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Aesthetic Practices in my Live Electronic Music

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UNIVERSITY OF MIAMI

AESTHETIC PRACTICES IN MY LIVE ELECTRONIC MUSIC

By

Adam Sheppard

A THESIS

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Master of Music

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Aesthetic Practices in my Live Electronic Music

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Live music has the ability to unite individuals and affect them on both cognitive and emotional levels. Its time-honored tradition remains the true test of a musical work's strength and longevity. Electronic music in particular has had some difficulty in establishing well-formed performance practices in its relatively short life span. The problem may not be one of sonic, but rather visual inhibition and general discontinuities between the audience and performers. In this paper I raise three questions of aesthetic value concerning live performance. Why do we go to live musical performances? How do we perceive sound? How do we correlate physical gestures? To answer, I make observations on selected works spanning the continuum of the field.

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CHAPTER 1

INTRODUCTION

In a live situation, electronic music suffers from the fact that the dialogue between the audience and performers is often unclear. Performance practices are generally unorthodox, and often more reminiscent of the twiddling of stereo controls. The problem however is not with the sound content of a given piece, but rather a disconnected feeling between the audience and performers. I will examine this from two perspectives.

Musical aesthetics is a field of study brought about by philosophers in the 18th century. Originally born out of inquiries into the perception of beauty, music aesthetics has grown to include many areas, such as sound production, performance, and evaluation. In this paper I take a more contemporary approach and focus on stylistic differences between musical genres, information gathering, and social interactions with respect to performance based electronic music. I will explore theories of social engagement and the nature of 'acousmatic' listening, and also catalog some of the physical gestures associated with the production of electronic music by non-traditional means. In doing so, I intend to draw a connection between the established values of live performance based music and the more recent electronic aesthetic.

In practice, the functions of electronic music appear to vary greatly. By taking a survey of pieces from the repertoire, I will try to follow the evolution of live performance, from the tape piece to interactive works. In this evolution the need for engagement of the audience becomes evident. The interaction of man and machine has been a focal point in this progress, ushering in performance idioms unlike anything known in the past. Groups such as The Sonic Arts Union, AMM, and Musica Elettronica

Viva have made notable contributions in the development of live performance based electronic music practices. Their innovative approach to live performance utilizing verbal, graphical, and written instruction has paved the way for the development for more electronic ensemble collaborations.

It is my contention that the success of a concert is directly related to how well the performance has convinced the majority of the audience of the work. By convincing, I am referring to the amount of information effectively conveyed in the process. Live musical events are a way of sharing in an experience larger than any one individual. By giving of oneself for the greater purpose, we become ever closer to that which is essential to human life.

CHAPTER 2
AESTHETICS

The Role of the Live Music Venue

People have always congregated to experience music. Music's ability to unify people was understood in the early Christian Church. This was seminal for the Western musical tradition of live performance. Today, music permeates almost every facet of our lives, and people continue to honor live musical performance. I propose here my view about why this is so, and raise some aesthetic questions, particularly for the field of electronic music.

Humans are social animals by nature. The congregation of individuals at public places and the propensity for discourse is evidence of that. I believe there is a natural inclination for people to feel that they belong to something larger than themselves, and that this feeling penetrates many other aspects of our daily activity. Take the simple example of going to the movie theatre.

I have observed a strange phenomenon when visiting the movie theatre that cannot be overlooked. When a powerful moment has just occurred onscreen, or when the movie is over, people engage in a round of applause. Why is this so? There are no live performers to congratulate, so what are people applauding for? It is in my opinion that people are trying to communicate their feelings to one another in a socially engaging manner. The feeling of connectivity we experience by merely being in the presence of one another becomes further exaggerated by the applause of the group as a whole. This sense of unification is not uncommon to a choir of people singing together at a church ceremony and akin to the feeling we get when going to an orchestral concert and the

various performing participants are honored as they take their bows. It is also evident in the need for a discussion of opinion after a concert has let out.

Electronic music can suffer from issues of communication when presented in a concert setting. A piece can begin or end without a strong signaling of the occurrence. This is perhaps due to a lack of human stage presence. This can lead to confusion among the audience members and consequently cause distraction from the experience. Other performances call for a much higher degree of participation, and it can be a challenge to persuade the audience members to become engaged in the activity at hand. Like in the movie theatre situation, people are more likely to become socially involved if they feel personally invested in the entertainment presented. But as I have said, this can be challenging when it comes to the performance of electronic music. Live electronic music in the academic realm typically engages people on a more cognitive rather than emotive level. This means that the audience must become more participatory in the live concert setting if we are to keep people's attention focused for the duration of a given piece. In this day of utilitarian music, a live concert setting must provide an outlet otherwise missing from the private auditions of music we encounter so regularly.

