

University of California
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Vocal Landscaping

A Voice Interactive Sound Installation

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by

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Purpose

My main concern in creating *Vocal Landscaping* has been to challenge dominant audible media configurations which posit a passive listener regularly in need of curated content. While the relationship between producers and receivers of media has not been completely exhausted, other designs which embrace generativity, participation, and personal involvement have become more and more realistic to implement. Records, radio programs, discos, and podcast will exist far into the foreseeable future, but alternate routes which encourage novel forms of interaction may have a place all their own. I have designed with a particular practice in mind; imparting a formal structure to the work while staying in a clearly ludic territory. Mindful breathing, intoning, laughter, and presence are the goal of the game. I have chosen the genre of sound games above contextualizing this design as a sound design tool, a machine listening midi plugin for a DAW, a heuristic based musical score, or a sample collection tool. Portraying the work as a game has allowed me to interface with a more varied and diverse demographic. If the seemingly arbitrary choice of genre is sometimes a matter of which conversation one would like to participate in, I have found the sound game genre particularly inspiring in its disregard for commonly enforced divisions of high and low culture. *Vocal Landscaping* is public sound art in the shape of a digital game.

My core design interest when conceptualizing the visual interface for *Vocal Landscaping* was setting an appropriate limit to virtual immersion so as to emphasize physical embodiment. How evocative should a visual interface be if one is to remain cognizant of one's physical surroundings and body? While voice based games in which one becomes completely immersed in a simulated space surely have a popular appeal, the aim of *Vocal Landscaping* is nearly the inverse of such a design. In building for this configuration I have considered the Brechtian distancing effect while delineating the balance between immersion and the boundary of the stage. The synesthetic possibilities so easily accessed through digital tools take on a richer hue when measured out in moderation. An augmentation of reality should not completely obscure embodied experience. Well implemented

augmentations might stem the exodus into virtual space by rooting deeper into materials and physical experience. This proposition itself seems Orphic, being a journey into matter and into earthen materials :

Sometime around 2000 BCE, de Quincey proposes, humans ceased responding to a universe perceived to be alive and aware. When this occurred, human language became disconnected from the resonant bodies of the natural world. "In general we no longer feel or hear our once intimate connection with the land and its rooted, running, hopping, flying, swimming, burrowing, crawling creatures. We no longer hear its voice, no longer respond to its calling" (104). Rather than living in a universe where the interior life of things was felt, heard and engaged as important modes of knowing and epistemology, remarks de Quincey, humans became absorbed with perceptual paradigms dictated by scientific materialism and ontologies viewing the universe as composed of dead and meaningless matter. Viewing the world predominantly through a mechanistic, scientific materialism, writes de Quincey, objectifies things, and generates an illusionary distance between the observer and the observed.¹

By bringing my audience into closer contact with the technical means of how the spell of immersion is cast, I hope to momentarily interrupt the audience's investment in the producer / consumer relationship. The experience will be local, temporary, and may have a small but lasting impact. If the program were to be deployed through a mobile platform and worked with regularly I suspect the effect would be more pronounced. My hope for this work is similar to what Karlheinz Stockhausen hoped for his vocal piece *Stimmung* :

There are people who have a sense for what is good or bad for them. But all should learn to ask themselves, "What happens to me when I hear the composition *Stimmung*?" Then one would feel: "Aha, this music awakens my consciousness for something I would otherwise repress; for I am mostly busy with eating, drinking, moving, buying, mending, talking, television, sleep..." When does the question put itself to one : "Who am I, why am I alive at all, where do I want to go from here, what happens when I die?"²

¹ McKinstry-Edwards, D. (2006). *Singing: Soul's mythic mirror an exploration of myth's musical nature*. Carpinteria, CA: Pacifica Graduate Institute.

² Stockhausen, K. *Interview 1 : Gespräch mit holländischem Kunstkreis*, Kurten, June 2, 1973, in Karlheinz Stockhausen, *Text Zur Musik 1970 - 1977*, vol 4, Cologne, DuMonte, 1978.

Vocal Landscaping

Vocal Landscaping is a voice interactive sound installation modeled upon a modal intoning and improvisation paradigm common throughout the Renaissance. In relating the musical modes to differing alchemical elements, Renaissance esotericists outlined a form of sound therapy that could be utilized to shape perceptual experience. As I've sought for potential design alternatives to overcome the limitations of "one way media", the curious observations about sound inherent to this paradigm have been particularly inspiring. Designing with this set of assumptions in mind, I have worked to develop an interactive sound sculpture which subverts established flows of audible media, returning primacy to the uniquely embodied voice.

I have been drawn to this period by the open conversation undertaken by technological, spiritual, and sound practitioners of the day. In seeking for new approaches to how audible media might be configured in a manner giving greater prominence to the embodied voice, the findings of historical music theorists, esotericists, and medical authorities have proven worthy of re-evaluation. Modes of understanding once seemingly rendered obsolete by scientific inquiry may yet contain experiential maps complementary to contemporary research concerns. In the sound paradigm *Vocal Landscaping* explores, the humors, elements, seasons, and planets are dynamically visualized in relation to their corresponding musical associations as audio is input into the system through a microphone. Much like the restoration of a piece of antiquated software unable to run on a contemporary operating system, vanished cosmologies may be revisited and brought to life through rich interactive systems.

Viewing the origins of modern science in context, one finds an active conversation with humanist and mystical researches. A growing faith in human knowledge and ability sewn within the heretical milieu helped to create a fertile context in which the scientifically minded could place observable and experimental phenomena over the dogma of inherited tradition. Marsilio Ficino believed that a revolution in communications would bring about an apocalyptic shift, ending the

Papacy, and ushering in a Golden Age.³ In time, his translations, glosses, and writings would circulate in the form of manuals and chapbooks, inspiring like minded questioners and philosophers throughout Europe. This excitement over shifts in method and distribution of knowledge by novel means, such as the printing press, mirrors more recent utopian communications projects. Until quite recently, there persisted an unshakable faith in the information superhighway's utopian potential to equalize disparities in knowledge and wealth distribution. The common thread between nascent scientific exploration, humanism, technology, and esoteric research into phenomenon, was a growing faith in human ability :

Although humanists initially regarded insight into problems of ethics and politics as more valuable than knowledge of nature, eventually their insistence upon the critical reevaluation of traditional authority, their rediscovery of relatively neglected or unknown scientific texts, their assertion of human control over our environment, and their general sense of the renewal of knowledge were decisive factors in creating an atmosphere conducive to scientific discovery.⁴

What sort of knowledge was contained within these books? The medical, mathematical, and the mystical sit comfortably side by side. In Heinrich Cornelius Agrippa, one finds a loosely encyclopedic organization of information covering many aspects of nature, health, mathematics, and cosmology. Some sections are organized in a "how to" manner, while others read more like a sociological compendium of beliefs and practices that predate Christianization. One can trace the outlines of many different cultures, haphazardly joined together, colliding in suggestive fragments. Anecdotes of how to live well are intertwined with detailed descriptions of animal behaviors, the effects of the stars, and sounds. The hermetic conversation leaves a trace in the fundamental organization of these texts; a comfort with multiple truths, a belief that the secrets of nature were inherently understandable, and an acknowledgment that subjectivity and contradiction are inseparable from any understanding dependent upon symbolic language. These catalogues of cause

³ Coppens, P. (n.d.). *Ficino: The high priest of the Renaissance*. Retrieved June 04, 2016, from http://philippcoppens.com/ficino_mag.html

⁴ Mebane, John S. *Renaissance Magic and the Return of the Golden Age: The Occult Tradition and Marlowe, Jonson, and Shakespeare*. Lincoln: University of Nebraska Press, 1989

and effect resemble a precursor of network and systems based thinking. In defense of a contemporary generalized hybrid approach, Gregory Bateson writes,

Mere purposive rationality unaided by such phenomenon as art, religion, dream, and the like, is necessarily pathogenic and destructive of life; and that its virulence springs specifically from the circumstance that life depends on interlocking circuits of contingency, while consciousness can only see in short arcs of such circuits as human purpose may direct.⁵

Many instructive passages in Agrippa place a human practitioner at the center of organizing the subjective world by joining the voice and the imagination. This individualized assumption of responsibility and power must have felt incredibly illicit in an age dominated by hierarchical and dogmatic institutions. The act of organizing nature and structuring subjective experience finds reference in the *Landscaping* of my title. In Agrippa we find,

The Purpose of Words and speech is to manifest the interior things of the mind, to produce the secret of innermost thought, and to reveal the will of the speaker. But writing is the last expression of the mind, the measure, the sum, the state, and the limit of word and voice... All that there is in the mind, in the voice, in word, in speech, and in discourse is found in writing. Just as the voice can express anything that is conceived by the mind, so nothing that is expressed cannot be written.⁶

The vast system of correspondences outlined in the Renaissance literature posits a voice that is central in shaping perpetual as well as spiritual and social experience.⁷ This particular sound cosmology has offered an intriguing series of answers to my own set of concerns surrounding the voice while providing a structure within which to realize gameful interaction oriented around sonorous expression. G.K. Chesterton writes, “Art is limitation; the essence of every picture is the frame.”⁸ *Vocal Landscaping* is framed within an ontological understanding of sound as portrayed in the writings of Marsilio Ficino, Giovanni Pico della Mirandola, Robert Fludd, Franchinus Gaffurius, Bartolomé Ramos de Pareja, and Heinrich Cornelius Agrippa. These are the writers who focused

⁵ Bateson, G. (1972). *Steps to an ecology of mind; collected essays in anthropology, psychiatry, evolution, and epistemology*. San Francisco: Chandler Pub.

⁶ Tomlinson, Gary. *Music in Renaissance Magic: Toward a Historiography of Others*. Chicago: University of Chicago Press, 1993.

⁷ Ibid.

⁸ Chesterton, G. K. (1909). *Orthodoxy*. New York: Lohn Lane.

most explicitly not only on sound, but on the modal system of musical correspondence which underpins *Vocal Landscaping*.

A New Version

The practical outlines of this system are standardized enough to be transitioned into an interactive programmatic format. In reconsidering the configuration of the acoustic voice in relation to software, I hope to create a tool that will inspire uses and conversations otherwise unlikely to occur. I see this work positioned at the intersection of the digital humanities and media design, and as such, find myself free to entertain speculative notions of being. I have very consciously wanted to create a work that diverges from being merely illustrative of any concretized belief system, be it spiritual, religious, technological, or scientific. A growing comfort with the ambiguity between these divisions suits the Renaissance era I have drawn inspiration from. I find value in humanities practice and in digital poetic works which situate the present along a historical arc. The culture surrounding digital design has been all too quick to separate itself from its own historical precedence and origin. Through such contextualization, one finds that many contemporary concerns have already been astutely addressed in previous eras. Sherry Turkle writes :

Most considerations of the computer describe it as rational, uniform, constrained by logic. I look at the computer in a different light, not in terms of its nature as an “analytical engine,” but in terms of its “second nature” as an evocative object, an object that fascinates, disturbs equanimity, and precipitates thought.⁹

Vocal Media

The role of the embodied voice has been largely neglected in contemporary design paradigms. *Vocal Landscaping* is one proposal of how the voice might be situated differently by means of machine listening. As computers have made a marked progression from the ballistics calculating engines they were first deigned to be, towards becoming extensions intertwined with our personal hopes, desires, and memories, designing with spiritual practice in mind is not an altogether unusual

⁹ Turkle, S. (1984). *The second self: Computers and the human spirit*. New York: Simon and Schuster.

outlook in considering future beneficent uses for machines. Novel designs that complement humane activity should be welcome. As the image of the machine has often mistakenly been projected back onto humanity, pataphysical uses that conform machinery to human eccentricities take on a different import.

With *Vocal Landscaping* I am addressing an impasse presented by fixed forms of audible media; the gradual whittling down and codification of vocal expression engendered by repeatable sound media over the past century. A quick listen to the breadth and shear variety of vocal outpourings heard on early commercial records, such as Harry Smith's *Anthology of American Folk Music*¹⁰, leaves one puzzled with the homogenization and increased robotization of the recorded voice. This is due not only to studio post production techniques such as autotune and machine harmonization, but an increased demand that the voice conform to a programmatic and telematic configuration. Our personal lives, interspersed with speech to text, audio surveillance, and machine voice, edge closer and closer to the robotic call center. How might Siri interpret Whitman's barbaric YAWP? What role is afforded the joyful amateur producer of sound? The bifurcation of producers and consumers of vocal performance has neglected to recognize the core place that non-expert vocal expression holds in human selfhood and in community. The sonorous, non-lexical voice has been displaced in favor of a more reasonable narrative orientation. This can be seen in the emphasis that voice interactive games place upon lexical speech recognition. Even the lead sheets and fake books which accompanied the development and dissemination of twentieth century popular music required a form of personal interpretation and bodily participation.¹¹

The passive spectatorship demanded by recorded music is problematic from a number of angles. Sonic activities that once made up a large part of community interaction have been interrupted. This purposeful alienation renders a sense of loss; fertile ground for a marketplace

¹⁰ Folkways Records., Smith, H. E., Folkways Records, & Smithsonian Institution. (1997). *Anthology of American folk music*. Washington, D.C.: Smithsonian Folkways/Sony Music Special Products.

