# Composing for Games as a Film Composer

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When it comes to the history of movies, there is a common misconception that most early movies were silent. Although it was not possible to add sound to moving picture, music was often composed for early movies and was played live during the film. To find composers for films, people looked at the closest most similar media at the time: theater and opera. It is of no surprise that with the rise of video games the same thing happened. This did not happen immediately for video games though. The first video games where huge arcade machines, which did not have any form of sample playback. The audio had to be hardwired in the machine using electrical circuits. So for early arcade machines, electrical engineers were the only ones able to compose. After sample playback was made possible for video games however, the same thing occurred that had occurred with movies. For the music composition people looked at the most similar media: film.

Video games and movies often seem quite similar. At their core they both consist of digital moving pictures. This can give rise to the impression that composing for the two should be very similar. This however is usually not the case, mostly because of one fundamental difference between the two media. Whereas films are linear and every aspect is decided beforehand, games are adaptive and can go different ways in a set world. Because in video games the picture is not predetermined, the music can not be either (there are some exceptions to this rule, such as some types of cutscenes).

So what is the general difference between composing for film and composing for game? The role of video game composer has often been executed by movie composers, so what does a film composer encounter on his/her first journey(s) into composing for game?

## About Video Games and Movies

To understand the difference in writing music for these two media, an understanding of the difference between the two media is of importance. When comparing the two there are clear similarities, such as the use of moving pictures and one way or another conveying a story. Video games take a lot from movies and have been greatly influenced by them. Yet one very significant aspect makes them very different from each other. This aspect is the difference between linearity and adaptiveness. Where movies develop in one straight line from beginning to end, games constantly change based on the input they get from players. This dissimilarity creates a divide between what is a movie and what is a game. Because of their linearity movies are a passive medium, while video games on the other hand use user input which make them an active medium.

There however is no strict separation dividing what is a game and what is a movie. For example some movies and series experiment with giving the viewer choices (Black Mirror: Bandersnatch) but can still be described as film, because with only a few choices the viewer is still being told what to feel, instead of shaping his/her own story (it can feel more like choosing what film to watch than actually being a part of the story). On the other hand there are games that tell the player almost exactly how to feel and give very limited options to actually shape one's own story. These games use techniques such as cutscenes and set narration to determine how the player should feel. These types of movies and games blur the dividing line between game and film and this subject is worth of a paper on its own.

## Goals

To understand how video game composing is different from film composing, it is important to have a clear understanding as to what the goal and task of the music within the media is. As each game or film is different these goals naturally differ per individual product, but in general most of the goals for game and film are somewhat similar. With both media the music contributes in ways of building a world and atmosphere to create immersion, the music can be used to convey feelings and emotions, the music can give information, the music has a general dramaturgical function and creates continuity and the music can be used to tell a story more effectively.

However in video games, the purpose of scores often is more emphasised on the shaping of the world and adding to the immersion of the players. Due to the adaptivity of games, the music can not work as closely with the image as in movies. Instead there lies an emphasis on establishing a convincing atmosphere or for example adding to the enjoyment of the gameplay. Another reason for this emphasis on creating a convincing world is that video game worlds are almost always imaginary. Most movies show actual images of the real world or use advanced computer generated imagery (which does not have to adapt), which (among other aspects) instantly make the movies worlds more convincing.

Nowadays there are amazing voice actors in video games and animations look very real, however this professional acting is only the case with high-budget games that on top of this usually use cutscenes. A lot of smaller (indie) games do not have professional actors or advanced and detailed animation. Music often plays a big part in making a video games characters real and convincing. The music can play a big role in expressing what the characters are going through or what the player should think of them.

There are multiple additional goals or tasks that can occur for game music that do not exist in film composing. These additional goals have to do with other differences between the two media. Because video games are not linear and the player and events in the game decide when things happen, it can be asked that the music (just like the rest of the game) is able to adapt. Also movies and series are mostly meant to be watched once in a few hours time, but a lot of games are meant to be played for a long time (Assassins Creed, the Witcher) or repeated over and over again (Pac-man, League of Legends). Because it would cost too much time, money and storage space, game composers won't be asked to write 70 hours of music. This means that for a lot of games the music has to be repeatable without getting boring. In an interview, game and film composer Chris Christodoulou also talked about how in games, music can not spell out the story too much: *'In games music is like the rhythm section and the player is the melody of the music. … I like to imagine that people will just listen to the music and then sing their own melody on top of that or compose a melody of the elements that are there.'*. Kubatko (mobile game and autonomous composer) also states that the music should not be too 'catchy' or 'distracting', because this can become weary. Furthermore game music is sometimes used as an element of gameplay. Music could for example warn the player that there are enemies nearby or something notable is about to happen or for example in the game Risk of Rain 2 (music by Chris Christodoulou), where in each level a teleport which emits music must be found, by tracking the music the player is able to find the teleporter.

