Master of Music

A thesis

submitted in fulfillment

of the requirements for the degree

of

Master of Music in Composition

at

The University of Waikato

by

Teresa Marie Connors

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

2013

Statement of originality

With this statement I hereby declare that the submitted Master's thesis is my own work and that, to the best of my knowledge, it contains no sources or resources other than the ones mentioned and acknowledged.

I have indicated all quotes, citations and references that were literally taken - in full, or parts of them- from publications, i.e. books, journals, academic articles, whether published or unpublished, as well as web sources.

I declare that this is a true copy of my thesis as approved by my thesis committee and that this thesis has not been submitted for a higher degree to any other University or Institution.

Signature:……..

Date:……..

Abstract

This portfolio of compositions involved the creation of multimedia works within the context of collaborative artistic practice.

This interest has resulted from my increasing participation in multidisciplinary collaborative projects in recent years as a composer and singer. In the portfolio of works I have drawn on a range of theoretical texts from the fields of cognitive science, psychology, sociology and spirituality to develop a supportive discourse with which to reflect on the creative intersection of activities.

Five collaborative compositions were created and realised. These range from a self-generative installation to a traditional film score.

To examine the creative process, I have constructed a continuum that situates each piece between polarities of product or process-driven work.

On one side of this continuum is *Beads,* a generative sound/video installation which explores video tracking as a compositional agent. At the opposite pole is *The Old Woman in the Woods*, a typical cinematic film score.

Situated between these two extreme points are *Terroir*, *Let It Go*, and *Aspects of Trees*. *Aspects of Trees* is a hyperimprovisational system for visual projections, live cello, and software application. *Let it Go* explores the balance between improvisation, composition and "composed" instruments. *Terroir* is a fixed media experimental film which uses a single data source collected from an old cell phone.

Acknowledgements

I would like to thank all of my fellow collaborators who participated in this thesis: Rene Burton, Caroline Coutts, Andrew Denton, Shannon Harris, Rick Jones, and Charlotte Ketel. It has been my pleasure working with you.

To my family in Newfoundland, Toronto, and Calgary for their support during this artistic and academic endeavour. I am particularly grateful to my niece Keltie Madeline Connors whose love of all things artistic is a joy.

My sincere thanks to my supervisors Associate Professor Martin Lodge and Associate Professor Ian Whalley for their essential recommendations during this thesis. It has been a journey!

I would like to thank my friends and colleagues engaged in their own research – PhD and otherwise. The sharing of your hard-earned insights was invaluable to my own research. I would also like to thank my good friend Linda Nessel for her proofreading skills.

To my late parents Madeline and Raymond Connors, and brother Michael.

Table of Content

Statement of originality ii
Abstract iii
Acknowledgements iv
Table of Content v
List of Figures vii
Multimedia Collaboration as Art Practice 2
Introduction 2
Collaboration, Connectivity, Skills, and Technology 3
The Continuum 7
Portfolio 9
Beads 10
Introduction 11
Background 11
Concept 13
Strategies of Generative Installation Composition 14
Reflections on *Beads* Collaboration 19
Aspects of Trees 21
Introduction 22
Background 22
Construction of the MaxMSP/Jitter patch 23
Future Works 26
Reflections on *Aspects of Trees* Collaboration 26
Let It Go 27
Introduction 28
Background 28
Construction of the MaxMSP/Jitter patch 30
Reflections on *Let It Go* Collaboration 31
Terroir 32
Introduction 33
Background 34
Strategies of Soundscape Composition 35
Other sound structural elements 37
Reflections on *Terroir* Collaboration 38
The Old Woman in the Woods 39
Introduction 40
Collaboration and the Film Score 40
The Initial Talk 41
Technical strategy in creating the film score 42
Finding the Right Tone - How Sound Design Informed the Score 43
Reflections on *The Old Woman in the Woods* Collaboration 47
References 48

Appendix A **51**
DVD 1: Contains *Beads* folder with all necessary Max/MSP/Jitter files, externals, and ReadMe.pdf file. 51

Appendix B **51**
DVD 2: Contains *Aspects of Trees* folder with all necessary Max/MSP/Jitter files, externals ReadMe.pdf and performance documentation. 51

Appendix C **51**
DVD 3: Contains *Let it Go* folder with all necessary Max/MSP/Jitter files, externals and ReadMe.pdf and performance documentation. 51

Appendix D **51**
DVD 4: *Terroir* 51

Appendix E **51**
DVD 5: *Old Woman in the Woods* 51

List of Figures

Figure 1: Multimedia Continuum 7
Figure 2: Nurdles washed ashore at Otara Bay 11
Figure 3: Camera view from within the nurdles 12
Figure 4: Camera view during the wave of significant height 12
Figure 5: Camera view after the wave of significant height 13
Figure 6: *cv.jit.threshold*, *jit.scissors* and the barcode system 15
Figure 7: *Coll* object connected to the six cello audio samples 16
Figure 8: Top wave barcode system and *Poly~buffer_timbre* 16
Figure 9: Lower wave barcode system with *samplevoice~* and *sweeping_delay~* 17
Figure 10: Essl's *Smoothline* subpatcher 18
Figure 11: Image from the exhibition *Unexpected Spaces*: November 7-11, 2012 at *Auckland University of Technology* 20
Figure 12: Extracted photo stills from the "points of failure" 24
Figure 13: *Aspect of Trees* Max/MSP patch in presentation mode 24
Figure 14: The Old Fire Station on Beresford Street 30
Figure 15: *Let it Go* Max Patch 30
Figure 16: A.Y. Jackson *Hill at Great Bear Lake* 33
Figure 17: Lawren Harris *Maligne Lake* 1924 33
Figure 18: Emily Carr *Vanquished* 1931 33
Figure 19: Christopher Pratt *Labrador Current* 33
Figure 20: Chris Welsby *Shore Line* 34
Figure 21: R. Murray Schafer, *Music for a Wilderness Lake* 34
Figure 22: The crow's beating wings 43
Figure 23: Cue 3 Into the Forest 44
Figure 24: Cue 7 Into the Forest #2, Cue 10 Really Wicked, Cue 12 Breaking the Window 44
Figure 25: Cue 15 New Mother is on the Way 44
Figure 26. Cue 3 Into the Forest #1 melody 44
Figure 27: Cue 7 Into the Forest #2 melody 44
Figure 28: The chiming clock 45
Figure 29: New Mother 45

“There is a vitality, a life force, an energy,
a quickening that is translated through you into action,
and because there is only one of you in all of time,
this expression is unique.
And if you block it, it will never exist through any other medium
and it will be lost.
The world will not have it.”

“It is your business
to keep it yours clearly and directly,
to keep the channel open.”

— Martha Graham

Multimedia Collaboration as Art Practice

> "Perhaps being interdisciplinary is itself a meta-discipline of seeking to form connections rather than boundaries between things" (Pearce 2003: 125).

Introduction

Collaboration is not a new occurrence in the arts. There are many noteworthy partnerships throughout history as well as within contemporary arts culture: composer John Cage and dancer/choreographer Merce Cunningham, Igor Stravinsky and George Balanchine, singer Frank Sinatra and composer/arranger Nelson Riddle, visual artists Christo and Jeanne-Claude (Murphy 2011: 176).

In the late 1960s and during the 1970s, collaboration became an aspect of contemporary art practice specifically challenging and redefining the romantic notion of the "lone-artist-as-genius." Green proposed that those collaborative efforts from this period "challenged not only the terms by which artistic identity was conventionally conceived but also the "frame" – the discursive boundary between the "inside" and the "outside" of a work of art" (Green 2001: x).

These collaborative efforts did not eradicate the romantic notion of the solo creative genius; however, recent efforts aim to demystify this creative process by placing it within the "field of activity" (Homan 2011: 159). This is a systems theory approach to research that, in the context of collaboration, is defined as an "open system" (McCabe 1984: 63).

It is within this "field of activity" that I position my research in music composition in the context of multimedia collaboration. Within this open system there are varying degrees in the collaborative process. As an extension to the multimedia projects contained in this thesis, I document and reflect upon the different modalities of collaboration, and how they influence the process and final product.

To develop an appropriate language as a commentary on a practice that is fundamentally collective and complex, I have engaged with a variety of

theoretical texts from the fields of cognitive science, psychology, sociology, philosophy, and spirituality, as well numerous discussions with my fellow collaborators. This research has been an enriching enterprise covering numerous perspectives that have both advanced and contextualised my notions of collaboration in artistic practice.

Collaboration, Connectivity, Skills, and Technology

> "Collaboration and intermedia reflect a perspective that art is life, an endeavour of community, relationships, and interconnected ecology that form a complete artistic landscape without limits or ownership" (Schedel et al. 2005: 226).

The notion of connectivity is predominant in the fields of cognitive science, psychology, sociology, philosophy, and spirituality. It is noted as being a key element to a healthy society as well as to the individuals that reside within (Montgomery 2013: 66). Connectivity is also cited as being "the primary engine of creativity in innovation for the past 600/700 years" due to the open-ended exchange of ideas and knowledge (Johnson 2010b). From a contemporary perspective this can be contextualized within the open-source learning movement. Johnson refers to this environment as the "liquid network" which fosters the collisions between different fields of expertise claiming that, "that's where the true sparks fly" (Johnson 2010a: 163).

Within the context of contemporary multimedia collaboration, connectivity and knowledge sharing is the norm. Due to the technological advancements of recent years, an increasing number of ambitious creative works are being explored which is fostering the convergence of art forms and the formation of new creative partnerships. One only need go through the list of the collaborators that were engaged for Bjork's creation of *Biophilia,* for example.[1]

This framework of connectivity and convergence between art disciplines underpins my interest in multimedia collaboration. I like to think of collaboration as a means of nurturing an environment where the 'possibility of something to happen' is cultivated. From a philosophical perspective, this

[1] http://bjork.com/#/past/discography/biophilia

touches on Stuart Kauffman's notion of "the adjacent possible-" that within the components of any given moment, many untapped possibilities are available.

> "The strange and beautiful truth about the adjacent possible is that its boundaries grow as you explore those boundaries. Each new combination ushers new combinations into the adjacent possible" (Johnson 2010a: 31).

From the spiritual practice of Buddhism, a similar notion to the "adjacent possible" proposes that "embedded in what is right here is the innate possibility of what can unfold out of this moment, and when we are open to it, rather than have a storyline of the future, we are available in an incredibly creative and dynamic way to what is possible" (Brach 2011).

During conversations with my collaborative partners, it has also been evident that the exploration and expansion of boundaries and the cultivation of connections and possibilities have encouraged their own interests in collaboration. It enables an artistic conversation that goes beyond any singular knowledge base with the desire to creatively know, influence, be affected, and/or co-exist with another individual or group (French 2013). Within the context of multimedia collaboration the possibilities are that much more expansible with the convergence of multiple influences.

A particular skill set is needed to be an effective collaborator and this is "not unlike other skill sets such as 'aural skills' or 'linear perspective' and are a vital part of education, creation and research in the arts"(Watts 2004: 295). One of the key proficiencies is the ability to effectively communicate.

