

Exploring genre classification in video game soundtracks: a case study of Barotrauma, DeadSpace, and Outlast

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Abstract. *This study delves into the genre classification of horror, cyberpunk, and fantasy, examining their respective sonic elements. Through an analysis of selected tracks from the soundtracks of Barotrauma, DeadSpace, and Outlast, the study seeks to classify them within these genres. The analysis focuses on identifying key sonic features of each genre. Also, it explores the challenge of accurately attributing mickeymousing and leitmotifs within the context of the analyzed tracks, particularly in the absence of a comprehensive understanding of the game’s narrative. The findings shed light on the complexities of genre classification in video game music and highlight the importance of considering contextual factors in such analyses.*

Keywords. *Video game soundtracks, Genre classification, Horror, Cyberpunk, Fantasy.*

1. Definition of genre in games

It is important to establish a clear understanding of the fundamental concepts that this article will use. This introductory section seeks to clarify the definition, key elements and characteristics of the game genres that will be used in a game that is in early stage of development.

Despite the wide range of academic research about this topic, there is not an official classification of game genres. Inside this debate, we may come across two distinct definitions. The first one has to do with the game being classified by genre, considering it’s main game mechanic. The second, classify the games according to the narrative, using the same characteristics of genre in cinema.

For the game that is being developed, the group selected in a meeting the following genres for both classifications:

- **Mechanics:** Roguelike and Survival
- **Narrative:** Horror, Cyberpunk and Fantasy

It is important to clarify that from the perspective of this article, it should be understood as a kind of “horizon of expectation” that does not deny the individuality of the work, but indicates its relationship with the tradition of all artistic creation [Marques 2015].

In the following subsections, we will analyze and discuss all those genres to a minimum level of understanding.

1.1. Mechanics: Roguelike

Roguelike is a sub-genre of RPG (Role playing games). This genre alludes to **Rogue**, a game released in the 80s and which was considered a precursor to the genre.

Roguelikes are games characterised by levels that are procedurally generated -that is, created by clever algorithms rather than manually designed -meaning that no two playthroughs are ever the same. Level layouts, enemy placements and the weapons or upgrades you encounter change every time you restart, creating an irresistible challenge that demands hundreds, if not thousands of replays [Szabados et al. 2022]

1.2. Mechanics: Survival

Survival is also a sub-genre, but in Action Games. The whole idea of this kind of game is that the player has just enough in-game resources to start the game. The game is set in an hostile and open environment to the player. [Cintra 2023].

1.3. Narrative: Horror

It would be impossible to explain horror without understanding the definition of terror. Terror is presented by Stephen King as an emotion that builds fear only with imaginary elements. Horror, on the other hand, is associated with shock, as it is the moment in which the public sees the source of terror, knowing its real cause [Ramos e Oliveira 2018].

When watching a horror film, people must experience the sense of rejection or repugnance to a being, phenomenon or experience [Carreiro 2011].

Analyzing the films and games soundtracks of these genre, most of the sound narratives take place with a technique known as *Stinger*.

“This technique uses a note or chord played at a greater intensity than the melody heard in the immediately preceding moment, causing a sudden increase in sound volume which [...] is synchronized with an image that shows the abrupt appearance within the frame of a new element that threatens the character” [Carreiro 2011].

Another technique widely used by the genre is called *Mickeymousing*. This technique seeks to represent, through sounds, actions and movements, what can be seen in the image.

Furthermore, atonality and the constant use of dissonances help to demarcate an atmosphere of imbalance, incompleteness, instability and strangeness [Carreiro 2011]. This technique traverses the chromatic scale with a much lower level of predictability. An example of this would be the use of chords in a minor triad with a major seventh.

A common convention of horror cinema is the associations between instruments and children's choirs. The Gregorian choir, combined with the angelical voices of children, can signal a divine prophecy. These children can often embody or personify monsters. The child's naive nature is an ally at this moment of constructed tension.

1.4. Narrative: Cyberpunk

From a dystopian aesthetic, focusing on technology and a society that is submissive to a corporation, Cyberpunk is the genre that offers an alternative vision of the future, where technology is the center of attention and shapes society in multiple ways [de Almeida Libório 2023]. It became very popular in the 1980s and is available in different types of media, in addition to games.

To aid in the viewer's immersion, the cyberpunk soundtrack reflects themes of technological advancement, artificial intelligence, virtual reality, and cybernetics. Generally, the ambiance of cyberpunk is urban, so the soundtrack should follow this setting. In this genre, electronic music is a natural choice due to its association with futurism, technology, and the urban environment. Other characteristics of this genre are also the pulsating beats, aggressive synthesizers, and pads with complex textures. To add more intensity, classical instrumentation (orchestra) is often incorporated.

The fantasy genre commonly makes use of magic and other supernatural elements, in addition to not necessarily having a connection with the reality we are used to. The works are recognized for their escape from reality, generally explained by interventions from deities, magical, occult or supernatural forces.

Fantasy productions are driven to create epic and grand spectacles. In this genre, large-scale audio productions are highly valued. The pioneer in this field, the film *Fantasia* [Disney 1940] was recognized for its approach to sound, which for the first time in a commercial film, was released with stereo technology.

1.4.1. Sound Characteristics

Fantasy music often features musical themes to sonically represent what is depicted on screen, be it a character, environment, or significant event in the narrative; this is referred to as leitmotifs.