¹¹ Abel, M. (2016) *Radical Openness : Chord Symbols, Musical Abstraction, and Modernism*. Radical Philosophy. Jan/Feb 2016 <https://www.radicalphilosophy.com/article/radical-openness>

defined by social and audible media. As a meaningful knowing of oneself happens in community, handing the reigns over to an expert producer class has fostered a listless consumership. Something is clearly off with this arrangement. In his 2014 book *Records Ruin The Landscape*, David Grubbs quotes John Cage :

I don't use records, and i give the example of someone who lives happily without records." He went on to describe records as "destroy[ing] one's need for real music. [They] make people think that they're engaging in a musical activity when they're actually not."¹²

Humoring Cage's radically cantankerous stance, one wonders, what is the long term cultural impact of experience by proxy? Vicariously experiencing another's song again and again without responding makes about as much sense as watching someone else eat your own dinner and expecting fulfillment. Is there not a deep despair that follows the surrendering of one's own voice; trading the ambiguity of lived experience for the dependability of a media symbolon? I take note of the place which popular song holds in *The Coming Insurrection* :

It is the history of everything that's made us foreign to this world, guests in our own families. We've had our language expropriated by teaching, our songs by variety, our flesh by mass pornography, our cities by the police, our friends by wage labor.¹³

Might it be possible to use the tools of inscription for an altogether different purpose? A cybernetic extension of the self dedicated to excavating and drawing forth the hidden voice might be constructed from the same tools used to embalm and fix the voice in media. Designed for simultaneous audible participation and contemplative listening of a multilayered tapestry, this device would fulfill multiple roles and blur genres of design. While such practices are already accessible within recording practice, *Vocal Landscaping* exists as a heuristic based game to visually articulate the boundaries of an event score. It automates the difficult aspects of a somewhat complicated and inaccessible historical practice, worthy of re-evaluation in the contemporary media climate .

¹² Grubbs, D. (2014). *Records ruin the landscape: John Cage, the Sixties, and Sound Recording*. Durham: Duke University Press. Quote from Peter Greenway's film *4 American Composers : John Cage*. (1985)

¹³ *The Coming Insurrection*. Los Angeles, CA: Semiotext(e), 2009.

Possible Futures

While *Vocal Landscaping* has been designed with modal intoning in mind, I have worked in full awareness that more curious practices might emerge throughout exhibition. I have tried to remain flexible while witnessing a handful of miraculous mis-uses. By leaving intentional openings where such interventions might occur I have managed to chart out a number of unforeseen possible futures. Had I not been willing to embrace the hybrid nature of the work, such advantageous openings permitting novel outcomes would have been shored up.

Marginal objects, objects with no clear place, play important roles. On the lines between categories, they draw attention to how we have drawn the lines. Sometimes in doing so they incite us to reaffirm the lines, sometimes to call them into question, stimulating different distinctions.¹⁴

A machine represents the value system within which it was formulated; concepts of labor, leisure time, and societal structure are encoded into tools. Adam Smith's pin factory, and Gaspard de Prony's¹⁵ division of intellectual labor are born from the societal structures of the 18th century. Notions of efficiency, productivity, and labor saving continue to underly not only the structure of computers, but of the media which they generate. As such, one notices a very slight difference in the visual display of a music making tool such as *Ableton* and a spreadsheet tool such as *Excel*. Doing the taxes, browsing the web, and composing music can become one fluid gesture. This multi-pane experience of sound and visuals has been intriguingly dubbed *net-concrete* by computer composer and critical theorist Holly Herndon.¹⁶

¹⁴ Turkle, S. (1984). *The second self: Computers and the human spirit*. New York: Simon and Schuster.

¹⁵ Chun, W. H. (2011). *Programmed visions: Software and memory*. Cambridge, MA: MIT Press.

¹⁶ Moss, C. (2014, January 22). *Continuous Partial Listening: Holly Herndon in Conversation*. Retrieved June 04, 2016, from <http://rhizome.org/editorial/2014/jan/22/holly-herndon/>

The Document

What is behind this propensity for documenting, combing, curating, eulogizing, and sharing the passing moment? Audible media has become so ubiquitous that it is all too easy to take for granted how unusual this arrangement is. As the Lumiere Train made audiences jump from their seats¹⁷, the tiny “tramp of a fly”¹⁸ first suggested a journey into a hidden world of miniature sound. Placing the ear against the body to listen in on the heart was seen as socially awkward and non-sanitary. The intermediary of the stethoscope was needed to smooth the social discomfort of intimately listening to the resonance of the physical body.¹⁹ Some of the earliest statements on media sound state that the reproducibility of the voice had “taken the sting from death.”²⁰ Now, so many years on, does it not seem that life itself has been stripped of reality and introduced to a new kind of death through the total confusion of the simulated with the real?²¹ Media which revel in artifice, flatness, and pretension highlight the performative nature of self projection. The glossy decals of *Snapchat* aim not to convince of an authentic analog, such as the photo stock filters in Instagram, but reference a different order of reality altogether. Given the cues for pretend and play, such spaces become borderlands which interpenetrate and animate the real.

A genre of digital media device aimed not at recording, but digging deeper into time, materials, and the body would be a valuable addition to the current conversation. Such a device would not be used to rehearse for a future event, or to entertain an audience, but in the vein of the stethoscope, would prompt an investigation into the body as a source of noise. Of machine memory and human memory, Pauline Oliveros states :

¹⁷ C. (2013). The Lumiere Brothers - *Arrival of a Train at La Ciotat - First silent documentary film* - (1896). Retrieved May 09, 2016, from https://www.youtube.com/watch?v=d_9N68MO9gM

¹⁸ Chamber's Journal of Popular Literature, Science and Arts. W & R Chambers. 1878. pp. 413–.

¹⁹ Hendy, David. *Noise: A Human History of Sound and Listening*. London: Profile Books, 2013.

²⁰ Hubert Greusel, *Hours with Famous Americans: Thomas A. Edison* (n.p.: John Hubert Greusel, 1913)

²¹ Baudrillard, J. (1994). *Simulacra and simulation*. Ann Arbor: University of Michigan Press.

We do have built-in recorders: memory. This is what computers don't have enough of, and we also don't always have access to the far corners of our living memory. I guess that is what all the passion for recording is about. Without memory, we would have no consciousness (even if we don't know what consciousness is, exactly). I am with Cage on how it takes a lifetime with live music, and another lifetime with recorded music. Once we have recorded everything possible, who is listening and why? Recording seems to be at the center of our being.²²

From Karaoke, to sound oriented games such as *Guitar Hero*, *Papa Sangre*, and *Mayday! Deep Space*, there have been many attempts by designers to address the inherent frustrations and shortcoming of one way media. Entire platforms, such as *Soundcloud*, have been incredibly successful in fulfilling the public's desire to answer back. By nature, such exploits are always temporary. The marketplace success of a social media enterprise ensures it will diverge from founding precepts; grey legal areas will be sorted out by professional teams, and limitations placed upon the API. The sudden commercial monetization of such a platform can alert the public to shifting priorities. As the utopian visions of designs meet with a real world legal system, new precedents and values are defined. The user community of any given social media platform regularly contemplates jumping ship.

The temporary communities which convene upon these platforms can tell us something about the deeper needs searched for and fulfilled by electronic community. A desire to answer back and to supplant one way media has been sparked by each of these platforms. It's not uncommon to hear news radio reports covering trending social media topics; which videos are being shared and liked by the largest metric. Many youths of today prefer ephemeral and hidden means of communication such as *Snapchat*, *WhatsApp*, and *YikYak*.²³ This growing trend towards secrecy and privacy demonstrates that the initial wave of social media services miscalculated some of the exact details of how electronic communities might manifest. How can such mercurial public preferences be foreseen? The thrill of appearing to be in the eyes of others may not best the fulfillment of intimate

²² Frere-Jones, S. (2014). *The Recording Angels*. Retrieved May 09, 2016, from <http://www.newyorker.com/culture/sasha-frere-jones/the-recording-angels>

²³ Haque, I. (2015). *A 15-year-old explains why teens are obsessed with Snapchat and Instagram is 'over'* Retrieved June 04, 2016, from <http://www.businessinsider.com/a-15-year-old-explains-why-teens-are-obsessed-with-snapchat-and-instagram-is-over-2015-5>

feeling personal social connection. I believe this trend outlines new uses for media; a future iteration of *Vocal Landscaping* will store all collected voices anonymously on a server to create a world wide community vocal instrument. I find the juxtaposition of anonymity and vocal intimacy within the form of an always changing instrument intriguing and worthy of further investigation.

Glossolalia

Vocal Landscaping is significantly different from many voice interactive games in that it imposes no mimetic gesture on the part of the participant; no lyrics, no projection of the self into a digital avatar, or speech recognition. Portions of the voice are recorded and broadcast through the space in a manner that acousmatically renders the distinct tones as a shimmering and numinous glossolalia. The form of play is more ludic than narrative, inviting long pauses for listening or walking through the space. This interval of time permits reflection; a moment for participants to become familiar with their own voices. Nearly every visitor who sang into the piece during the installation period went to hear their own voice broadcast from a particular transducer affixed bucket. Hearing the distinct voice concurrently sounding amongst a community of voices was a strength of the work and will be emphasized in future iterations.

Play

Vocal Landscaping follows a spiraling pattern through four rounds, each relating to a specific element. Since there is no end to the game, it is expected that new participants will pick up where previous visitors have left off. This aspect of the design draws inspiration from James Carse' *Games Finite and Infinite*, in which,

A finite game is played for the purpose of winning, an infinite game for the purpose of continuing the play.²⁴

²⁴ Carse, J. P. (1986). *Finite and infinite games*. New York: Free Press.

The individual voice is merged into a community library of voices, drawn together by the common element of breath. The mode of play is more ludic than narrative, but the games's progression through rounds and the changing of shapes, colors, and proportions, implies a narrative through contrasting perceptual states.

Scores

Games and new music scores find some common terrain in their use of heuristics. Composer Brian Eno drew inspiration for his tape based ambient music from cyberneticist Stafford Beer. Beer was a pivotal figure in the British conversation surrounding cybernetics, eventually taking a job offer from Salvadore Allende to apply his cybernetic systems theory to the running of the Chilean government. Eno recalls Beer's definition of a heuristic as,

*If you wish to tell someone how to reach the top of a mountain that is shrouded in mist, the heuristic 'keep going up' will get him there.*²⁵

In leaving room for interpretation, space is opened up for play, generative progression, accidents, and learning. Making a decision, evaluating the outcome, and adjusting course is a process that itself relates back to the origin of the greek usage of the word "cybernetic" as "steersman."²⁶ While traditional scores that specify every note, duration, and inflection certainly have their place, there are other ways to organize work which can be more efficient. The difference between the highly specific and the generalized can be seen in digital media file types as well; bitmap versus vector graphics, AIFF versus MP3. The benefits and trade offs of working with different means of imparting directions make them useful in varying situations. Sending a five minute AIFF or WAV file through email still requires the use of third party services such as *Dropbox* or *Google Drive*. Notating the

²⁵ Dayal, G. (n.d.). *Brian Eno, Peter Schmidt, and Cybernetics*. Retrieved May 09, 2016, from <https://rhizome.org/editorial/2009/oct/21/brian-eno-peter-schmidt-and-cybernetics/>

²⁶ASC: Foundations: *Defining 'Cybernetics'* (n.d.). Retrieved May 10, 2016, from <http://www.asc-cybernetics.org/foundations/definitions.htm>

complexity of nearly any of the sentence length instructions from the SuperCollider Tweets feed presents itself as unbelievably daunting task.²⁷ While luminaries within the academic music conversation, such as Curtis Roads, attempt to develop a common lexicon for the properties and methods of contemporary compositional practice, many are already working within an area of sound practice which defies the standard descriptive language of orchestration and composition.²⁸ The language of meteorology and ecology make far more sense than the basic cues of common practice.

Traditional means of notating folk musics would often “correct” bent notes and extra repetitions which stood outside of conservatory conventions. The introduction of the tape recorder permitted musicologists and composers to imagine sound in an entirely new way, hearing patterns and intentions which had previously passed unnoticed.²⁹ In my own practice with sound, traditional means of notating composition have proven too limited. Each convention of standard practice has seemed to reinforce an authoritarian value system emerging from an inchoate understanding of audible phenomenon. The Western art music tradition has tended to view non-notated working class folk music as a disposable form of cultural practice; mistakenly granting primacy to symbolic written language over actual sound. Curtis Roads defines these contrasting modes of experience as conceptual versus perceptual. This can be seen as an extension of the lexical versus the sonorous; or the optical versus the auditory.³⁰ In particular, the Western avant garde tradition has aimed to pry past the cultural inheritance and tropes which occupy the perpetual and aural traditions of folk musics. This cultural purging has been to the detriment of community diversity. Some degree of privilege must be assumed in removing one’s cultural inheritance like a change of clothing; a husk that must be removed to gain access to some pale modernist essentiality imagined to exist at the core of all subjectivities.

²⁷ <https://twitter.com/sc140tweets>

²⁸ Roads, C. (2015). *Composing electronic music: A new aesthetic*. Oxford, UK: Oxford University Press.

²⁹ Cutler, C. (2015). *Probes #14.1, Radio Web MACBA*. Retrieved from : http://rwm.macba.cat/en/probes_tag

³⁰ McLuhan, M., Fiore, Q., & Agel, J. (1967). *The medium is the message*. New York: Bantam Books.