> Collaboration and dialogue go hand in hand; each is critical to the other. In my experience, when people inhabit a metaphorical space and are engaged in a polyphonic process for collaborative relationships and dialogic conversations, imagination and creativity are invited as they begin to talk with and hear themselves, each other and others, in new ways that permit the construction of something that has not existed before. The newness that develops can express itself in an infinite variety of forms. (Anderson 2012: 135)

Within the trajectory of any given collaboration, this capacity to dialogue is fundamental to the success of the process and project. What is needed is a shared language particular to each partnership – one that often extends

beyond verbal communications to include the written word, drawings, metaphors, and media diaries to achieve an interaction that is beneficial to the development of any given project (Mamykina 2002: 98).

Beyond the ability to converse and develop a shared language, one must actually have a skilled artistic discipline. During these five projects, as well as a collaboration that took place outside the context of this thesis, my observation was that each member of the team was a highly trained practitioner in their chosen field. Each was well read on the theoretical literature pertaining to their art practice and, for the most part, all have been pursuing a career on an international scale for several years. In addition, each collaborator was well-educated in the art fields of their colleagues. As one of my long time collaborators said, "You can't have interdisciplinary collaborations without a discipline" (Denton 2013).

My mode of dialoguing is multiformated and includes drawing, visuals, musical sketches, as well as written conceptual ideas and key words. I bring my "black book" to each meeting and have found this to be of great benefit in tracking the developments of any given project. The "black book" also allows for revisiting the existing creative ideas as the project progresses. I have books dating back to 1997 and in an attempt to expand this practice today, I include online diaries which are shared between collaborators. The online diaries contain information and links to any research pertaining to the project: YouTube and Vimeo videos, audio recordings, quotes, software programs, and theoretical articles - a contemporary version of the "commonplace book."[2] To an outsider the "black book" and online diaries might look chaotic and incomprehensible, and at times they are chaotic. However, I have learned to embrace this "edge of chaos"[3] as a positive and necessary aspect of my creative process.

---

[2] The "commonplace book" was a practice of transcribing things of interest into a book. This dates back to The Age of Enlightenment in Europe and America. "The great minds of the period—Milton, Bacon, Locke—were zealous believers in the memory-enhancing powers of the commonplace book" (Johnson 2010c).

[3] The "edge of chaos' is a term coined by computer scientist Christopher Langton who claimed that "innovative systems have a tendency to gravitate toward the 'edge of chaos': the fertile zone between too much order and too much anarchy" (Johnson 2010a: 52).

> Instead of thoughts of concrete things patiently following one another, we have the most abrupt cross-cuts and transitions from one idea to another, the most rarefied abstraction and discriminations, the most unheard-of combinations of elements…a seething caldron of ideas, where everything is fizzling and bobbing about in a state of bewildering activity, where partnerships can be joined" or loosened in an instant, treadmill routine is unknown, and the unexpected seems the only law. (William James)

Technology has greatly influenced the trajectory of my present research and has become an important collaborative partner. *Beads, Aspects of Trees,* and *Let it Go* are works that were conceived from an open network of ideas developed by the conceptual intentions of the team with the results being unachievable by any one individual or without the use of technology. Technology "is particularly important in a dynamic audiovisual and multimedia context"(Zavada 2009: 2) and has expanded the creative "field of activity" enabling ideas to freely traverse between the different art practices.

> Technology can serve as a catalyst for collaboration – enabling data to be shared quickly and easily, acting as a translator between different realms, or simply functioning as a common bond between artists working in disparate media. (Schedel et al. 2005: 225)

In conversations with fellow collaborators, it has appeared that recent developments in technology have allowed "the ability to transport the viewer to points of view that were previously impossible or very difficult to reach" (Burton 2013). From a personal perspective, technology has allowed the convergence of my previous fine art and music studies with my present composition research towards what feels like a more holistic approach to my practice.

The Continuum

For the purpose of contextualizing the five multimedia projects included in this portfolio, a continuum was constructed which situates each piece in varying degrees of product or process-driven works. From left to right, this continuum reveals a transformative relationship that exists between the collaborative frameworks of the audiovisual pairings.

> There is a fundamental difference between the audiovisual contract at the basis of cinematography and the audiovisual contract that governs the relationship between sonic and visual streams in visual music. Such difference has its roots not just in the profound dissimilarities between the two idioms but, perhaps more importantly, in the extremely distant expectations that stakeholders (composers, producers, listeners, analysts, researchers) hold when they 'sign the contract' and use it as a framework to negotiate their relationship with the material. (Diego 2012: 106)

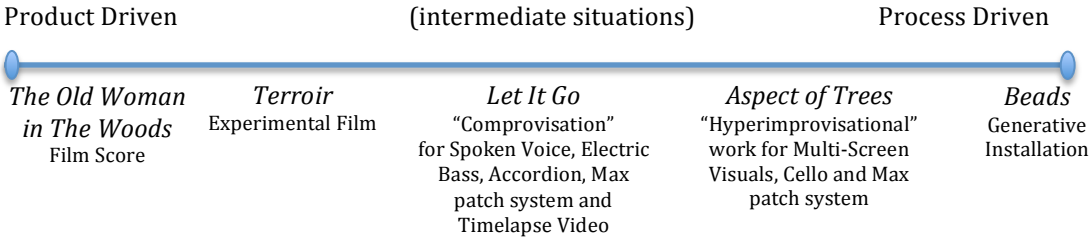


Figure 1: Multimedia Continuum

On the extreme right of this continuum is the self-generative[4] installation *Beads.* This work was constructed based on the notion of "proof of concept,"- a short or incomplete realisation of a certain method or idea done to demonstrate its feasibility. It is an exploratory process-centered collaboration where "the musical outcome of the interaction is…less important than the process" (Weinberg 2005: 32). Weinberg notes that exploratory interactions "are driven by motivations such as the investigation of novel ways [of creating]" (Weinberg 2005: 32).

At the opposite end of the continuum is *The Old Woman in the Woods.* As the typical product-driven collaboration, the focus of this interaction was "goal-oriented" where the outcome was primary (Weinberg 2005: 32).

---

[4] "Generative music systems are those that create musical output that is different with each iteration" (Eigenfeldt 2011: 27).

With a fixed realisation and an expectation that the musical product will service the film, the composer enters this collaborative process understanding that by a certain deadline a completed and refined product is required.

Situated between these two diverse points of reference are *Terroir*, *Let It Go*, and *Aspects of Trees*.

Similar to the film score for *The Old Woman in the Woods*, *Terroir* was a collaboration where a fixed media composition was required. It was, however, created through the specific process of using single source data collected on an old cell phone. The final outcome was governed by this imposed interaction with the material.

Let It Go marries process and product into a custom-made application and is derived from the interplay between "composed" instrument, improvisation, composition, and technology. This collaboration utilizes the digital media as a means of greater interactivity between moving image and music. As noted by Julio d'Escrivan, "abstraction in cinematic creation has arguably been given a new lease of (sic) life by collaborations between electronic musicians and visual artists" (d'Escriván 2009: 71).

Aspects of Trees is a multi-faceted collaboration involving artists from Canada, New Zealand, the United States, and Australia. It is a process-driven project which proposes that a "poetic and affective mode of inquiry between aural and visual elements might be a more effective means to progress the debates pertaining to anthropogenic climate change" (Denton 2013). A custom-made application was created for the purposes of a live interactive network fostering a condition for each performer to "respond in a sympathetic, symbiotic, [and] collaborative way" (Beilhartz 2007: 213).

Portfolio

Beads

A generative installation using MaxMSP/Jitter
Visual Collaborator: Rene Burton

Introduction

Beads is the first collaboration between landscape photographer Rene Burton and me. It is an interpretation of the ecological landscape through moving image, mapping, and transcoding. Constructed in the program Max/Msp/Jitter, *Beads* uses data collected from the worst maritime environmental disaster to occur in New Zealand.[5] As a self-generative installation, *Beads* attempts to provide a way of conceptualising the landscape as a record of humanity's impact on the environment.

Background

On October 5th 2011, the cargo vessel *MV Rena* ran aground on the Astrolabe Reef northeast of Tauranga, New Zealand. The ship carried 1,733 tonnes of heavy fuel oil and 1,368 containers of cargo. During the stormy months to follow, over 350 tonnes of fuel leaked from the damaged hull and over 137 containers were lost overboard. The majority of the pollutants to wash ashore were nurdles - small plastic white beads (Burton 2012: 8).

Figure 2: Nurdles washed ashore at Otara Bay (Photographer - Rene Burton)

Burton set about documenting the effects that the pollutants would have on the shoreline. His documentation process spanned several months following

[5] Michael Daly "Environmental effects of Rena chemicals unknown," Stuff.co.nz, January 21, 2012. http://www.stuff.co.nz/environment/rena-crisis/6305844/Environmental-effects-of-Rena- chemicals-unknown (accessed January 12, 2013).

MV Rena's grounding and includes both still photography and video. The footage for *Beads* was captured on the remote beach of Otara Bay. By placing a waterproof GoPro camera into the nurdles at the tidemark, Burton calculated that ten-minute intervals would pass before a wave of significant height[6] would wash over the camera and nurdles.

Figure 3: Camera view from within the nurdles (image extracted from video)

Figure 4: Camera view during the wave of significant height (image extracted from video).

6 "Significant wave height is a meteorological term for the mean wave height of the third highest wave" (Burton 2012: 13).

Figure 5: Camera view after the wave of significant height (image extracted from video)

Concept

> … the art work … is no longer a static object or a pre-defined multiple choice interaction but has become a process-like living system (Sommerer C 1998).

Following Burton's documentation process, he suggested that we might collaborate on a project. As collaborators we have a similar interest in the use of environmental data as creative source material. We also share a common interest in the works of artists Nathalie Miebach[7] and Chris Welsby,[8] both of whom create art through the translation of environmental data. Welsby, in particular, positions his work within the "idea of an ontological shift in the way we see ourselves in relation to nature [as] no longer [being] a matter of abstract speculation" (Welsby 2011: 102). He places an emphasis "on the conscious awareness of the process of representation and not on the representation itself [producing works] in which mind, technology and nature are not experienced as separate things divided along Cartesian lines but as interconnected parts of one larger, dynamic system" (Welsby 2011: 102). It is within this theoretical framework that the concept of *Beads* was forged.

---

[7] Examples of Miebach's work can be viewed at http://www.ted.com/talks/nathalie_miebach.html

[8] Examples of Welsh's work can be viewed at http://www.sfu.ca/~welsby

Strategies of Generative Installation Composition

> "If you are not prepared to be wrong you'll never come up with anything original" (Robinson 2006).

After reviewing all the source material, the video footage from Otara Bay was selected to explore video tracking as a compositional mapping tool. As a proof-of-concept process, *Beads* was a suitable project to investigate the feasibility of constructing a generative installation by directly mapping the video data. Alan Dorin writes that "when a process creates a new entity or brings about novel circumstances, it is a generative process with respects to the changes(s) it brings about" (2001: 49).

