MUS 307 Final Project

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Song title: From Without

1. Structure and Compositional Approach

Intro - 0:00//A - 0:16//B - 1:50//C - 3:32//D - 4:52

In the 2nd section of my write-up, I go into more detail explaining the sounds that I discuss in this section, and how I made them.

I started this piece by making a simple drum loop with MIDI samples, having no idea where I wanted the song to go or how I wanted it to sound. I decided to then go straight into the aleatoric process to kick start the rest of the composition, which is how I ended up with my main synth sound, that also starts the song. I really liked how gritty the tone was, and it inspired me to start messing around with the Byzantine scale to lean into the darker sound it provided. Every part played on this synth was improvised. I just left my Reaper session open on my desktop computer with my MIDI keyboard out and would sit down and hit record whenever I felt inclined to play something.

I next felt inspired to fill out my drum loop a bit more and decided to do that with musique concrete techniques. I banged on various things in my kitchen, not liking any of the sounds, then fed my cat and realized the sound of her food hitting the ceramic bowl was quite interesting, so I went with that.

I chose to add vocals because I hadn't done that for any other projects in this course, and definitely faced some frustration with this decision (explained below). I added a lot of processing

to somewhat disguise the nonsensical lyrics (heavy compression and EQ, plus reverb and a Blue Cat Audio guitar amp simulator), which also adds to the eeriness of that part of the song. Fortunately, the process of later putting my recorded vocals into a sample slicer in Max and doubling the time resulted in the song blossoming into a new vision that I'm really happy with. I first dropped the audio file of my double-time vocals into Reaper to an arbitrary spot in section A, which happened to be right on beat one of a bar, as opposed to beat two which is when the regular-speed vocals start their phrase, and that shift in the relationship between lyrical intonation and the drum loop felt really interesting to me. I immediately knew I needed to incorporate that groove into an EDM-style dance break somewhere in the song, which ended up being section C.

I couldn't come up with a new drum loop that I was happy with for section C, so I ended up using a drum loop sample from Garageband called "Club Dance Beat 006". After bringing back earlier synth parts into this section, all that was missing was the bass, which I wanted to make using musique concrete techniques. The resulting "microwave bass" is one of my favourite parts of this song.

For several days I'd been struggling to incorporate data sonification into this piece. I started a handful of different ideas, but they all fell apart before finally simplifying things and going with planetary data (explained below). I knew I wanted the last section of the song to drop into an ambient, dreamy sounding breakdown that felt like it was moving outside of time a little bit, and fortunately letting chance decide which plugin to record my data sonification melody with really brought me there. I decided to make section D act as almost a dream or distant memory of what the song had been up until that point, fading in and out previously heard parts panned differently and brought way down in volume. I also needed to automate the overall

volume in this section because the plugin playing my data sonification melody was extremely quiet but would become distorted when I started to turn it up. There is a very gradual increase in volume of the drum sounds and synth melody loop from earlier in the song (starts fading in at 5:18, panned to the left), coming back up to regular volume around the time the double-time vocals fade in for the first time of that section (6:24).

Overall, I'm really happy with this piece, and never would have written anything like it if not for this assignment, so thanks for the inspiration, Sean!

2. Explanation of Techniques and Sounds Used

MIDI

I used MIDI to create three sounds in my composition. First, I made a drum loop in Reaper using my Arturia Minilab MIDI keyboard and Spitfire Labs "Drums" plugin. I used the kick, clap, and hi-hat samples. Later I added more sounds to my loop using musique concrete techniques, which I'll discuss below. I also used MIDI to record two synth parts: the main synth heard throughout the whole piece, which is a Spitfire Labs plugin called "Cassette Synth", as well as another Spitfire Labs plugin called "Piano Pad", which is featured in the D section (4:52).

Max MSP

After writing my drum loop, I made a random number generator in Max to determine the next instrument/plugin I would use – I have 63 Spitfire Labs downloaded, so I programmed my Max patch to generate a number within that range, which resulted in #8, "Cassette Synth". This Lab had 7 subcategories, so I changed the parameters of my patch to be within that range and it gave me #3, "Flat Battery". This is the synth that plays in the intro and is the main feature of the

A section (0:16), plays a supporting drone note in the B section (1:50), returns in the C section (4:20), and fades back in during the D section (6:45) until the end of the piece.

I repeated this process to choose what instrument/plugin to play when recording my Data Sonification melody in the D section. My first number out of 63 was 45, the "Piano Pads" Lab, which had 13 subcategories, resulting in #9, "Sub", and this is the sound that starts the D section (4:52). I chose more solar system data for my Data Sonification section, and I feel the ethereal timbral quality of this synth feels aligns with that.

I used Max a third time, making a sample slicing patch and recording patch. After I recorded my vocals, I felt stuck due to the nature of the lyrics (explained in my Aleatoric section) and didn't know how to incorporate the vocals beyond that initial very small section. I bounced down my 3-part vocals as a single audio file, used my sample slicer patch and then doubled the playback speed. I was delighted with how it sounded, and this sparked a lot of ideas for how to move forward with my composition. I recorded my double-time-vocals within Max using my recording patch then dropped the wave files into my Reaper session (3:00). I think my favourite use of this audio is when I created a loop out of just a portion of it at 4:36.

