

Berklee College of Music

# **Evergreen**

[The Process and Realization of an Original Video Game Soundtrack]

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## Abstract

As a general description Evergreen is a celtic-inspired video game in development by Grentacular Studios. It represents so much more to me, however. Evergreen represents my entire journey through this master's program, as well as the birth of my professional career. From the first draft I made for the main theme to the current Suite of themes to be recorded in London, one can hear an enormous amount of growth - all of which I have Berklee to thank for. The growth is palpable, so much so that when I listen back to the first draft I made in September, I barely recognize myself in it. My voice is still in that draft, albeit muffled and hidden. Over the course of the year I have learned to let that voice out and be heard in ways I never thought I was capable of.

Evergreen also represents my overcoming a fear of failure. If you had told me a year ago that I would be scoring a full length video game with primarily orchestral elements, I would have a) had a panic attack, and b) not believed you. Admittedly, I accepted this job before I was entirely ready. When I was given the cue sheet of all I would have to do (just for the demo) my insecurities began flooding in. I have always struggled with this in my music. It's never good enough, I can't do this, I can't do that, etc. However, in this master's course the most important knowledge I have gained is learning that I *can* do this. I *can* do that. And after all is said and done, it *is* good enough. I have the entire faculty to thank for this growth, as every member of the teaching staff has instilled in me a different and unique kind of courage.

Finally, Evergreen represents my future. Not only have I made a wonderful connection with the director of the game, it has also given me enough courage and credit to seek out new opportunities. In my application to Berklee my biggest desire was to get my foot in the door in the world of Video Games. Now the door is open before me, waiting to be walked through to the next chapter in my life.

## Acknowledgments

I would like to first thank the faculty of the SFTV program. Studying under you all has truly been the greatest privilege I have had in the world of music.

To Alfons: I must admit to you that before coming here I was terrified of the orchestra. My mockup in my application was the first orchestral piece I had ever written, and the ensemble seemed to me an untamable and ferocious beast. Through your teachings I have not only overcome this fear, but have embraced the orchestra as an integral part of my musical language. Your kindness and wit made an excellent companion to the unfathomably deep wealth of knowledge you bestowed upon us this year.

To Pablo: If ever I considered myself knowledgeable of the art of mixing prior to this program, that skill pales in comparison to what I know now. I have never met someone so in tune (pun intended) with the physics of sound and how to manipulate them. You have brought a new level of clarity and depth to my music, and for that I am immensely grateful.

To Vicente: You made me love Digital Performer... Need I say more? In all seriousness, I greatly appreciate your technical prowess and the ease at which you shared it with us. I listen back to the mockups I made at the beginning of the year and have to hold back my laughter (and mild shame). You imparted within me a way of breathing life and musicality into an otherwise lifeless library of sounds in my DAW. For that I deeply thank you.

To Lucio: I am struggling to find words to convey how much I have appreciated your wisdom and guidance over this last year. Your feedback and anecdotes not only made me a better musician, but it made me a better person. It has been a great pleasure getting to know you during this time, and I appreciate you reaching out to me the way you have done. This year was obviously a struggle for us all towards the end, yet you took it upon yourself to make us all feel better about an otherwise dismal situation. I think it goes without saying that I will miss your humor and stories a great deal.

To Sergio: I can't thank you enough for guiding me through this last semester. Even during the first semester you saw something in me that I didn't see in myself, and you made it a point to bring that something out over the year. You have given me courage in both my career as well as my life, both things I had nearly lost hope in. I feel as though you understand the music in me more than anyone ever has and I am eternally grateful to have studied under you.

To my parents, family and friends: I owe much of where I am today to you all. Not many people are fortunate to have family and friends that support their art like you all have done for me. Your constant faith in my abilities and desire to see me succeed have been driving factors throughout my life. I am humbled by the love you show me every day, and consider myself beyond lucky to have you in my life.

And finally, to the one girl who said I wouldn't make it in grad school, and that it was a terrible idea: I look forward to you watching me succeed in my career.