There are several possible solutions to the predicament proposed here. At the heart of the matter lies the need for engagement of the audience and performers. Ideally, this relationship would cease to exist on such a strict divide. Glenn Gould, who abruptly retired from live performance in 1964, once wrote in reference to the future of the live musical experience that, "The audience would be the artist and their life would be art."¹ This attitude is reinforced by the media outlets of today and must be considered by electronic performing artists if they are to prove more successful.

¹ Glenn Gould, *The Glenn Gould Reader*, ed. Tim Page, New York: Alfred A. Knopf, 1984, 353.

The Acousmatic Experience

Akousmatikoi refers to the students of Pythagoras, the Ionian Greek Mathematician and Philosopher. The *Akousmatikoi* would listen to the lectures of Pythagoras from behind a curtain, rendering visual contact with one another obsolete. In 1955, Jerome Peignot and Pierre Schaeffer coined the term 'acousmatic' to describe the experience of listening to their new music, music concrete. As an adjective, acousmatic refers to a sound that one hears without seeing the causes behind it.²

Acousmatic listening strives to separate the sonorous object from our subjective psychological experience of that sonorous object. If you happened to watch the bowing of a violin string, then you could be certain that the source of the sound heard was a violin. If you heard a recording of a violin being bowed, how could you be certain that what was perceived was in fact a violin? The situation described here is a simple example, but the philosophical consequences for our perception of live music are profound.

Traditionally at electro-acoustic concerts an artist presents a work as a fixed source played through loudspeakers. It is the so-called "tape piece" or "fixed media piece" as it has become known in more recent years, that started this predicament, but this is not where the story ends. Any concertgoer can turn their experience into one of acousmatic listening by simply shutting their eyes. Without the aid of visual stimulus, the majority of information retrieval rests on the auditory system. Your ears become a set of hypersensitive tools where you have to feel your way through a performance using sound as your only guide. The sense of hearing is a passive but encompassing sense with approximately eight times the resolution of sight.

² Pierre Schaeffer, *Traité des objets musicaux*, trans. Daniel W. Smith, Paris: Éditions du Seuil, 1966.

When you enter the realm of “blind” listening, sounds would appear to emanate from within. The external excitation, from which the sound originated, seems to become negligible and what is left is a matter of perception in the psychoacoustic realm. Sound becomes returned to the "natural" state from whence it began, and can be treated as a powerful medium. Most people who prefer to focus on melody, harmony, form, and other aesthetic properties of music do not often explore this “natural” state. Francisco López, a bio-acoustician and experimental sound artist, is a champion of acousmatic music. López arranges his concerts from the center outward, with him at the center and the audience in concentric circles facing outwards. The speakers face the center of the circle from the perimeter, and everyone in attendance is blindfolded. The idea is to remove the element of the stage from the concert. Also, by immersing the crowd in sound, their bodies move perceptively into the background, and their auditory perception becomes heightened. While I agree with the decision Mr. López has made in the context of purely acousmatic music, I cannot deny the existence of the traditional concert idiom with a stage and seating area and its implications.

A better question to ask is, "Can I fully appreciate a live musical experience using this faculty alone?" For it is my contention that the visual representation of a performer is directly associated with the sound being produced on that performer's instrument. By focusing your attention on a specific player or group of players, their sound becomes perceptually louder to your ears. As an example, a solo performer can ruin a concert if they try to “sell” their part by overacting, the same way one can ruin a dramatic theatre performance. By adding exaggerated gestures, a performer tries to lure audience members to become transfixed by their actions and keep their attention for the duration of their playing. Now, if the audience member had decided to close their eyes for the duration of the piece, I believe that the sound produced by the performer in question would be considered lackluster and not aesthetically pleasing.

The answer may lie in a more thorough understanding of the physical gestures associated with the production of music. A renowned soloist may be the exact reason someone attends a specific concert. For the mastery of a virtuoso performer is still a praised effort by today's standards.

Physical Gestures

The physicality of performance is an important and often overlooked source of information within a musical work. It can indicate such things as dynamics, tempo, phrasing, and orchestration. Electronic music encounters a problem in this area of information gathering; the gestures can often be very subtle though the implications may be quite dramatic.

Traditional music has a rich catalog of physical gestures. Striking, bowing, plucking, and blowing are some of the basic methods used for the excitation of acoustic instruments. These acts are intrinsically tied to the manifestation of sound produced and provide a visual reference for the audience. They are "hard-wired" to our brains and provide immediate gratification to our perception and acceptance of the acts we witness so regularly at concerts. It would be hard to imagine going to a concert without seeing these gestures being performed on stage. This is precisely the issue encountered with live performance based electronic music.