Aleatoric Process

I used the aleatoric composition technique a few different ways in my piece. As previously explained, I made a random number generator in Max to determine which plugins I would use to play certain parts of the piece, but my lyrics were also written via aleatoric process. I had the idea of using a random number generator to pick random words out of a book to write my lyrics, which seemed like an interesting but risky idea. I liked the concept and knew it could result in something interesting, but I also knew it was likely to result in something that just didn't

make sense and could be difficult to make work. I decided to commit to it and see what happened.

The book I chose was *The Neverending Story*, which I'm reading for a different class and was already out on my desk. It has 396 pages, so I put that range into my random number generator in Max to determine the page number. I then counted the number of lines on that page and put that range into my patch to determine which line to use. I then counted the words in that line and put that range into my patch to determine which word to use as a lyric – I did this process ten times. My main concern was that one of the words would end up being a character's name, because there are a lot of highly unusual character and place names in that book, but all ten words ended up being straightforward.

PAGE #	LINE #	WORD #	WORD
326	25	7	this
305	34	1	he
319	11	9	talk
98	32	1	have
188	37	6	without
34	2	3	when
22	31	12	want
21	16	3	said
306	32	7	stealth

344	25	11	from

I first tried to make one or two sentences out of these words, which didn't work. Then I considered having each word be the first word in a line and then I would write the rest of the lyrics. I also got nowhere with this. I wanted to scrap the whole idea at this point and was feeling uninspired but decided to commit to my original idea. I found the initial order of the words to feel awkward when spoken or sung, so I implemented a second aleatoric process to determine their order. I wrote each word on its own small piece of paper, threw them all into a hat, and the order I pulled them out was the order I sang them in, "this stealth from without talk when have said want he". I just focused on how the lyrics sounded rhythmically and phonetically, disregarding their meanings. These vocals are the main feature of the B section (entering at 1:52).

Data Sonification

The data I used to write the "Piano Pad" melody in the D section was the mean temperature (in Celsius) of each planet in our solar system, including Pluto, and the moon. This resulted in a 7-bar melody that starts the D section (4:52) and repeats until the song ends. I wanted this section to fill out the rest of the song, so I added a harmony after the initial melody had played through twice (harmony enters at 5:20).

PITCH	DURATION	RESULT
-300 to -250 = G3 -251 to -200 = A3 -201 to -150 = Bb3 -151 to -100 = C4 -101 to -50 = D4 -51 to 0 = Eb4 1 to 50 = Gb4 51 to 100 - G4 101 to150 = A4 151 to 200 = Bb4 201 to 250 = C5 251 to 300 = D5 301 to 350 = Eb5 351 to 400 = Gb5 401 to 450 = G5 451 to 500 = A5	-300 to -100 = whole note -100 to 100 = half note 100 to 300 = quarter note 300 to 500 = eighth note	Mercury: 167 → Bb4, quarter note Venus: 464 → A5, eighth note Earth: 15 → Gb4, half note Moon: -20 → Eb4, half note Mars: -65 → D4, half note Jupiter: -110 → C4, whole note Saturn: -140 → C4, whole note Uranus: -195 → Bb3, whole note Neptune: -200 → A3, whole note Pluto: -225 → A3, whole note

Analog Synthesis

I ended up repurposing some of the analog synthesis sounds I created with the Korg Minilogue for my Lab 2 composition to incorporate this technique into my final project. I took one melody I'd recorded but didn't end up using in my Lab 2 piece (VCO 1 and 2 triangle wave, equally mixed, octaves apart, plus LFO [square wave] target wave shape, with the cut-off frequency dial at 2 o'clock), reversed it, then made a short, pulsating loop out of it. This can be heard in the first part of the A section (:017), the middle of the B section (2:24), the beginning of the C section (3:32), and in most of the D section (entering at 5:18). I also used the "rolling chord" from Lab 2 (equal mix between VCO's 1 [sawtooth wave] and 2 [triangle wave], playing in different octaves, with the cut-off frequency dial at 2 o'clock), which I reversed, resulting in a nice swell that I sprinkled throughout my piece to emphasize transitions as well as build tension

(first heard as the intro transitions into the A section (0:13). I also copied and then stretched out this audio to fill out the sonic space part way through the C section (3:38 - 4:18).

Musique Concrete

I used musique concrete techniques to make three sounds in my piece, two sounds heard in my drum loop throughout the piece and the bass heard in section C.

For my drum loop sounds, I used my Zoom H5 recorder to capture the sound of my cat's dry food being poured into her ceramic bowl, and then again to capture the sound of me shaking her dry food in a plastic Tupperware container. For the pouring sound, I cut out the beginning and end of the audio, lowered the pitch by five semitones, stretched it out to be the same length as the MIDI hi-hat sample in my drum loop and panned that a little to the right (first heard in section A 0:19), then I copied that, cut it to be half the length, and panned it slightly to the left (first heard at 0:52). For the shaking sound, I layered the sounds of two different shakes, cut that audio into a small section, lowered it by ten semitones, and panned it to the left (first heard at 0:56).

I also recorded the hum of my microwave, lowered it by sixteen semitones, cut it up, threw on a bit of compression, panned it to the right and then used this as the bass in section C section (3:32).