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Project Dissertation

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Certificate of Authenticity

This dissertation is a product of my own work and is not the result of anything done in collaboration.

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Contents

1.0	Project Title	5
2.0	Introduction	5
2.1	Context	5
2.2	The Problem	8
2.2.1	Defining traditional animation dependencies.....	8
2.2.2	Introducing the vacuum.	9
2.2.3	Using clear comparisons.	10
2.2.4	Stating my solution and the hypothesis link.	11
3.0	Hypothesis.....	12
3.1	Stating the core question	12
3.2	Defining the environment.....	13
3.2.1	Identifying the variables	13
3.2.2	Explaining the expected outcome.....	13
3.2.3	Connect to the problem	13
4.0	Literature Review.....	14
4.1	The Audio-Visual Contract	15
4.2	Acousmatic Presence.....	17
4.3	The Uncanny Valley of Sound	19
5.0	Case Studies.....	21
5.1	Skinamarink (2022).....	21
5.2	WALL-E (2008).....	23
5.3	Comparison	25
6.0	Methodology	26
6.1	Project Planning/Gantt Chart	27
7.0	Project Development.....	28
8.0	Evaluation.....	34
9.0	Conclusion	36
10	Bibliography	38

Table Of Figures

Figure 1 [Body Mechanics Animation – Dolly Zoom]	8
Figure 2 [Original imagery – The Bunker – Comms Room]	11
Figure 3 [Independent Project Gantt Chart]	27
Figure 4 [Unreal Engine IP Outliner].....	29
Figure 5 [Unreal Engine IP Contents Browser].....	29
Figure 6 [Unreal Engine IP Bunker Creation/Layout - Dorms 1]	30
Figure 7 [Unreal Engine IP Bunker Creation/Layout – Comms Room]	30
Figure 8 [Unreal Engine IP Bunker Creation/Layout – Comms Room]	30
Figure 9 [Unreal Engine IP Bunker Creation/Layout – Controllers Room]	30
Figure 10 [Unreal Engine IP Bunker Creation/Layout – Dorms 2]	31
Figure 11 [Unreal Engine IP Bunker Creation/Layout – Recreation/Dining Room].....	31
Figure 12 [Unreal Engine IP Bunker Creation/Layout – ventilation/decontamination room]	31
Figure 13 [Unreal Engine IP Bunker Radio material attributes]	32
Figure 14 [Unreal Engine IP Bunker Creation/Layout – Radio Focus Point].....	32
Figure 15 [Unreal Engine Movie Render Plugin - Render Queue Settings]	33

1.0 Project Title

Investigating Sound Design as a Narrative Tool in Characterless 3D Environments.

2.0 Introduction

2.1 Context

The rise of "Liminal Spaces" and environmental storytelling in animation/games.

I believe, sound design is the essence of what makes a strong narrative, at least in the context of environmental storytelling and characterless pieces. The 2 main components of a piece of media, whether a game, film or TV series, but in my case, we will be looking at film and animation short pieces, are audio and visual. The trick is making both strong enough to where you can either mute it or turn off the screen and hear it and both being strong enough to be engaging and compelling that it drives the narrative forward in the eyes of the director and creative vision of the IP.

After many hours of thinking and researching on this subject matter, this concept and belief, I discovered. What encompasses this idea? What category would best showcase and prove the hypothesis. How exactly is sound design used as an effective tool of motion and drive to but not limited to 3D environments in films, relating directly to my production of my short film, The Bunker.

The answer? Liminal spaces, most notably have risen as a more subcategory of the horror genre in the late 2010s but uses sound design and the idea of absence as a core foundation to portray the emotions of nostalgia, uncanny, unease and surrealism in the use of environments. For example, the backrooms, an urban legend and creepypasta representing this, being what had gave motion to this trend in 2019 on a 4chan post spanning countless indie games and most notably, a viral YouTube series by Kane Parsons (endless, yellow-wallpapered, empty offices) that utilises sound in such an effective way alongside its compelling visuals proving that sound is a key element to any creative process.