These questions of folk practice and ethnicity dominate nearly all conversation surrounding the 20th century avant garde. Pivotal thinkers such as Theodor Adorno³¹, John Cage³², and Karlheinz Stockhausen³³ were all outspoken critics of popular music, reserving a special sort of scorn for Jazz Music. The effort to rise above one's folk and to stand out as a unique voice echoes in the esoteric writings of the time as well. It is likened to growing a new sort of more rarified body through which the consciousness might operate in a less encumbered manner. Looking at one metaphysical source which informed Modernism, the anthroposophical movement, we hear Rudolph Steiner saying, :

Life in one's native community reveals, too, that the qualities linking one to a family or nation, stirring one to feel relationships with individual people of the nation, are similar also to qualities widely discernible in one's era. If an ancient Greek should walk into your life, you would have little in common with him. His etheric body would be so unlike yours. Human beings understand one another through common qualities in their etheric bodies.

In the astral body, however, is rooted a man's ability to lift himself more readily out of certain qualities binding him to a common life with others, and to establish himself as a separate individual in his family, in his folk, so that he is not a mere Frenchman nor a mere German nor a member of a family, but stands out as a special individuality within the folk, the family, etc. Thus he can outgrow the totality of characteristics of his nation.³⁴

Yet, a particular mariachi, bluegrass, or jug band is different than any other. Expression within within a limited range demands it's own variety of resourcefulness and creativity. Recorded documentation belies this fact, and it is through recorded media that many folk musicians have learned how to expressively contribute to the context of their given conversation. As a folk musician myself, I view games and electronic media as new forms of folk culture worthy of serious consideration and critical analysis. I see *Vocal Landscaping* fitting into a rich conversation of digital vernaculars.

³¹ Eisler, H., & Adorno, T. W. (1994). *Composing for the films*. London: Athlone Press.

³² Kostelanetz, R., & Kostelanetz, R. (1988). *Conversing with Cage*. New York: Limelight Editions.

³³ Karlheinz Stockhausen. (n.d.). Retrieved June 04, 2016, from <https://www.soundonsound.com/sos/mar08/articles/stockhausen.htm> Post African Repetitions

³⁴ Steiner, R. (1907, January). *Lecture: The Lord's Prayer*. Retrieved June 04, 2016, from <http://wn.rsarchive.org/Lectures/19070128p01.html> Berlin

If the mountain spoken of by Stafford Beer might be understood as a state of present awareness, one of Han Shan's cold mountain poems illustrates the value of a simple heuristic vs. exact specification :

Men ask the way to Cold Mountain
Cold Mountain: there's no through trail.
In summer, ice doesn't melt
The rising sun blurs in swirling fog.
How did I make it?
My heart's not the same as yours.
If your heart was like mine
You'd get it and be right here.³⁵

Procedures

Composer Cornelius Cardew's 1971 work *The Great Learning, Paragraph Seven* presents a text based heuristic musical score to be sung by a non-expert public. The instructions are simple enough to include participation by an amateur group, but require close listening and focussed attention to perform the work to specification. The words follow a canonical Confucian text, with the number of repetitions, breaths, and volumes specified, but leaving the starting notes to chance. Each singer must choose their next note from someone surrounding them in the singing group.³⁶ The piece sounds different each time it is performed but is recognizable by its general outline. This method of heuristic based musical notation was politically motivated, spurred on by dissatisfaction with the art music tradition :

The nucleus of Morley College composers were dissatisfied with 'established, serious music'; in other words, they were dissatisfied with the elitism of 'serious' music and its strong class image and with the repression of working musicians into the role of slavish hacks churning out the stock repertoire of concert hall and opera house. The prevailing dry, limited critical approach in this century had for them killed spontaneity and simple enjoyment of music and reduced it to an academic and self conscious 'appreciation' of form and technique.³⁷

³⁵ Han Shan, *The Cold Mountain Poems*. Translation by Snyder, G. Retrieved May 09, 2016, from <http://www.hermetica.info/hanshan.htm>

³⁶ Cardew, C. *The Great Learning, Paragraph Seven*. (n.d.). Retrieved May 13, 2016, from <http://www.newmusicnewcollege.org/Cardew.html>

³⁷ Cardew, C. (1974). *Stockhausen serves imperialism: And other articles*. London: Latimer.

Procedural music generation for games, Soundcloud beat mixes made in Garageband, and other digital folk vernaculars follow this egalitarian impulse, and flourish within network aided temporary autonomous zones. These spontaneous audible communities arise apart from the withering grip of dogma to generate and perpetuate digital folklore. An alternate history of innovations, designs, and uses existing apart from the usual charismatic suspects demands to be explored.

In the late 1950's Cardew had been the young assistant of the renowned electronic composer Karlheinz Stockhausen.³⁸ Stockhausen recalls,

I gave him work to do which I have never given to any other musician, which means to work with me on the score I was composing.

As Cardew grew progressively more disheartened by the unfulfilled radical promise of the avant garde, he dedicated more of his time to political activity and the composition of radical working class folk songs. The promise offered by Cage's revolutionary reevaluation of sound was not destined to surpass the cultural limitations of the milieu in which it was formed. While all manner of radical seeker found what most suited their need in Cage's Silence, Cardew and others departed wounded by the very human shortcomings of the cult-like New Music circle which surrounded his luminous celebrity.

However, though Cage and Stockhausen have no hold on the working class, they did have a strong hold on me, Tilbury and others whose views feature in this book, and doubtless they still have a strong hold on many of the potential readers of this book. The violence of the attack on them is indicative of the strength of their hold on us; a powerful wrench was required to liberate us from this particular entanglement.³⁹

A New Context

Might a similar heuristic based tactic be integrated within a digital gaming platform to create a new genre of interactive sound games? Such a system would not listen as strictly as music training

³⁸ Cardew, C. (1974). *Stockhausen serves imperialism: And other articles*. London: Latimer.

³⁹ Ibid.

software such as *Yousician*⁴⁰ or *The Voice*⁴¹. It wouldn't surrender novel possibility in order to yield to traditional standards of notation, such as IRCAM's *Antescofo*⁴² score following software. This software would encourage a playful unfolding of vocal expression. A machine listening algorithm similar to the ones used in these training softwares could be switched to more artistic and subversive ends. Brion Gysin's detournment of the the turntable led to *The Dream Machine*.⁴³ Many advancements begin as mis-uses or the skillful interpretation and positioning of fortunate errors. The hope for *Vocal Landscaping* would be to subtly but meaningfully rupture an overly faithful relationship with the symbolic, providing the user with an unexpected shift in the mood of being; what Martin Heidegger termed *Stimmung* (attunement).⁴⁴ A movement from looking upon the world to being within the world might be encouraged by conscious singing and listening. This tool would :

provide a metaphysical interval, a space where certain rhetorical maneuvers can take place, and a portal through which individuals can access the spiritual center of their "ownmost" being.⁴⁵

Mythogenesis

The deployment of such a tool through a mobile platform might instigate a small but meaningful change. As Marsilio Ficino working under the patronage of the Medici sought to re-introduce ancient streams of Platonic, Hermetic, and Orphic thought to the public of his day through Latin translation, perhaps a new genre of digital tools could aid in the transmission of the Orphic stream

⁴⁰ Yousician. (n.d.). Retrieved May 09, 2016, from <https://get.yousician.com/>

⁴¹ *The Voice Bundle with Microphone - Wii*. (n.d.). Retrieved May 09, 2016, from <http://www.amazon.com/Voice-Bundle-Microphone-Wii-Nintendo/dp/B00MEXP35I>

⁴² Antescofo. (n.d.). Retrieved May 10, 2016, from <http://repmus.ircam.fr/antescofo>

⁴³ Louv, J. (n.d.). *Brion Gysin's Dream Machine: Build Your Own Portal to Inner Visions* | ACCELER8OR. Retrieved June 10, 2016, from <http://www.acceler8or.com/2012/09/brion-gysins-dream-machine-build-your-own-portal-to-inner-visions/>

⁴⁴ Dyson, Frances. *Sounding New Media Immersion and Embodiment in the Arts and Culture*. Berkeley: University of California Press, 2009.

⁴⁵ Ibid.

to a new generation. A digital version of this esoteric sound paradigm might represent what Ralph Abraham termed mythogenesis :

A myth is always changing. There is no myth of Euridice. There is no myth of Orpheus. Rather, there is an evolving, never-ending tradition, with long roots which continue to this day, in consciousness or in unconsciousness.⁴⁶

The dominant myth we inhabit finds bold expression in the culture industry's values surrounding sound, commodity, and artistry. Tapping into a more ancient cosmology of sound might serve to ameliorate the suffering that follows being separated from one's own voice. Sound in the present commercial and artistic context is often used to mask the more existential realities of being.⁴⁷ An inversion of this systems values might generate a pedagogical machine listening tool to aid in the transmission of more holistic sound practices. Such a tool would interrupt established flows of programming and re-establish each body as the center of a subjective Universe.

In Another Voice

Historical texts from the earliest days of the gramophone detail a process of vocal mimesis which began to take hold as ephemeral moments became indefinitely relivable. Jacob Smith considers this moment in his 2009 book, *Vocal Tracks* :

Since records were no longer a true "mirror" of the voice, they could not be used to teach singing, and they caused new problems when people tried to imitate them. In an article called "The Penalties of Exaggeration," Klein warned of the possible consequences of "too slavish and exact" an imitation of the vocal sounds heard on "modern electrical records." Klein recounted an audition with a prospective student, a young man who "did not know a note of music and had never had a lesson in singing or music in his life" but owned a gramophone, on which he played "records of the latest type, sung by Caruso and other favorite operatic tenors." When the student began to sing, he produced a sound that Klein found "not quite easy to describe": "The young man, after fully inflating his chest, started by letting out a series of stentorian notes, which he sustained at high pressure, his face distorted by glaring eyes and dilated lated nostrils.... It was tremendous; it was awful; it was also pitiful." The cause of this pitiful display, according to Klein,

⁴⁶ Abraham, R. (n.d.). *Orpheus Today*. Retrieved from <http://www.ralph-abraham.org/talks/transcripts/carmel3.pdf>

⁴⁷ Eisler, H., & Adorno, T. W. (1994). *Composing For The Films*. London: Athlone Press.

was the man's effort to reproduce "the gigantic sounds which he had heard issuing from his gramophone": "He had been fascinated and led astray by the glorious sonority of the tones that had filled his ears, and which he had unluckily supposed to be of the normal strength given out by the average singer." For Klein, this anecdote reflected the danger of "mistaking the doctored article for the real thing," because "the microphone voice has ceased to be identical in volume and quality with its original" (377).⁴⁸

While this early critique on the effect of audible media noticeably fails to recognize any of the advantages that came with the format, an acknowledgment of the impact that electronic mediation had in separating the voice from the body is clearly displayed. Over identification with another's voice can result in listless fandom and alienation from ones own most intimate noises. Clearing an inner space for intuition and internal dialogue to manifest may foreseeably become an important part of everyday life. Expanded forms of the electronic arts can aid in the process of convalescing following the disorienting effects of one way media.

By bringing a physical record into the home, sound media becomes an intimate part of private life. As Ficino viewed songs as living, breathing, aerial organisms, the unfolding of songs through a stylus, laser, or streaming connection, is a formal blending of living thoughts. The ear has no lid to block perception. Listening again and again, until the smallest mistakes become the most memorable moments, the listener vicariously experiences another's world. Perhaps one empathetically imagines that another's voice rings through their own lungs. In learning the trademark patter of a favorite comedian, perhaps one feels more emboldened to face the world or endure the hardships of everyday life. The ability of sound media to form such empathetic connections over distance has played no small role in political discourse; the civil rights movement and perestroika were moments both historically impacted by popular music. The many visions made possible through the dream of recorded sound are not to be dismissed. In full recognition that something of one's own innate voice disperses in the flood of entertainment, and that vocal mimesis

⁴⁸ Smith, Jacob. *Vocal Tracks Performance and Sound Media*. Berkeley: University of California Press, 2008.

is innate, how might one go about engaging the hidden voice? Ficino's insistence upon the material of sound makes more sense when viewed through the lens of media theory. As Frank Zappa said,

*Music, in performance, is a type of sculpture. The air in the performance is sculpted into something.*⁴⁹

In Reality

Reality TV shows such as *American Idol* and *The Voice* have helped to turn singing into a popular competitive sport. Vocal rivals spar off against one another in an attempt to display who can demonstrate the most authentic and powerful embodiment of the cover song. *The Voice* even markets their own machine listening game which helps to standardize and de-noise an equal tempered voice with the aid of a virtual coach.⁵⁰ One can imagine children at home being drilled by algorithmic instructors on how best to dominate the competition. While such vocal gymnastics are indeed impressive, the conception of the voice perpetuated by this format embodies all that is limiting in the populist folk paradigm. This nightmare of machine listening makes no recognition of the deeper humane potentials contained within the voice; the private voice, the unique voice, the small voice.

Vocal Landscaping appropriates a similar use of machine listening to Activision's *The Voice* and sets it to radically different political and spiritual ends, encouraging with Jacob Smith calls a "pouring out" of the voice.⁵¹ By locating the telematic voice within the head, the body has been rendered obsolete. If trans-humanism posits a grammatically correct soul capable of translation into machine code, metaphysics offers an alternative paradigm, giving primacy to the voice and locating it within the resonant body. The body is then positioned not as a disposable appendage to a ghostly lexical voice, but as a resonant center inseparable from the voice.

⁴⁹ Zappa, F., & Occhiogrosso, P. (1989). *The Real Frank Zappa Book*. New York: Poseidon Press.

