

MA Commercial Music Producer Development: ADAD7005

Tileyard Education

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Planning The Project

As a dance music producer, the coronavirus pandemic has been an extremely difficult time to promote my work, especially as I have recently launched a new artist project. One of the core production techniques I like to apply in my writing involves immersing the listener in the club with long repetitive sections with minor changes that mainly work in that club environment. As it has become impossible to do so within my home territory, I decided to use this game project as an alternative way to immerse listeners into my music by creating a piece track that is not only written for the game, but one that could be fleshed out into a release as a club single.

This was inspired partially by the VR and AR developments over the last few years and how we have seen club culture be brought into our homes. An example of this was UK duo Koven's VR Club experience, where listeners could attend a 'virtual venue' to enjoy their live sets ([DJmag.com](https://www.djmag.com/news/2020/04/20/koven-vr-club-experience), 2020). Playing on this, I thought it could be interesting to write a track for both the club and this game, that would then be chopped up and randomly triggering different sections, giving an almost live DJ set feel to the music. Although it is an unconventional method to promote a track, the fact that it's a simple single levelled shooter that could be quickly downloaded, or even played online, could give the marketing for the music a standout appeal amongst an over saturated industry.

In recent times, companies such as Rockstar have been heavily incorporating underground club culture into their Grand Theft Auto series. Recent updates to their top title, GTA V, have included nightclubs with highly established dance music acts that stray away from the typical mainstream sound. This has proven to be a huge success with their lineup of DJ's growing continuously with artists such as Solomon as well as the Chicago house and techno legend, Moodymann, being added to the roster ([metrotimes.com](https://www.metrotimes.com/news/2020/04/20/moodymann-gta-v), 2020). Upon researching this, it has given me more confidence that the art of music promotion could be merging with the gaming industry.

Software Used

Before diving into the project, I had to understand what tools were available to me for producing the game on both a visual and audible level. As a complete beginner to video game development, it was essential to explore my options and understand what each program offers for the tasks at hand.

There are three core stages in regards to getting my sound into the game. Firstly, the sounds would have to be developed with techniques such as live recording and syntheseses. Secondly, I would have to export my sound bank into a sound effects engine for video games, which is where I would then assign each recording to an action/sequence within my game. Following this, The sounds would be sent to my game engine, where the entire product would be completed.

Sound via FMOD

FMOD was the immediate choice for my sound effects engine. Compared to programs such as Wwise, its user friendly interface allowed me to navigate freely through the software without being overwhelmed by its unfamiliarity. FMOD is frequently considered to be one of the easiest game sound programs to operate (designingsound.org, 2015).

The ability to easily group my channels through FMOD's mixer and apply standard audio production techniques helped the process of working in game sound as a novice feel much more comfortable. However, I found the built in plugins to be very limited and somewhat amateur for the most part. Having the option to mix the audio entirely through FMOD would have been a fantastic feature, allowing me to complete an in-depth mix on the fly whilst testing the audio within my game at an instant. The reason FMOD fails in this department is due to the fact that the software does not currently support third party plugins. This led to many frustrating moments where I would have to rely on FMOD's three band EQ for additional mixing to my audio assets. This led to multiple occasions where I would have to break my workflow by going back to my DAW for further mixing before exporting my audio clips back into FMOD.

Game Design/Development with Unity

Being able to explore how to build a sandbox with relative ease made Unity the immediate choice for the game engine. The ability to blend multiple terrains, whilst building mountains and importing assets at ease made the whole process seem less daunting. Although the ability to create a sandbox was far more simple than I had anticipated, It had led to multiple struggles with configuring assets to work in a friendly manner with FMOD. These rooted from poor decisions on my part to speed up the process of coding the video game (See Page 6 - 'Coding Issues').

Although I encountered many problems with the coding side of programming, Unity seemed like a great option for a novice such as myself do it the extremely user friendly tools it offers. ([linkedin.com](https://www.linkedin.com), 2019). Many of these tools allowed me to feel more creative with the ability to experiment on the go.

Sound Design and Composition with Ableton Live

Ableton Live was the only DAW that I considered using for the sound design and composition of my project. Not only is it the program that I am most familiar with, its audio manipulation attributes are simple, yet extremely effective for a quick workflow.

