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**The Search to be Ignorable yet Interesting**

I began this final project in search of a connection between my two majors: computer science and music. My idea of creativity has changed over the last few years as I have learned more about computer science. I see beauty in algorithms, in clean data sets, and the power you can harness with those. I wanted my final project to explore that beauty. To explore the elegance of algorithmic music at its base state.

As life at Dartmouth becomes more and more all-consuming, I have begun to listen to music as a tool. Whether to help me focus when doing schoolwork or to help me destress in a more meditative sense, ambient music helps me stay grounded to who I really am. This began my interest in algorithmically creating this music. After researching I stumbled upon the man who coined the term: Brian Eno. His 1978 album *Music for Airports* was a defining moment in the beginning of “true” ambient music. Eno’s ideas were all heavily influenced by the American minimalist composers that came before him. He discussed his piece as “designed to induce calm and space to think.”[[1]](#footnote-1) This is exactly the type of music I sought in my composition. I wanted to create music that encouraged refined attention but not on the music itself. And from there I began by attempting to copy him.

Focusing on Eno’s *Music for Airports*,I dissected two of the four pieces on the album. His piece “2/1” is built off multiple tracks of varying lengths containing choral notes. The tracks contain 2 A♭’s, 2 F’s, 1 C, 1 D♭, and 1 E♭. The randomness of the tracks playing on top of each other made it so there wasn’t a true key. Instead, the notes weave in and out of each other in constantly changing patterns. His second piece that I focused on was “1/2” which used the same method of loops of different lengths. However, his second piece utilized piano notes instead of choral ones. Some of these tracks consisted of just one note while others were built off three or four. This makes this piece feel like it is building somewhere. These two pieces gave me a jumping off point in my first dive into ambient music.

I began by downloading SuperCollider and TidalCycles, two environments I had never used before. After learning the new languages and the basic commands in the environments I gained an understanding of how I might go about my creative process. The key to creating loops of different lengths in TidalCycles was the “slow” function. I paired these lengthened loops with the ability to randomly initialize the sample within the cycle. However, none of SuperDirt’s samples quite fit the tone I was looking for in piano or choral music so I had to find my own wav files on the internet. After downloading the files I loaded them into SuperCollider which I could then access from Visual Studio Code where I was running TidalCycles.

Recreating Brian Eno’s tapes began with calculating the value for the “slow” metric. I first calculated the cycles per second by dividing the beats per minute by sixty seconds and then by four beats. I then guess and checked the “slow” value of my first tape loop until its length directly matched up with Eno’s. Using the ratio between Eno’s length of loops and the “slow” value I calculated the “slow” values for the rest of the loops. I can then trigger these sounds at random times within the greater cycles through a python file I created in Jupyter Notebook. This file also allows me to randomize the length of each loop, moving away from Eno’s loops. After creating algorithms to produce code that resembles Brian Eno’s “2/1” and “1/2” tracks, I wanted to investigate the cross-cultural element of ambient music.

This investigation began with finding wav files of various *singing bowls*. The bowls I listened to came from India, Tibet, and Nepal, varying greatly in their overall sounds. Some bowl strikes were far harsher attacks than I wanted. These sounds would immediately wrench listeners out of their meditative state if included in my composition. The sounds from other bowls wobbled, creating an uneasy feeling which would be unhelpful in the relaxing composition I was aiming for. In the end I found nine sounds from *singing bowls* that I believed fit the focused state I am trying to induce. I then used a similar algorithm in Jupyter Notebook to call these sounds at random times within cycles of random lengths. I then duplicated this with the choral noises to bring in more texture to the piece. This exploration into the mixture of western choral music with eastern *singing bowls* was most fascinating in its combination of different overtones within the piece.

1. Brian Eno, “Ambient Music,” liner notes for Ambient 1: Music for Airports, September 1978, accessed May 29, 2022. [↑](#footnote-ref-1)