⁵⁰ *The Voice*. (n.d.). Retrieved May 10, 2016, from <https://www.activision.com/games/the-voice/the-voice>

⁵¹ Smith, Jacob. *Vocal Tracks Performance and Sound Media*. Berkeley: University of California Press, 2008.

Speaking of Games

Voice interactive games which model a lexical framework, such as Daniel Wilson's *Mayday! Deep Space*,⁵² became of interest during my research process. In this game, a player uses their voice to guide an onscreen avatar through a spaceship teeming with deadly space aliens. The possible words that one may use to direct the character scroll across the bottom of the walky-talky-like interface, revealing what is most likely an Eliza inspired interaction script under the hood of the game.⁵³ *Mayday! Deep Space* is captivating in the emotional connection engendered with the machine through listening and speaking back and forth. As the character screams at being misdirected into a corridor of hungry aliens, one can't help but to slightly panic. I found myself alone with the phone yelling "run! run!" to the little green dot on the screen. The voice on the other end somehow registered as human. I felt empathy. I wanted to guide the person on the other end to safety but continually failed. The pursuant is never explicitly pictured, creating an imaginative mood of horror in the mind of the player.

Daniel Wilson has mentioned that his future designs may implement an emotion recognition algorithm to monitor the vocal input of the player. While I deeply admire the groundbreaking work of *Mayday! Deep Space*, the notion that the voice is used primarily to issue commands seems arbitrarily authoritarian. The subtlety and nuance of natural interaction is exceedingly difficult to model and *Mayday! Deep Space* admirably succeeds in many of its design intention. Wisely, much is left to the imagination, allowing sound the necessary space to emotionally take hold of the player. The balance between the visual and audible is well tipped towards audible vocal engagement. Faulting a lexically dominant game for sonorous shortcomings makes about as much sense as trying to perform vocal dictation with musical notation software. Still, When the image of the computer is

⁵² Scimeca, D. 'Mayday! Deep Space' is an iOS game you play with your voice. (2015, January 8). Retrieved November 1, 2015. <http://www.dailydot.com/geek/mayday-deep-space-ios-game/>

⁵³ Weizenbaum, Joseph. *Eliza: A Computer Program for the Study of Natural Language Communication between Man and Machine*. Cambridge, MA: MIT, 1965.

projected back upon the body, what is lost? The nearly unnoticeable ticks and anomalies of analog vocal expression don't only make a voice believable, they are the voice itself.

Dedicated Devices

While imagining how *Vocal Landscaping* might differentiate itself from the current crop of voice interactive games, I closely considered the similarities and differences between FM3's *Buddha Machine* and a standard walkman. The *Buddha Machine* is a portable loop player that only plays back sound compositions made by Christian Virant and Zhang Jian.⁵⁴ Slightly smaller than a walkman, the *Buddha Machine* is an ingenious meta critique of the portable format, and of packaged sound in general. The *Buddha Machine* seems to ask, "Why do you need another sound when you already have one?"

By locating an audio file player with a set of fixed loops inside of a dedicated object complete with speaker, the *Buddha Machine* presents a twist on media norms and makes a case for the re-emerging importance of media physicality. If you want to hear these sounds, they live only inside of this particular object. They cannot be changed, other than slowed down or lowered in volume. All of the loops are consonant with one another, which makes using multiple players simultaneously an appealing option. The recent appearance of a *Buddha Machine* app containing the same loops as the original device makes one deeply question the limits of digital mirroring. My own concerns with making a mobile version of *Vocal Landscaping* face a similar dilemma; which processes and tools are essentially localized and material, and what can afford to be infinitely copied and distributed electronically? How might proprietary tethered devices work in tandem with already existent systems, such as iOS?

Vocal Landscaping is informed by the droning, looping, inexhaustible minimalism of FM3's design. Finding beauty in limitation has been a valuable lesson. Digital tools offer a debilitating number of choices; an overabundance of options presents the user with a crisis. Overly baroque

⁵⁴ Rare Frequency, Thursdays 7-10pm, WZBC 90.3FM. (n.d.). Retrieved May 10, 2016, from http://www.rarefrequency.com/2005/11/the_ghost_in_th.html



Fig. 1. FM3's Buddha Machine

spiritual transportation tool encased in a tiny plastic box. High conceptual intent executed with low technology is a fascinating sensibility. By pushing up against the limits of a given format, art can reveal new aesthetic possibilities.

A New Voice

While the domain of the electronically mediated voice provided a testing ground for the development and deployment of a new vocal self, an unknown voice still stirred beneath the societal demand for programmatic vocal regularity. The 1940's saw the development and perfection of the magnetic tape format. In American and England, young urbanists such as Alan Lomax and Ewan MacColl took to the country side to document and revive quickly disappearing folk traditions. In an effort to generate a distinct generational voice during the post war WWII period, the tape recorder became an indispensable tool for collecting and grafting branches of folk practice.⁵⁵ Electronic sound media presented the possibility of disrupting, as well as preserving in simulated form, long standing folk traditions. The complex entanglement between folk practices and electronic media has been central to my concerns while developing *Vocal Landscaping*. The droning modal configuration is a deliberate choice meant to reinforce the building blocks of these folk tradition. The first months of prototype testing were conducted exclusively with a version of Anne Briggs singing *The Cuckoo*. As

⁵⁵ ⁵⁵ Cutler, C. (2015). *Probes #14.1*, Radio Web MACBA
Retrieved from : http://rwm.macba.cat/en/probes_tag

complexity can detract from the strength a design. By keeping the content and form extremely sparse the conceptual component of the work can come to forefront. I enjoy the juxtaposition of seeing a

this song traversed the Atlantic and become a well known Appalachian ballad, encoding something of this tradition into *Vocal Landscaping* seemed appropriate.

The Recording Industry's original division of sound media into district genres, often marked with blue, black, or red labels depending upon the imagined class and race of the audience, had little to do with any inherently unifying sonic qualities.⁵⁶ Electronic mediation permitted a performance of the self and an exploration of desire unimaginable in public face to face interactions. This mediation enabled a proliferation of pornographic wax cylinder material throughout the 1890's, harshly regulated and punishable under the Comstock Act. It also permitted an exploration of racial and gender identity more fluid and hybrid by means of electronic mediation.

The boundaries imposed by the recording industry to keep communities separate drew upon constructed notions of vocal authenticity. The birth body and social caste were deciding factors in shaping appropriate expectations in the pairing of voice and body. People owning a large number of red label records were at the top of the media pecking order, demonstrating purity and "good taste" in their purchases. The cultivation of vocal noise on black label record was commonly used to signify a sense of "blackness", contrasting with the Bel Canto voice heard more often on white recordings. Both of these styles came to be essential ingredients in the development of rock n' roll.⁵⁷

The voice in hiding, withdrawn from these limiting definitions, began to become more audible in the form of the fully robotic voice. The vocal prosthetic, free and independent of the birth body, was open to defying the expectation of a voice and body match. The vocoder's initial use was as
a :

... wonder weapon which was to make the transatlantic conversation between Churchill and Roosevelt safe from interception by Canaris and the German Abwehr, and which like so many electronic achievements of the Second World War, is now indispensable to popular music.⁵⁸

⁵⁶ Smith, Jacob. *Vocal Tracks Performance and Sound Media*. Berkeley: University of California Press, 2008.

⁵⁷ Ibid.

⁵⁸ Kittler, F. *Gramophone, Film, Typewriter*, trans. G. Winthrop-Young and M. Wutz. Stanford, Calif.: Stanford University Press.

Imparting a sense of privacy and inspiring confidence in a closed communication channel, this telematic voice was less susceptible to Nazi interception or tampering. Is it any wonder that machinery comes to serve as a mirror of humanity's most hidden desires, exponentially aiding in the realization of fears and potentials? A machine fit for the communication of military intelligence between governments seems specially well suited for the revelation of more ordinary secrets and confessions.

While the oeuvre of the electronic voice, from Laurie Anderson's "Voice of Authority" on 1981's *O Superman*⁵⁹ to fully synthetic avatars such as Hatsune Miku⁶⁰ and Siri, contain noticeably varying proportions of humanness to machinery, less immediately perceptible is how the acoustic voice has been fitted into a telematic bracing. In relation to this voice of transmission, Francis Dyson's states :

Prior to any utterance, the voice is already a metaphysical instrument, and already caught within particular circuits, switchboards, or machines that both literally and figuratively encode, transmit, and give meaning to vocal acts. One way to read this metaphysics of the voice is to link the sonorous emissions of the mouth, the vibratory responses of the ear, and the breathy air circulating between them; to imagine a phenomenal, visceral, and cultural triad, one that constantly interweaves sound and technology, leaving knots and tangles in its wake.⁶¹

Vocal Landscaping is intended to engage and develop the anaerobic voice in hiding, drawing forth sonorous emissions into an acoustic environment. Dyson's statement on the telematic voice bears strong similarities to neo Platonic conceptions of the aerial voice and its imagined role interconnecting disparate networks across strata of the cosmos. By joining these related conceptions of the voice in the form of a game, *Vocal Landscaping* intends to work as a pedagogical tool for the study and practice of natural magic. Viewed from this perspective, the work seems not entirely

⁵⁹ Anderson, L. (1981). *O Superman; Big Science*. Burbank : Warner Bros. Retrieved November 1, 2015: <https://www.youtube.com/watch?v=-VIqA3i2zQw>

⁶⁰ "Who Is Hatsune Miku?" About HATSUNE MIKU. Accessed January 21, 2016. http://www.crypton.co.jp/miku_eng.

⁶¹ Dyson, Frances. *Sounding New Media Immersion and Embodiment in the Arts and Culture*. Berkeley: University of California Press, 2009.

unrelated to Phillip II's automaton; one of the first robots used to teach prayer. This miniature penitent homunculus suggests an origin to virtuality fully intertwined with spiritual practice.⁶²

A Magic Lens

Between genres, between body and soul, the aerial voice was recognized by Ficino and other Renaissance philosophers as the means of perceiving, interacting with, and structuring the real world in participation with a greater macrocosm. The mathematical proportions of harmonious sound rendered it uniquely capable of impacting subjective perception, and in turn, restructuring the material world. Song is posited as a living animal-like entity. :

If the vapors exhaled from a merely vegetable life are greatly beneficial to your life how much more beneficial do you think aerial song will be to a spirit wholly aerial, harmonic songs to a harmonic spirit, warm and even living songs to a living spirit, songs endowed with sense to a sensate spirit, songs conceived by reason to a rational spirit?⁶³

During the 1400's, the rediscovery of ancient philosophical texts sparked inquiry into the ontological order of sound and its possible uses.⁶⁴ Marsilio Ficino's translation into Latin of Platonic, Hermetic, and Orphic texts transported from Constantinople initiated a revival of Classical thought and the reformation of the Academy in Florence. A flowering of Sound theory inspired by these texts placed emphasis upon the individual voice, giving rise to new forms of audible and textual expression, such as the revival of the Orphic hymns.⁶⁵ The humanist and metaphysical positing of man's continuing participation in creation gave art and self cultivation a new prominence. Words and sounds took on a greater weight. Through the skillful choice of words and sounds, one could

⁶² *Monkbot, an automaton from the 16th century*. (2011). Retrieved May 14, 2016, from <http://boingboing.net/2011/07/13/monkbot-an-automaton.html>

⁶³ Ficino, Marsilio, Carol V. Kaske, and John R. Clark. *Three Books on Life*. Binghamton, NY: Medieval & Renaissance Texts & Studies in Conjunction with the Renaissance Society of America, 1989.

⁶⁴ Ibid.

⁶⁵ Tomlinson, Gary. *Music in Renaissance Magic: Toward a Historiography of Others*. Chicago: University of Chicago Press, 1993.

author oneself, and contribute to a symbolic metaphysical scaffolding underpinning the organization of the physical world. This hopeful optimism regarding mankind's abilities helped to sew a context for the eventual emergence of the sciences.

Although they never entirely denied the human need for divine grace, Renaissance humanists and philosophers tended much more than their medieval predecessors to grant the individual soul a degree of self sufficiency in shaping its own nature and destiny. Petrarch began to move in this direction by emphasizing that one's inner life is a constant process of moral and spiritual self creation. Marsilio Ficino, who founded the tradition of Renaissance Hermeticism, went a step further than his humanist predecessors by asserting that the initial impulse which turns the soul toward God comes not through an act of divine grace, as Augustine tells us, but from a free decision of the individual Soul itself. Pico della Mirandola's development of the attitude is probably the most widely known: through grace God created humanity in his own image, but it remains for individuals to realize, through free creative acts, the potential which God has given them. The concept of the self as a work of art, an idea which became central to Renaissance culture, expresses the tendency of the period to allow "art," in the broadest sense of "human creative activity," to compete with divine grace as the shaping force in human life and destiny.

This clarification of the relationship between sound, matter, and the envelope of the body played a notable role in reshaping city life.⁶⁶ The circulation of sound joined the city together in conversation, marked the pace of the seasons, and provided a link to the spiritual world.⁶⁷ Through the funding of Lorenzo Medici, new songs were commissioned to teach the public about the choices involved in the emerging secular sphere. Utilizing double meaning and the appropriation of church melodies, humorous carnival songs were composed which addressed even the most private and hidden aspects of human life.⁶⁸ A new language by which to articulate inner subjective experience was opened by the dissemination of popular poetry and song. These public carnival songs differ significantly from the improvisational modal frameworks outlined in the metaphysical literature, though celestial themes from Ficino's Orphic hymns began to emerge more often as Lorenzo became afflicted with a debilitating case of gout.⁶⁹

⁶⁶ Hillman, J., & Hillman, J. (1992). *The Thought of The Heart ; and, The Soul of The World*. Dallas, TX: Spring Publications.