For this generative process the program MaxMSP/Jitter was used. It was necessary to embrace the hacking approach inherent in this programming world. In his book *Hackers & Painters*, Paul Graham writes that "the way to create something beautiful is often to make subtle tweaks to something that already exists, or to combine existing ideas in a slightly new way" (2004: 20). After much research, five Max practitioners were studied: Jean-Marc Pelletier, V.J. Manzo, Michael Zbyszynski , James Maxwell and Karlheinz Essl.

The initial architecture of the patch relies on Pelletier's *cv.jit* Max externals.[9] He describes these patches as a "motion-based framework for the generation of large musical control fields from imaging data" (Pelletier 2008: 8). From these externals, the *cv.jit.threshold* was implemented which reduced the video image to what I coined the *Beads* barcode system and is referred to as such throughout this paper.

Using the *jit.scissors* object, the adjusted video was dissected into ten rows. From these ten, two videos were subsequently dissected, one containing the movement of the clouds and the other the movement of the waves. A further dissection provided the final barcode system which triggers specific sound parameters. V.J. Manzo's shade detection patch provided the means by which the triggering occurs (Manzo 2011: 299).

---

[9] The *cv.jit* externals are accessible via Pelletier's personal web site: www.jmp@jmpelletier.com

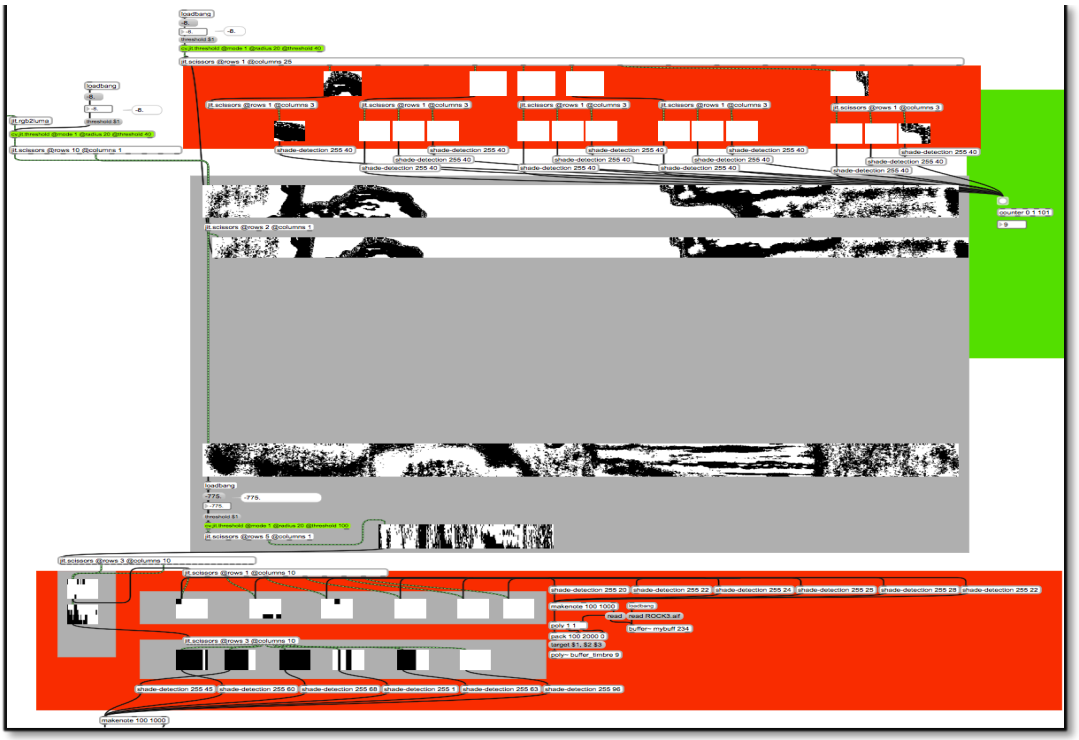


Figure 6: *cv.jit.threshold*, *jit.scissors* and the barcode system

With the shade detection set to black, specific videos were wired to two separate *coll* objects containing weather data collected on the day the *MV Rena* ran aground. David Johnson of *Met Ocean Solutions Limited* of New Zealand provided this information which includes the numerical data on wave height and the fluctuation of ocean water temperature. This data was then transcoded into volume controls, "that is, the translation of something into a different format such as mathematical data into audio, video or any other medium, and in all other permutations" (Ikeshiro 2012: 148).

Specific to the movement of clouds, all thirteen videos were patched to the first *coll* object, triggering volume controls of six pre-recorded cello improvisations. These had been provided by contemporary music cellist Peggy Lee of Vancouver, British Columbia and were recorded as she watched film footage of ocean waves. The audio recordings vary in length between 2:25 and 2:37 minutes, resulting in a new compositional alignment with each loop of the audio. During the *Unexpected Spaces* exhibition at Auckland University of Technology that ran from November 7-11 in 2012, the musical variations originating from Lee's improvisation were wide-ranging.

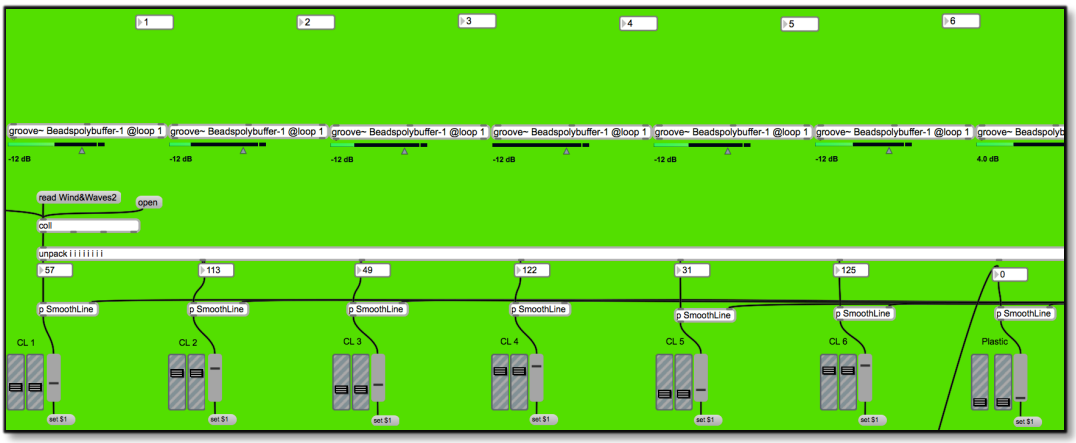


Figure 7: *Coll* object connected to the six cello audio samples

The movement of the waves triggered the second *coll* object along with a multitude of sonic parameters including two barcode systems. The topmost wave barcode system, wired to the subpatch *poly~buffer_timbre*[10] generated six transpositions of a single underwater rock sample (Figure 7). This subpatch is a slight modification of Manzo's patch and functions as a transposing sampler.

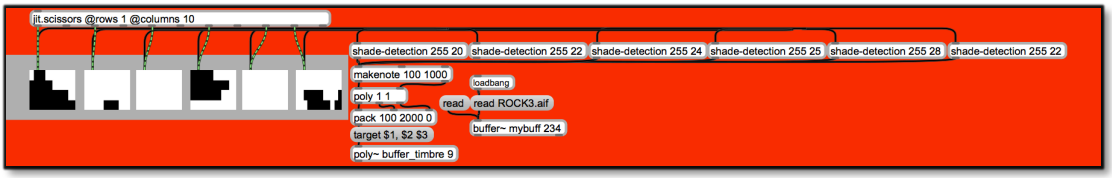


Figure 8: Top wave barcode system and *Poly~buffer_timbre*

In the lower wave barcode system, a similar system was realised using the *samplervoice~* subpatcher found in the MSP Tutorial 20: MIDI Sampler control.[11] This subpatcher assigns samples to specific regions of a keyboard. In this instance, the six audio samples are that of the nurdles, extracted from the original audio captured during the wave of significant height. The outputs from these samplers had been successively routed to a *sweeping_delay~* obtained from the CNMAT MMJ depot.[12]

---

[10] The *poly~ buffer_timbre* can be found in Chapter 14 of V.J Manzo's *Max/MSP/Jitter for Music.*

[11] MaxMSP/Jitter tutorials are provided with the program.

[12] The CNMAT (Center for New Music and Audio Technologies) externals can be found at http://cnmat.berkeley.edu/downloads/

Figure 9: Lower wave barcode system with *samplevoice~* and *sweeping_delay~*

Along with these two sonic layers, nine additional audio samples were patched to the lower *coll* triggering system. These include five audio files, prefixed *Rock*, which had been created using the process of convoluting and transposition of an underwater rock sample, one audio file, *Plastic*, containing the various sounds of plastic being pulled over a large cymbal, and three audio files that had been generated using James Maxwell's[13] abstraction, *The Audio Attributes to Pitch Generator.* A key element of Maxwell's patch is Tristan Jehan's *analyzer~* object, an "FFT-Based Perceptual Analysis [which] outputs pitch [based on the] loudness, brightness, and noisiness [of any given audio input]" (Jehan 2001).

Through Maxwell's abstraction, *Jazz Waves and Glass Waves* were created from analysis of the movie audio. The pitch output from this analysis was routed to Vienna Symphony Instruments, Jazz Drumset, and Musical Glasses. The Jazz Drumset was also used for the third analysis, *Jazz CL*. This time it was Lee's cello improvisation #1 that had generated pitch information for the Jazz Drumset samples.

To realise smooth transitions of volume generated by the *coll* weather data, Karlheinz Essl's *SmoothLine*[14] subpatch was utilized. The *SmoothLine* receives delay times into the *float* object, and in this instance these numbers were included in the two *coll* objects. For the most part, the delay times had

[13] James is a long time-friend and colleague who I have collaborated with on many projects.
[14] The *SmoothLine* subpatch is available in Essl's Real Time Composition Library found at www.essl.at

been set between one and five with an occasional higher integer between six and nine.

This abstraction is a predominant feature in Essl's *Sequitur Generator* which "generates a complex 8-part canon from [an] instrument's live input as an accompaniment" (Essl 2008). With the title referencing Berio's *Sequenze* compositions, Essl had constructed the *Sequitur Generator* as a composition device for solo performers. His cycle of fourteen works is "an attempt to write a series of pieces which take advantage of the idiosyncratic instrumental possibilities - and confront them with a realtime sound processing environment that has its own secret life" (Essl 2008).

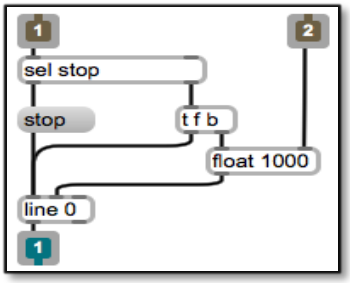


Figure 10: Essl's *Smoothline* subpatcher

The *Sequitur Generator* is a very elegant system. For pedagogical purposes, and with Essl's kind permission, I built my own generator based on his architectural layout. This was an invaluable learning experience with the benefit of influencing the projects that followed *Beads - Aspects of Trees* and *Let it Go.* In addition to Essl's patching wizardry, his philosophical thoughts on collaboration are significant to this thesis, as evident in this excerpt from Essl's keynote address delivered at the INTER/actions Symposium in Bangor Wales 2012: "Towards a Rich Musica Povera."