Electronic music has a wide variety of physical gestures, but they are not as intuitive as the ones previously established. The turning of knobs, pressing of buttons, and sliding of faders are a few of the actions performed on stage as part of the sound generation process. These actions are more akin to that of the factory worker on an assembly line. The gestures associated with electronic music can be considered as an abstract notion that may be programmed to control a wide range of parameters within a

musical work. This is in part due to the way sound is generated in an electronic instrument.

Analog electronic controls have become more understood in the last century because so many of the devices used for control appear in household commodities as well. Developed in part with the industrial revolution, analog controls are more mechanical in nature and therefore have more in common with our acoustic instruments. Most people have used a light switch, television, or radio and are accustomed to turning knobs and flicking switches in order to achieve desired results. The Theremin is one of the first purely electronic instruments to be developed and mastered with success. Clara Rockmore, a renowned violinist, is widely considered the most accomplished performer of the Theremin. The technique Ms. Rockmore developed for playing the instrument is very closely related to the fingering system of the violin and the translation of gestural command is perhaps the reason for her proven success. Analog synthesizers as well have been outfitted primarily with keyboard controls, which people have been long acquainted with.

Digital manipulation on the other hand is a more recent undertaking in society. Computers can be programmed to perform a wide array of tasks and are computationally more efficient than anything we have known before. The powers bestowed upon us by these technologies have ushered in an entirely new generation of haptic interfaces. Accelerometers, gyroscopes, and bend/flex sensors are some of the latest devices used to input data into a system for real time electronic control. This opens the door to new performance techniques and allows for more individuals to be welcomed as part of the body of musical performers. The potential for professional dancers to utilize bodily gestures, as a means of communication between sight and sound, has never been higher.

The situation described above can leave the audience at an electronic music concert less grounded. Visual aid might be necessary in order to focus the audience's

attention and more effectively convey the thought process of performers. Utilizing video technology or choreographed dance has been explored with varying degrees of success. The Merce Cunningham Dance Company has been one of the premiere leaders in this effort. Virgil Fox, a renowned organist, placed a camera on the pedalboard of his organ to highlight his footwork for audience appreciation. Modern sound control devices can also dramatically reduce the learning curve for musical production, and allow individuals to contribute more affectively in the creative process. I believe that by utilizing media as a mediator between the audience and performer, the nature of these gestures might be understood on a more fluent and intuitive basis.

CHAPTER 3 PRACTICES

The Tape Piece

The tape piece, or fixed media piece as it has become known, is a work composed and performed on a storage medium where all aspects of the music are predetermined. Tape music was conceived in the 1940's, and the first concert of tape music was premiered roughly ten years after the invention of magnetic tape recorders in 1939. Tape music was a main staple for music concrete, but is not solely limited to a specific genre.

The first public concert to utilize tape music in America was in 1952, at the Museum of Modern Art in New York City. Here, Vladimir Ussachevsky and Otto Luening presented works from the Columbia-Princeton Electronic Music Center. Consisting of works ranging from manipulated flute sounds to pure electronic signals generated from the RCA Mark II Synthesizer, the concert received mixed reviews and led to a public appearance on The Today Show. Although the audience did not herald the music with praise, there is no doubt that the implications of the event were far-reaching and consequential for musical evolution.

During the twentieth century with the rise of serialism and twelve-tone techniques, musical works were becoming more deterministic in nature. The role of composer was seen as an independent and isolated practice where the sounds and formal structure stemmed from the depths of their mind. Since that time, many composers have utilized the fixed media as a way of imposing strict control over sound events for their music. Milton Babbitt described the experience of walking into the studio with sounds in

his head and leaving with a tape reel at the end of the day as ‘unparalleled’.³ The roles of creator, composer, and performer were placed squarely on the shoulders of one person.

Not everyone agreed with the independent attitude taken by the electronic composer’s of the day. Others, such as Steve Reich, took a more organic approach to the new technology bestowed upon them. The first of Reich’s Tape Pieces entitled *It’s Gonna Rain* (1965) and *Come Out* (1966) utilized the speech-melody of the English language and exploited the idiosyncratic machinery of the magnetic tape transport. Reich has defined this method of music making in his manifesto *Music as a Gradual Process* where he discusses the value of composing in such a manner. Reich viewed composing with tape transports as a way of cycling through all contrapuntal relationships both rational and irrational in what he more formally describes as phasing. The implications of Reich’s work with phasing have led to entire fields of study based on temporal relationships of sound.

