Brian Eno—Discreet Music

Visualizing Information Space

a new process of composing

Lauren Chapman
Graduate Studio I
Instructor Dan Boyarski
Carnegie Mellon University
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“A new way of hearing music—
the ambience of the environment
like the color of light
and the sound of rain”

—Brian Eno
1975

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“Visualizing Information Space” was the final project for Graduate Studio I at Carnegie Mellon University. Professor Dan Boyarski gave each student an artifact containing complex information; our task was visualizing the information space of our piece in either print or digital form. We were asked to study and explain structure, content, hierarchy, scale, complexity, and navigation in an engaging manner.

The Artifact
I was given Brian Eno’s “Discreet Music,” a 30 minute and 35 second piece of ambient music created using an elaborate tape-delay system, and asked to explain his process of composing. With a few informational links, the music track, and the diagram below (included on the back of Eno’s album), I set about my research.
Dan clearly instructed me not to visualize Brian Eno’s music; my objective was to visually explain the diagram and the system Eno used to compose the music. I searched Eno online, playing his track softly in the background. I read many articles about his music and unique composing style, but the information was too broad. I narrowed my search, focusing on his song “Discreet Music.” I looked up and studied descriptions of each component of his diagram (Synthesizer with a Digital Recall System, Graphic Equalizer, Echo Unit, Tape Recorder, Delay Line/Return, Combined Monitor Output, and Master Tape). I learned that traditional composing is linear and very controlled; conversely, Eno’s composing involved simply inputting two melodies into a complex tape-delay system and letting the machine run on its own. The result was a beautiful, soft mix of sounds that never repeats. “Discreet Music” is considered a landmark of the generative music genre. Generative music is defined as nonlinear and ever-changing; it is created by a system. But how to explain this system? Using the diagram, I broke down each step and took notes, attempting to understand what happened to the music at each specific point (a). I understood more, but it still didn’t make complete sense to me. There were gaps: Where was the final music recorded and stored? Did the music record over itself more than once? Would there be a massive build up of sound (which was not evident in the actual track)? What was a delay line and delay return? My breakthrough occurred when I contacted Riccardo Schulz, a Music Professor at Carnegie Mellon. After several e-mails and a meeting with Schulz, my knowledge was complete.
As I researched, I determined that my project would be a motion piece. Music is not static; therefore, visual motion is necessary to demonstrate the complex processes and to allow the audience to gain an understanding of what changes at each stage. I wanted viewers to understand that once the synthesizer is programmed, the machine runs through each step on its own. I also wanted them to watch this process while listening to the actual music. Beginning with a rough storyboard (b), I planned to illustrate the music jumping off a sheet of traditional composing paper then entering Eno’s mechanical system. This sketch was made before I met with Schulz, when I was still struggling to comprehend the changes that the music underwent at each point. I tried to visualize what the changes might look like as kinetic motion. After discussing my initial plan with classmates and doing further research, I decided to scrap my first rough storyboard and sketch something more refined (c). I took the best from the first sketch and combined it with the second. Leaving behind the traditional composing paper, I realized that demonstrating the process clearly must involve showing how it is different from traditional composing. I decided to begin with a quote from Eno about ambient music (included at the beginning of this book), then go to his diagram, and end with a note about Eno being a “programmer and an audience to the results.”

Brainstorming & Story Boarding
Organizing

Now that I had my storyboard figured out, I searched for images of each process component. I found photos of a synthesizer with a digital recall system, a graphic equalizer, etc. I created a simple imitation of Eno’s diagram (d) then began creating more detailed vector illustrations. Though trying to copy the photos I found, I still simplified each machine to avoid confusing the viewer (e). To visually represent the two melodies Eno used to create “Discreet Music,” I created two rows of circles, one row green and the other blue. The melodies had different lengths, thus the green has 5 notes (circles), while the blue has 4. The circles are different sizes and shades to demonstrate that they are different tones and sounds (f). I kept the background muted so that all eyes would focus on the colored melodies. However, the more I researched and built the images, the more I felt I needed an additional explanation of Eno’s process. But I did not want to add much text on the screen besides the titles of the diagram. How was I going to explain what happened to the music?
Script for movie:

- Two distinct melodies are programmed into a synthesizer with a digital recall system.
- The music is streamed through a graphic equalizer, randomly changing timbre, which is the pitch of the sound.
- It then travels through an echo unit, adding echo to the music.
- The music is then recorded onto a tape in the first tape recorder.
- The tape is connected to a second tape recorder, where it is played aloud.
- The tape travels over the gap between the two tape recorders, creating a delay.
- This delayed music is then played out of the combined monitor output, which are the speakers.
- As the master tape begins to record what is played from the speakers and the second tape recorder, the music starts to overlap.
- The tape loops again and again, as the synthesizer continues inputting the same melodies, one after the other, randomly altering timbre and echo.
- The linked recorders erase previously recorded music so there is no build up.
- The final music track is contained on the master tape.

Implementing

Showing the basics of what happened to the music was not enough: I needed to explain the technicalities. After seeking advice from my peers, I decided to record vocal descriptions to play over Eno’s quiet music. I wrote a script for the voice over, clarifying what happens at each point of the diagram; I refined the script and practiced my pronunciation (g). However, there was a problem with recording sound using a computer microphone: the mic picked up random noise and caught the harsh sounds of certain letters (e.g. “s” sounds). I wanted the best quality so, for the first time, I employed a Soundproof Booth to record, using a professional microphone. The audio quality was superb. Though progressing with my movie, I was still frustrated with how the musical notes were animated. I had the circles appearing on top of the Synthesizer, then traveling over to the next machine and so on (h). Dan suggested I fit the circles inside the various machines, flowing through them, then use colored-coordinated arrows to indicate the route of the music. I set to work animating the images for each step of the process.
The diagram came together well as I animated. The voice-over fit nicely with the music. I spent hours shifting the voice track so it would time correctly with each step and the flow of the music. Due to the color contrasts between the musical circles and the diagram, the viewer can easily follow the circles through each section. This is why I kept the machines also a muted gray and black, so attention would not be taken from the path of the music (i). Originally, the animation ended with the diagram zooming away until it disappeared, then the words “Brian Eno—Planner, Programmer, Audience to the Results” appeared and faded. I was not comfortable with the ending; someone suggested that I finish with a quote since I began with one. I chose to quote Eno again (j): “Generative music is unfinished, when you use generative, you implicitly don’t know what the end is.” I thought this was appropriate because Eno is known as the father of Generative music and “Discreet Music” was one of the first well-known pieces in this genre. Eno was able to step back and let his tape delay system run as long as he pleased, not quite knowing when it would end. I also added the date, 1975, to the end, since it puts a time stamp on when this technology was being created.
“A new way of hearing music--the ambience of the environment, like the color of light and the sound of rain.”

~Brian Eno

*On a new process of composing*
• You must study a system extensively, from all angles, before truly understanding its process.
• You cannot explain a process to others until you understand it for yourself.
• Voice-over explanations can be a useful tool in establishing clarity.
• If you’re going to do something, do it well (e.g. the vocal recording).
• Show your project to at least 5 people who have no idea what you’ve been doing lately to make sure it’s clear and understandable.
• Take your time when working with something complex. When you get frustrated, take a break and come back fresh and rested.
• Don’t just rely on the internet for information. Look elsewhere.
• Seek out relevant professionals for explanations.
• Find joy in information—this will make your work a lot more fun.
• Double check your audio sync and timing. One movement throws everything off.