> To conclude, all these thoughts contribute to a new image of a musician/composer who is autonomous, but also connected with others, embedded in networks which s/he also constructs or maintains. Those musicians are not sitting silently at home in splendid isolation; they are communicating with others, they are collaborating and creating something together. And finally, this is something I learned when the Internet came up, that we are obliged to share what we do, not sitting on our developments, on our software, on our music, but giving it to others and in turn getting other things, other media from other composers and musicians. Finally I want to say that I don't believe in self-glorification of an

> outmoded concept of a genius, but in the power of collaboration and interaction. (Essl 2012)

Reflections on *Beads* Collaboration

> "negative capability" – a willingness to suspend judgment and see reality as another might. That's creativity at its most openhearted" (Tharp 2009: 117).

Tharp's quote, which references the Romantic poet John Keat's phrase 'negative capability', best sums up this collaboration. I was fortunate to have in Rene a collaborator who was able to "suspend judgment." As it was a proof-of-concept process, the development of the patch was at times very slow. Regardless of the pace of progress, at no time did Rene question the validity of my research, but championed the evolution of the work.

Rene is also an outstanding computer technician. With his knowledge base, when it came time to mount *Beads* at the *Unexpected Spaces* exhibition at Auckland University of Technology, all aspects of the technical side were in place. This enabled my focus to remain on the task of patching. Once that was achieved, it was a matter of uploading the assembled 'App' and we were able to progress with ease.

Another positive aspect of this collaboration was the sharing of knowledge and research. This process reflects the notion of the "liquid network" where the exchange of knowledge and ideas fosters an environment of open learning. This process was instrumental in the successful submission to *Balanced/Unbalanced 2013 International Conference* in Noosa, Queensland, Australia. *Beads* will be installed for the length of this conference from May 31 to June 2.

Figure 11: Image from the exhibition *Unexpected Spaces*: November 7-11, 2012 at *Auckland University of Technology* (Photographer-Rene Burton)

Aspects of Trees

A Hyperimprovisational Work for Multi-Screen Visuals, Cello, and Generative Interactive System

Film Collaborator: Andrew Denton

Introduction

Aspects of Trees is the fifth collaboration between Andrew Denton and myself and is an extension of our previous artistic explorations of human impact on our landscape and ecologies.

Aspects of Trees presently resides as a hyperimprovisational (Dean 2003: xxiii) system for visual projections, live cello, and software application. The network as a whole functions as a self-contained hyper-instrument within a carefully designed integrated environment (Bown 2009: 538), influenced by the theoretical position of cybernetics "where the relationship between technology and nature is articulated collaboratively between two interrelated systems, of which one is mechanistic and the other is not" (Welsby 2011: 101).

Hyperimprovisation is a term coined by Rodger Dean to denote the "practice of interacting musically with [a] generative system [in] an exploratory and performative (improvisational) approach (Brown 2012: 3). *Aspects of Trees* expands on this idea by building a live interactive network between visual projections, cellist, and laptop performer creating a condition for each performer to respond in a sympathetic, symbiotic, [and] collaborative way" (Beilhartz 2007: 213).

The conceptual aim of this work is to break through cumulative apathy around the escalating ecological crisis by engaging with the inherent complications of the subject through an evocative and affective mediation of image and sound. "The project's aural and visual conversation proposes that a poetic and affective mode of inquiry might be a more effective means to progress the ongoing debates about anthropogenic climate change around the world. The artistic practice is working towards an ecological politics of aesthetics" (Denton 2013).

Background

The raw material used to create *Aspects of Trees* includes video footage and stills as well as audio captured inside and on the surface of trees.

The visual material was collected by Denton from locations in Australia, Tasmania, New Mexico, New Zealand, and Canada. "The visual element experiments and plays with temporal space and spectacle, composite and abstract imagery, and scale and complexity. It also utilizes multi-channel, extremely high-resolution, time-lapse cinematography and applies it as a forensic tool to highlight human impact on and entanglement with the ecology" (Denton 2013).

David Dunn of New Mexico and Felix Wilson of Tasmania provided the initial raw sonic material. Dunn's[15] audio files had been recorded with a custom-made hydrophone microphone placed inside a tree via a drilled hole. The sounds captured are those of the internal sap drying as well as insect activity. Wilson[16], on the other hand, had recorded the external sounds of trees by placing contact microphones directly on their surface. The predominant sounds are those of the creaking and groaning limbs animated by the wind or rubbing against one another.

In addition to using these recordings as source material, I had facilitated a workshop in Vancouver, British Columbia with a group of singers specifically chosen because of their experience with the Middendorf Breath Experience.[17] I knew that an open-ended exploration was possible with this group, and was able to record a number of vocal improvisations that were later implemented into the generative system.

Construction of the MaxMSP/Jitter patch

The initial artistic inquiry began when we located the "points of failure" in the recorded video caused by Rolling Shutter, which is a distortion that can occur with moving images caused when the "scanlines of the image [are] not being exposed at the same time" (Chang 2013: 1323).

---

[15] For more information on David Dunn see http://www.acousticecology.org/dunn/solit.html

[16] For more information on Felix Wilson see www.felixwilson.com

[17] "Middendorf Breath Experience is one of today's leading somatic practices that develops the theme of allowing the breath to come and go on its own." http://breathexperience.com

Figure 12: Extracted photo stills from the "points of failure"

Via the compositional technique of sonification, extracted photo stills from these “points of failure” were used to manipulate the tree audio samples. Using these initial experiments, and building upon the research that took place during the creation of *Beads,* a MaxMSP/Jitter patch was constructed.

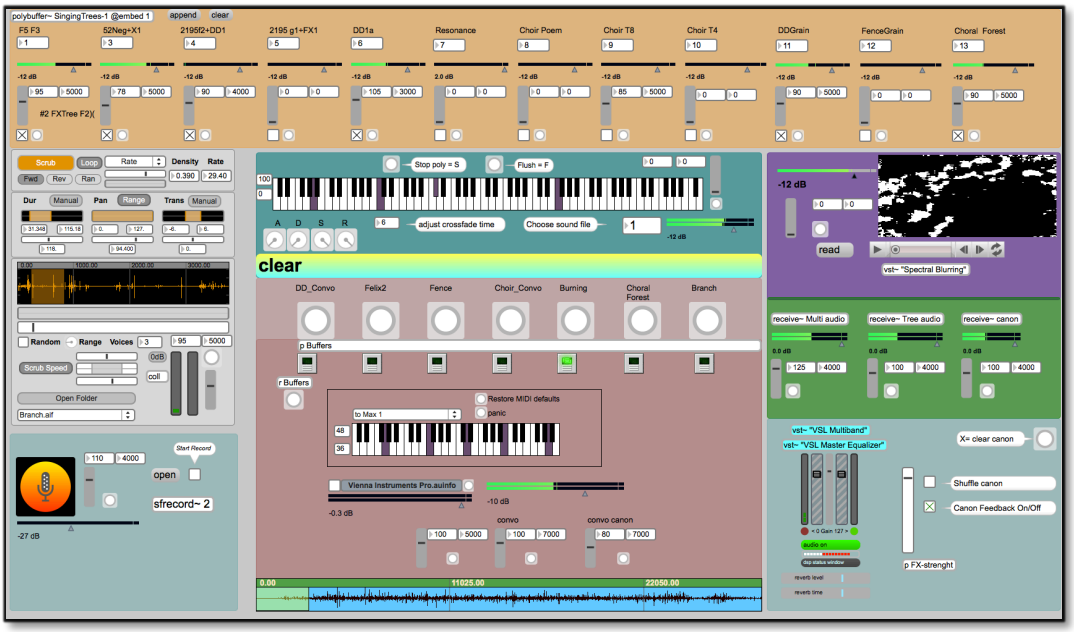


Figure 13: *Aspect of Trees* Max/MSP patch in presentation mode

The *Aspects of Trees* patch is an amalgamation of previously developed Max externals: Alex Hark’s *HissTools*, Karlheinz Essl’s *Sequitur Generator*, Alexander Refsum Jeansenius’s *Jamoma motion* module, and Ben Carey’s *scrub granulator* abstraction. In live performance, a laptop performer controls the Max patch and in conjunction with the live acoustic instrument and visual projection, a partnership is created which forms a hyperimprovisational condition.

Specific to the HissTools is the external *multiconvolute~*. Hark describes this object as "a single convenient object for zerolatency convolution using fixed partitioning scheme" (Harker 2012: 151).[18] The *Aspects of Trees* patch is constructed so that the laptop performer can choose between seven impulses which are convoluted with the live cello. Two of these impulses are the audio samples recorded from the trees, while two others are extracts from the choral improvisation sessions. The remaining three contain samples of a plucked wired fence, a branch being moved, and the sound of a burning forest. As a compositional tool, convolution has been an important element of my previous electroacoustic works. There is a poetic conversation that exists between the sonic materials chosen and in some way, it becomes similar to painting in that sound colours blend to create new sonic tones.

The sonic layer generated with the *multiconvolute~* object had been subsequently routed to an eight-part canonic system inspired by Karlheinz Essl's *Sequitur Generator*. As mentioned in the previous segment on *Beads*, with permission from Karlheinz Essl I had built my own generator and in this work it was used to create the canonic layer. The system was set to generate a sonic layer based on the numerical ratios taken from tree growth that is similar to the Lucas number system.[19]

Live sonifications of the visual data were added to this, achieved by hacking Alexander Refsum Jeansenius's *Jamoma motion* module. As part of the sonic environment, this layer is directly realized by the live visuals and can be selected by the laptop performer in response to the hyperimprovisational conditions within each performance.

The final element to the patch is the *scrub granulator* abstraction created by Ben Carey. From this module, the laptop performer is able to select a variety of audio samples that were created from the initial sonification process from the "points of failure."

---

[18] More information regarding the HissTools can be found at http://www.thehiss.org

[19] "Lucas numbers are similar to Fibonacci number in that they are additive. [They] are sometimes found in…certain cedars, sequoias, [and] balsam trees" (Olsen 2006: 16).

Future Works

Both Andrew and I view this realization of *Aspects of Trees* as a preliminary iteration from the noted conceptual intentions and materials. Further exploration would extend the creative inquiry into the realm of installation using projection mapping and self-generative parameters more suitable for a gallery presentation. As *Aspects of Trees* has been selected for the *Balanced/Unbalanced 2013 International Conference* taking place in Noosa, Queensland, Australia, this next phase of exploration is scheduled to take place in the very near future.

Reflections on *Aspects of Trees* Collaboration

> "Catch on fire with enthusiasm and people will come for miles to watch you burn" (Wesley).

This quote by Wesley comes to mind when reviewing the collaborative history between Andrew Denton and me. Our collaborations have at times been extremely ambitious, which has positioned us artistically in new territory. This reflects back to the notion of the "adjacent possible" – the process of forging ahead without any prior storyline of the future while at the same time embracing what is potentially possible within any given moment. The gain from this is an accumulative amount of tacit knowledge that has fostered our growth as artists and a working relationship lasting sixteen years.

Further to this, all of the factors that went into the making of this work bring to mind the notion of connectivity as outlined in the opening of this thesis. With the donation of David Dunn and Felix Wilson's audio files, the Middendorf Singers of Vancouver's participation in a choral improvisation workshop, and a host of people who assisted Andrew during his video collection process, *Aspects of Trees* is exemplary of a contemporary multimedia collaboration.