## I. Introduction

I have always been interested in music. It was something I always gravitated towards as a child, and as I grew older I realized it was more of a calling than a hobby. For a while I pursued music for the sake of learning, not having any idea what I wanted to do with it. I played in bands, wrote songs, and sang in choirs throughout highschool, and eventually decided to go to college for "music". I started as a vocal performance major, but quickly started despising the subject. My second semester I switched to classical piano, much to the same end. Third semester I began playing jazz and learned early into it that my hands were not meant for that genre. My fourth semester was just around the corner and I had no idea what I wanted to do. I had to do some soul searching to figure out why I was constantly dissatisfied with my pursuits in music till that point. I realized that I grew ever tired of playing other people's music. It didn't satisfy me to simply regurgitate what someone before me had written down. With this realization I turned my attention towards composition.

I struggled through my undergraduate degree with no real training. Composition wasn't technically a major at my school and I had to talk to the Music Department Chair to convince her that it could be a part of the curriculum. When I graduated I was one of three "Composition" majors. Due to the lack of solidified curriculum I had no formal classes in the subject. My advisor gave me feedback on pieces I would write, but there was no genuine orchestration or writing classes. As such I graduated feeling a void in my learning. I knew I wanted to write but wasn't terribly skilled in the craft, and my bands at the time weren't paying any bills. So back to soul searching I went...

During the year and a half after graduating undergrad, I spent a lot of my time doing what I did best - playing video games. I was wise enough to know that I would never be good enough to make money off of playing games, but I was also losing my mind working in a restaurant. My creativity was stunted and I was lacking something in my life. Then one morning I woke up with clarity. I knew what I wanted to do. It was in front of me my entire life, I just hadn't put it together. I thought to myself: how can I make my life revolve around the two things I love most - music and video games? So I began doing some research into video game music and independent development. I joined a few forums for budding game developers and joined up with three other guys in 2018 for a game jam. I had more fun in that 72 hour game jam than I had previously had in the last two years. It was then that my path was clear.

One doesn't simply become a game developer. You can easily get onto small teams working for no budget, but to make a career out of it - that was the goal. There was so much to learn. I missed out on so much orchestration knowledge and writing for an orchestra seemed like an unattainable goal. Cue the Berklee College of Music. I saw an ad online about the master's programs here at Berklee Valencia and looked into it further. It seemed too good to be true. I figured my lack of orchestration knowledge and background in electronic music would surely place me behind many other applicants, but the desire for change in my life was so strong I couldn't ignore the opportunity. I applied, and the rest is history.

## **II. Evergreen**

Evergreen is the brainchild of Marc Willis, director and lead programmer for Grentacular Studios. Marc (also known as 'Grent') reached out to me in September of 2019 in response to a post I had made on Reddit (r/GameDevsDeclassified) looking for a video game to work on. I had mentioned the pursuit of my master's degree at Berklee and that I was looking for a larger scale game to start working on. I received an email from Grent giving a brief description of the game and, should I be interested, he could send me more information.

I was astounded at the amount of information he shared with me. Pages and pages of details about the game: a 20 page script, details about the mechanics, gameplay, items and characters and

more. This was all work that he had put together *by himself*. He told me he had been working on the ideas for this game for about 6 years and finally had the resources available to hire a team to make it happen. He had listened to some of the music I had posted along with my ad and told me if I was interested he would love to have me on board. Having worked on a couple smaller indie games before this, I was blown away at the amount of work he had put into this game. I could tell that this was a passion project for him. As such, I happily joined the team as his composer.

The game is a metroidvania style RPG, set in a mythical celtic environment. The world has been shattered by a great Evil, and its pieces are strewn about the land waiting to be put back together. The main character Erin is a headstrong druid in training who is tasked with putting the world back together. She isn't alone in this task, receiving help from her Grandmother as well as a forest sprite named Roshwen. Erin has to travel the land to vanquish the evil that has sprung forth and retrieve all the pieces of the world by defeating various bosses. As per the metroidvania style, much of the map the player can traverse is given from the start. However, much of these areas cannot be reached until the player has obtained certain items from the various bosses around the map. The game is very character driven and each character plays an important role in the rebuilding of the world.

For the current demo portion of the game there is one level, two mini-bosses and one main boss. For the final production there are at least four other levels. Music for the game is therefore sectioned into each level, while bosses have separate music as well. For the demo there are a total of 15 cues on the sheet, most of which are around two to three minutes in length. The level music is split up into different areas within the level, and the score is interactive and follows the player throughout each area. It comes down to about six, two-minute cues, as well as mini boss music. These smaller cues carry similar melodic lines and harmonies throughout the level, yielding a homogenous sound that sounds both familiar and different as you progress through the level.



