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Master of Architecture

Marco Frascari, Chair

Susan Piedmont-Palladino
Committee Member

Paul Emmmons
Committee Member
Light, Space, Color, and texture are elements often used in the construction of Architectural composition. This thesis is about adding sound (noise) to that palette.
First and foremost, I would like to thank my Thesis committee, Marco Frascari, Susan Piedmont-palladino, and Paul Emmons. For over 2 years they put with my sometimes-clueless explorations in noise, Architecture, and god knows what else. Their unrelenting trust and support allowed me to achieve my goals. I also need to thank Jaan Holt, Mathew Mindrup, Christopher Cabacar, Andrew Woodrum, and Alessandro Ayuso for their interest and conversations.

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For Jaime Aresti-Zamora
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Children are often drawn to noise. A primal instinct, that transforms into something more complex as we get older. Our brain is able to transform noise into words, sentences, music, noise... is this Alchemy?

Although I can't remember what my first memories of noise are, I do know when my interest began on how it applies to Architecture.

In the summer of 1994 I enrolled for my second semester of Architecture School (Design 2.) Our assignment was to design a "House for Beethoven." We were to choose a musical piece by him and design around it, I chose Beethoven's 5th symphony. I struggled to find the same kind of balance and harmony I was hearing, with a clear beginning and end. At the same time I began listening to the new sounds coming out of England, in the form of "Electronic Music", more specifically "hardcore". I would ask myself, why couldn't architecture be as radical as what I am hearing?

Hardcore mutated into "jungle" and eventually into "drum and bass". When broken down, drum and bass is a product of the recombination of known sounds, music, processed in analog and digital equipment to produce a new sound. This manipulation and distortion (within time/space) of sound made me think the same could be done with built space.

But how could space be manipulated in such a way? Parking garage! Florida being so flat and abundant space means there are lots of concrete (post tension and pre-cast) parking structures around. There was an uncanny resemblance in the vibrations these structures produced and the low frequency bass in the music I was listening to. How could I use this?

In the fall of 1998 our design class went to New York City for a field trip. This trip would eventually change the way I view life. Visits to James Turrell's room in PS1 made me think of how calming (quiet/white noise) architecture could be, but showed me how static/moving objects and traditional architectural elements (light, texture, etc.) can affect the acoustics of a space.

My interest in sounds have continued, what follows is an exploration on abstract, improvised architectural collages, drawing directly from contemporary and historical methodologies of noise-sound composition.
“We must break out of the limited circle of sounds and conquer the infinite variety of noise sounds”
Luigi Russolo. The Art of Noise. Modulations
As Marco stated in a previous class: In Venice during the construction of a new building, piles being driven into the “shit sub-soil” that is below it. Venetians developed a way of coping with the thumping sounds. Repetitious bass/hammering of piles the noise became the drumbeat behind indigenous songs. The hammering has a noise pattern associated with it. It has to do with the depth of the sub-soil, which they are being driven into, and the composition of the sub-soil (absorbs/amplifies vibration) size of machinery too.

Relationship of buildings/fabric with the water.
There has to be order, but then what is order?
Can’t order be chaotic?
Sitting on the banks of the Potomac River, the site is unique in that not only does it sit on a very rich urban context, but it is surrounded by an infinite number of noises.
a juxtaposition of materials exploring simple organic and inorganic relationships. Steel, driftwood, cast resin, wax formed hydrocal, and brick.

sequence of space-sequence of noise

the arts are not isolated, from one another but engage in dialogue this understanding will introduce new kinds of spatial phenomenon, however each art can do what an other cannot it has been predictable therefore that phenomenon, however each art architecture we have not yet seen music will be answered by only heard

john cage
We in the west have become exceedingly good at breaking up problems ( wholes) into little pieces in order to solve the larger problem. According to Alvin Toffler this can be attributed to the philosophical roots of the industrial revolution. Where most have failed, musicians have been increasingly good at splicing together this chain of broken pieces into what can be called music. I say, “What can be called music” because alone the pieces are nothing but fragments of a note, or noise. People like Teo Marceno (Miles Davis producer) put together some incredible sets/albums using some scissors and tape.
But what is silence? Is there absolute silence?

As layer upon layer of noise are removed all one is left with is the sounds of the human body, where the body becomes the page and the heart beat is the constant, most other noises are random in nature, yet compose a balance which keeps us alive.
**Program**
Research the program as a "think tank."

- Energy (public - private)
- Offices
- General space - improve circulation
- Back of house
- Bathrooms

- How do these two systems work together?
- Do we want two separate systems?
- Can natural breezes/mist be incorporated into the design/composition?

- Relationship: interplay of glass on glass - interaction of glass on the sleek body of concrete

What is the relationship between private-public and the space "in-between" and "noise - silence and emptiness in between."

- Is noise - silence relationship different in that the interaction is infinite or does it have an end?

- Solid versus transparent
- Quiet - loud
- Light - shadows light play into the composition.

- Can space be loud and light be quiet.

- Grass cube
- S/PER insulated glass absorbs host sounds
- HVAC system
The reason "old" European cities/towns were so successful as well as the reason why they are so attractive today (in a modern context) can be related/associated to the whole idea of my thesis.

Buildings were a collage of cut-ups of different ideas and the generations of families passed by, and new owners took over. They added new pieces, modified old, and deleted some. Creating a bigger collage of buildings within the large context of the city.