⁶⁷ Hendy, David. *Noise: A Human History of Sound and Listening*. London: Profile Books, 2013.

⁶⁸ C. (2013). *Music Under the Medici in Renaissance Florence*. Retrieved June 05, 2016, from <https://www.youtube.com/watch?v=UZZtwf6On2g>

⁶⁹ Macey, P. P. (1998). *Bonfire songs: Savonarola's musical legacy*. Oxford: Clarendon Press.

The aerial nature of song made it uniquely capable of impacting the Spirit, thus altering the dynamic relationship between the Soul, the Body, and the Soul of the World.⁷⁰ When aided by means of charts, fumes, symbols, and song, the soul could transcend the envelope of the body, trading impact upon the humors for direct interaction with the philosophical elements. :

As long as it is devoted to this body it controls the elements of this little world, that is, the four humors, and it induces heat, cold, moisture, drying, and all complexions and feelings... Therefore when, released from thus body, it emerges into a greatness [an amplum], it moves the humors of this larger animal, that is, the elements of the greater world, as if they were its own, since it has become, as it were, the soul of the world, or the part of the world toward which it is most inclined... Because it surpasses the entire mass of the body in the hierarchy of nature and in dignity, the soul can fill and move the entire structure of the world itself no less than any part of it.⁷¹

Through improvisation on differing musical modes one could come into contact with corresponding planetary spheres, each imparting a unique perceptual lens and contributing to a balance of philosophical elements within the body.⁷² Through sound one could reveal a light hidden within matter, spiritualizing the physical universe and completing a circuit between the material and celestial realms.⁷³ The art of knowing names served to connect vacant material objects to their ideal forms; the practice of which was seen to complete the work of nature. The Renaissance cosmological perspective revolved around operative affinities and sympathetic motions. The appropriate pairing of imaginative imagery, modal improvisation, and divine furor, could unlock the passage to specific archetypal modes of experience.

⁷⁰ Lee, L. V. (n.d.). *Anima Mundi: Awakening the Soul of the World* Published in Sufi Journal, Issue 67, Autumn 2005. Retrieved April 18, 2016, from http://www.goldensufi.org/a_animamundi.html

⁷¹ From Ficino, Theologia as found in Mebane, John S. *Renaissance Magic and the Return of the Golden Age: The Occult Tradition and Marlowe, Jonson, and Shakespeare*. Lincoln: University of Nebraska Press, 1989

⁷² Horden, P. (2000). *Music as medicine: The history of music therapy since antiquity*. Aldershot: Ashgate.

⁷³ Hillman, J., & Hillman, J. (1992). *The thought of the heart ; and, the soul of the world*. Dallas, TX: Spring Publications.

Like talismans and other artificial forms, music can be designed so as to attract an influx of spiritus from specific planets in order to produce profound psychological effects. In passages which provide a detailed philosophical rationale for the magical power of music in works such as *The Tempest*, Ficino explains that music is more potent than images, vapors, or other medical preparations because the disembodied mathematical proportions of which the sounds are composed are more pure than forms which are composed with matter. In addition, music imprints itself on the air, and consequently it can mingle freely with the spiritus which lies within the human ear. The harmoniously ordered forms are in motion, as are the actual celestial influences, and they communicate that patterned movement, through the spiritus, to the soul. Finally, music can be accompanied by a text which carries an intellectual content and thus reaches the higher faculties.⁷⁴

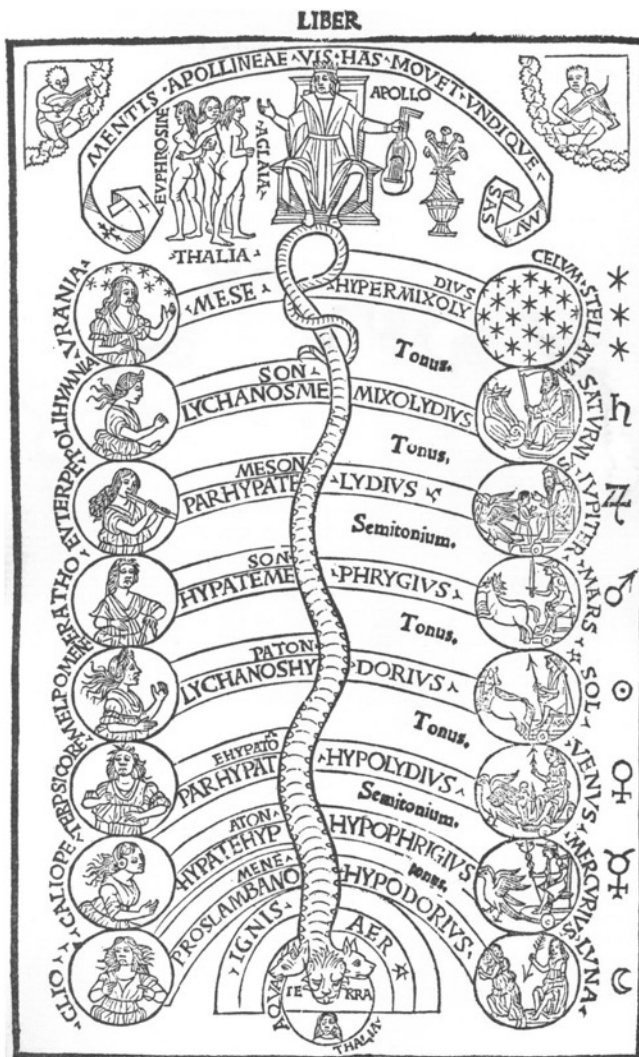


Fig.2 The Frontispiece of Gafforio's *Practica Musicae*, 1496

Fig. 2 illustrates the planetary, modal, and muse correspondence as outlined in the writings of Ramos De Pareia. While such systems of correspondence between elements, humors, colors, planets, and seasons had been drawn together in late antiquity, they rarely included mention of music. Ramos correlation between the musical modes and planetary spheres is unprecedented. His system was most likely influenced by early Islamic Neoplatonic thought, as found in the ninth-century writings of al-Kindi. Amongst the many conflicting alchemical and musical diagrams of the era, I chose to model *Vocal Landscaping* from the modal correspondence as portrayed in the writings of Ramos and Gafforio. While other

⁷⁴ Mebane, John S. *Renaissance Magic and the Return of the Golden Age: The Occult Tradition and Marlowe, Jonson, and Shakespeare*. Lincoln: University of Nebraska Press, 1989

alchemical charts such as the VITRIOL⁷⁵ make a differing ordering of the elements, these discrepancies can be understood by taking into account that there was no standard way of picturing the modes; the notes are varyingly portrayed in both ascending and descending order. Gafforio's diagram is the most thorough and explicit in the assignment of corresponding affinities. Set into a JSON file (Fig. 2), the resulting text look startlingly like a table of correspondence :

- 1, ♃ Ⓞ ♁ ♀ ♂ ♂ ♃;
- 2, ♂ ♂ ♃ ♃ Ⓞ ♁ ♀;
- 3, ♃ ♃ Ⓞ ♁ ♀ ♂ ♂;
- 4, ♂ ♃ ♃ Ⓞ ♁ ♀ ♂;

Fig. 3 Vocal Landscaping JSON file

The assignment of the nine spheres to the nine Muses was the result of a harmonic vision by the Neo-Pythagorean, Martinanus Capella (5th century A.D.). The scale covers a full octave.

The concord is conducted by Apollo, the Prime Mover. Flowing rhythmically through the spheres is the Egyptian serpent of the life-force. Its three heads represent the divine trinity in the three dimensions of space and the three aspects of time.

Tragedy is assigned to the sun, comedy to the earth.⁷⁶

The days of the week :

- 1, Sat Mon Wed Fri Sun Tues Thurs Sat;
- 2, Sun Tues Thurs Sat Mon Wed Fri Sun;
- 3, Thurs Sat Mon Wed Fri Sun Tues Thurs;
- 4, Tues Thurs Sat Mon Wed Fri Sun Tues;
- 5, Friday Sunday Tuesday Thursday Saturday Monday Wednesday Friday;

⁷⁵ Curtis, J. *Secret Symbols of the Rosicrucians - TABULA SMARAGDINA HERMETIS - Explanation*. (n.d.). Retrieved June 05, 2016, from <http://www.crcsite.org/Tabulatext.htm>

⁷⁶ A. Kircher, *Ars Magna Lucis*, Rome, 1665. As found in : Roob, A. (1997). *Alchemy & mysticism: The hermetic museum*. Köln: Taschen.

The colors of the days :

Sat, 0.63;
Mon, 0.69;
Wed, 0.875;
Fri, 0;
Sun, 0.05;
Tues, 0.19;
Thurs, 0.35;

Excerpt of the resulting score from April 28th, 2016 :

29, Autumn Sat 0:01:18:100;
30, Autumn Sun 0:00:47:400;
31, Autumn Sat 0:00:37:800;
32, Autumn Fri 0:00:28:800;
33, Autumn Wed 0:01:06:800;
34, Autumn Mon 0:00:30:900;
35, Autumn Tues 0:00:26:700;
36, Winter Thurs 0:00:25:500;
37, Winter Mon 0:00:03:400;
38, Winter Sun 0:01:19:900;
39, Winter Fri 0:04:43:900;
40, Winter Wed 0:00:44:900;
41, Winter Tues 0:00:48:800;
42, Winter Sat 0:00:30:700;
43, Spring Thurs 0:00:16:000;
44, Spring Sun 0:00:06:300;
45, Spring Mon 0:00:10:800;
46, Spring Thurs 0:00:11:600;
47, Spring Tues 0:00:07:500;
48, Spring Sat 0:07:16:300;
49, Spring Wed 0:14:30:300;
50, Summer Fri 0:12:03:400;
51, Summer Fri 0:01:41:100;
52, Summer Sun 0:00:09:100;
53, Summer Sat 0:00:17:700;
54, Summer Mon 0:00:13:800;
55, Summer Tues 0:03:58:700;
56, Summer Thurs 0:01:00:000;

In contemplating just what form the planetary spheres might take, these words found in a letter written by Ficino accompanying Sandro Botticelli's gift of the *Primavera* to the Lorenzo Medici presents a key :

For these celestial bodies are not to be sought by us outside in some other place; for the heavens in their entirety are within us, in whom the light of life and the origin of heaven dwell.⁷⁷

Similarly, the varying humors which find balance within the body can be understood as perceptual lenses through which the world is experienced. The disproval of the humors as physical fluids doesn't entirely detract from the reality of varying experiential states passed through in the course of being. Who hasn't felt the fire of anger, or the watery cool of peace? The subjective poetic experience of phenomena remain valid in a world of solid facts. In Ramos set of correspondences , the elements were associated with the modes in this order⁷⁸ :

Cosmic	Human			Musical	
Element	"Humor"	Source	Temperament	Element	Mode
fire	yellow bile	liver	choleric	soprano	Phrygian
air	blood	heart	sanguine	alto	Lydian
water	phlegm	brain	phlegmatic	tenor	Dorian
earth	black bile	spleen	melancholic	bass	Mixolydian

Fig. 4.

⁷⁷ Compendium in Platonis Philebum, ed M. Allen, *The Philebus Commentary* (California, 1975), p 266; M. L. West, *The Orphic Poems* (Oxford, 1983), p. 29.

⁷⁸ Pareja, B. Ramos., & Miller, C. A. (1993). *Musica practica. Neuhausen-Stuttgart*: American Institute of Musicology.

The symbolic encoding of information was undertaken not only as a kind of shorthand for complex operations, but to maintain privacy. The great secrecy surrounding the transmission of suppressed forms of mystical practice was necessitated by the threat of punishment. To understand the kinds of punishment that might be in store for mystics one only need to revisit the life of Saint John of The Cross⁷⁹, the fate of the Bogomils, the Cathars, or the Brethren of the Free Spirit.⁸⁰ As persecution of these belief systems grew, unlikely alliances were formed to help preserve threatened cosmologies. The beautiful hybrid perspectives which resulted from these collisions informed a restructuring of how the world was sensibly understood. Subverting the inherited hierarchical dominance of the Church in favor of direct experience, the mystical stream suggested other forms of Utopian governance, such as can be found in *The New Atlantis*⁸¹ and *City of the Sun*⁸².

Those who mistook the symbolic search for realization as a literal search for metallic gold were sometimes known as “puffers.”⁸³ The intricate relationship between matter and consciousness depicted in the alchemical literature suggest that an ennobled intention and will were both essential ingredients in operations of transformation and transmutation. Improvisational performance in a mode corresponding to the planetary element one wished to align oneself with was one small portion of a practice to balance the elements active within and upon the body.

When describing the imitation of planetary music bringing one into accord with the planetary elements, Ficino seems acutely aware of the thin line he is walking with religious authorities of the day. He continually makes clear that one is not venerating the planets as Gods, but

⁷⁹ Cross, J. O., & T., D. N. (1989). *St. John of the Cross (San Juan de la Cruz): Alchemist of the soul: His life, his poetry (bilingual), his prose*. New York: Paragon House.