“According to the Grove Dictionary of Music and Musicians, Leitmotiv is defined as a melodic passage, typically short and distinct, which serves to characterize characters, situations, places, or ideas that may or may not recur throughout the narrative” [Silva et al. 2021].

In addition to grandeur and orchestral classical instrumentation, fantasy soundtracks are also well known for their use of ethnic and folk instruments. A good example of this characteristic is the song “Concerning Hobbits” by Howard Shore [Shore 2001], which features the use of the Irish flute. This choice of instrument adds a whimsical and pastoral quality to the music, perfectly capturing the essence of the hobbits idyllic lifestyle in the Shire. Furthermore, the incorporation of such ethnic instruments often infuses a sense of epic grandeur, enhancing the overall cinematic experience and transporting audiences to fantastical realms of adventure and wonder.

2. Methodology

To create audio for a game, the group needed to separate and analyze references. By studying the narrative genre of both cinema and games, the group brainstormed and

gathered 35 references. Among these references, three were selected to be analyzed in more detail: Barotrauma, Dead Space and Outlast.

For the purposes of this article, we will only analyze three songs from each selected soundtrack. The songs to be heard are chosen at random, based on a numerical draw with a range from 1 to N [songs on the soundtrack].

After choosing these songs and through the identification and analysis of distinctive sonic elements associated with established musical genres, it is possible to infer the predominant genre of a game music piece.

This method is based on the premise that the use of particular sonic elements in a musical composition, when combined, reflects the fundamental characteristics of a specific musical genre. By comparing the presence and combination of these elements in a game music piece with recognized patterns of a given musical genre, one can deduce the genre to which the music belongs.

This analytical approach allows for a deeper understanding of the relationship between sonic elements and musical genres in game contexts, facilitating the categorization and interpretation of game soundtracks in terms of their predominant musical styles.

3. Analysis

To define the genre of the song, we analyze the number of elements of the genre that are in it. In some of the selected songs, it was not possible to determine the genre due to a lack of elements available in the song.

It's important to consider that, for a more detailed analysis, it would be necessary to understand the context of how a song is used within the game.

3.1. Barotrauma

Barotrauma is a 2D multiplayer resource management game published by Undertow Games and FakeFish, the game was released in 2023. It takes place in a distant future, during an era where humanity is technologically advanced enough to achieve manned interplanetary space travel. The game is considered a Role playing game, and thru narrative, survival horror.

When analyzing Barotrauma, some sonic elements of the music resemble the sound of sonar and the control panel of a submarine. However, accurately attributing mickeymousing to these elements becomes challenging without access to the music's application within the game context.

3.2. DeadSpace

Dead Space its a game release in 2008 and for this article we will analyse the remake released in 2023. The remake was distributed by Eletronic Arts. It is classified as a game of the following genres: Survival Horror, Adventure and Third Person Shooter.

¹Was considered little because the synth line look like a angelical chorus

²Was considered little because the violins line look a lot like screaming voices

³It was not possible to assign a genre within the characteristics listed above

Table 1. Barotrauma game music analysis

Elements	Wartrauma	Waves of Jupiter	In the Ruins
Screams	No	No	No
Stinger	No	Yes	Little
Mickeymousing	Little	Yes	No
Dissonances	No	Little	Yes
Divinity	Little ¹	No	Yes
Synthesizers	Yes	Yes	Yes
Classical Instrumentation	No	No	No
Strong Rythm	Yes	No	No
Leitmotiv	NA	NA	NA
Genre	Cyberpunk	Horror	Horror

Table 2. Dead Space game music analysis

Elements	I've Got You Devolving Under My Skin	Welcome Aboard The U.S.G. Ishimura	Entering ZeroG
Screams	No	Little ²	No
Stinger	Yes	Yes	Yes
Mickeymousing	Yes	Yes	No
Dissonances	Yes	Little	No
Divinity	Yes	Yes	No
Synthesizers	No	No	Yes
Classical Instrumentation	Yes	Yes	No
Strong Rythm	No	Little	No
Leitmotiv	NA	NA	NA
Genre	Horror	Horror	NA³

3.3. Outlast

Developed and published by Red Barrels, Outlast is a indie game of survival horror, that mix action and adventure for it's genres.

4. Conclusion

In conclusion, this study highlighted the challenge of evaluating the use of leitmotiv and mickeymousing in games due to the lack of complete context within the game. Both techniques are inherently tied to narrative, necessitates a comprehensive understanding of the plot and characters for precise analysis.

For future research, it is suggested to explore topics such as the possibility of considering the entire game music as leitmotiv, as well as developing methods for

⁴It was possible to assign Leitmotiv for Pyromaniac and Sewers because they have the same melodic theme.

⁵It was not possible to assign a genre within the characteristics listed above.

Table 3. Outlast music analysis

Elements	Stockade	Pyromaniac	Sewers
Screams	No	No	No
Stinger	No	No	No
Mickeymousing	No	No	No
Dissonances	Yes	Yes	Yes
Divinity	No	No	No
Synthesizers	No	No	No
Classical Instrumentation	Yes	Yes	Yes
Strong Rythm	No	No	No
Leitmotiv	NA	Yes ⁴	Yes
Genre	NA⁵	Horror	NA

classifying regional music in games to gain a deeper understanding of cultural influence on the soundtrack. Additionally, investigating the application of mickeymousing in games, analyzing how music synchronization with player actions may affect immersion and gaming experience, would be intriguing.

These areas of study have the potential to offer valuable insights into the creation and understanding of game soundtracks, contributing to the advancement of interactive music and narrative in virtual environments.

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