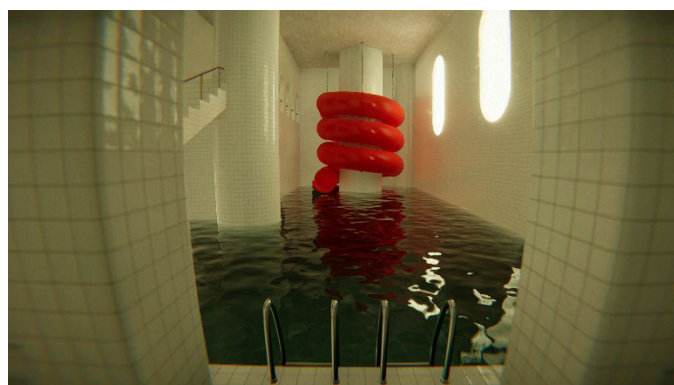
[1] - How to 'No-Clip' - Backrooms 2025



[2] - Backrooms 2025

Here some of the most recent examples of this trend and is an important context to understanding my hypothesis.

- **POOLS (2024/2025):** A prominent, critically acclaimed indie game focusing entirely on navigating vast, empty, and dreamlike swimming pool areas.



[3] - Pools - 2024

- **The Exit 8 (2023):** A game focused on navigating an infinite, repetitive, and eerily quiet Japanese underground passage.



[4] - The Exit – 2023

- **Anemoiapolis (2023):** A game that specifically utilizes the "liminal space" concept to create a sense of being alone in a vast, surreal environment.



[5] - Anemoiapolis - 2023

2.2 The Problem

Animation often relies on character dialogue/acting. What happens when you remove the character? This section explores this in depth.

When investigating this problem there are 4 key areas to understand.

2.2.1 Defining traditional animation dependencies.

The standard method of storytelling in the industry is how animators rely on character performance to drive narrative, and of course, there is nothing wrong with that. But we are trying to push the boundaries and think outside of the box to create other means of successful storytelling that are in some ways somewhat more interpretational depending on the accuracy and goal of the creator or intended use of purpose.

For example, traditionally, studios use facial expressions, body mechanics and dialogue to deliver emotional and story beats to the audience. As a viewer, you expect to be guided through the scene in this way, thus the character acts as the primary storyteller and most commonly, source of information and context to the audience.

For example, this can be seen very regularly in the Doctor Who series, the doctor has companions, not just for narrative reasons but for them to serve as the viewer, they often ask the doctor questions the audience are thinking, this is effective. However, there are other ways to deliver this information, one that is often overlooked, sound and its implementation into a scene or in our case in The Bunker, a 3D environment, weather through diegetic, non-diegetic or foley methods, each having their unique and own style to make a story that much more compelling.



Figure 1 [Body Mechanics Animation – Dolly Zoom]



[6] 1st Doctor (William Hartnell) with curious companions asking the questions the viewers always think

2.2.2 Introducing the vacuum.

When we look at removing the character, what does this do? It creates a narrative vacuum. Essentially, the audience loses their emotional anchor and no longer knows where to look or what to feel. In fact, if this isn't addressed, you run the risk of creating an animation that becomes more of an architectural sterile tour, void of any emotion or at least, the emotion you intended to portray.

This as a result, when experimenting and testing I discovered, creates a very fine line to walk, and when it comes to sound being so monumental, a craft to perfect, as much as visuals also having all the usual attention, as mentioned, leaving sound design as a second thought in a lot of cases. My hypothesis challenges exactly this and tests how effective sound design really is when creating compelling stories specifically to animation and their 3D environment counterparts.

However, looking at examples in other areas that have succeeded or indeed failed similarly, such areas as film and TV can also be invaluable in understanding what I am achieving, providing much needed context and will be explored more in my case studies below.

2.2.3 Using clear comparisons.

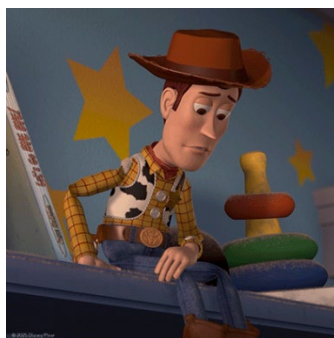
To provide an immediate example of how we can go about creating clear comparisons, and not just for the sake of it, is that of Toy Story, being a wildly successful, and technologically advance franchise in that it is always striving to push the boundaries of animation and narrative since the first release of Toy Story in 1995.

How exactly does this relate? In one scene, Woody is seen dropping his head sighing to show defeat. This gives, visual cues to the audience, as humans we are emotional beings and use empathy to relate to characters. In the Bunker, how do we do this when there is no character, we want the audience to know Jim (the protagonist) is the 'good guy' a relatable character without ever being physically present.

He abandons his post in the Bunker, using the environment and sound design as a primary narrative tool I need to show why he left, his motives, and portray the same emotions you would expect as if a character were acting as the 'storyteller' much like Woody does in Toy Story to signify that something is wrong, without explicitly being told, it can be tricky. But alas it's this challenge that compels, motivates and drives me to learn more and experiment with sound design in this way to push its boundaries.