Brian Eno was another pioneer user of the tape transport mechanism. Eno was heavily influenced by the early tape pieces of Steve Reich. In particular, by the amount of sonic material that was actually utilized in the construction of these pieces and the manner in which they came about. By specifying the production system rather than all of the note-to-note details, the composer can be viewed as a gardener planting seeds, rather than an architect designing forests⁴. Eno began to use the medium to create soundscapes based on long loops of modal music. He coined the term ambient music to describe his unsurprising and environmentally stimulating pieces. Eno himself in the liner of his 1978 release *Ambient 1 Music for Airports* best describes it. “Ambient Music must be able to

³ Jason Gross, *Milton Babbitt Talks About “Philomel”*; Available from <http://www.furious.com/perfect/ohm/babbitt.html>; Internet; Accessed 15 February 2009.

⁴ FORA.tv. "Will Wright and Brian Eno: The Long Now Foundation." FORA.tv. Available from http://fora.tv/2006/06/26/Will_Wright_and_Brian_Eno#chapter_01; Internet; accessed 4 April 2009.

accommodate many levels of listening attention without enforcing one in particular; it must be as ignorable as it is interesting."⁵

Popular music has benefited greatly from the use of the methods and tools exemplified in the construction of these early works. The field of generative music would not exist if not for the experiments undertaken here. Tape can also be used as an accompanist for a solo player. To play along with a tape takes the interaction of man and machine to a different level.

Man-Machine Interaction

In 1896 inventor Thaddeus Cahill developed the Telharmonium with the idea of transmitting its sound through telephone lines right into the homes of listeners. However profound the invention was, the New York Electric Music Company went bankrupt by the year 1914. The efforts made by Mr. Cahill presaged, however, the streaming media that is piped into the millions of homes every day.

The interaction between man and machine is a common sight at most concerts we attend. Yet, when faced with some of the more recent happenings associated with electronic music the listener/viewer is often left puzzled by what exactly occurred. The use of electronic communication circuitry and neuroscience apparatus as musical devices is two examples of this evolutionary trend. This is perhaps to be expected as the latest technologies become integrated into electronic media. New connections that are drawn between minds and machines must be made more explicit to the audience.

Alvin Lucier's piece entitled *Music for Solo Performer* (1965) exactly portrays one of these situations. The piece begins with EEG electrodes being attached to the

⁵ Brian Eno, *Ambient 1 Music For Airports*, EMI Music (Publishing) Ltd. 7243 8 66495 2 2, 1978, CD.

performer's head. These electrodes detect alpha brain waves, which are in turn amplified throughout the hall. The resulting sound is used to vibrate percussion instruments situated around the space. The connection Mr. Lucier is trying to draw here is one from cognitive processing into acoustical energy, but more explicit information might be necessary in order to convey this to audience members. Verbal or graphic representations are two possibilities.

In recent years there has been a marked proliferation of concerts by “laptop ensembles.” Laptop concerts suffer from a similar problem as the viewer is left with no indication of what exactly is happening on the computer screen. The laptop ensembles of Princeton and Stanford University seem to be the most successful. In these cases a designated conductor cues the performers and audience alike. The conductor generally signals for crescendos and diminuendos, as well as signaling individual players to take solos. These visual cues can help relate the sound heard to the performers instructions of their instrument. Thus the physical gesture gives specificity to the connections.

Steve Reich's piece entitled *Different Trains* (1988) is another example of man and machine working to create a union more profound than the separate components. In it, a string quartet is used to mimic a tape containing snippets of interviews with people from the United States and Europe describing their train experiences, which took place before, during, and after World War II. The once separate sound objects in this work become interwoven into a new framework for the listener to enjoy and comprehend as a new syncretic amalgam.

The gestures utilized by the pieces here connect at a higher level than the sightings at a traditional concert. At the heart of these musical performances lies the desire for the synergy of man and machine to better communicate a musical idea. For to converse with another is one of the many goals associated with the art of making music. Human-machine interaction requires human input, and it is humans that invented the machines and ultimately humans that are interested in conversation.

Composer, Performer, Improviser: One in the Same

The roles involved in the music making process are not as clear-cut as people would like to suppose. One can start by defining the terms composer, performer, and improviser:

- A composer is an entity that provides structure for a given piece of music, through the use of instructions communicated through a medium.
- A performer is an entity that acts as an interpreter of the composer's instructions in which the piece is realized in the physical world.
- An improviser is an entity that makes decisions in the immediacy of the moment.