- Concept art for Erin -- Evergreen 2020



- Concept art for Roshwin -- Evergreen 2020





- Concept art for the Forest -- Evergreen 2020

### III. A Culminating Experience is Born

Early on in the development of Evergreen I was certain that I wanted to incorporate it into my Culminating Experience at Berklee. After all, Berklee was one of the biggest selling points in my ad and the mythical fantasy setting seemed to be the perfect outlet for a large scale orchestral recording. I thought the Celtic nature of the game would give the project a unique flair as well. There were a few problems with using this as my CE. The first and biggest issue was the fact that since I was getting paid for my work on Evergreen, I couldn't legally use any recordings from Berklee for monetary gain. The other glaring issue was that if I used this recording for part of the game and didn't take payment for it, it would drastically stand out from any other music in the game (as the rest of the music for the demo will be mockups).

I had a meeting with Grent to figure out the best way to make this work while not hindering the overall quality of the game or its timeline. He told me that with our current timeline we would be set to release the demo of the game to potential publishers in July/August. This seemed to be perfect timing with the original date for the CE recording in London. Our plan for releasing Evergreen is to first show a demo to publishers to get potential funding. Once funding is acquired we can finish the whole game (the current demo accounts for approximately 1/5th of the game).

Since the fate of the game as a whole rests on whether or not we get funding, Grent and I came up with the idea of a gameplay/trailer video to go along with the demo. This would be a quick and easy way for potential publishers and players to check out what the game has to offer without playing it firsthand if they cannot do so. This video would be a brief overview of the story, world, characters and some gameplay footage to pique people's interest. As it is separate from the game proper, the fact that the music will sound different is no longer a glaring issue.

In fact, the difference only furthers our cause as the high caliber recording will reinforce to potential publishers as if to say, "this is what the game *could* be like with further funding." Grent agreed that this was a solid course of action for the release of the demo and agreed to write up a storyboard for me to score (see section VI for Storyboard). We also agreed that it would be easier on both of our ends if he were to provide a general storyboard. This would leave room for me to explore the themes in the way that I wanted to, following the general arch of the plan we agreed upon. Afterwards the animation would be fine tuned to the music to match high points and climaxes.

## IV. Research

Before taking on Evergreen I had little to no experience in celtic music. I had a vague idea of what stereotypical celtic music was supposed to sound like, but had no clue how to write for it. I began doing research into different styles within celtic music, as well as the most common instrumentation for these styles. What I discovered was a world of jigs and reels, and a large variety of instruments used in them. I found the jig to be most in line with the vision of the director, and used its structure as the basis for the main themes of Evergreen.

The jig consists of a simple melody spanning two to four bars, usually in the dorian or mixolydian modes. The typical jig is most commonly found in 6/8 or 9/8 and occasionally 12/8 time signatures. There are also differences within jigs: a single jig is characterized by a rhythm of a quarter note followed by an 8th note, occurring twice within a 6/8 bar. This results in a type of swing feel that a large portion of celtic music has. In the case of a double jig, rhythms are grouped together by three eighth notes occurring twice within the bar. There is also a third type of jig known as a *slide*. The slide is almost identical to the single jig save for the length of the melodic phrases - a single jig melody happens over two bars, and a slide happens over four.

Needless to say, there are a lot of very small nuances in celtic music that required exploration to deliver an authentic sounding celtic score. I decided that reading information on the music was much different than absorbing it and seeing it live. So during winter holiday I decided to take a trip to Scotland and Ireland. My roommate and I went out to see as much traditional celtic music as possible during this time. It was incredibly eye opening to see the improvisational styles employed by these musicians. The melodic content was passed effortlessly between every instrument playing in the session, and melodies often never ended. It would go on and on with a few pauses here and there, but depending on the type of jig being played melodies would often continue throughout the entire piece until the very ending.

During my time in these celtic countries I also learned information about the music that I had previously not found in my prior studies in regards to rhythm. Watching the live musicians play, I realized that while much of the music was in a steady 6/8 feel, the underlying rhythm being emphasized was a steady 4/4 under the 6/8, creating this back and forth polyrhythm that helped drive

the music. This trip was invaluable to my understanding of traditional Celtic music, and the soundtrack, nor my CE, would be where it is today without it.