I frequently used Ableton's resample feature to record mixed and processed audio clips as an audio sample. Allowing quick placement of the files to be consolidated into my game audio folder, without having to export each sound individually, or as stems (See Page 4 'Integrating the Three Programs').

Although I opted to use Ableton, FMOD does have the option to be rewired with 'Reaper' ([asoundeffect.com](https://www.asoundeffect.com), 2015). Using Reaper could have allowed me to have an even faster work flow, however as I am unfamiliar, I felt as though it would have hindered my creative thinking. I have a tendency to feel overwhelmed when working with multiple new programs at once, so this is something that I was consciously trying to avoid where possible.

Integrating the Three Programs

Although there is no direct way to integrate Ableton Live with FMOD, I did find a system to make the exporting process much more efficient. To save time on exporting files

repeatedly, I would mix each layer within Ableton, record them into a new channel (with all channel effects such as compression and EQ now printed into the audio) and then simply consolidate each selected take as a new audio file. Upon selecting 'Collect All and Save' through Ableton's file menu, The samples would immediately be placed as fully treated audio files within my game folder. This process works well for my approach with recordings as I often created and recorded more sounds as I went on to develop new ideas throughout production.

Within FMOD, I was able to export a 'UnityPackage', that allows me to fully integrate my FMOD sound bank into Unity (**Robinson, 2019**). This made FMOD work like a plugin, where I could add FMOD components onto my prefabs, triggering my sound bank to assigned points throughout the game. Many triggers, including a few vocal easter eggs, were triggered by creating invisible shapes, that once passed through, will play the assigned audio.

Plot

Both the stylistic and narrative decisions for the game were frequently adapting during the pre production stage. Initially, my plan was to create a neo-futuristic city, allowing myself to write a Tron-inspired piece of music. However, from experimenting with merging multiple terrains in order to understand how to use Unity, I ended up opting for a multiverse based first person shooter with a more tribal based soundtrack. This allowed me to play with multiple types of environmental sounds, from snowy and heavy winds to electrical generators scattered across the city.

Synopsis:

'After a scientific experiment had gone wrong, US military agent, Henry Rickman, has been zapped through the multiverse into 'Limbo'. This is the world between worlds, combining multiple earths into a robot infested planet. Rickman must fight his way through the swarm of bots on the lookout for him, in order to figure out how to get back home.'

Step Two: Production

Coding Issues

In order to focus more on the audio side development, as well as the basic game design, I had decided to use a template that supplied me with multiple weapons and a jetpack for my game. This would later lead to several coding issues with syncing my game audio to each asset. With no clear path on how to assign multiple parameters to my game audio, I had ultimately ended up with an extremely buggy game.

The majority of the sound issues were to do with the coding of weapons. All weapons in the game are unfortunately triggering the exact same audio sample, as the coding between all weapons shared a symbiotic relationship. What changes on one weapon will change on the others. This was regardless of whether the weapon audio was triggered from the player or an enemy. This was simply because each weapon prefab was using the same code. Swapping this code out would risk breaking the game entirely.

Alongside this issue, I was unable to trigger the damage audio for when the player is being attacked or even the jetpack audio. As all the sounds are indeed recorded and sitting with my Ableton Live and FMOD projects, this is something that can be addressed at a later date.

Foley

Due to ongoing medical conditions, I had several limitations within the foley segments of production. As I currently find it difficult to crouch, or even to walk for extended periods of time, I found that I had to limit myself to just recording in my bedroom. Working with these constraints led to some interesting choices of recording and production techniques, such as opting for synthetic winds, instead of real recordings, and even using my vocals to create blaster sounds and more.

My foley layers were recorded entirely with my Shure SM57. Using the robust dynamic microphone felt like the best choice as I would be recording with dirty objects in close proximity during takes.

To record the snowy mountain footsteps, I collected leaves and twigs, I then put them between two layers of cardboard and recorded my self stepping over them with my SM57. The mic placement was close and intimate, allowing us to hear the twigs breaking as clearly as we hear the steps. In context to the scene, the twigs breaking felt like the boots crushing through the ice. This recording also ended up fitting well with my grassy terrain as the crunchy textures seemed to fit both aesthetics.