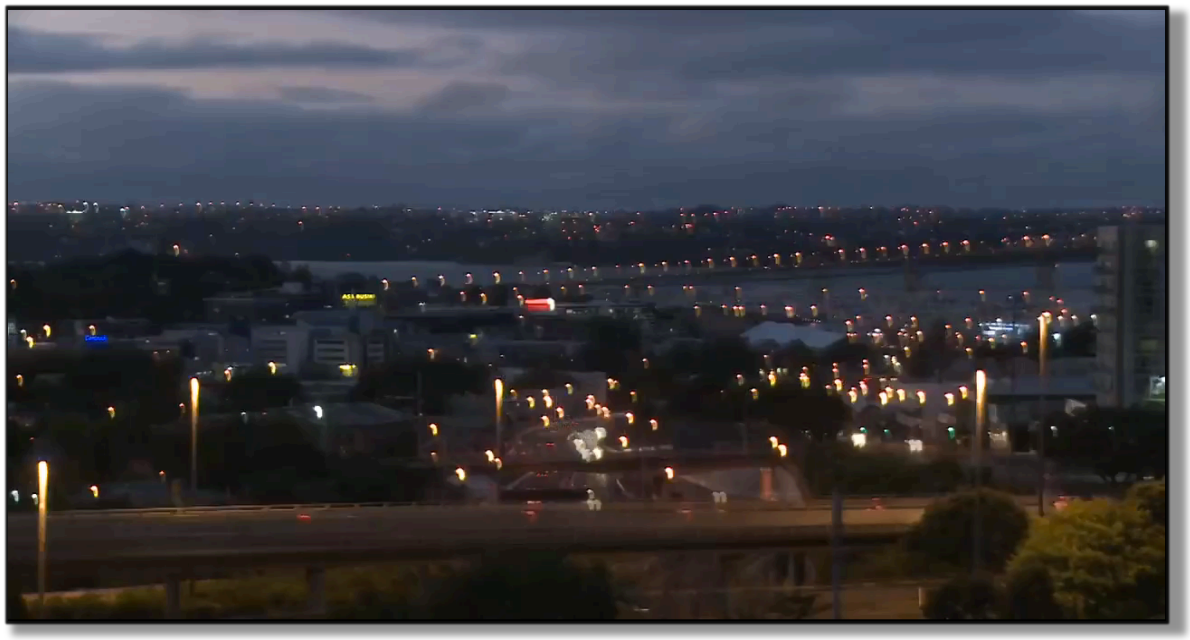
Let It Go

A "Comprovisation" for Spoken Word, Electric Bass, Laptop Performer, Accordion and Time-Lapse Video.

Text: e.e cummings

Music Collaborator: Rick Jones

Film Collaborator: Andrew Denton



Introduction

Let it Go balances "composed instrument", improvisation, and time-lapse video in a generative system that combines pre-recorded and live improvisation. It is the first collaboration between bassist Rick Jones and me and is an extension of the research that took place for *Aspects of Trees.*

The term "composed instrument" is used in electroacoustic music to define "a self-contained and autonomous sound-producing object that enables a musician to perform in a live situation" (Atau 2009: 236). More specifically it refers to the design of a computer-based instrument or system as a technological tool for the use in composition and improvisation. Quite often it is the design of such an instrument or system that is the first act in this creative process. (Dudas 2010: 30). *Let it Go* integrates this concept of "composed instrument" to create a network of improvisational agents where "listening, reacting, augmenting and creating" (Dudas 2010: 29) become the compositional tools.

Dudas uses the term "comprovisation" to describe this interplay between improvisation, composition, and technology, claiming there are two basic relationships that exist: "(1) composing an "instrument" that can be improvised upon in performance; and (2) improvising with tools in order to create pre-compositional material" (2010: 29). Both relationships were explored for the making of *Let it Go*.

Background

The initial improvisation used speech rhythm as a generative compositional agent. Improvising on electric bass, Jones responded to the spoken word patterns of my recitation of the poem by e.e cummings.

let it go - the
smashed word broken
open vow or
the oath cracked length
wise - let it go it
was sworn to
go

let them go - the
truthful liars and
the false fair friends
and the boths and
neithers - you must let them go they
were born
to go

let all go - the
big small middling
tall bigger really
the biggest and all
things - let all go
dear

so comes love.

The electric bass was wired to a Max patch containing a generative canon and, as part of the conversation, this output in turn influenced my recited speech patterns of the poem. The characteristics of these types of conversations are described as:

> - unique and personal to those individuals,
> - unique to that moment of interaction, varying in accordance with the unfolding dialogue, but is
> - maintained within a common understood paradigm (both parties speak the same language, and address the same topic) (Paine 2002: 297).

Eleven improvisations were recorded from this exploration. Out of these, one was chosen as the main pre-recorded element while additional composed material was harvested from portions of the remaining ten. The final output of this combined improvised/composed activity was implemented in the *Let it Go* Max patch developed for live performance with accordion, laptop performer and time-lapse video.

The time-lapse video was shot from the historical Fire Station on Beresford Street in Auckland and spans a three-and-a-half week period in February 2011.

Figure 14: The Old Fire Station on Beresford Street

From the tower, the camera had captured an iconic shot of the city including the varying weather systems passing through. As it happened, Cyclone Wilma had hit Auckland at the midway point during the shooting process. In total, 72, 550 still images had been captured on an EX3 HD video camera using a intervelometer set at 30 seconds resulting in a three-hour film. In post-production, Denton reformatted the speed of the images to generate an eight-and-a-half minute video.

Construction of the MaxMSP/Jitter patch

The *Let it Go* Max patch is a modification of the *Aspects of Trees* patch. The parallel elements are Harker's *multiconvolute~,* Carey's *scrub granulator*, and the canon generator modeled after Essl's *Sequitur Generator*.

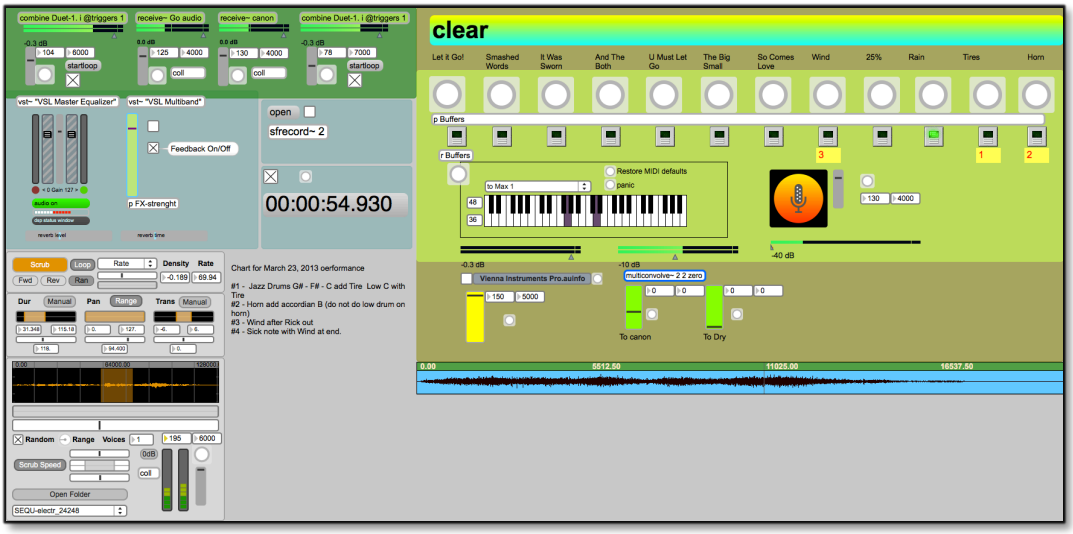


Figure 15: *Let it Go* Max Patch in presentation mode

Specific to the *multiconvolute~* are wind, rain, and traffic audio samples as well as extracted phrases from the recited poem. The live accordion passes through the *multiconvolute~* impulses which are selected by the laptop performer. This convolution creates a relationship between the live and the pre-recorded material and expands the cumulative musical conversation.

The laptop performer also controls sampled percussion and the *scrub granulator* which contains the pre-recorded bass improvisation initially heard with the spoken word. As a final generative agent the live accordion and *multiconvolute~* are patched to the canon generator.

Reflections on *Let It Go* Collaboration

> "Collaborative projects offer tutorials in reality. And that tutorial always presents the unexpected" (Tharp 2009: 63).

Rick and I have been good friends for many years, predominantly spent on a ski hill enjoying "freshies"- a term used to joyously celebrate the arrival of new powder snow. The only musical experience we share is playing at the ski hill pub to a group of inebriated clientele. Our conversations, however, have run the gamut of topics and often include the subject of mindfulness.

> The first component [of mindfulness] involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance. (Scott 2004: 232)

Upon approaching Rick with this project, I harboured no expectation of what might transpire; however, I did believe the possibility was available for a unique and open conversation. As Rick's musical history spans bass studies at Berkeley, CA, five years with the USO/DOD military band playing shows worldwide, and fifteen years in various rock and roll outfits, his tacit musicality is a reliable creative source.

Terroir

A Fixed Media Experimental Film.

Film Collaborator: Shannon Harris

Introduction

The Canadian landscape is a vast geographical expanse with an extensive history that can serve as subject matter and inspiration for a variety of artistic practices. Well known Canadian painters such as the Group of Seven, Emily Carr, and Christopher Pratt devoted their careers to the exploration of its beauty, wildness, and bleak coldness.

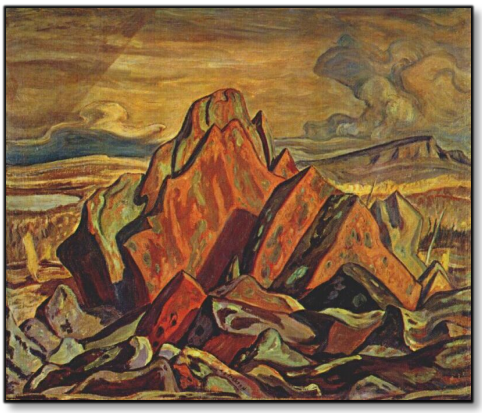


Figure 16: A.Y. Jackson *Hill at Great Bear Lake* c. 1953 (Group of Seven)

Figure 17: Lawren Harris *Maligne Lake* 1924 (Group of Seven)

Figure 18: Emily Carr *Vanquished* 1931

Figure 19: Christopher Pratt *Labrador Current* 1973

Poets such as F. R Scott pondered on its diversity, vastness, and desolation.

> Hidden in wonder and snow, or sudden with summer,
> This land stares at the sun in a huge silence
> Endlessly repeating something we cannot hear.
> Inarticulate, arctic,
> Not written on by history, empty as paper,
> It leans away from the world with songs in its lakes
> Older than love, and lost in the miles. (1-7)

More recent works expand this practice into the realm of new media such as generative installation, soundscape composition, live visual music, and experimental film.