⁸⁰ Vaneigem, R. (1994). *The Movement of the Free Spirit: General considerations and firsthand testimony concerning some brief flowerings of life in the Middle Ages, the Renaissance, and, incidentally, our own time*. New York: Zone Books.

⁸¹ Bacon, F. (1924). *New Atlantis*. Oxford: Clarendon Press.

⁸² Campanella, T., & Donno, D. J. (1981). *La città del sole: Dialogo poetico = The City of the Sun: A poetical dialogue*. Berkeley: University of California Press.

⁸³ Hauck, D. W. (1999). *The emerald tablet: Alchemy for personal transformation*. New York: Penguin/Arkana.

that health might be imparted by these impersonal forces through sympathetic action. He recommends studying the modes which dominate the musics of differing nations in acknowledgment of the planets governing those nations. In one of his private letters to a friend Ficino implores,

*Get up yourself, as soon as you have read this second farewell and, if you are wise, willingly take up the lyre, that sweet solace of labor.*⁸⁴

Changes

Vocal Landscaping is designed to cycle through the four elemental modes of Earth, Water, Air, and Fire (Fig. 5.) imparting a state of “eucrasia”, or, balance. A method of modal sound therapy organized around the Greek modes does have some supporting research,⁸⁵ though my intention remains artistic and non-medical. A practice of entraining to one musical mode while subtly shifting to another finds parallel in musical therapy with Ira Maximilian Altshuler’s iso principal (mood vectoring).⁸⁶ Through this process a subject might be presented with a musical mode which most matches their current state of mind and then slowly transitioned into a different perceptual state by subtle alterations to the intervals of the mode and the tempo :

⁸⁴ Ficino, M. (1996). *Meditations on the soul: Selected letters of Marsilio Ficino*. Rochester, VT: Inner Traditions International.

⁸⁵ Ramos, D. (2011). *Manipulating Greek musical modes and tempo affects perceived musical emotion in musicians and nonmusicians*. Brazilian Journal of Medical and Biological Research, 44: 165-172.

Retrieved November 27, 2015 :

http://www.bjournal.com.br/administrator/components/com_jresearch/files/publications/530.pdf

⁸⁶ Annie Heiderscheit and Amy Madson

Use of the Iso Principle as a Central Method in Mood Management: A Music Psychotherapy Clinical Case Study
Music Ther Perspect 2015 : miu042v1-miu042

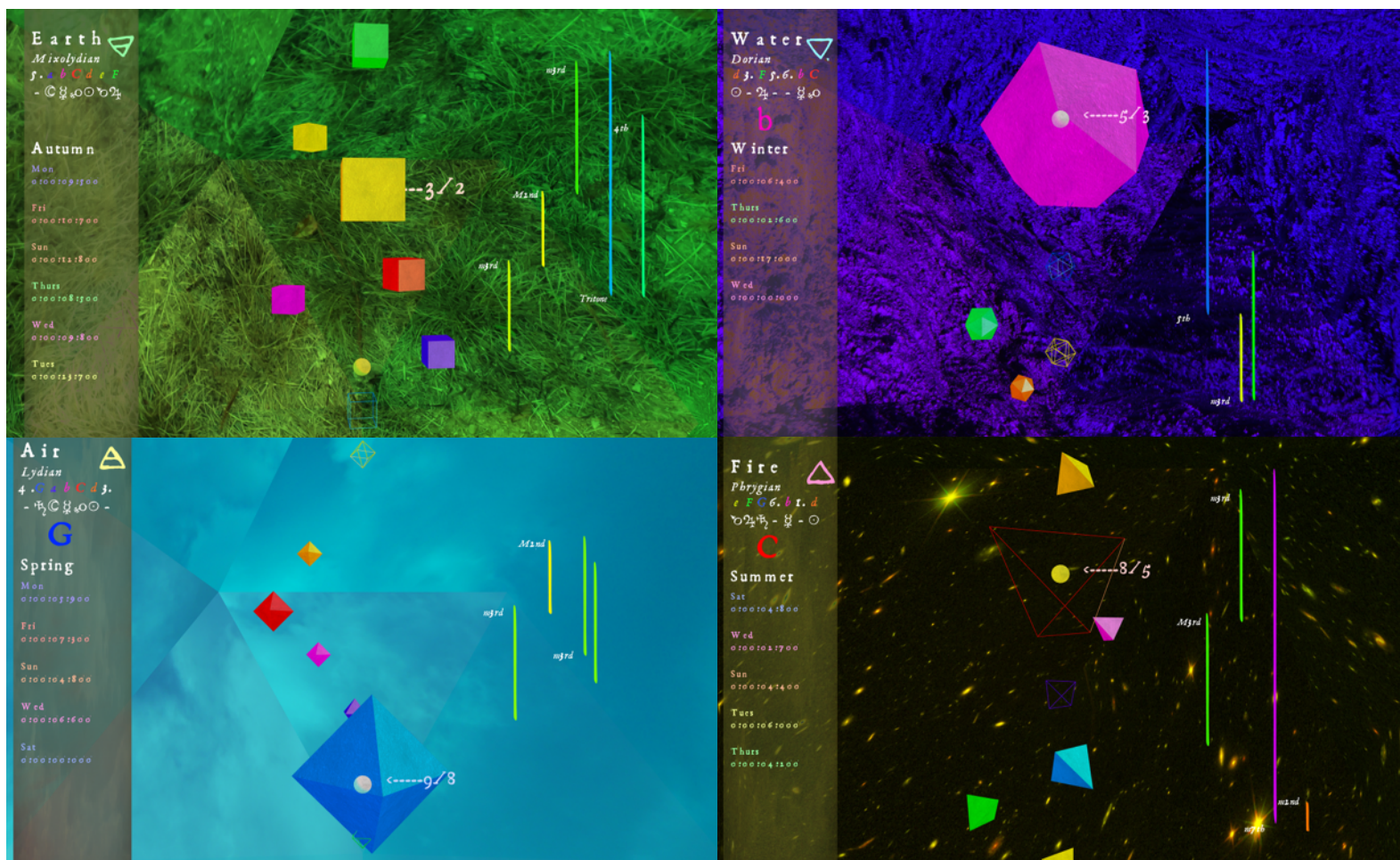


Fig. 5.

This principle was first put forth by psychiatrist Dr. Ira Altshuler in 1945 as a method of assisting psychiatric patients in shifting their mood from depressed to energized or from anxious to relaxed [21, 22]. The “ISO” (Greek for “equal”) principle involves beginning a music therapy session by listening to music that is “equal to” the individual’s initial mood state and subsequently listening to music selections that gradually shift in tempo and mood to match the patient’s desired disposition. For example, a patient feeling depressed may begin by listening to music with slow tempo that matches their mood. Throughout the session, the patient would listen to music selections that gradually increase in tempo and become closer to their desired mood (i.e., energized/joyful). A music therapy intervention based on the ISO principle may be ideal for populations that would benefit from a mood management technique requiring little physical exertion that can be used in a variety of settings (e.g., hospital or home).⁸⁷ (Ratcliff et al. 2014)

Changing the self by means of sound is perhaps a more fitting and realistic use of digital tools than the current media paradigm, which positions producers and consumers in vastly different strata. Digital media tools can be directed not only towards productivity, but towards deeply personal activities of self alteration, cultivation, and authorship.

⁸⁷ Chelsea G. Ratcliff, Sarah Prinsloo, Michael Richardson, et al., “Music Therapy for Patients Who Have Undergone Hematopoietic Stem Cell Transplant,” *Evidence-Based Complementary and Alternative Medicine*, vol. 2014, Article ID 742941, 9 pages, 2014. doi:10.1155/2014/742941

My first experience working with audible media was had through constructing a multitrack tape recorder. Connecting together an assortment of boomboxes with stray RCA cables, I experienced my first overdub. This segued into many years of working with a four track tape recorder. The machine allowed me to find and embrace parts of my self otherwise inaccessible. In my years working as a musician and producer, this formative media practice remained a touchstone more rich and nuanced than my participation in public performance and commercial works. The residue of the practice (hundreds of tapes stored in an old railroad case in Florida) matter far less than the changes and experiences which the machine made possible.

In open ended experimentation with media tools one may happen upon plateaus and patterns that feel particularly appealing, terrifying, and thrilling in varying measure. The four different rounds of *Vocal Landscaping* impacted my sense of space and body in vastly alternate ways. Some harmonic combinations created a tension I wished to stay within exactly because it felt so fraught; the sudden shift to a quiet space after the ending of a round assuming an added stillness.

Adapting between shifting perceptual states one confronts multiple aspects of the rebus. A parallel can be found between both existential and mystical outlooks regarding the responsibility of perception. Challenging fatalism and destiny, choice is placed at the center of the human experience. *Landscaping* might be a decisive choice in which light one views objective phenomena; reminiscent of how a particular hue or angle of lighting embraces a filmic subject, changing the meaning of a static composition. Associative cues can be used to shift perception into different modes of understanding. This can be seen extending to the aesthetic experience of how one chooses to listen or view everyday activities. John Cage states :

You have then turned on the switch that distinguishes man, his ability to change his mind: If you do not change your mind about something when you confront a picture you have not seen before, you are either a stubborn fool or the painting is not very good.⁸⁸

Devon Hinton writes :

⁸⁸ Cage, J. (1961). *Silence: Lectures and writings*. Middletown, CT: Wesleyan University Press.

Much has been written about how fear networks are activated, but much less about how positive and adaptive networks are activated. Flexibility is profitably viewed as a positive emotional state; when activated, it may accompany other emotional states, for example, “I am sad, but I know that it is just one possible way of being; and other possible ways of being must also be considered as possible action courses, as possible lenses.”⁸⁹

I fully recognize the uniquely individual voice as a loci of tremendous import. In designing *Vocal Landscaping* I sought to create an experience suggestive of the deeper role that sound can place in shifting perspective at will.

Tuning

To these five principal sound are added two auxiliary ones to form the scale of seven notes, the image of the celestial world, which corresponds with the seven visible planets in the world of the spheres. Plato, in his *Timaeus*, noted that the soul of the world is divided into seven parts. And this is why it was the seven stringed lyre that symbolized the beauty and harmony of the spheres. Each string of the lyre was related to a planet. The musical sounds themselves were given the names of planets, and “because the mathematical laws observed in musical art and in cosmic spheres are related to the natural rhythms of the soul,” music forms a logical and direct tie between the movements of the world and the movements of our soul.⁹⁰

I’ve been continually asked why I chose to work with a seven note modal system. Why not nine or fourteen notes? This has led me to reflect upon why these same patterns repeat so often throughout history and across great distances. One contributing factor in my decision has been to partake in the folk traditions which are a part of my own cultural heritage. This choice to eschew any modern theoretical addition to the modes has been quite deliberate. *Vocal Landscaping* aims to revive and redeploy a specific historical folk tradition, and as such, the project is at odds with 12 tone, serialist, and atonal conservatory practices. The pitch detection settings utilized in *Vocal Landscaping* are forgiving enough to allow a range of bent notes and inflections. A more simple explanation is offered by Mike Goldsmith :

The reason why we use only eight of the twelve notes in an octave was resolved in 1956 by George Miller, a psychologist, who found experimentally that our short-term memory can store no more than about seven items - hence seven different notes - at a time.⁹¹

⁸⁹ Koen, B. Hinton, D. (2008). *The Oxford handbook of medical ethnomusicology*. Oxford: Oxford University Press.

⁹⁰ Daniélou, A., & Daniélou, A. (1995). *Music and the power of sound: The influence of tuning and interval on consciousness*. Rochester, VT: Inner Traditions.

⁹¹ - Goldsmith, Mike. *Sound: A Very Short Introduction*. Oxford, UK: Oxford University Press, 2015.

As *Vocal Landscaping* relies on pitch analysis for determining which shapes and buffers to activate, the exact intervals of the modes became of central importance in the design. Dissatisfied with the harmonies created by an equal tempered pitch detection, I found my way to Zarlino's *On The Modes*⁹², The Theater of Eternal Music, H.I.F. Biber's *Mystery Sonatas*, Helmholtz *On The Sensation of Tone*,⁹³ and Danielou's *Music and the Power of Sound*.⁹⁴ Deciding to focus on a small proportion J I system to complement the densely polyphonic structure of *Vocal Landscaping*, I settled on Ellis Duodene (Fig. 6. From an early English translation of Helmholtz) due to the particular sound generated in dense harmonic vocal clusters.

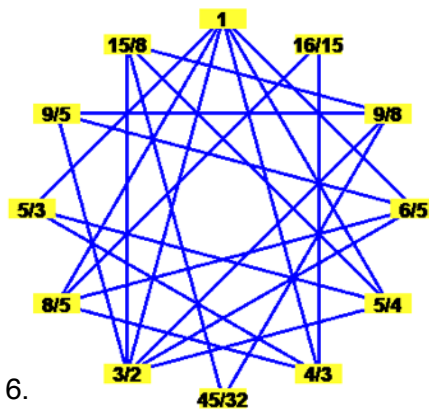


Fig. 6.

In the sixteenth century, the rediscovery of Greek writings on music, especially the writings of Ptolemy, gave considerable added ammunition to the advocates of consonant thirds and sixths based on ratios involving 5. In general, music theorists of the Italian Renaissance came to agree with the proposition of the Venetian Gioseffe Zarlino (1517 - 1590) that consonance was the product of ratios of the integers 1 through 6 (the so-called senario).⁹⁵

⁹² Zarlino, G., Cohen, V., & Palisca, C. V. (1983). *On the modes: Part four of Le institutioni harmoniche*, 1558. New Haven: Yale University Press.