## V. Obstacles

Determining which thematic material to use for my CE was a struggle for me. I wrote the music in such a way that each character has a main theme, but similar characters retain some similar melodic content. For example, Erin is the main character and has her own theme. Her grandmother, who is a source of wisdom and helpful tips throughout the game, also has her own theme. However, these two are related and have a special connection to one another. Therefore I use similar melodic content as the basis for each theme to tie them together in the narrative.

These themes are different enough to not be overtly taken as the same music, but similar enough that the listener feels a certain familiarity to the music. There are also a number of characters in the game with themes, and I was not sure which character themes to highlight in a three minute video. With a lot of discussion with the director, we agreed that based on the storyboard, three themes would suffice: grandmother's theme, the theme from the Forest, and finish with Erin's theme (which is the main title theme as well).

Another obstacle I ran into in making this CE was instrumentation and orchestration. Celtic music is traditionally small ensembles of a fiddle, flute, bazuki, bagpipes, etc. There are no cellos or trombones in the celtic repertoire... So finding a place for these meant compromising on a fully traditional sound. In my research for the game I listened to a lot of Tom Powell's "How to Train Your Dragon" soundtrack as it is almost identical to the style I was to work in. His orchestration was heavy on winds and violins, much like traditional celtic music, with the addition of brass and string sections to fill out a depth and be a rhythmic driving force in the score. I decided to employ these tactics in my orchestration as well.

There was no celtic whistle in our lineup for London, nor a traditional wood flute or bagpipes, all of which are hallmarks of celtic music. So I made the decision to use samples for this in conjunction with the orchestra to maintain an authenticity to the genre. Ideally these will be recorded

at a later date, or perhaps before given the Covid-19 setbacks in recording times. This poses as another obstacle since I have to find and reach out to traditional musicians to record these parts.

## **VI. The Storyboard**

As discussed previously, the storyboard provided to me for the project was pretty barebones. Marc and I agreed this would be easiest, as he is busy and could benefit from more time to get the animatics for the cutscene and I could benefit from having more freedom in what I wrote for it. So the basis of the storyboard is as follows:

The scene opens with a shot of the forest and some wind ambience (0:00-0:10). Softly, the sound of an elderly woman begins to speak. She speaks to the listener as though they know each other, giving a brief description of the world of Evergreen . She then proceeds to speak of the grave evils that are lurking in the world and the dangers that the listener (Erin) must defeat (0:10-0:45). This is when the shot will change to some of the evils that grandmother is speaking of, and the result of their presence in the forest with slightly more narration from grandmother (0:45-1:10). This ends with grandmother saying something along the lines of, “Erin, you are the world’s last hope” at 1:13. After grandmother says this line, the video will cut from a narrative cutscene to actual gameplay of Evergreen. This will be little clips here and there of Erin fighting off enemies, using key abilities, and doing puzzles that are available in the game (1:15- 1:46). These are interspersed with blurbs to the watcher explaining game mechanics and things they can expect to encounter when playing. After this, there will be a final narration from grandma in a more hopeful tone than before (1:46-2:00). At the 2:00 mark there will be more intense gameplay shown such as more combat and the potential boss fights to be seen in the game (2:00-2:32). When this gameplay is finished, the video will cut to the main title of the game along with a projected release date and other media information for those interested to find more information about the game (2:33-2:45).

## VII. Orchestration

Orchestrating this project required a lot of thought as far as what emotion I was trying to convey during any given point. I wanted to make use of the whole orchestra, while not overblowing everything and boring the listener. The first section of the piece uses elements from the Grandmother's theme, "Wisdom of Old". The Grandmother is a beacon of wisdom throughout the game and as such her theme is very slow and drawn out with a pastoral celtic ambience. Her theme uses a traditional celtic wood flute for the melody, so I decided to match that with a smooth and wind like sound with *sul tasto* strings. These strings are accompanied by flutes and clarinets in a low register for a smooth, dark blend with the strings.