For example, having a single corridor opposed to a present character to communicate to the audience. The problem being shifting the storytelling burden from the character of Jim to the environment and the audio. It is with this where lies the foundation of the hypothesis.

And now, relies on the execution, built upon the hours of research and thought put into this very dissertation that informs my practical work, it's creative process and how I intend to utilise new technologies and knowledge to portray the emotions I want my audience to feel watching my short film, or similarly my other creative works along the way that I am always improving.



[7] - Toy Story 2 – 1999



Figure 2 [Original imagery – The Bunker – Comms Room]

2.2.4 Stating my solution and the hypothesis link.

Finally, how do we connect this specific narrative problem directly to my hypothesis, and my independent project short film being the primary ‘experiment’?

I propose sound design as the solution to a missing actor/character. The key to this being my intent on acousmatic sound to fill the void, or likewise, an absence of sound, can be just as powerful used thoughtfully and sparingly to help build suspense. However, in learning how contrastingly absence can similarly speak many words as seen from liminal spaces such as the game *Dreamcore*, I need to be cautious not to overwhelm the scene.

Thus, something to keep in mind when wanting to utilise certain themes, such as nostalgia, unease, suspense and mystery for example all being subtle themes I will want to hint toward and utilise in a manner, but not to be overpowered or jumbled to the point of confusion.

In *The Bunker*, the sound of the alarm and the radio loop of Harry Nilsson’s ‘Gotta Get Up’ to create an ironic counterpoint must to a point replace Jim’s character. My hypothesis tests the viability of this solution. In term, proving if sound design alone can successfully guide the audience to interpret Jim leaving, and the preceding events leading to what is seen in the final output of *The Bunker*.

3.0 Hypothesis

Re-stating my hypothesis. What does it mean, and what is most important in keeping it clear and achievable.

The scope of this investigation, includes, 2 major parts. This Dissertation, formally as well as creatively informing the output. And the output itself, helping me to conclude and reflect on the journey and what I set out to do.

Initially, the execution of said project confused me, however, I like to think of it like how I think of many of my projects, it's not linear, far from it. The process is a circle of creativity, a web of collaboration between what would essentially be many different departments.

Learning a foundation and similarly some advance knowledge on many roles, involved in the process of an animation in this case, is extremely important for someone starting their career. Knowing a little bit about many roles including technical prowess is more powerful and many think, at least at the start, that is what I have learned, but I digress.

To put this simply, to break down this investigation of the hypothesis, please see below.

3.1 Stating the core question

My initial research and reflection into my core interests helped me chose what is important to me. Being invested in a project may not be something that can always happen, so making sure to have fun while learning is as I see it, important to keep a healthy mindset and mental health while enjoying what I do in my career which ever path I go down.

In other words, this independent project, will mark a key milestone in my professional life moving forward, so being proud in this is invaluable to show future employers' dedication and drive.

3.2 Defining the environment

This specifies my testing ground. I can build my environment from the ground up. Removing all physical characters and create an isolated environment. In term, this isolation steadily encourages the audience to rely on auditory cues to build and see the 'bigger picture' thus understand the preceding events using effective sound design and environmental storytelling techniques.

3.2.1 Identifying the variables

This lists the elements of my control. I.e. I control the environmental soundscapes, the radio playing an upbeat song, shifting themes using ironic counterpoint. As a result, identifying the outcome that I intend to measure throughout, cross checking my references and how I intend to implement certain key aspects in the sound design process.

3.2.2 Explaining the expected outcome

This is where I state my prediction. I.e. predicting the contrasting audio elements will create ironic counterpoint. I expect this auditory clash to successfully communicate panic and sudden departure as the short progresses. I also expect the audience to anticipate and understand the reasons of a missing narrative without needing a physical character, having in world implications and external factors of the hypothesis test.

3.2.3 Connect to the problem

This will link my solution back to the earlier predictions and will answer the narrative vacuum issue. Either proving or disproving that environments can function as effective primary storytellers through audio design in my use case and extensive research of case studies for use on future projects too and not just to see it as a singular one and done project, for lack of better words.

4.0 Literature Review

Audio-visual Contract & Acousmètre

Books

1. M. Chion, Audio-Vision Sound on Screen. New York. Columbia University Press, 1994.
2. M. Chion, The Voice in Cinema. New York. Columbia University Press, 1999.