⁹³ Helmholtz, H. V., & Ellis, A. J. (1954). *On the sensations of tone as a physiological basis for the theory of music*. New York: Dover Publications.

⁹⁴ Daniélou, A., & Daniélou, A. (1995). *Music and the power of sound: The influence of tuning and interval on consciousness*. Rochester, VT: Inner Traditions.

⁹⁵ Doty, D. B. (1994). *The just intonation primer*. San Francisco, CA: Just Intonation Network.

Collective Authorship

Of more interest than the particular tuning I worked from, were unexpected issues of authorship surrounding collaborations by The Theater of Eternal Music. *The Tortoise, His Dreams and Journeys* was a guiding light as I began to imagine how *Vocal Landscaping* might take shape. TEM was an extremely fruitful collaboration that featured performances by Tony Conrad, La Monte Young, John Cale, and Marian Zazeela with a rotating cast of guests. Their pioneering use of drone, feedback, and discord were hallmarks of new sound possibilities that began to emerge within the Fluxus movement. They are mostly known by the influence they had on other artists, as the primary composer of the group, La Monte Young, blocked the release of hundreds of archival recordings. This series of statements from Tony Conrad's 1990 picketing campaign illustrates the predicament :

1. The "Theater of Eternal Music" ("TEM") of 1964 was collaboratively founded - and was so named to deny the Eurocentric historical/progressive teleology then represented by the designation, composer.
2. Young is suppressing the recordings of "TEM," which do not flatter him. He has specifically denied access by members of the collaboration (Tony Conrad, John Cale) to the collection of recordings for 25 years. Two members are already dead (Maclise, Jennings).
3. Young himself now ignorantly insists on the artistic demolition of this body of work by claiming that it is a series of "compositions" (by him).⁹⁶

When collaborators enter into a heuristic based system, who maintains authorship? Who will exert ownership of the community tapestry of voices generated throughout the exhibition of *Vocal Landscaping*? Should participants be able to remove their own voices from the system at will? These concerns cross over into contemporary conversation surrounding surveillance and the covert collection of metadata. Ideally, materials generated while in collaboration bear the authorship of all parties involved. This sharing of credit is less clear in the case of software and tools which are offered as platforms. A mobile deployment of this software might include a folder mirrored between a personal computer and a server, allowing users to keep track and remove their contributions at will.

⁹⁶ Duguid, B. (1996, June). *Tony Conrad Interview*. Retrieved May 11, 2016, from <http://media.hyperreal.org/zines/est/intervs/conrad.html>

In ceding personal ownership to the identity of a larger community something is lost and something is gained. Through metadata collection one cedes privacy for convenience, security, or the financial profit of another. In surrendering an inscription of the voice into the *Vocal Landscaping* system, one might poetically experience a sense of belonging to a greater conversation containing many voices. Regarding collaborative systems, Donella Meadows writes,

We can't impose our will on a system. We can listen to what the system tells us, and discover how its properties and our values can work together to bring forth something much better than could ever be produced by our will alone.⁹⁷

Practical Parallels

While the intention behind collecting voices into *Vocal Landscaping* remains poetic, researcher Rupal Patel's *VocaliD* project collects vocal donations to render synthetic voices for those unable to speak on their own.⁹⁸ Patel first had the notion for this project after overhearing a conversation between two individuals speaking through identical vocal prosthetics.⁹⁹ Both of their vocals were generated from the same program patch, identical in all recognizable measures. On reflecting upon the important role that unique vocal identity plays in the experience of the self, Patel came upon the idea of sampling donor voices fit particularly to a recipient's age, body, and cultural identity. The project has been an overwhelming success, with thousands of requests for distinct synthetic voices. This project practically addresses a previously overlooked need by considering social and psychological aspects of the synthetic voice in context.

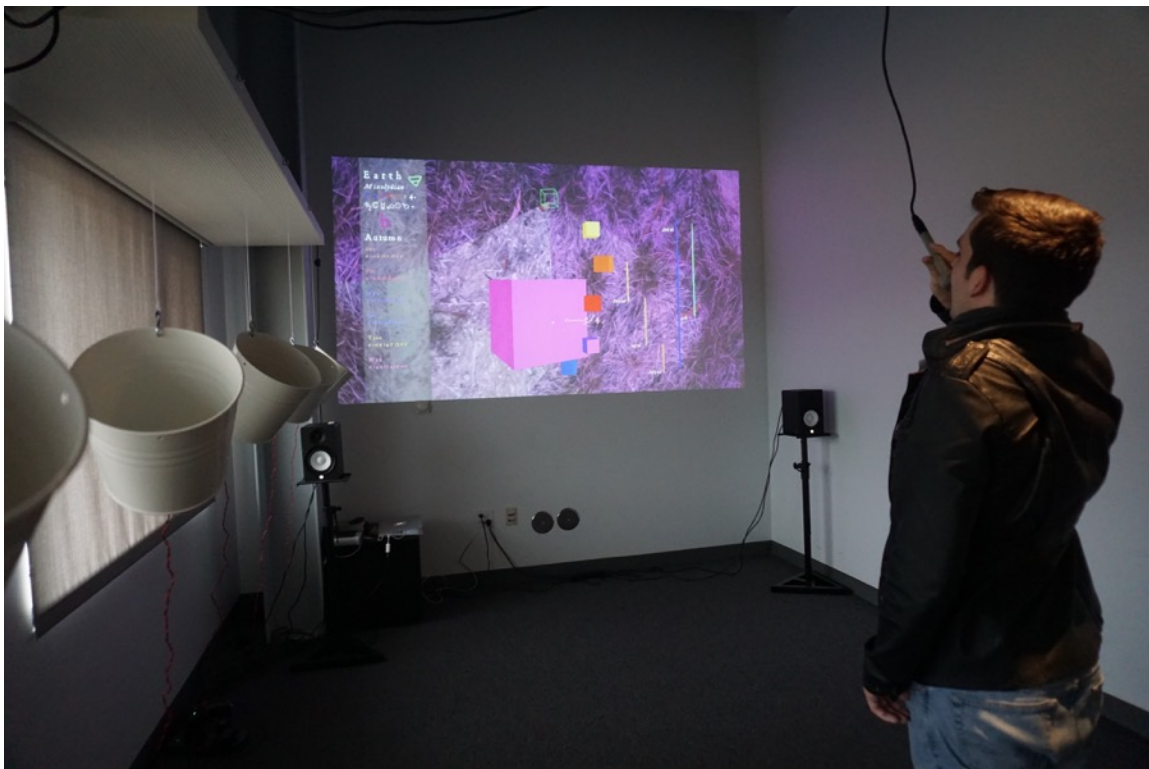
VocaliD's emphasis on matching the body of a candidate to the most fitting donated voice raises some curious questions about choice and self determined construction of the identity. What if I want a voice that doesn't match my body? Should the project serve the limits outlined by the body,

⁹⁷ Meadows, D. H., & Wright, D. (2008). *Thinking in systems: A primer*. White River Junction, VT: Chelsea Green Pub.

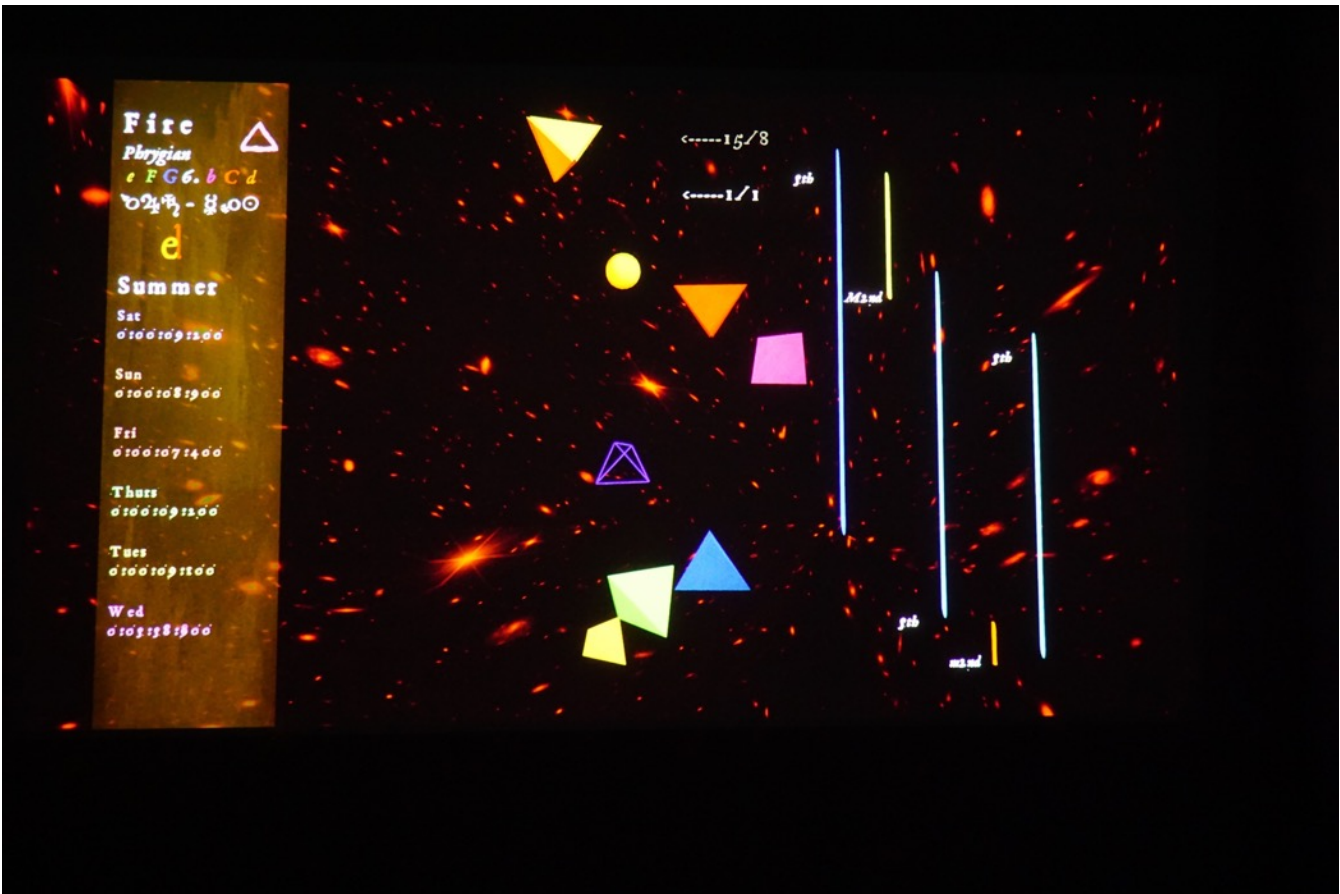
⁹⁸ Rutkin, A. (2014, March). *Wanted: Voice donors for people who can't speak*. Retrieved May 11, 2016, from <https://www.newscientist.com/article/mg22129614-500-wanted-voice-donors-for-people-who-cant-speak/>

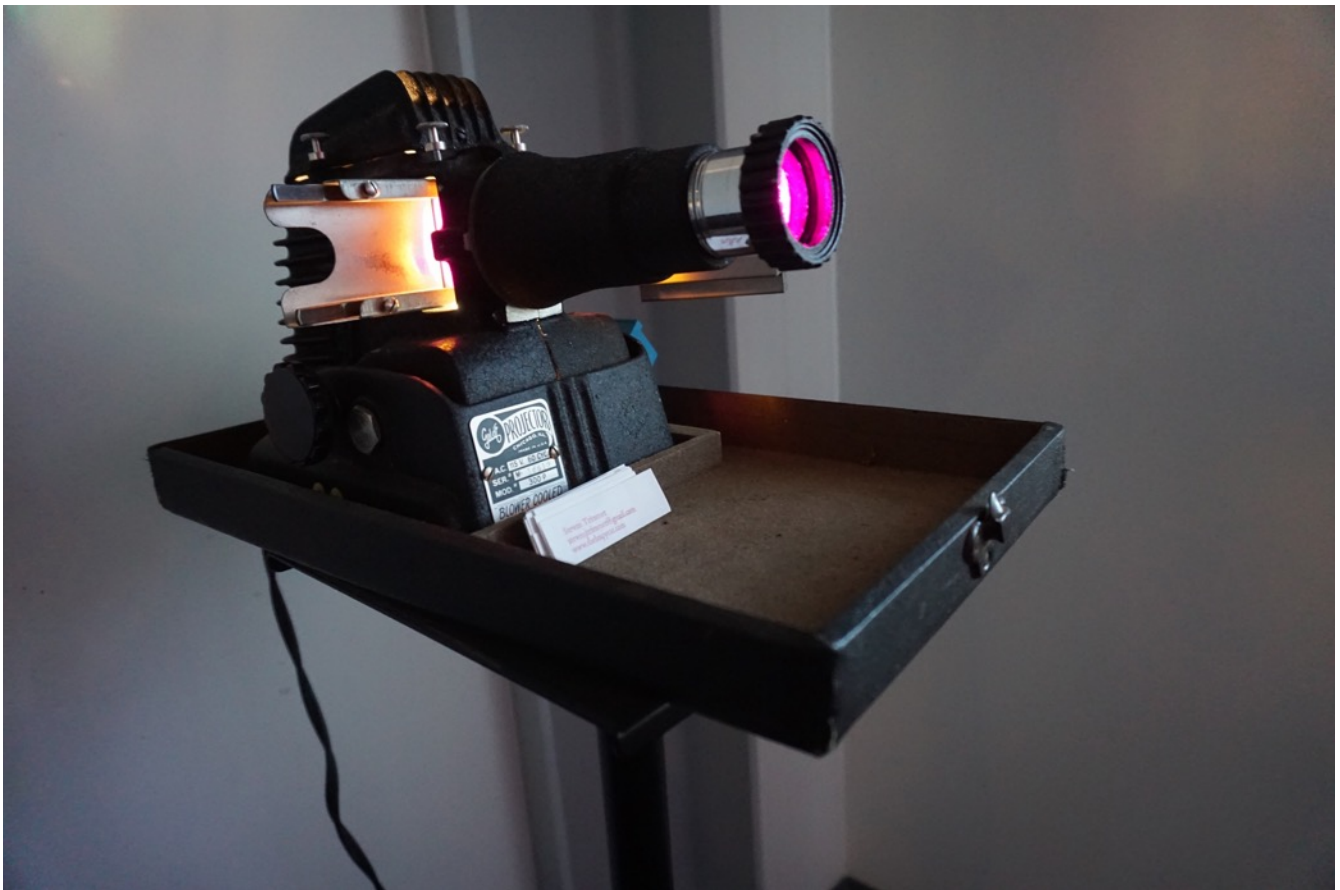
⁹⁹ Patel, R. *Synthetic voices, as unique as fingerprints*. (n.d.). Retrieved May 11, 2016, from https://www.ted.com/talks/rupal_patel_synthetic_voices_as_unique_as_fingerprints?language=en

or the personal needs and wishes of a diverse and expressive user base? As tools which extend and alter the self become more and more common, such conversations need to take place. New precedents must be set and thoroughly explored in the field.









