

MA Commercial Music Production Assignment

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**Tileyard Education,
University of Wales Trinity Saint David**

“Putting it all together”

CREATION ELEMENT C1 - WRITTEN PROPOSAL

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MY STARTING POINT

As part of the Development module of this course, I undertook the challenge of creating a video game from scratch as my submitted instrument. It was a great surprise to me how, with no prior coding or programming experience, I was able to not only create a fully functional game with own music and sound FX, but also how much fun I had with both making and playing it. I found immense satisfaction in creating a world which my music could inhabit, and it immediately removed any doubt about whether I should or shouldn't pursue a particular musical idea: this was my world, after all, and I could do what I wanted. In my Easter holidays, I spent many hours conscientiously studying and practicing coding and video game development, and it seemed like I had finally found my niche - making music for games, and developing games.

On the day we were presented with the task of this present assignment, I knew I wanted it to have elements of video game music, but that it probably wouldn't take up my the whole assignment. However, people jokingly mentioned the idea of ambitious Virtual Reality showcases, and how recording a full orchestra would obviously shave off the amount of minutes of finished music expected to be handed in, and while the others laughed, I got secretly inspired. What if I did exactly that?

During the first lockdown I composed and arranged a suite of music for full orchestra, and I had been eager to bring it to life ever since. Recently I had also learned that it was possible to perform motion capture using a video recorded on your phone, so maybe I could even bring live animations of the musicians into the world¹. However, I had never worked in VR before, and didn't even own an HMD (head-mounted display - the "VR headset", if you will), but with the naïve enthusiasm that only a true beginner can possess and 3 months at my disposal, combined with the dopamine still coursing through my blood following my video game success, I thought "how hard can it be?".

THE PROJECT

The vision was strikingly clear from the beginning: To create a Virtual Reality concert experience featuring a movement from my suite, where the player can walk freely in between an orchestra of animated musicians, all emitting the sounds of their individual instruments, and where the player can interact with these musicians and the environment, making for a fully customisable and unique visual and aural experience every time - part concert, part video game. In order to achieve this, I will have to: record a movement from the suite using a mix of VSTs and live musicians, use motion capture to apply on animated versions of the musicians, and place these musicians in a virtual world so you could walk around and experience the music (and individual musicians) from any angle you like using a real-time engine called Unity.

Already at this stage, the pianist for the project thought I had finally lost the plot, but we began the search for musicians. Ploughing through our extended networks, we managed to find over

¹ This proved problematic for a variety of reasons, chief among them the price, but I later learned that I could use the HMD and controllers of my newly acquired Oculus Quest 2 to perform the motion capture required. Had I learned sooner that the motion capture using a phone was not feasible, I might have dropped the idea then and there and not invested in the HMD, which was what prompted the investigation into whether I could actually use said HMD for this purpose. Sometimes it's more important to have an idea, and run with it before you manage to stop yourself - and worry about the execution later.

30 orchestral musicians who were willing to take part in exchange for a bottle of wine, and excitingly, we might not even need VSTs anymore. (An added bonus of live recordings is that most VST libraries are recorded relatively far away from the source, which would make it difficult to make it sound realistic when you moved close to the virtual musician inside the VR experience.) With most people being able to record from home to a backing track that I prepare, and the rest coming to my place or Tileyard, we can efficiently record the whole thing to a proper standard. With not much time, and the project already on the way, I decided to put together a project management sheet with tasks and timelines until the deadline of 23rd of July [see Appendix A].

CRITERIA FOR SUCCESS

When it comes to music, VR, and real-time engines, the possibilities are vast, and I must be aware of not falling in the trap of featuritis². So my primary benchmark for success is: creating a 3D environment with virtual musicians (animated or not) playing the movement from my suite, and creating a player character (VR, or just a regular First Person character as in a First Person Shooter game) which can move around and experience the concert as they please, with a generally pleasing sounding and satisfying experience for the user. I will test this on the musicians as well as friends and family as the project progresses. The main dangers of this part are: musicians dropping out, not securing adequate recordings, and the issue of mixing within the real-time engine rather than in a DAW. As a fall-back for the first two problems I can use VSTs, but the latter issue is not as easy. I will not have access to the same plugins from within my real-time engine Unity and FMOD (my audio middleware software), and I might not want to commit to too drastic EQ decisions, seeing as the audio balance will change drastically depending on where you stand inside the experience. Ideally, every instrument would sound natural regardless of where you stand.