Figure 20: Chris Welsby *Shore Line*, a six-screen video installation based on video footage collected from the coastline of British Columbia, Canada 1977

Figure 21: R. Murray Schafer, *Music for a Wilderness Lake.* Iconic Canadian composer R. Murray Schafer was one of the pioneers of the World Soundscape Project developed at Simon Fraser University during the late 1960s and early 1970s. He later composed acoustic works such as *Music for a Wilderness Lake (1979),* inspired by the sounds of the Canadian wilderness.

Background

Terroir, which comes from the French word *terre* ("land") and loosely translates as "a sense of place", participates in the continuing artistic dialogue inspired by the Canadian landscape. Captured entirely on an old cell phone, the raw data used to create *Terroir* had been collected by Canadian filmmaker Shannon Harris over a two-year period while commuting across Canada for various jobs.

The camera records a landscape in constant motion, but due to the rudimentary technology the image fractures and oscillates between the figurative and the abstract. Married to the painterly visuals is a sonic composition generated solely from personal voice messages that had been left on the phone during this time.

From this data, an allegory emerged based on the notion of communication and distance, technology and intimacy, an innate human need for community and love, and the contemporary means by which it is achieved. It is a personal journey and geography of modern life, in which people seem to be constantly "on the move," filtered through the technology of the cell phone.

Strategies of Soundscape Composition

The creative process chosen in the making of *Terroir* was based on the limitations of the captured cell phone data. The use of single source data[20] had posed certain challenges for realising the primary thematic concerns. The collected data is sparse and of low quality, described by Harris as follows:

> Canada is geographically a very large country, long distances can separate us from each other - friends, loved ones - leaving technology as our source of connection. The cell phone is one of those communicating technologies but it can also be used as an image-capturing device. Because the image-capturing technology on the cell phone is so rudimentary, the image breaks down with movement and changes in light leaving only a trace of the figurative landscape [falling] into abstraction. [The abstraction of image] generates a painterly quality that refers to earlier more formal image-making technology of brushstroke and pigment. (2012)

The captured audio cell phone data is comprised of three general categories: human phone messages, cell phone alerts, and a computer-generated female voice on an answering machine. Subgroupings were created from these initial three categories based on the data from specific callers: speech and rhythm, intonation, character, and communicative intent.

Additional subgroupings were made based on four commonalities noted in the human phone messages: the time of day, greetings and well wishes, return phone numbers, and vocal interjections such as "um," "ah," and "so." As an initial point of departure in composing the score, these recurring themes later informed the overall structure of *Terroir*.

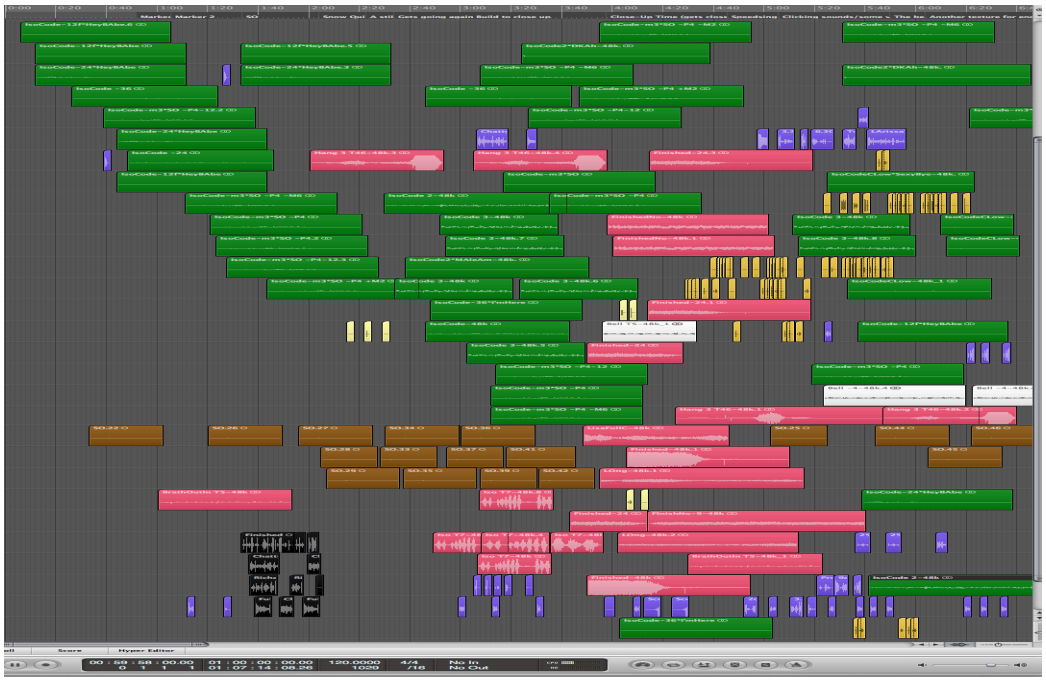
---

[20] " Through the audiovisualisation of the same data source, two conflicting effects are possible: crossmodal synergy and interference. The former enhances the didactic potential of the audiovisualisation and the latter can affect perception in an illusory manner" (Ikeshiro 2012: 154).

The programs **SoundHack** © Tom Erbe, **Kenaxis** © Stefan Smulovitz, and **Logic Studio Pro** © Apples Inc. were used to generate the score. The main "hack" implemented from Tom Elbe's **SoundHack** was convolution. The most effective convolutions for *Terroir* proved to be a result of using complex rhythmic voice messages as input, while vocal interjections or short lines such as "So," "Hey Babe," or "I'm here" functioned as the impulse. These audio files prefixed as *IsoCode* are highlighted in green (Example 1) and produce the predominant sound colour used for the opening of *Terroir.*

Kenaxis is a relatively new program created by Stefan Smulovitz of British Columbia, Canada. It was written in Max/MSP as a response to an enthusiastic group of musicians and composers who had wanted to use the laptop computer as a tool for live performance (Smulovitz 2008: 50). *Terroir* employed the sound granulation function in **Kenaxis** and these files were used throughout as highlighted in pink or white (Example 1). The original files were short percussive samples, including the phone hanging up, the cell alert sounds, and extracted words from saved messages.

The score of *Terroir* was constructed in **Logic Studio Pro** and makes use of the plugins, "Delay Designer," morphing drones, "Flex Time," and "Space Designer."



Example 1

Other sound structural elements

The expanded sound palette generated by using these three programs resulted in the desired sound canvas that has a painterly quality, moving between toned textures and noise. These consistencies were intended to create "a play of rhythm and flux between the figurative and the abstract," and in turn to reflect the image and intention of the story, suggesting distance, longing, and memory (Harris 2012). This was further realised by the use of the voice samples that had been taken from the previously noted subgroupings: human vocal interjections, the time of day noted by the caller, greetings, well wishes, and return phone numbers.

Vocal interjections were the initial structural building blocks of the audio component of *Terroir*. At 0:39 a female inhalation and "ahm" are heard. A male "ahm" follows this at 1:12 and another female "ah" at 1:26. Subsequently a staccato fragmented word construction at 1:33, achieved by randomly placing short volume spikes on several message tracks, resolves at 2:04 on the interjection of "so." The use of interjections and word fragmentations coupled with the visuals reflect "a falling apart of communication and landscape over time and distance and the disintegration of emotional memory" (Harris 2012).

The next structural building block, which occurs at 3:07, reveals the first recognisable words: "We've been here for a little while," followed by the first sound of a mechanical cell phone command, "Press 4." At 3:25 a similar gesture is used but in reverse: the automated cell phone command, "Next" is followed by "...felt like I haven't talked to you in a long…long…" The slow introduction of recognisable words evokes a sense of disconnectedness that at the same time grasps for connection and understanding, and echoes the human need for a sense of community and belonging.

The time of day interspersed with telephone numbers and short messages, such as "Give me a call" and "...hope all is well with you" form the final structural component of *Terroir.* At 4:52, a female caller claims she is "calling on Sunday afternoon." A densely-constructed sound collage, this final section

represents the limitations of the intimacy and communicative abilities of cell-phone technology. There is an implicit tension in this segment, reflecting how the pressure of limited time imposes a certain style of dialogue and how it is delivered.

A final short recapitulation of the fragmented voice motif, constructed with the volume spikes, segues into the credits. These final fragments are used to emphasize a continuation rather than a closing by leaving the listener to once again ponder what was said and if more will be said, implying an endless yearning for communication.

Reflections on *Terroir* Collaboration

> "A shared language is a great asset in developing a common understanding of the artistic intentions and vision" (Mamykina 2002: 98).

Terroir was a challenging project, as this was Shannon's first collaborative enterprise. As she had been used to working solo, the expectation of a creative dialogue necessary for collaboration did not exist. Without the ability to develop a shared language, progress was very slow, which I found frustrating.

Furthermore, due to the difference in our methodologies, we eventually decided that the collaborative process would best be served if we worked remotely. This turned out to be an agreeable solution, as it allowed Shannon the necessary solo space for reflection from which she could arrive at ideas that could then be communicated clearly.

The Old Woman in the Woods

A Film Score for Virtual Instruments: Woodwinds, Horns, Harp, Percussion, Celeste, and Strings.

Collaborator: Caroline Coutts - director and screenplay.

Introduction

The Old Woman in the Woods had been my third collaboration with filmmaker Caroline Coutts: *Dog Boy* (2008) and *The Beast of Dulle Griet* (2004) are prior works. Based on the 19th Century fairy tale 'The New Mother' by Lucy Lane Clifford, this film is a continuation of Coutts's immersive and mythical style of filmmaking. By combining live action and stop-motion animation, Coutts "tell[s] a tale about two little girls who disobey their mother for a glimpse into a magical other world and end up paying dearly for their caprice" (Coutts 2011: 1).

Collaboration and the Film Score

Filmmaking by its very nature is a collaborative effort. All participants must have the required technical and creative skills to bring the film to life. It is a labour-intensive endeavour that demands long working hours with a short turn-around period.

The composer's role as a collaborator in filmmaking requires a sonic interpretation of the characters' motivations, relationships, intentions, and providing an aural guide for invoking the past, present, and future – all which clarify the action in the script, or pose further possibilities for the viewer in experiencing the film as a "mutual implication." [21]

One of the challenges of the director/composer collaboration is the development of a specific language to enable clear communication between disparate art forms. As each discipline has its own professional jargon, it is essential to devise a shared language "custom or unique to the team and environment, and developed by the team over an extended period of time and during multiple projects" (Mamykina 2002: 98).

> I like to sit next to him on the piano bench. I talk and Angelo plays. He plays my words. But sometimes he doesn't understand my words, so he plays very badly. Then I say, "No, no, no, no, Angelo." And I change my words a little bit, and he plays differently. And then I say, ""No, no, no, no, Angelo" and I change my words". And

[21] Claudia Gorban uses this term to summarize the relationship between music-image and music-narrative (Gorban 1987: 15).

> somehow through this process he will catch something, and I'll say, "That's it!" And then he starts going with his magic, down the correct path. (Lynch 2006: 65)

In the above excerpt, Lynch's exploratory conversation with composer Angelo Badalamenti is a unique and somewhat humorous example of a discourse between composer and director. This quote points to the turbulence and difficulty in the "meeting of minds" between these two artists. It also highlights that once those minds have met, reoccurring partnerships are very common in the film world: Ridley Scott and Hans Zimmer, Atom Egoyan and Mychael Danna, Darren Aronofsky and Clint Mansell, and Alfred Hitchcock and Bernard Hermann.