Modern thought of a clean view of the city "organized" codified city doesn’t work because there is no history to the architecture (mythical)

Old architecture which embodied these qualities (the majority at least) spoke to the new owner/generation allowing them to add with the language. New contemporary architecture specially residential which tends to be heavily codified by the cities, communities and where all architectures look the same, don’t speak to it’s occupant therefore the maximum amount of personalization boils down to “decoration” and not architecture.
Produced with trash found in the studio, this model became a pivotal point in my process. It brought back into focus the primary material relationships, which would lead to the starting point for finalizing my ideas.

April 24, 2001

What kind of music is this (your project) what is its structure?
M.Frascari, Friday April 20, 2001

I will have to say that a mental block prevented me from answering this most essential question. It also came up on Monday’s review with Susan and Paul. Only after some pushing/dialogue did I realize that what I have been looking for I have had in my possession for months now, John Cage’s Aria piece. Last I remember I spent four months tracking this essential piece for one purpose only, to be able to understand its structure in order to apply it to Architecture.

Architecture is not only a vessel for light but a machine for sound (noise sound)
Daniel Liebskind, April 6, 2001 Lecture - National Building Museum

In my search to apply contemporary methodologies of electronic music to Architecture I realized that I had to understand where it came from (its history). Many people contributed to this movement, but at the core is John Cage. His approach although analog was the light that fueled the fire that is now Electronic Music and all its sub-genres. Yes, Iannis Xenakis is also a forefather but my interest of research is based more on Chance operations/improvisational structure rather than purely mathematical. Like in the movie “Pi” everything in the world can be broken down into mathematics, but I believe that there has to be something more beautiful in randomness/improvisation without meaning than a definite answer.

Electronic music has come a long way purely on the experimentation of Artist with new technologies. The thirst for what will be, when the market doubles chip speed next year is and what new “things” will come out is what drives the movement to bigger and better things. This can all be once again tied historically to the futurist movement. It was their argument that with the creation of new machines, new sounds the search for the next “thrill” is what drove the invention of new machines. 
The aria may be sung in whole or in part to provide a program of a determined time-length, alone or with the orchestra or with some parts of the concert.

The notation represents time horizontally, pitch vertically, roughly suggested rather than accurately described. The material, when composed, was considered sufficient for a ten minute performance (page=30 seconds); however, a page may be performed in a longer or shorter time-period.

The vocal lines are drawn in black, with or without parallel dotted lines, or in one or more of 8 colors. These differences represent 18 styles of singing. Any 10 styles may be used and any correspondence between color and style may be established. The one used by Miss Berberian is: dark blue = jazz; red = contralto (and contralto lyric); black with parallel dotted coloratura (and coloratura lyric); green = folk; orange = oriental; light blue = baby; brown = nasal.

The black squares are any noises (non-musical use of the voice, auxiliary percussion mechanical, or electronic devices) the ones chosen by Miss Berberian in the order they appear are: 75k, 75k; foot stomp; bird roll; snap, snap (fingers), clap, bark (dog); pained inhalation; peaceful exhalation; hoot of disdain; tongue click; exclamation of disgust; of anger; scream (having seen a mouse) Ugh (as to suggesting an American Indian); ha, ha (laughter). expression of sexual pleasure.

The text employs vowels and consonants and words from 5 languages: Armenian, Russian, Italian, French, and English.

All aspects of a performance (dynamics, etc.) which are not notated may be freely determined by the singer.
What does the term "that building is of sound structure" mean? Marco Frascari end of term presentation Dec. 01

God came down and told the armies that with all for them yelling and playing trumpets producing noise (organized by them being in an army) they would produce enough noise to destroy the 20' wall; the wall of Jericho. The wall of Jericho was allegedly destroyed by sound. Why sound? Sound travels in waves, which are then manifested, into sound vibrations within the structure.

How are vibrations suppressed/manifested?
"But the world of sound also embraces the opposite of melody, harmony, and rhythm. There is disharmony and broken rhythm, fragments and clusters of sound, and there is also the purely functional sound we call noise. Contemporary music works with these elements. Contemporary architecture should be just as radical as contemporary music. But there are limits. Although a work of architecture based on disharmony and fragmentation, on broken rhythms, clustering and structural disruptions may be able to convey a message, as soon as we understand its statement our curiosity dies, and all that is left is the question of its practical usefulness."

Zumthor, Peter. Thinking Architecture
- the spire (concrete) represents the piazza.
- why concrete? because it is the most static or (sound) material in (architecture) densest - prove.

- Maybe the easy steel box can be a high space that can bring people in.}

- how wide is a}_{entry}_{scale篇}

- 1 2 3 4 5 6 7 8 9 13 21 34 65 89. The main spine. Everything else has been fucked up!
key
1. observation
2. drum
3. fluid chamber
4. concrete-low frequency
5. blank page
6. wood note
7. metal

plan detail
1"=10'
Luigi Russolo. The Art of Noises. Translated by Barclay Brown. (New York: Pendragon Press, 1986 (1913)).

Vitruvius. The Ten Books on Architecture. Translated by Morris Hicky Morgan. (New York: Dover, 1960 (1924)).


**Education**

Virginia Polytechnic Institute and State University  
M.Architecture  
February 2002

Florida International University  
B.S. Architecture  
May 1999

Miami-Dade Community College  
A.A. Architecture  
May 1997

**Professional**

Einhorn Yaffee Prescott  
Washington, DC  

Schapiro Associates  
Bay Harbor, Fl.  
May 1995-Aug.1999

Bruce Bernal & Assoc.  
Coral Gables, Fl.  
June 1992-May 1995