The *sul tasto* articulation lends itself to blend very nicely with low woodwinds, and the resulting sound is very contemplative, just as the Grandmother is. At the climax of the melodic content (mm.14), the whole orchestra swells together to add a weight to the sound along with the first introduction of low sounding instruments. All of the brass in this portion are playing at a very soft dynamic to give an extra layer of warmth to the climax. It is a short climax, and when the melody comes to a conclusion (mm.21), the orchestra is stripped to only strings and horns to juxtapose the previous fullness in sound. This stripping down of elements was also done to make the introduction of the next section hit harder and stand out more.

The following section (mm.23) is the beginning of a portion of the Forest theme, or the main gameplay music. Since this section is more of a small ensemble in the game itself I had to fill it out to work with the orchestra. During this section I wanted to highlight the "woody" nature of the forest, so the bassoon is highlighted in the beginning. It is accompanied by flutes and clarinets for blending reasons, as the oboe would have compromised the otherwise smooth and mellow flavor here. High strings provide a moving harmonic background while the low strings and percussion provide motion and drive. This rhythmic motif in the celli and basses is a recurring theme throughout the Forest music as well. Starting in mm.27 some of the main melodic content of the Forest theme is taken by the whole woodwind section in a call and response manner. All of this grows in weight until the next portion of the Forest music starting in mm.31.

Measure 31 begins another theme of the forest, which in game is played by a string quartet. Given the previous emphasis on woodwinds I thought it would be a nice contrast to have the brass take this main melody in a choral manner. This paired with the tutti string section results in a heroic

sound that speaks to the triumph of Erin in the Forest. The woodwinds play the counter melody here (mm.32/34), doubled with the violas for blending purposes. The brass and woodwinds continue this call and response up until the climax at the end of mm.38, with the full orchestra finishing with an important rhythmic motif as well as a lead into the final section.

The introduction to this final portion (mm.39) is stripped down to give the listener a break from the full orchestra at its peak from the previous section. This break is also important as the final bit of dialogue during the cutscene takes place at this moment, so the lack of density makes it easier for the dialogue to be heard. The orchestration of this introduction more closely matches the orchestration of the gameplay music, with strings, irish flute and Uilleann pipes. The use of Uilleann pipes over the bagpipe was decided due to the harsh bagpipe sound detracting from the other elements, as it is usually more of a lead instrument. In full transparency this was also partly decided because my Uilleann pipe samples are much better sounding than my bagpipe samples.

The final section comes in after a modulation with nearly the full orchestra (mm.47), save for the trumpets. Low brass and strings provide a driving rhythmic bed while the violins, horns and one flute play the melody. I chose the horns for this melody as I thought they would shine nicely in the provided register, and make the melody a bit more heavy and present. The woodwinds are also present here, providing both a pad and counter melody in a lower dynamic to fill out the sound a bit. The recapitulation of the theme at mm.55 begins the climax of the entire piece. Trumpets begin to soar on top of the orchestra playing the main melody, accompanied by piccolo and strings an octave higher. The rest of the strings and woodwinds double down on the driving rhythms, and the horns and brass take a heroic counter melody.

This section is meant to represent the triumphant and headstrong nature of the protagonist so having the horns fill out the sound with a cuivre, heroic tone lends itself to this effect. The overall sound is meant to be massive, and in the last measure of the theme (mm.61) the entire orchestra is split either playing the main melody or the rhythmic motif. The subito mezzo forte in mm.63 is added for contrast, and to allow the orchestra to build into the final hits in mm.66. There was talk of maybe having a very last snippet of dialogue at this moment, too, so in the event that it occurs there will be space for it to be heard.

### VIII. Thematic Analysis

There are three main themes in this suite accompanied by a handful of smaller, secondary themes. The first theme to appear is at the very beginning in mm.1, taken by the Irish Wood Flute.



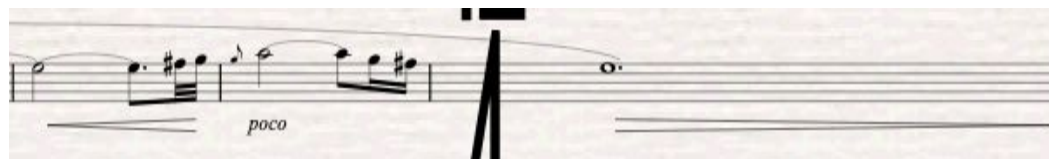
While this theme is written in 3/4 time in the score, it is felt and played in the most traditional celtic form of 9/8 as well as the traditional dorian mode. The strings act as a call and response to this melody. As the grandmother and Erin are linked together within the story, this theme is an augmented version of Erin's theme. This lends itself to the wisdom that grandmother has, she was once a brave and headstrong druid like Erin but is now patient and wise.