With Coutts, a similar partnership has developed during the course of our previous collaborations; that is, the experience of the "meeting of (our) minds" has created a wish to engage in further projects. What has developed is a method of communicating that is open to the generation and exploration of ideas in a rigorous and direct fashion.

The Initial Talk

The offer to score *The Old Woman in the Woods* had been presented to me in early April 2012. Coutts's email correspondence had included a ten-page project description which I enthusiastically had agreed to. However, Caroline assumed that I was in Canada, when in fact I had moved to New Zealand and was now engaged in graduate studies. Initially, Caroline had been concerned, wondering if a long-distance collaboration would be successful. As I had been planning to return to Vancouver in late April for another project, I assured her that all would be fine and that we could review the film then.

Notes from the first meeting.

Caroline had indicated several ideas of what direction the score would take as she envisioned it.

- Period Piece – sounding late 19th century.
- Western European not an Eastern European sound for the film.
- Did not want orchestral music.
- Pastoral for the opening cue.
- Possible klezmer-sounding music.

From the perspective of a composer and musician, these terms were far too vague and at times contradictory, however, a significant part of the film composer's role is to clarify and participate in the director's vision. It was necessary to explore other works together to examine, compare, and more clearly define the nature of the score, such as the films of Terry Gilliam and Tim Burton. These examples helped to clarify the direction of the score for *The Old Woman in the Woods*.

Two additional meetings took place in Vancouver, both of which were "spotting sessions" for the purpose of deciding where the initial eleven musical cues would appear. In the process of completing the score, the number expanded to seventeen cues.

Composing commenced on May 4th with the first pass to be completed by May 21st. This was the submissions entry date for the Toronto International Film Festival that Caroline had been intending to enter. In addition, the final mix needed to be completed by June 16th for the Vancouver International Film Festival entry deadline.

Technical strategy in creating the film score

There was limited funding available for the making of *The Old Woman in The Woods.* Without a budget for live musicians, I had made the decision to use the Vienna Symphony Sample Library in composing the score. Knowing the final score was to be the virtual orchestra, a specific workflow was implemented. There is no notated score; instead all virtual instruments were recorded via a midi controller directly into Logic Studio Pro. In the process of composing, several takes were necessary for each instrument with the intention of emulating the most human feel possible within the virtual world, using little or no quantization and no click track.

Given the length of this film, the cues were sketched out from beginning to end, and an overall musical language and character began to emerge based on this process. This language and character could then be expanded for scoring further musical cues.

Finding the Right Tone - How Sound Design Informed the Score

> A very careful blending of diverse tonal and distorted organic elements clouds the distinction between natural sound, sound design and music, encouraging the audience to question the very nature of the reality presented to them on the screen and to viscerally join the characters on the beginning of their 'journey into the heart of darkness. (Peachment 2001: 1004)

The above quote refers to the boundaries explored between diegetic and non-diegetic sound in the films of Andrev Tarkovsky. Tarkovsky's films are well-known for the use of sound, music, and dialogue as a means of "wrapping a layered aural 'dialogue' around the story" (Smith 2007: 47).

As a film composer, I have been greatly influenced by the works of Tarkovsky and adhere to the philosophy that all sonic material, be it music, sound design, or dialogue has the potential to create a multidimensional experience. That is "through a sensitivity for the possibilities of sound in film, it is possible to transcend the confines of its traditional uses and enable in its perceiver the freedom to engage that allows for the individual's own sensitivity and un/sub/conscious mind to take an active role in creating a personal connection and meaning" (Smith 2007: 42).

In keeping with this perspective, I like to find elements directly from the sound design that can inform, shape, and/or blend with other musical ideas. There are several examples of this in *The Old Woman in the Woods*; the first is the beating wings of the live onscreen crow at 2:26.

Figure 22: The crow's beating wings

From this source, a pulsing minor third for clarinet, orchestral strings, and harp was created. This initial motif came to represent the sinister transformation of the daughters, including the final arrival of the 'new mother'.

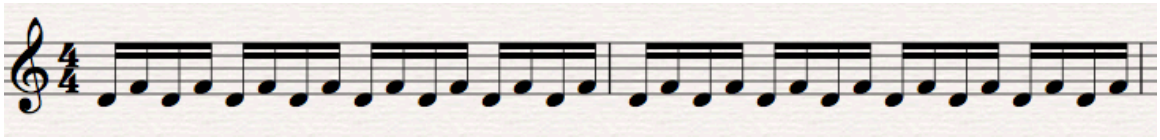


Figure 23: Cue 3 Into the Forest

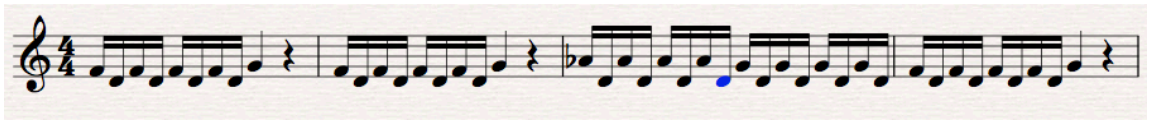


Figure 24: Cue 7 Into the Forest #2, Cue 10 Really Wicked, Cue 12 Breaking the Window

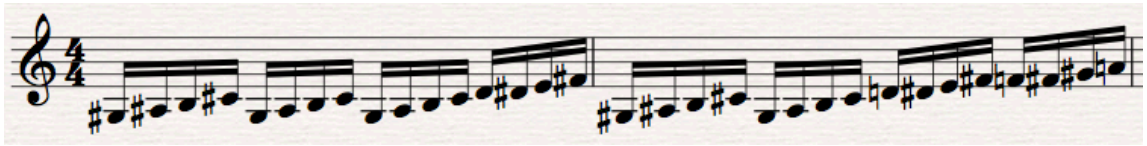


Figure 25: Cue 15 New Mother is on the Way

With this pulse in place, the melody for Cues 3 and 7 developed as a response to the cawing of the crow. The *cor anglais* Vienna Sound sample was chosen for the melodic instrument as it shares a similar colour to this sound.

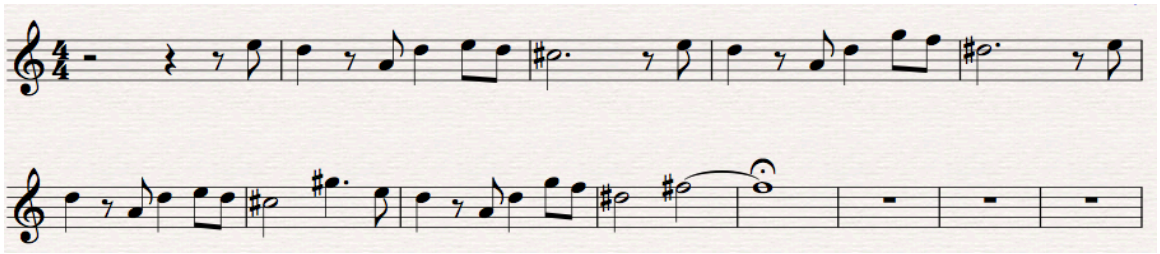


Figure 26. Cue 3 Into the Forest #1 melody

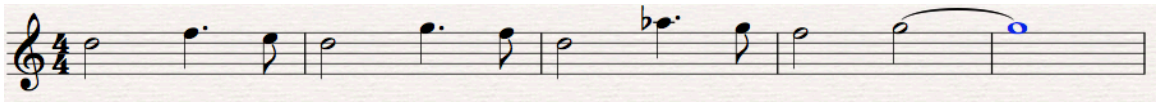


Figure 27: Cue 7 Into the Forest #2 melody

On each successive iteration of 10, 11, and 14, the melody of the *cor anglais* begins to fragment, eventually arriving at a repeating D interspersed with a semitone in either direction. Subsequently the rhythm is more persistent and increasingly harsh and the harmony more dissonant. Overall, the score reflects various musical choices (excluding the credit music) that begins with

a pastoral mood in melody, style, and instrumentation that dissolves into a wash of dissonance by Cue 14.

Another example where sound design informs musical developments is in Cue 13: *Please Come Back*. The melody and harmonic structure were created so that the sound of the chiming clock functions as the musical resolution to the melody and harmonic structure. This cue has a foreboding quality which foreshadows the arrival of the New Mother. Sonically, this is fully realized in Cue 16: *She's Here,* by the reiteration and development of the final two chords of Cue 13.

Figure 28: The chiming clock

Figure 29: New Mother

Finding the Musical Links

Developing musical links is an important compositional device in film scoring. Similar to the use of leitmotif, a term coined by H.von Wolzogen to denote "the representation of characters, typical situations, and recurrent ideas" (Apel 1969: 465), compositional links in the film score assists a coherent musical language that supports, develops, and enhances the characters and story. What follows is a break down of all seventeen cues.

Cue #	Title	Description and/or links to other cues.	Time In-Out	Length
1	*Opening to Title*	Pastoral sounding. Cue 1 was written twice due to "temp love" - a term used in the film composing world where the director falls in love with the temp music used by the editor for cutting purposes. "Temp	00:00:00 – 01:17:02	1 min 17 sec

		Love" is a very common occurrence and is a difficult situation to solve. Fortunately, half of the initial cue was salvaged as it was referenced in Cue 4.		
2	*Crow at Window*	Variation on *cor anglais* melody from Cue 1.	01:50:22 – 02:28:00	38 sec
3	*Into the Forest*	Influenced by the motion and sound of the crow's beating wings. Melody developed as a response to the cawing of the crow.	02:28;00 – 03:15:14	47 sec
4	*Music Box #1*	Rhythmic reference - Mussorgsky's *Songs and Dances of Death No. 2 Serenade.*	04:39:20 – 05:00:00	21 sec
5	*See You Tomorrow*	Variation on harp melody from Cue 1.	06:35:22 – 06:52:00	17 sec
6	*Bedtime*	References *cor anglais* melody from Cue 3.	08:42:15 – 09:08:00	26 sec
7	*Into the Forest #2*	Development of Cue 3. First use of the tritone in *col legno* strings.	09:08:00 – 09:47:00	39 sec
8	*Music Box #2*	Paraphrase of cue 4.	10:22:00 – 10:31:00	9 sec
9	*Stop Motion World #1*	New Cue.	10:32:00 – 11:40:00	1 min 8 sec
10	*Really Wicked*	Further development of Cue 3. Disintegration of melody. Clarinets and *cor anglais* have insistent d3. Harsher sounding with a persistent rhythm. Tritone becomes more predominant.	12:50:00 – 14:11:20	1 min 21 sec
11	*Stop Motion World #2*	Reiteration of Waltz from Cue 9 with added dissonance.	14:26:00 – 15:01:00	35 sec
12	*Breaking the Window*	References melody from Cue 3, moving directly into the disintegrated motif from Cue 10.	17:26:00 – 18:31:00	1 min 5 sec
13	*Mommy is Leaving*	Variation on Cue 2. Additional mournful melody in viola.	18:43:00 – 19:14:04	31 sec
14	*Please Come Back*	New musical information. Melody and harmonic structure reference the clock chimes.	19:19:01 – 19:49:01	30 sec
15	*New Mother is on the Way*	Derived from the 16th-note pulse of Cue 3. Develops into a chromatic barrage of sound.	21:24:11 – 22:11:08	57 sec

16	*She's Here*	Developed out of the last two chords of Cue 13.	22:35:03 – 23:15:00	40 sec
17	*Credits*	Development of main theme and Cue 16.	23:15:00 – 25:54:00	2 min 39 sec

Reflections on *The Old Woman in the Woods* Collaboration

> In any collaboration, no one likes to let colleagues down (Tharp 2009: 86).