For the hard floor/street footsteps, I recorded myself walking on a wooden plank. Although these sounds didn't make it into the game itself, I found that to be a convenient setback, as they sounded far too polished. The sharpness of the recording had very much felt like a home job.

Enemy Blaster

The enemy blaster was recorded using using my own vocals. I had then processed them through Native Instruments' 'The Mouth' vocoder. I effected them further with pitching and time stretching to create the robot blaster's shape. I wanted this to differ from the players weapon, as this was coming from a machine. Therefore, I felt as though the blast had a bigger space to build from, which would then have to exit from the small turret of the character.

Synthesis

I used a combination of Native Instrument's Massive, as well as Xfer Records' Serum for the synthetic treatment of the game.

Blaster

Going into this project, I knew that by biggest sonic inspiration would be from the Star Wars franchise. Although the classic blaster sounds were recorded with striking a rock onto a climbing cable (popularmechanics.com, 2016) I decided to approach the sound with synthesis. Serum's envelope tools made creating this type of 'blaster' effect relatively simple. Using short decays against Serums Pitch tools allowed me to create the typical shape and tone of a sci-fi weapon. Combining this with an extremely short and pitch modulated delay created a sense of distance as well as a warping feel.

Shotgun

For the shotgun, I decided to apply the same serum preset that I created, with a slightly different shape upon the envelope as well as minor tonal adjustments. I then layered this with an electronic kick drum to add impact to the weapons blast. I felt as though this was necessary to give body to the more heavy duty weapon.

Wind

Due to the previously mentioned injury, I found that the best way for me to create the sound of wind without straining myself by recording in the outdoors for extended periods of time, was to use Massive's 'paper' tool. I used this noise tool as it has quite a random jittery sound to it, this helped to achieve a lot of the winds natural flow. Alongside adding some movement via the envelope tools on multiple parameters such as the bandpass filters and pitch, I also automated the distortion to give a snowing-like presence.

Jetpack

Inspired again by the Star Wars franchise, although this time by infamous 'Tie Fighter' spaceships. Famously, the spacecraft's instantly recognisable sound with created by time slowing down the sound of elephants trumpeting ([screenrant.com](https://www.screenrant.com), 2020).

I attempted to recreate a similar effect through synthesis so that I could layer it alongside my wind audio. As I wasn't able to implement the sound in the game, it features in the background at the very opening of the game, serving as a teleporting sound for when the protagonist arrives in the new world. This was layered with a heavily distorted white noise layer, that was then gated to give a sense of movement as if the air was escaping the thrusters.

Electric Generators

I created this sound with three layers, white noise, an electronic static noise created with Massive and A1TriggerGate, alongside a sampled recording of a train passing by with a lowpass filter. The electric generators found throughout the city were the only assets that contained samples that weren't recorded by myself. As I felt like it was essential to have this train layer to replicate the feel of the rotes in action, I wasn't able to run to the nearest station to record it myself with ease. This is something that I would update myself at a later date.

Voice Over Recordings & Application

Using my SE Titan condenser mic, I both recorded and performed all of the voice acting within the game. These recordings included the voice of our protagonist, Henry Rickman, the enemy robots, a secret easter egg recording, as well as the sound for the enemy blaster. Although it was simple to record at home, I am currently living in noisy conditions, which has proven to be difficult for getting a clear recording. This noise becomes more noticeable when compression is applied to each take. This led to a few decisions of reducing certain levels of compression for compensation.

Dialogue

For these recordings, I did end up having to stand closer to the microphone than I would have preferred. This was to get a louder signal to mask the background noise from my living appliances. This led to a few sharp tones, requiring some dynamic eq's to fix.

Grunts

The biggest challenge with recording the grunts was remaining relatively still in order to maintain the correct frequency response (voiceoverextra.com). From previous takes, I noticed that the more I moved away from the microphone (due to the performance), the more the low end in my voice would disappear. This could be fixed with some dynamic eq and compression. However, the sheer fact that there was a consistent background noise from an active boiler and an overheated laptop, caused those to be brought out more in the process. In order to compensate for this, I made sure that I remained relatively still, controlling my projection so that I would only require a minimal amount tweaking in post production.