The portion of Erin's theme that this is based off of:



The end of grandmother's theme is also a call to Erin's theme as well.

Grandmother's ending:



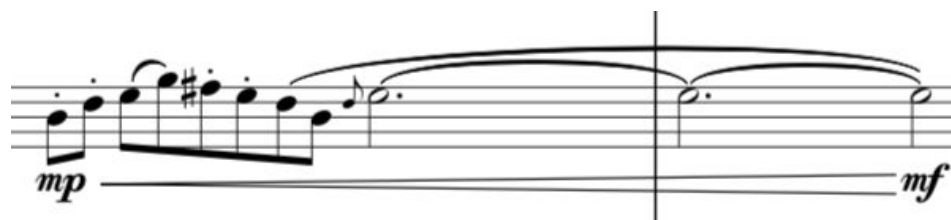
Erin's ending:



Once again this is to show that while Erin and her grandmother come from the same bloodline and are very similar, their difference in age and actions set them apart as two different people. Erin's ending is quick and to the point, and ready to jump into the next portion of melodic content in the next bar. Conversely, Grandmother's ending is drawn out as she takes her time to think and lingers on the last note, not eager to jump into anything until fully coming to an ending first.



The second bulk of thematic material comes from the Forest theme in the game. While written in 12/4 (simply for conducting purposes) it is meant to be felt in a 6/8 feel. The melodic content follows the traditional double jig style, with a steady three eighths within the 6/8 bar, as shown in three examples here:



- [mm.27]



- [mm.32]

Musical notation for example 3, showing two staves. The top staff has a dynamic marking of *mp* and ends with *mf*. The bottom staff has a dynamic marking of *mp* and ends with *mf*. The notation includes a double bar line in the middle of the first staff, indicating a measure rest.

- [mm.36]

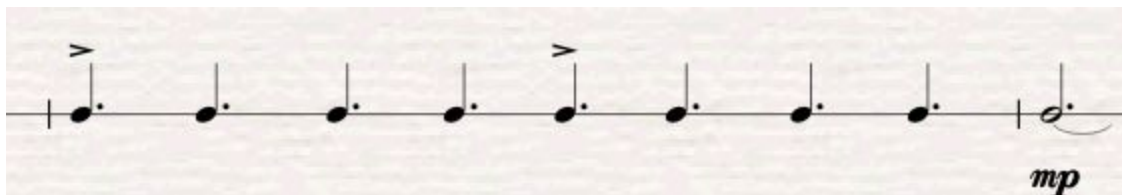
These melodies are structured in a manner similar to the improvisatory styles I heard in Scotland, with the instruments playing off of one another with slight variations. The beginning of these themes, and many themes throughout the project use a pickup consisting of two ascending eighth notes. This little motif is all over the piece, sometimes ascending and sometimes descending. The origin of this motif comes from a portion of Erin's theme which is not present in the CE, but I use it as an adhesive for the overall game score.

mm.6 (Irish Flute)      mm.26 (Ob./Cl.)      mm. 24(Fl.)

mm.24 (Violin I)      mm.34 (Violin I)

mm.49 (Viol/Celli/Cb)      mm.52 (Viola/Celli)

In the game, the two Forest themes occur throughout the Forest level, and often overlap one another as seen in the examples above. Also staying true to the traditional form, the percussion during this section emphasizes the 4/4 feel underneath the 6/8, as mentioned in the Research section of the paper.



- [mm.32]

-

As a countermelody to the Forest theme here, the triumphant horn section harkens back to a portion of grandmother's theme to help tie the piece together, as well as an attempt to emphasize that grandmother has a deep connection with the Forest, as she is one its last protectors.