An entity by definition is anything that is perceived to have its own distinct existence⁶. It follows that any of the roles I have just defined may be assumed by any known entity, and that an entity may assume more than one role. This is exemplified in the interactive works of twentieth century electro-acoustic musicians such as George Lewis, Joel Chadabe, and The Hub.

In Chadabe's piece entitled *Ideas of Movement at Bolton Landing* (1971), an analog synthesizer is programmed to generate unpredictable information that the performer must react to. The performer then feeds back information to the system, and makes decisions based on the sounds generated. Once set into motion, the symbiotic relationship of the two separate entities cannot be distinguished. Mr. Chadabe coined the

⁶ Princeton University. "WordNet Search." WordNet. Available from <http://wordnetweb.princeton.edu/perl/webwn?s=entity>. Internet; accessed 28 April 2009.

term "interactive composing"⁷ in reference to situations in which the system and performer are seen as mutually influential to one another.

George Lewis' *Voyager* (1987) is another example in which the continuum of the roles presented here becomes obscured. In *Voyager*, a computer is programmed to act as a "virtual improvising orchestra"⁸ where it listens, analyzes, and responds to a human improviser. By modeling cultural aspects as well as compositional structure, Lewis is able to guide the computer in musical directions through the style in which he plays. Yet, the ability for the machine to generate its own data through the use of random numbers provides inspiration to which the performer can respond. In essence there are two parallel streams of music occurring that inform one another in musical discourse.

In the 1980's a collective of computer musicians called The Hub gave birth to the idea of shared network performance. A member of the group would design a program in which a composition would be realized. For example, in the piece *Borrowing or Stealing* (1987) designed by Phil Stone each player of the group is asked to play a melody and report that melody to the rest of the group electronically. The rest of the members could then borrow or steal the melodic information and use it to produce something of their own. This type of model for active participation by each member leaves traditional models of the composer- performer relationship by the wayside.

Through continuing developments in technology combined with a more thorough understanding of musical structure, interactive compositions provide a fresh perspective into the core of the music making process. The ability to spark creative outlets for composers and performers alike leads to more cooperative understanding and helps to eliminate the need for the traditional roles assumed in the past.

⁷ Joel Chadabe, *Electric Sound: The Past and Promise of Electronic Music* (New Jersey, Prentice-Hall, 1997), 293.

⁸ George Lewis, "Too Many Notes: Computers, Complexity, and Culture in *Voyager*," *Leonardo Music Journal* 10 (2000): 33.

CHAPTER 4

REMARKS AND FUTURE CONSIDERATIONS

The challenges of live performance practices in electronic music are one of trial and error. As in traditional musical performances, the interaction between audience and performers is an essential element in order to prove successful. Group participation is one way of achieving desired results, and the interactive works of the twentieth century foreshadow this. Audience participation does not guarantee a successful interactive experience but should be explored nonetheless. In addition, visualization of gestural control with either multimedia or other means will help to draw more explicit connections of sight and sound. The more information conveyed to the observer, the higher the probability will be of convincing them of the work.

As developments in technology advance our communicative network and mobilize the necessary equipment, the concert setting may assume locations unimaginable by past generations. Live performers will be able to connect in real time performances of composed and improvised works from any location in the world. The development of future haptic interfaces providing intuitive control can only allow for more individuals to become participatory in the ritual of performed music. Video games and generative structures are already paving the way for a more interpersonal play between man and machine, and help to promote individual creativity.

While musical aesthetics as a field will continue to explore the very nature of music in general, it must be expanded to include more specific problems as they relate to individual practices in the various styles of the field. For electronic music, this includes such topics as sound diffusion and the spatialization of sound reproduction. In addition,

the physical space of concert halls and the social engagement of live musical events must be considered as an intricate detail in the overall success of a concert. Sound artists have only more recently considered site-specific compositions as methods of providing this level of detail.

I believe that less stress should be placed on the roles of composer and performer. As these distinctions continue to become cloudier, they will eventually cease to exist in their traditional form, and the audience will become liberated of their strict code of silence. The traditional concert setting in the western tradition will continue to exist, but only for a more niche audience. This will usher in an entirely revamped political structure of musical hierarchies and hopefully bring the cycle of musical performance full circle.

In addition to this paper, I chose to put on a Master's recital consisting of both original and composed musical works. The pieces realized called for high levels of participation by the performers, as a majority of the musical content was unspecified. In addition, a camcorder was used to project the physical gestures associated with my sound production system for the audience to comprehend. One piece in particular entitled *Grey Matter* (2009) included a brain wave monitor as a means for sound control and consisted of choreographed facial movements in addition to the formal structuring of sounds. Without taking the situations described in this paper into consideration, I could have never completed such a successful event.

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