Breaths

I recorded several breath takes to place in different moments of the game. These include low health triggers, Sprinting and cold breathing throughout the snowy mountain terrain.

Recording the breaths came with a completely unexpected hurdle that I was not physically prepared to face. Due to an ongoing struggle with panic attacks and anxiety, it triggered my body to react as if I was under the same mental conditions due to the physicality of the performance. This led to an elevated heart rate, as well as numbness in both hands. This particular section ended up taking the longest to record, even though it should have been

the quickest. Although this was difficult for me, I was pleased with these recordings as they felt like a genuine sense of breathlessness.

Mixing

Having next to zero experience with mixing for games, this proved to be a challenge for me. This was mainly due to the fact that I couldn't simply turn up a fader or tweak the effects whilst the game was still running.

Sidechaining was an extremely useful way to bring more clarity to specific audio layers. This allowed me to duck the music whenever the main dialogue was triggered. I also used sidechain compression to compensate for my lack of knowledge in code. Ideally, I would have liked to write a command that would allow damage noises to not take place when the player is speaking, to avoid overlapping the audio. It would have been great to trigger different dialogue at my trigger locations based on whether the character was receiving damage or not. Insomniac's 'Spider-Man' included a similar feature where the dialogue would alternate between calm and strenuous depending on what the character is physically doing (asoundeffect.com, 2018).

I compensated for this by splitting my vocals into groups, one for grunts and breaths and one for dialogue. This allowed me to add harsh sidechains to my 'grunt' selection, completely removing them whenever the player is speaking.

Composition

Having these multiple environments had greatly affected the my initial inspiration of musical aesthetic. It was essential to come up with a piece that would feel more action based, more so than environment based.

The energy of the composition came by mistake. In order to test the audio, I decided to throw on the latest track that I had purchased into FMOD, this was Jamie XX's 'idontknow'. I instantly fell in love with the drums, as they gave the game a more fun, intense and somewhat tribal feel (pitchfork.com, 2020). This led me to completely restart the music for this project as well as re-recording most of the dialogue, as I felt like the game needed to be lighter and more upbeat. I decided to keep a similar percussive feel to the Jamie xx record with my track, as it carried a more intense energy to the game. The vocal chops

were brought in to sit as the melodic element to the music. Keeping it all minimal allowed the melancholic chords that come in.

Although I wanted to apply randomisation for each section of the track, it was essential for the audio of the game to start 16 bars before the tracks 'drop', to give players the chance to be eased into the world. I split the track into 6 sections. After the introduction of the song plays out, these sections are split into random order, with only a 20% chance (split between two loops) of the moody chords being played.

My Melancholic pads were created using Arturia's Arp2600 synth. This brings a slightly analog flavour to the production, that I feel sits well with the world I have created for this game. As the core enemies in the game are robots, I wanted to reflect this in the composition throughout all it's layers. Meaning that the tribal patterns were done without tribal drums, the melodies are stutters, almost robot-like, with all other layers remaining electronic.

The decision for the music to be triggered through randomisation, as opposed to event based musical cues, stems from my routes as a DJ. I wanted the music to almost feel like being in a single energy based DJ set, or even listening to an extremely long underground record. This keeps the listener, or in this case, the player, on their toes. Everything is familiar, but it keeps adapting, that is the key trick to longer, more techno influenced records.

Step Three: Further Development

User Feedback

Upon feedback I had discovered several bugs within my game. The most common occurrence was the music glitching when fighting the first enemy. There were also two reports of the music stopping in the first section of the game, although this seems to be fixed by simply restarting the game.

Where would I take this?

My current plans for the project would be to redevelop it from scratch, whilst keeping the majority of the audio files. This is because the template caused far too many problems. It

would be too problematic to develop this project any further from its current skeleton. This would allow me to better troubleshoot any issues that occur in the project. Once I've developed the game, I could then use that version as a template to make a new levels to promote multiple songs, pushing it as an EP promotional tool, after the single has been released.

I would also like to re-record all of the dialogue based vocals, as well as go out in the real world and record some foley with my portable Tascam recorder. As lockdown restrictions ease, I will be able to continue with my physiotherapy, allowing me to be more mentally and physically creative with the project.

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