Like the previous working history between Coutts and I, *The Old Woman in the Woods* also had proven to be a productive collaboration. Our former film projects have fostered a partnership that has encouraged a holistic approach to the creative process. In such a positive environment the "models that aim to represent the creative process… exploration, generation, and evaluation" are easily nurtured and effectively negotiated (Edmonds 2002: 95).

An unforeseen drawback to the project, however, was my aversion to working remotely on a collaborative project through Skype. With only occasional consultations, the delay in feedback added a few unnecessary "all-nighters" to meet my deadline. I was also absent for the final mix of dialogue, sound design and music. The composer's ear would have made a significant difference to the overall balance of sound, specifically pertaining to volume increases or decreases during certain cues, and therefore may have been nearer to my personal satisfaction in the finished work.

The Old Woman in the Woods premiered at the *Louisville International Festival of Film* in the United States in October 2012, and is scheduled to play at the *Reel to Reel International Film Festival for Youth* in Vancouver, British Columbia in April 2013.

References

Anderson, Harlene. 2012. Collaborative Practice: A Way of Being "With". *Psychotherapy and Politics International* 10, no. 2: 130-145.

Apel, Willi. 1969. *Harvard Dictionary of Music*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.

Atau, Tanaka. 2009. Sensor-Based Musical Instruments and Interactive Music. In *The Oxford Handbook of Computer Music*, ed. Roger Dean:233-257. Oxford: Oxford University Press.

Beilhartz, K, and S. Ferguson. 2007. Gestural Hyper Instrument Collaboration with Generative Computation for Real Time Creativity. Paper presented at Creativity and Cognition, Washington, DC.

Bown, Oliver. 2009. Ecosystem Models for Real-Time Generative Music: A Methodology and Framework. In *International Computer Music Conference*, ed. Vincent Verfaille Gary Scavone, Audrey da Sliva 537-540. Montreal.

Brach, Tara. Divine Abodes: Joy [Audio Podcast]. http://www.tarabrach.com/audio/2011-10-26-Divine-Abodes--Joy-TaraBrach.mp3.

Brown, Andrew R. 2012. Creative Partnerships with Technology: How Creativity Is Enhanced through Interactions with Generative Computational Systems. Paper presented at Musical Metacreation, Palo Alto, California, October 9th.

Burton, Rene. 2012. Positioning of Practice. PGDip, Auckland University of Technology.

Burton, Rene. 2013. Personal Communications.

Chang, Li-Wen, and Chia-Kai Liang, Homer H. Chen. 2013. Analysis and Compensation of Rolling Shutter Effect for Cmos Image Sensors. *IEEE Transactions on Image Processing* 22, no. 4: 1323-1330.

Coutts, Caroline. 2011. The Old Woman in the Woods: Project Description.

d'Escriván, Julio. 2009. Sound Art (?) on/in Film. *Organised Sound* 14, no. 01: 65-73.

Dean, Roger. 2003. *Hyperimprovisation: Computer-Interactive Sound Improvisation*. The Computer Music and Digital Audio Series. Middleton, Wisconsin: A-R Editions, Inc.

Denton, Andrew. 2013. Personal Communications.

Diego, Garro. 2012. From Sonic Art to Visual Music: Divergences, Convergences, Intersections. *Organised Sound* 17, no. 2: 103-113.

Dorin, Alan. 2001. Generative Processes and the Electronic Arts. *Organised Sound* 6, no. 01: 47-53.

Dudas, Richard. 2010. "Comprovisation": The Various Facets of Composed Improvisation within Interactive Performance Systems. *Leonardo Music Journal* 20, no. 1: 29-31.

Edmonds, Ernest, and Linda Candy. 2002. Creativity, Art Practice, and Knowledge. *Communications of the ACM* 45, no. 10: 91-95.

Eigenfeldt, Arne, and Philippe Pasquier. 2011. Negotiated Content: Generative Soundscape Composition by Autonomous Musical Agents in Coming Together: Freesound.

Essl, Karlheinz. Sequitur. http://www.essl.at/works/sequitur.html (accessed June 5, 2012).

Essl, Karlheinz. Towards a Rich "Musica Povera". http://www.essl.at/bibliogr/musica-povera.html (accessed August 1, 2012).
French, Claire. 2013. Personal Communications.
Gorban, Claudia. 1987. *Unheard Melodies*. Bloomington, Indiana: Indiana University Press.
Graham, Paul. 2004. *Hackers & Painters: Big Ideas from the Computer Age*. O'Reilly Media: Sebastopol, California.
Green, Charles. 2001. *The Third Hand: Collaboration in Art from Conceptualism to Postmodernism*. Minneapolis: University of Minnesota Press.
Harker, Alexander and Pierre Alexandre Tremblay. 2012. The Hisstools Impulse Responce Toolbox: Convolution for the Masses. In *The International Computer Music Conference* 148-155. Ljubljana, Slovenia.
Harris, Shannon. 2012. Email Messages to Author - January and February.
Homan, Shane. 2011. Collaboration: Creativity, Industry and Politics. *Musicology Australia* 33, no. 2: 153-163.
Ikeshiro, Ryo. 2012. Audiovisual Harmony: The Realtime Audiovisualisation of a Single Data Source in Construction in Zhuangzi. *Organised Sound* 17, no. 2: 148-155.
James, William. http://www.informationphilosopher.com/solutions/philosophers/james/ (accessed Febuary 2, 2013).
Jehan, Tristan. Analyzer~.Help File, Max/MSP/Jitter program help file.
Johnson, Steven. 2010a. *Where Good Ideas Come From: The Natural History of Innovation*. London: Allen Lane.
Johnson, Steven. Where Good Ideas Come From. http://www.ted.com/talks/steven_johnson_where_good_ideas_come_from.html.
Johnson, Steven. The Glass Box and the Commonplace Book. http://www.stevenberlinjohnson.com/2010/04/the-glass-box-and-the-commonplace-book.html (accessed Febuary, 10, 2013).
Lynch, David. 2006. *Catching the Big Fish: Meditation, Consciousness, and Creativity*. New York: Jeremy P. Tarcher/Penguin.
Mamykina, Lena, and Linda Candy, Ernest Edmonds. 2002. Collaborative Creativity. *Communications of the ACM* 45, no. 10: 96-99.
Manzo, V.J. 2011. *Max/Msp/Jitter for Music: A Pratical Guide to Developing Interactive Music Systems for Education and More.* New York: Oxford University Press.
McCabe, Cynthia Jaffee. 1984. *Artistic Collaboration in the Twentieth Century*. Washinton, D.C: Smithsonian Institution Press.
Montgomery, Charles. 2013. The Smile High Club. *enRoute*, 65-69.
Murphy, Peter. 2011. 'I and I': Collaboration and the Double Act of Musical Creation. *Musicology Australia* 33, no. 2: 175-184.
Olsen, Scott. 2006. *The Golden Section*. New York: Walker & Company.
Paine, Garth. 2002. Interactivity, Where to from Here? *Organised Sound* 7, no. 3: 295-304.
Peachment, Chris. 2001. Stalker In *Time Out Film Guide*. London: Penguin Books.

Pearce, Celia and Sara Diamond, Mark Beam. 2003. Bridges 1: Interdisciplinary Collaboration as Practice. *Leonardo* 36, no. 2: 123-128.

Pelletier, Jean-Marc. 2008. Sonified Motion Flow Fileds as a Means of Musical Expression. In *New Interfaces for Musical Expression*:158-163. Genova, Italy.

Robinson, Ken. Ted Talks: Ken Robinson Says Schools Kill Creativity. http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html?utm_expid=166907-14&utm_referrer=http%3A%2F%2Fprofessortosa.edublogs.org%2F2007%2F10%2F29%2Fif-you-are-not-prepared-to-be-wrong-youll-never-come-up-with-anything-original-ken-robinson%2F.

Schedel, Margaret, John P. Young, and Leigh Landy. 2005. Editorial. *Organised Sound* 9, no. 03.

Scott, F.R Laurentian Shield. http://www.library.utoronto.ca/canpoetry/scott_fr/poem2.htm (accessed March 9, 2012).

Scott, R. Bishop and Mark Lau, Shauna Shapiro, Linda Carlson, Nicole D. Anderson, James Carmody, Zindel V. Segal, Susan Abbey, Michael Speca, Drew Velting, Gerald Devins. 2004. Mindfulness: A Propoded Operational Definition. *Clinical Psychology: Science & Practice* 11, no. 3: 230-241.

Smith, Stefan. 2007. The Edge of Perception: Sound in Tarkovsky's Stalker. *The Soundtrack* 1, no. 1: 41-52.

Smulovitz, Stefan. 2008. Kenaxis & Kenaxis Vbap the Manuel. British Columbia, Canada.

Sommerer C, and L. Mignonneau. 1998. *Art @ Science*. Wien: Springer-Verlag. Quoted in Garth Paine, Reeds: A Responsive Environmental Sound Installation. [Organised Sound 8(2): 139-149, 2003.

Tharp, Twyla. 2009. *The Collaborative Habit*. New York: Simon & Schuster.

Watts, Christopher. 2004. Mixing Things Up: Collaboration, Converging Disciplines, and the Music Curriculum. *Organised Sound* 9, no. 3: 295-299.

Weinberg, Gil. 2005. Interconnected Musical Networks: Towards a Theoretical Framework. *Computer Music Journal* 29, no. 2: 23-39.

Welsby, Chris. 2011. Technology, Nature, Software and Networks: Materializing the Post-Romantic Landscape. *Leonardo* 44, no. 2: 101-106.

Wesley, John. Quote. http://thinkexist.com/quotes/john_wesley/ (accessed January 29, 2013).

Zavada, Ivan. 2009. 3D-Composer: A Software for Micro-Composition. PhD, The University of Sydney.

Appendix A

DVD 1: Contains *Beads* folder with all necessary Max/MSP/Jitter files, externals, and ReadMe.pdf file.

Appendix B

DVD 2: Contains *Aspects of Trees* folder with all necessary Max/MSP/Jitter files, externals ReadMe.pdf and performance documentation.

Appendix C

DVD 3: Contains *Let it Go* folder with all necessary Max/MSP/Jitter files, externals and ReadMe.pdf and performance documentation.

Appendix D

DVD 4: *Terroir*

Appendix E

DVD 5: *Old Woman in the Woods*

"In the end, all collaborations are love stories" (Tharp: 2009, 143).