- mm.33 (Horns/Trumpet)

- mm.6 (Irish Wood Flute)

The final section (mm.39 onward) contains thematic material primarily from Erin's theme. This is the main theme of the game and for that reason it comes last in the project. The introduction to this theme in mm.39 contains a handful of thematic material. Most prominent are the wood flute and Uilleann pipes playing variations of the main melody simultaneously, much like would occur in a traditional Celtic jam session. Less prominent in this portion are the bassoon and the viola parts. The bassoon plays an augmented version of the main theme underneath the regular version that the wood flute is playing:



- mm.39-42 (Bassoon)



- mm.39-42 (Irish Wood Flute)

The viola in this section is a reference to a motif that the string quartet plays in the actual game score, which occurs all over the Forest level to tie things together. It is played here for the same reason, and to give the section more motion with the percussion:



- mm.39 (Viola)

The main melody of Erin's theme is also in a traditional Celtic 6/8 feel, although it is notated in 12/8 (again purely for conducting purposes). Unlike the Forest theme, which is a double jig with steady eighth notes, Erin's theme follows the traditional single jig convention of a quarter note followed by an eighth note to give a heavy swing feel. This quarter followed by eighth pattern is all over the last section in both the melody and the rhythmic sections, as shown here:



- mm.47 (Flute, Horn, Violin I/II)



- mm.47 (Trombones)

- mm.47 (Viola, Celli, Basses)

Given that Erin is the protagonist of the game, this thematic material was used as the basis for the rest of the music in the game. Save for a few characters who have their own themes entirely, Erin's theme can be found hidden all throughout the score of Evergreen. This is done to help tie the game together thematically, but also narratively as this theme is present in anything involving or closely related to Erin.

In traditional celtic music musicians will play a theme over and over again with slight variation, taking solos over one another and coming together in full unison for recapitulations. I tried to take this form to heart for much of this score, and I believe it is evident throughout this CE project as well. Almost the entirety of the orchestra plays the end of the main melody in mm.61, much like a group of celtic musicians would come together for the ending of a jig or a reel.

## **IX. Preparation for Recording**

In preparation for the recording of this culminating experience I have spent quite some time trying to memorize every part of the score. I have a large issue in recording sessions with following along to sheet music along with having my ears open to hear everything. Therefore I'm attempting to memorize all that I can so I really only have to reference the page for directions for the orchestra after takes. I have also been conducting my mockup to memorize tempo and meter changes. These aren't very difficult, mind you, but I struggle with intense anxiety when I am on the podium and being in front of 52 of some of the best musicians in the world will no doubt make that anxiety worse.

Getting the score formatted correctly was also a tough thing as I have not notated for such a large scale piece before. That along with the formatting the individual parts has been difficult as I want to put my best foot forward for these musicians. This process will undoubtedly be tweaked in the months leading up to the actual recording, as will my continued effort in conducting practice. Attending the actual recording session may prove to be an obstacle, as flying out of the United States during this pandemic will more than likely be difficult and very expensive. I plan on saving as much money as I can with this recording session in mind.

In preparation of the actual Pro Tools session, I have included all tempo and meter changes with their own clicks, and have also included the stems that I think will be most beneficial for the musicians to hear. My ideal plan is to have an actual recording of the Irish whistle and Flute so as to not have a mockup playing in the musician's ears. I feel as though if I can get a moving recording of these solo instruments to go along with the session in London it will help the recording musicians give a more moving and genuine performance than they would with midi flutes playing. This will prove challenging as I do not know anyone who plays an Irish Wood Flute or a Penny Whistle. I have research yet to do in this subject.

## **X. Production and Mixing**

I used a variety of sample libraries for this project. The bulk of my samples come from the BBC Symphony Orchestra by Spitfire. This includes my woodwind section, all brass and strings, as well as my harp. I have also layered these strings with the corresponding section leader soloists that come with the BBC library to give more of a live sound to the strings. The problem with BBC is that it is meant for orchestral writing more than it is for film or game scoring. As a result, the overall sound is very dark and often lacks clarity and presence. To compensate for this I have layered some of my sections with other libraries. The brass is potentially the worst culprit of being too dark and washed out, so I layered this section with EastWest Hollywood Brass Gold.

I am not a huge fan of this library - to me it sounds incredibly synthetic and there are no true legato patches. This was difficult to work with in the mixing process. These patches provided the sharp, brassy tone that was needed for them to stand out in the mix, but if they were even a decibel too loud their fakeness was very obvious. I still feel as though this is the case in some of the brass heavy sections of my mockup, but without these samples layered the brass just wasn't powerful enough. This project has informed me that I need to find much better brass libraries for the future.