## Techniques and Approaches

When composing for a game a composer usually does not precisely know what is going to happen and when, but merely knows the different options that exist within the game. To still create a convincing collaboration with the image (like we are used to in film), adaptive systems can be used. There are countless games and movies that have experimented with all kinds of techniques and systems. When starting to compose for games it is important to at least know the more general and widely known techniques and approaches.

There are lots of different approaches to video game composing. It is important to decide what approach to use based on the characteristics of every individual project. Kubatko for instance tells about how he does not

use any adaptive systems for games, because he reckons that people do not play mobile games for as long as other games and that often music is turned off or other music is played over the game. When no adaptive systems are used, instead of being part of the changing world and adapting along with it, music is a kind of layer over the game. This can be used well to build the world, to connect all elements of the game and to add to the overall enjoyment of the game. Another big advantage of not using or using less adaptive systems is that this can allow the composer more freedom in choosing the form he/she wants to use, which often means less compromises. On the other hand using adaptive systems can allow for a closer collaboration between the music and the image. Something to pay attention to when using adaptive systems, is not to condition the player to quickly. The tighter the systems are, the quicker the player can get conditioned (Doom, Bioshock Infinite). This can work well, but it can also be experienced as tiring and/or distracting.

Common techniques used for developing adaptive music are vertical and horizontal editing or looping and layering. These are techniques (especially layering) that also get used a lot in movie composing. The difference here is that in adaptive music the composer can not put all the loops and layers in a specific order beforehand. A game composer can decide what music has to be played at certain events, but the player and the interaction in the game determine at what moment a specific event will happen. Because of this the loops and layers have to be able to transition one way or another. Christodoulou states that a loop often does not tell a story, but can be seen as a verb in the story. *'A loop tells the player things like 'be careful' or 'fight"*. A widely used technique to create a soundtrack that has to stay captivating for a longer period of time without taking up too much disk space or costing too much time to compose, is to create multiple loops or layers for specific events in the game and play these in random or semi-random orders.

When using looping, there are many different options and techniques for transitioning, which is an art in itself. This can come down to playing loops one after the other, which does mean that loops have to be able to transition (usually preferably without the player noticing). This is especially hard when using random orders for playing different loops. It is notable that adaptive systems make it more difficult to transition using key modulation, which is widely used in transitioning for film. Other techniques for transitioning are the use of crossfades or special transition loops. With vertical layering, if there is no specific order in which the layers have to get added, they can be faded in one by one. When there is a known order, loops can for example be created in which layers are added per loop. A lot is possible by combining or elaborating on these basic techniques for adaptive music scoring.

An interesting example of combining horizontal and vertical adaptiveness, is Risk of Rain 2. In this game Christodoulou is experimenting with a combined horizontal and vertical system. Each track consists of a more and a less intense segment. Most of the time the song will play in its entirety, but depending on parameters in the game the music can be made to remain at a certain segment. At the same time there is an object (a teleporter) in each level which emits a vertical layer of music whose volume increases as the player gets closer. This vertical layer also makes the music an element of the gameplay.

To keep a good overview and to keep control, it is useful to set clear boundaries before starting to compose. Techniques used to keep consistency for example are the use of a leitmotif or set theme throughout the music, staying in one or a few scales and using a set collection of instruments and sounds. Furthermore music technologists at Sonic Picnic (a media sound and music company) tell us that in a lot of games, not every note or tone has to have a precise meaning (such as often is the case in film) and that the brain will automatically search for connections, even more so in games in which the player is also 'distracted' by the gameplay.

Adaptive music can be very complicated to implement in a game, which can make it difficult to test during composing. Even though there are changing aspects (edits, directors thoughts, etcetera) throughout the development of a movie, a composer can almost always test how the music will work with the image. Game music is harder to test, especially with early versions of the game. Game programmers often implement the audio and even though many composers these days know a lot about sound implementation in games, a collaboration with the programmers is almost always needed. This makes it is much harder to observe how the music goes together with the game during composing. To make the implementation of game music more

convenient (both for the composer and the programmer) and to make it easier to test adaptive systems, various middleware programs exist (although Sonic Picnic states that a lot of game developers will opt to create their own music implementation systems). FMOD en Wwise are the most used publicly available systems.