Further to that, but not essentially, I would like to add the following functions: the opportunity to move the musicians around the space and thus change the soundscape; the ability to change the volume of each musician in-game; to interact with the environment in the form of virtual paint brushes; to animate the musicians in a satisfying way; to design lighting and particle effects for visual aesthetics. To aid me in this, I am going to study the tutorials on Unity Learn's website on Animation and VR Development [Unity Learn 2020, 2021].

MOTIVATION

At this point it is reasonable to ask what the point is. It is a huge task, with myself carrying the bulk of the workload, and involving many things which I have little experience with. "What happened to producing music?", you might ask. "Can't you get someone else to help you?", would be another fair question. It is true that music is my main *métier*, but with my growing interest in music for video games and real-time engines in general, it has become clear that it is a distinct advantage for the composer to be familiar with programming languages and game development workflows in order to properly implement the music into the game - without the need for a dedicated sound programmer.

² industry term denoting software which over-emphasises new features over core functionality.

Moreover, finding myself to be a bit of a jack-of-all-trades, this project is also demonstrating project management and producing skills which stretch beyond music. Due to the nature and breadth of my abilities, I will likely find myself coordinating a diverse team of professionals in the future, and this project will be an excellent showcase to myself and future employers that I am indeed capable of doing that.

It is also a fact, I must admit, that in the arts I am driven first and foremost by curiosity and an urge to explore, and the practicalities often come second. If the idea is strong enough, something will come of it. Realising that this approach might not always be enough to put food on the table, I have made some research into the validity and originality of my project through studying current trends and talking with industry experts.

RESEARCH

Numbers first. A Citi Report from 2017 predicts that the total XR market could reach \$692 billion by 2025 (Lameyer, 2017), where more conservative estimates say \$75 billion by end of 2021 (Styslinger, 2017). Estimates aside, it is a fact that with the arrival of the pandemic, VR has seen an unprecedented growth, with VR concert company MelodyVR seeing an increase of over 1000% app downloads since the spread of COVID (Millman, 2020). In June 2020 John Legend performed an XR fundraising concert on YouTube in collaboration with Wave, where the artist wore a motion capture suit giving life to an animated version of himself in the virtual world where the concert took place. Here, the audience could populate the stage with flowers or shooting stars by pledging money to the cause, and the concert was attended by more than 500.000 people. Other artists like The Weeknd have done similar things, and it is also not unusual for artists and bands to have a few 360 degree cameras on stage to enable a VR experience of the concert where the audience can watch the whole thing from the stage, an example being Halestorm (Halestorm, 2020). In 2016, Enosis VR and Google Play teamed up with Queen to launch a VR experience of the iconic song “Bohemian Rhapsody” (Weisenstein, 2016), and the list of VR used in modern music and concert experiences goes on.

It is probably still in relatively early stages, but it is clear that VR technologies are being embraced by the mainstream music scene, so apart from being inherently fascinating to me, it also appears to be a commercially viable field to get into. In a conversation with producer Sean Hargreaves about this project (and my path in general) on Tuesday the 4th of May 2021, when hearing that I sometimes find myself a bit lost, he stated confidently that to him, my path is very clear: I like music for games, and I am moving resolutely in that direction. Furthermore, he added, I am in the fortunate position to be studying right opposite one of the biggest companies delivering voice and sound solutions for games, Side. With experience in voice-acting myself plus the recent passion for game music and programming, this project can serve as a calling card to get a foot inside a leading company in an exciting field. As long as I get good quality recordings, Hargreaves added, this project holds water. He has promised that he will do what he can to allow me to record what I need in his studio and on his piano.

My mentor at Tileyard, Martyn Ware, who has had great success with immersive audio through his company Illustrious, shared with me on Friday the 30th of April 2021 that Abbey Road

Studios did a project similar to mine about 10 years ago, but it was seemingly abandoned. It appears it might have taken the shape of their app *Inside Abbey Road*, which was launched in 2016 (Seymour, 2016), but it is not available anymore, so I haven't been able to experience it myself. Ware further mentioned the problem of processing power: having the computer process multiple sound sources and animations might make the experience glitchy or laggy. It is too early to say now how big a problem this might be, but I have made a note of it, and will make adjustments as necessary.

