texture. The percussive performance ends with another burst of raven calls, and the reunion of listener and guide. "Are those ravens with you?" invokes a questioning of the reappearance / role of the birds, which may rub against some internal symbolism for the listener. The narrator and audience head "back," together, where after a few short steps through the crunching snow, the two enter the third scene.

III - Descensus / Epilogue

After pushing the button for an elevator, the narrator and listener enter, descending endlessly. The double-beep indicating the passage of each floor recedes into the distance, to be replaced by a low frequency drone made from an auto-convolved thunderstorm. This is joined by layers of a complex sound source developed by using a phase vocoder playing back the recording of the STM announcement from Scene 1 at 0.05% speed. This resulted in a very harsh, digital sound which was smoothed out by processing it with Tom Erbe's reverb algorithm. A field recording made of my skin rubbing against itself was treated with *Spectolab*, adjusting the scaling of the spectrum, creating a fuller frequency-band, textured sound. The resulting sound was further treated with a multi-band granular effect, in which only frequencies below 1KHz were processed, with individual grains being pitched up from their original frequencies. This was used as the modulator in a 24-band vocoder patch with the aforementioned Erbe

Verb sound acting as the carrier, with two variations of the resulting sound being panned quickly between speakers 1,3,5,7 and 2,4,6,8 respectively. I wanted to include some discrete spatialisation in this last section to contrast with the more smooth, naturalistic panning which had been experienced in the previous sections, and to have transitory moments of interest layered upon the steady, descending drone.

When the elevator finally reaches the intended floor, the doors open into a space and time that circles back to the opening of the piece. The narrator whispers to the audience: "Hey, we're a bit early. Let's just hang back…don't want to freak ourselves out," as the muffled voice of the narrator can be heard, perhaps in an adjacent room, giving the listener the same initial pointers for the experience as heard during the prologue, nine-and-a-half minutes earlier.

Conclusion and Reflection

Artistic and Technical Achievements / Summary of Learning

I am happy with the way in which the piece explores the congruence-incongruence spectrum with regards to where sounds "belong." As many of the source sounds were taken from my library of field recordings there were limits to the persuasiveness of the trompe-oreilles; had I been able to plan and record different environments specifically based around their ability to be convincingly embedded within one another I would have been able to achieve more aural illusions, but I am pleased with experiment of including a range of sounds stretching from those with a very long history (birds and insects) to those which have only recently appeared (a room full of 3D printers).

I feel that I was successful in tackling a narrative-driven composition with a sense of playfulness. I was also able to continue my work in questioning the established relationship between composer and listener, and in bending expectations around what the audience might imagine from a piece presented in the context of soundscape composition. Despite not all my field recordings having been made under optimal conditions I am satisfied with the coherence of the parts that were meant to be coherent, and in how the processing of those recordings produced interesting and complex sound materials.

Technically there was a sense of accomplishment felt in taming the speaker arrangement of the studio and getting it to represent my spatial ideas, even in a less ambitious final form than initially intended. Working on scenes independently and using submixes to assemble them together was a new way of tackling longer compositions, and near the end of the process was running quite smoothly.

I found the exploration of convolution to be extremely satisfying, having had a chance to try a number of serial impulse response convolution, convolution by an unrelated sound source and auto-convolution experiments. There is still much to investigate, including the use of small, moving windows, creating hybrid impulse responses by convolving existing impulse responses with unrelated ones, using rhythmic sounds as convolution sources, pseudo-auto-convolution using frequency-shifted or otherwise spectrally transformed versions of the material to be convolved, etc.

On the whole, through the process of this composition I was able to identify new techniques and sounds which fit neatly into the personal aesthetic I have been developing since my earliest work in electroacoustic composition. Adding these to my tool box feels very rewarding and I look forward to deepening my understanding and exploration of the use of field recordings, soundscape composition principles and the techniques which helped to realize *First Time*.

Future Directions and Conclusion

One of the possibilities that wasn't immediately apparent to me during this process was to use the quadraphonic setup at my home studio to work on the spatialisation, and then to change the speaker configuration in Live's *Surround Panner* to eight channels, which intelligently preserves the motion and spatial gestures, simply adding in the additional speakers. This would have allowed me to work independently of the challenges in the Concordia studio in directly accessing the eight speakers, and while certainly some tweaking and adjustment would be required due to the change in configuration, the broad strokes of my spatialisation could have been done in a way that required considerably less difficulty and no commute time.

I have learned a great deal about what makes for ideal field recordings, mostly through having to confront issues with previous recordings, be they handling noise, wind, or not recording enough ambience for later editing. I have also decided that I will be using a web-based, multi-composer field recording database which I have recently developed in order to have a searchable, organized and up-to-date method of describing and locating field recordings. I hope to launch this publicly in the Summer.

The idea of the *trompe-oreille* is still something that I would like to explore further, as is the work of transgressing established audience/listener relationships. This piece has encouraged me to bring elements of myself into my work, and I look forward to pushing this further outside of my comfort zone in future compositions.

I am also inspired to work on a "pure" soundscape composition in which I leave my bag of electroacoustic treatment tricks outside the studio and connect to the spirit of the many inspiring pieces which were realized solely with only lightly processed field recordings that we were able to hear this semester.

I am extremely grateful for the opportunity to have worked with my fellow students and Professor Truax on this piece. This close relationship between peers and professor is not typically available to students, and I feel very privileged for having been a part of it. Additionally, the resources that were shared with us both in terms of readings, the WSP database and the many excellent examples of soundscape compositions which we were able to listen to have profoundly deepened and broadened my understanding of the history, approaches and repertoire of soundscape composition, serving as a foundational cornerstone of future exploration of soundscape studies.