In most games the sound design has to be adaptive as well. This forces composers and sound designers to decide beforehand how much space the music and the sound design get compared to each other. When a single person is designing both, Kubatko advises to design the music first, because it is often more facile to create sound design that fits with music then it is the other way around. The sound design has to be consonant or purposely dissonant compared to the music. To make sure the audio won't get vague, the sounds and tones of the sound design have to go together well with the entire soundtrack (that can be played at the same time as the sound). This is very different with movies where every sound effect mostly just has to go together with the audio at the specific moment of the effect. Other common techniques are the use of the panning spectrum or frequency spectrum to give the sound design and the music their own space or ducking either the sound design or music to create room for the other.

Most movies and series are meant to be watched once (or a few times) in a few hours, while a lot of games are meant to be played for a long period of time or repeated over and over again. When a game has to be repeatable or is supposed to be played for a long period of time, the music has to be pleasant or interesting in some way, because the player has to feel motivated to come back. Here it is very important to keep the audience in mind. Game audiences oftentimes expect very different things from music than film audiences.

## Collaborations

The difference between collaborating with game developers and collaborating with movie directors is also more than worthy of a paper on its own. It is something many media composers will encounter, because the collaborations and assignments are usually very different. Among other things the short history of games, causes the effectiveness and the ease of the collaboration and the approaches to it to differ greatly.

The composition of a game development team can be different depending on the game, but is usually divisible into three categories: the game designers who are the minds behind the game (they are responsible for aspects such as level design and designing game mechanics), the programmers who program the game and the artists who make the visual art and animations. A game composer has to collaborate with each aspect of the game: the visual art to design the world, the designer to deliberate over the music and the programmers for implementing the music (the programmers can be somewhat compared to editors and the designers to directors when it comes to their relationship to the music).

Sonic Picnic states that the knowledge and expectations of their clients vary widely: ‘Movie directors usually know a lot about and expect a lot from the music, but with game developers this varies a lot.’. This can be explained by various aspects such as the infancy of the game industry and the music playing a lesser role (because there is also an extra role which is the interaction), but Christodoulou states that it can also be explained by the fact that music is burned into a film. Game music changes and can be turned off, film music on the other hand is burned into a film and has to be perfectly fitting for each scene.

## Conclusion

When composing for video games it is important to understand how the adaptive nature of games, alters the role of the music. Techniques such as making the music part of the gameplay and giving the music a bigger role in building characters can be very profitable in the final result, but it can also be important to not condition players to quickly. Even though at the moment there are shortcomings in what is expected from game music, the industry is developing quickly and music is given more and more attention and space. Furthermore every experience in composing for game differs from the other and for each game and collaboration there are other important points to pay attention to.

# Sources


Interview Sonic Picnic, composers and sound designers for media, Utrecht, 27-3-2019, in person

Interview Kubatko, composer for game and stand-alone music, Amsterdam / Czech Republic, 8-3-2019, over Skype

Interview Chris Christodoulou, composer for media and stand-alone music, Amsterdam / Athens, 11-4-2019, over Skype

Philips, h. From Films to Games, From Analog to Digital. Two Revolution in multi-media!, http://filmsound.org/game-audio/film_game_paralles.htm, date unknown

Holtar, Nils Iver; Nelson, Mark J.; Togelius, Julian. AUDIOVERDRIVE: EXPLORING BIDIRECTIONAL COMMUNICATION BETWEEN MUSIC AND GAMEPLAY, https://quod.lib.umich.edu/i/icmc/bbp2372.2013.015/1/--audioverdrive-exploring-bidirectional-communication-between?rgn=full+text;view=image;q1=game, 2013

Kim Boyle, David. EXTENDED NON-LINEAR APPLICATIONS AND THE VISUAL AESTHETICS OF REAL-TIME SCORES, https://quod.lib.umich.edu/i/icmc/bbp2372.2013.038/1/--extended-non-linear-applications-and-the-visual-aesthetics?rgn=full+text;view=image;q1=game, 2013

Shepard, I. How is writing music for video games different than writing music for albums? https://www.themusicmaze.com/writing-music-video-games-different-writing-music-albums/, 13-3-2017