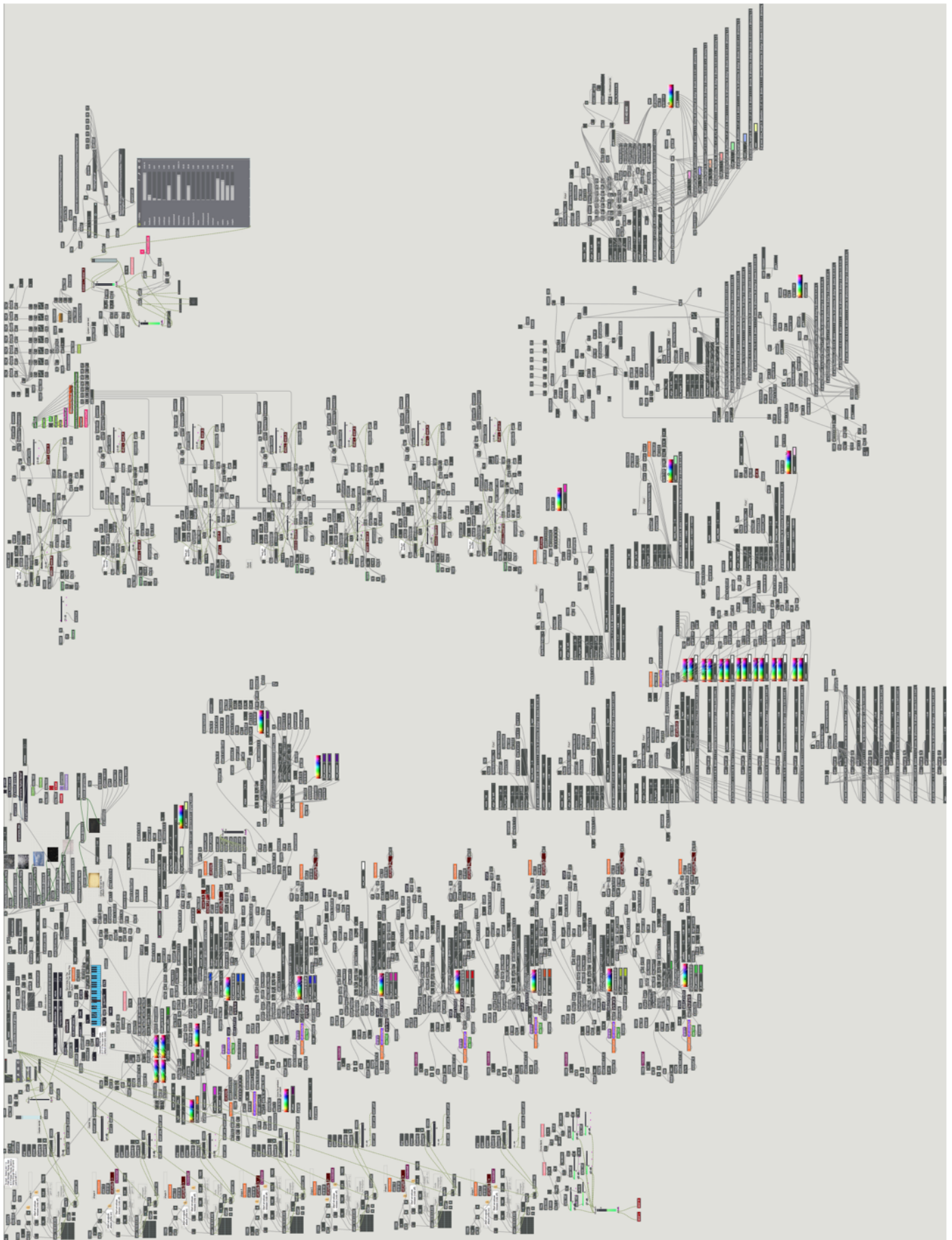
Project Description

Vocal Landscaping is a voice interactive sound installation modeled upon a modal intoning and improvisation paradigm common throughout the Renaissance. The aim of the piece is to give greater prominence to the role which the embodied voice might play configured within augmented and virtual environments. It has been programmed in Max MSP using OpenGL and Jitter for visuals. In its current iteration it is a sound and light installation working with projection, an omni EV635a microphone, 7 resonant objects affixed with transducers, stereo monitors, a spotlight, a 1930's slide projector, and a movie theater subwoofer. Participants use their voices to navigate a visual game, completing puzzles by providing specific vocal tones and durations. There are four rounds, each relating to a specific mode and element combination as outlined in Renaissance sound, alchemical, and medical literature. A golden sphere moves along the central vertical axis of the screen, visualizing changes in pitch and rendering the projection space a video monochord. By hovering the golden sphere over platonic solids which populate the screen in the just proportions of the current mode, the shapes are visually activated, growing in size and rotating at an increased speed. The shapes along the vertical axis lend their colors to the hue of the global lighting when they become activated. The elemental associations of the solids are drawn from Plato's Timaeus. Voices which match the specific tonal and durational requirements programmed into each wireframe shape are written into an audio buffer, filling the shape in with color as the voice is concurrently broadcast through a resonant physical object and is inscribed into a vocal library on hard drive. A dynamic text interface programmed in OpenGL displays the just intonation proportion of the voice along a central vertical axis, while text on the upper left displays the current mode and element along with planetary and note name correspondence. The details of these correspondences are gradually revealed as the shapes are filled in. The lower left hand portion of the screen displays a unique form of notation written in seasons and days of the week, recorded to a JSON file throughout the duration of the installation. The right hand portion of the screen maps out the inner intervals of the mode in the specific order in which the notes are triggered.

Signal Flow in Brief (See Fig. 7.) :

A voice enters the system from the hanging microphone, passing through an FMR RNC hardware compressor, on through a software audio gate, compressor, and limiter. The voice is bussed to 7 separate audio gates with ADSR envelopes. The voice also passes through a pitch detection object which gives the number of the interval in relation to a set of modal proportions fed into the inlet. This number is compared against a JSON file containing the list of intervals for the mode relating to each round. When the input matches a particular note in the mode, the associated OpenGL shape is triggered into motion, and the corresponding audio buffer is activated. The audio buffers continually record and loop playback at -15 db when they receive matching pitch information more than 0.0125 ms long. After a buffer has received a sustained pitch and has been continually activated for more than approximately 3 seconds, the buffer continues to playback but is removed from further interaction. Simultaneously, the volume is increased to -5 db and a second playback object reads the buffer at near the speed of the first playback instance. Each playback instance is time stretched close to 3X slower than normal playback speed. One playback instance shifts pitch as the speed is decreased, and is sent through a pitch shift object to return playback to the original pitch, resulting in aesthetically desirable flute-like artifacts. The second playback instance accesses the same buffer, but is held at the original pitch while being time stretched, resulting in a more accurate portrayal of the source. LP auto filters are applied to the buffers with harmonic artifacts to decrease hi end distortion. After a buffer has been activated by a continual duration of 3 seconds the resultant audio buffer is written to hard disc with the file naming convention of seasons for mode and days of the week for interval. A JSON file containing the just intonation intervals of Ellis duodene is referenced to display the current interval along the vertical axis and for determining the proportions which space the solids between rounds. The dynamic text of current note, planetary element, season, day of week, and interval, are also called from a number of separate JSON files. When all of the shapes have been fully activated the sequence cycles to the next round, changing the background image along with the ambient lighting colors, re-proportioning the spacing of the shapes, and changing the solids to follow the correspondence in Plato's Timaeus : Earth / Hexahedron, Water / Icosahedron, Air / Octahedron, Fire / Tetrahedron. The tonic frequency of the sub note changes between rounds from Earth / G, Water / D, Air / F, Fire / E. The frequency of the sub notes is set to change very slightly with the db output of the master mix, introducing a subtle beating effect. All of the voices recorded onto hard drive are streamed back in order through the stereo speakers throughout the show, introducing progressive variations in the sound space over time.

Fig. 7.





If my nightmare is a culture inhabited by posthumans who regard their bodies as fashion accessories rather than the ground of being, my dream is a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power and disembodied immortality, that recognizes and celebrates finitude as a condition of human being, and that understands human life is embedded in a material world of great complexity, one on which we depend for our continued survival.¹⁰⁰

-N Kathrine Hayles, *How We Became Posthuman*

A Number of Unexpected Occurrences

1) I had anticipated that the monophonic pitch detection might present possible glitches or rapid jumps between detected frequencies. By inserting a sidechain compressor before the master audio out to duck the main output volume, I had hoped to limit interference from audio playback while sound was being input from the microphone. I hadn't foreseen that groups would gather around the microphone to sing together, perceiving the jumps between differing values as visual feedback guiding them to settle on a single note sung in unison together. I saw this happen four times throughout the course of the exhibition. Future iterations may incorporate polyphonic pitch detection to move multiple objects to solve puzzles in community. Seeing groups sing in unison to trigger shapes was moving and delightful.

¹⁰⁰ Hayles, K. (1999). *How we became posthuman: Virtual bodies in cybernetics, literature, and informatics*. Chicago, IL: University of Chicago Press.

2) After triggering a note, many participants went looking for their own voices in the buckets. They would then listen to their voices blending with the other voices in the room.

3) A number of young people visited the installation throughout the four days. As a group of high school boys took turns singing, a regular system of rules I had not anticipated began to emerge. They discovered that intoning in a head voice was the most efficient means to trigger shapes. They cheered each other on as they proceeded through the rounds. The sports element was unexpected, but very welcome. Seeing the laughter and conversation this interaction evoked was inspiring. Behaviors, situations, and alliances otherwise most unlikely quickly came together and dispersed, give way to other novel arrangements.

4) Children under 10 held some of the most committed interactions. Initial frustration would turn to a mapping of rules. As subtle gradations and enigmatic actions within the system were discovered further play was encouraged. Discovering how notes could be represented in different octaves at first seemed to violate rules of frequency and location along the Y axis. This turned to further understanding throughout a brief period of play. These interactions have led me to envision pedagogical usage for future iterations.

5) Many people are unaccustomed to openly using their voices for much beyond verbal communication. The system is designed to be responsive to frequency, duration, and volume. Although set to be sensitive to low input levels, some visitors simply could not gather the resolve to sing above a whisper. Most who attempted were able to interact with the system, quickly learning how to move shapes, fill in colors, and inscribe tones. Requiring volume for interaction seems to be reasonable. Games controlled with the mind alone are an entirely different species of game.

6) I had anticipated some laughter, but the sheer amount of joy and vulnerability people displayed was disarming and heartening. Amongst friends, involved in a novel activity, seeing a side of one another perhaps unfamiliar; participating together in a somewhat absurd abstract expressive gesture. These are wonderful moments I am not soon to forget.

From Here

I would like to further investigate a mobile iteration of this design. While I plan to include a setting for simply intoning that makes use of the iso principal, more development of narrative group play reliant upon polyphonic pitch detection from a single microphone presents itself as an intriguing possibility. Navigation of more complex spaces and puzzles, such as the emotional architecture depicted in the *Hypnerotomachia Poliphili*, could work very well. Further development for interactive sound games on mobile platforms might be better undertaken in Unity, Swift, or Objective C. The immediacy offered by Max's GUI remains incredibly appealing for further sound and light installations.

The tension between a third space installation and a mobile deployment remains of interest. Perhaps voices could be collected in a third space and hosted on a server, becoming the voices utilized on an iOS instrument. An iOS game that both collects voices, hosts them on a server, and makes them available as part of a geotagged world chorus mellotron-type instrument is the most likely way forward from here.



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