IMPLICATIONS

Apart from the commercial viability of demonstrating proficiency in working with Virtual Reality, games, and music, following my research there are other aspects about this project which are fascinating to me, and could prove ground-breaking if developed. When talking about virtual reality, the immersive side is usually focusing on the image (being able to look around 360 degrees), but in none of the above examples has sound been taken into account (being able to *hear* around 360 degrees)³. I see huge potential in this. What if you could not only turn around and see the whole band on stage, but when you face the drummer, the drum kit is in front of you in the sound field, and the lead singer maybe behind you? And what if you were not fixed to a spot, but could walk around, customising not only your visual experience, but also your auditory experience? There seems to be obvious complications about implementing this in a live concert context (microphone placement, mixing etc.), but with prerecorded music and a real-time engine like Unity, you can quite easily utilise what's called 3D audio to achieve just this. 2D audio is the same regardless of where you are standing or facing in the 3D environment - a primary example is background music - and 3D audio is directional, so if say a car passes by in a game, you can tell from the moving stereo image where the car is. By making an element in your 3D game into a 3D sound source, when you move around in the game you can similarly always tell that the sound is coming from that particular position in the space. Do that for all the players in an orchestra, and you can walk around and customise your experience depending on where you stand. (One can similarly imagine profound educational uses for this: what exactly, for example, is the bassoon's role in this piece? Well, go over there and find out!) But to me it goes deeper than that, and it reminds me of the great pianist Glenn Gould, who already in 1966 voiced his ideal of giving the listener a series of snippets of different recordings of the same piece, and then let them put together their own favourite and completely unique track from those snippets (Tomassini, 2018). While for this project I am not planning on making multiple recordings of the piece (although I am now tempted, there is a limit to how I can squeeze the free labour of my musicians!), it does give the listener the role and authority of the mixer. By moving closer to the flute, for example, the flute will be louder, and negotiating the balance between the musical elements is after all the mixer's most important job. Further, by allowing the listener to move the virtual musicians and place them individually in the space by a wave of their virtual hand, the listener has unprecedented control over their listening experience - something I have not come across in my research at all, and which could be a whole new way of

³ The only exception is the *Bohemian Rhapsody* experience, where the sound was allegedly directional as you turned your head around, but the app doesn't exist anymore, so I haven't been able to verify, and you weren't able to *move* around in the virtual space, only *look* around.

experiencing concerts. You could choose to put the musicians in a circle around you, or just put the trumpets really far away if you found them annoying - there's unlimited possibilities!

If you would want to do the same thing with a live rock band, you would 'simply' need to place the musicians in a virtual space and hook them up to motion capture suits as in the John Legend example, and instead of having the sound be reproduced in 2D as is the norm, have the sound be emitted as 3D sound sources from where the animated band members are placed in the virtual space. The listener could then walk in between the band members and *hear* what it's like on stage. As mentioned, this raises a lot of questions about the role of the mixer, and these are questions I will be gabbling with myself as I venture on to make this project work. How does bus compression work in this context? And reverb? Will it all distort because of uncontrollably high levels? I suspect more than ever that you are dependant on a really solid arrangement, as during live music performance of only unamplified acoustic instruments.⁴

CLOSING THOUGHTS

I am excited to see where this project goes. It is of course likely that it will prove harder than I imagined, but already I have managed to convince established musicians, like Mike Kearsey of the Robbie Williams Band, to take part in the project (for free!), and I think the scope of what I have set out to do plays a part in this⁵. So already in the recording part of the project this is proving fruitful in building new relationships.

It might still be that I cannot get the technology to work with the time I have available, and if that turns out to be the case, I can always use the stems to make a traditional mix of the piece, and nothing is lost - or I could see if I could ally myself with more experienced people to handle the technical side of things. I believe the piece is strong enough to be worth putting out into the world - VR or not. If I *can* get it to work, however, it will be an exciting showcase of not only what I'm capable of offering an employer in the field of music production and games, but also of what the future of VR concerts could hold. Either way, I'm sure I will learn a lot.

⁴ Naturally, room acoustics would also play a huge part, and how this will work in a virtual context will be interesting to see. People pay millions to design acoustically pleasing concert venues - is it possible to achieve the same acoustics in a virtual environment?

⁵ And of course the sad fact that not many musicians have much to do these days anyway.

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APPENDIX A: TIMELINE

	Month	Apr	May					June				July			
	W/C	26	3	10	17	24	31	7	14	21	28	5	12	19	26
Activity															
Music with library															
Producing Backing Track															
Music with musicians															
Define instruments needed															
Gather participants for the music															
Sheet music															
Pre-Production meeting with musicians															
Recording Piano															
Recording sessions Wind															
Recording sessions Brass															
Recording sessions Strings															
Mixing (maybe mastering)															
Review for any extra recording															
Experience Animation															
Define experiences to animate (dance / music)															
Gather participants for the mocap															
Video recordings + mocap															
Create world in Unity															
Integrate videos / animations															
Integrate music and produce															
VR experience															
Programme for VR															
Test on other equipment															
Test for bugs															
Final Delivery															
Write Reflections															
Files ready to share															
Michael To Do															
Tom [my pianist and collaborator] To Do															
Both To Do															