I layered my string section with Spitfire Studio Strings for more clarity as well. The BBC strings sound excellent and lush, especially in the more full sections of the piece, but they have a certain level of reverb that cannot be taken out due to mic placement. If only the close mic is selected the resulting loudness is cut by  $\frac{2}{3}$  and it is unusable in my opinion. So I decided to make my BBC strings act as a Decca tree within the mockup, layered with the Studio Strings for closeness. The

Studio Strings have all built in reverb cut as to provide a good clarity and closeness that was lacking from the BBC sectional. I then added Altiverb reverbs to blend the string sections together. My double bass in the Studio Strings also has the Lowender plugin on it to add a great low end depth that was otherwise not there. This is most noticeable at 0:27 in the mix, when the whole orchestra swells and also notably at 0:47.

For percussion I used the Hanz Zimmer Percussion Toolkit by Spitfire. There are two instances in the mockup, one for higher sounding hand percussion and then another for lower percussion. I did this for better control in the mixing process, which ended up helping a lot as I treated them very differently in Pro Tools. For the high percussion I used a bit of compression but more importantly Izotope's Stereo Imager. Using this on the percussion opened up the space and helped them sit in the mix as though they were in the same room as the rest of the orchestra. I saturated the low percussion as well as added some compression to the low end to help the low bass hits cut through the mix, even when the other low sounding instruments of the orchestra are playing.

For the Celtic instruments I used a library called Celtic ERA by Big Fish Audio. For the most part it is a wonderful library and with a bit of reverb and EQ tweaks, some of the instruments sound pretty realistic. I used this library for my Irish Wood Flute, Irish pennywhistle, Uilleann Pipes and I also layered the BBC harp with a Celtic harp from Celtic ERA. The harp in Celtic Era has a really nice bright tone that helps it shine through the mix without having to boost it too high.

Overall there is not much compression in the mix - just a few dB's in percussion and a bit of overall compression on the mix bus. The whole mix is parallel compressed for more depth in the sound. I used multiband compression on the main mix bus to tame some of the frequencies and added a bit of tone color with both the Ozone Exciter and Black Box from the Plugin Alliance bundle during the mastering process. I also put Black Box on my string bus that contained all of the different string libraries I used. Putting it on this sub mix bus really helped the different string libraries blend together and added a warmth to them that I think helps with their realism. For the mastering process I used the cue, "This is Berk" from the How to Train Your Dragon as a frequency spectrum reference with Izotope Insight. This reference helped guide me towards getting a good balance in the frequency spectrum that matched my biggest overall reference for the score.



## XI. Reflection

The process of writing this final project has been a huge learning experience for me. When I joined the Evergreen team I had no idea what I was getting myself into. Throughout the year I used Evergreen as a guinea pig for everything I learned in this master's program. When we learned a new way to make a mockup sound better, I would send Marc a new, better sounding mockup within the following days. Whenever we learned new mixing techniques I would revisit a mix I had made for Evergreen and make it better. The same goes for all the orchestration techniques we learned. I funneled everything I learned at Berklee into this project and the result is astonishing to me. If I could go back in time and show myself the current music for Evergreen back when I got hired, I don't think I would have believed myself. I have learned such a wealth of knowledge here, and I have grown substantially as a person as well.

I have never been surrounded by so many talented and amazing people. Being around my classmates has been one of the most humbling and awe inspiring experiences of my entire life. I would not be here without the constant support from everyone, and feeding off their drive at times when my own drive was shrinking. I consider myself beyond lucky to have attended this program with everyone here.

My CE has been a long journey of study, research and application and the journey is just beginning. Marc plans to pitch our demo to a few publishers who have shown interest in it so that we can get funding for the entire game. If this funding were to happen I would get to score roughly an hour and a half to two hours more of music for this game, as well as have a budget to record it. I am also in charge of implementing all the music, so I have Sergio's class to thank for preparing me for that aspect of this job as well. The skills that I learned here at Berklee will no doubt help me in this process as it continues and will continue to help me throughout my entire career. Once again, I am truly thankful for my time here. I feel as though this project is exactly what it is titled: a culminating experience. Everything I have learned here has led me to this project, and I truly hope it is something you will enjoy.