Articles

3. ArteActa, Interview with Michel Chion. I read about his visit to FAMU and his sound concepts.
4. D. Wolfson, Annotation of Audio-Vision Sound on Screen. I read and analysed a summary of the added value concept.

Videos and Talks

5. Michel Chion Masterclass at The School of Sound. I watched him discuss the physical impact of cinema audio giving real examples and use cases.
6. Denis Smalley - Spatiality in acousmatic music. Analysed his talk on defining spectromorphology as the shaping of sound spectrums through time.

Theme 2 Hauntology and Sonic Degradation

Books

6. M. Fisher, Ghosts of My Life Writings on Depression Hauntology and Lost Futures. Winchester. Zero Books, 2014.
7. M. Fisher, Capitalist Realism Is There No Alternative. Winchester. Zero Books, 2009.

Articles

8. M. Fisher, The Metaphysics of Crackle Afrofuturism and Hauntology. I read his exploration of audio decay and cultural memory.

Videos and Talks

9. M. Fisher, The Slow Cancellation of the Future. I watched his recorded lecture explaining obsolete media and lost futures taking key notes at each insightful juncture.

4.1 The Audio-Visual Contract

Here I will discuss Michel Chion. How sound adds value to an image (**e.g., a silent corridor + a scream = horror; a silent corridor + party music = mystery**). Perhaps, more importantly the relationship visual and audio aspects can elevate my project.

When looking into various types of literature revolving around the audial and visual relationship within film one name stood out in particular. Michel Chion, a pioneer to progressive and temporary sound, starting his career working as an assistant to the famed Pierre Schaeffe at the French Radio and Television Organisation ORTF in 1970.

It was here that he learned much of what he later elaborates, creating theories and methodologies that were referred to as *musique concrète*, a type of music that utilizes recorded sounds as raw material, dissimilar to how foley sounds are recorded to mimic an onscreen action.

If I were to single out one piece of valuable information that I can take onboard and adapt in my short film is that expressive and informative value with a sound can give an image a definite impression, this being the immediate or remembered experience it has. The expression 'naturally' comes from what is seen and likewise is what is contained within the image itself. To put this in other words that quantifies this complex subject matter is that sound creates value, particularly, Chion describes three listening modes in this "audiovisual contract": "causal", "semantic" and "reduced listening".

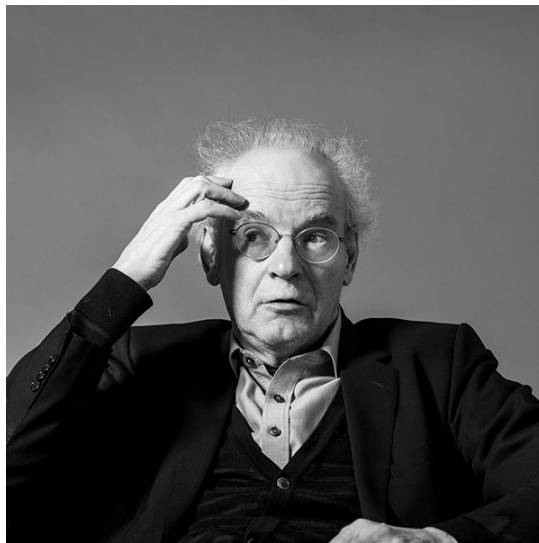
This is all well and good, in fact there has been several books written by Chion that dives into many of the theories he has created over the years, notably the *Audio-Vision: Sound on Screen* published in 1990.

Putting this into practice, to give examples, causal listening would be to help the audience identify physical objects inside the bunker. Semantic listening would help the audience interpret the radio broadcast meaning in the environment. And by combining a sterile 3D environment with layered sound design creates new narrative meaning.

To conceptualize this into the overarching concept of reduced listening, it will inherently cause focuses on the intrinsic qualities of the sound, such as timbre, pitch, texture, and rhythm that are entirely independent of its cause, source and even meaning. This is one of the reasons why

musique concrète can be seen as a more abstract form of approach and many may not even of heard of it before.

I am utilising this to bring more creativity and experimental forms of sound design into a 3D animation for an authentic and yes somewhat ambitious narrative in this manner. But it is the ambitious minds in this world that often drive forward new ideas and practices, much like Chion who still teaches his methods as an Associate Professor at the University of Paris III: Sorbonne Nouvelle.



[8] Portrait Photograph of Michel Chion

4.2 Acousmatic Presence

Here I will discuss how hearing a sound without seeing the source (The Acousmètre) creates tension. Specifically, this is my theoretical basis for "Jim" (the missing character).

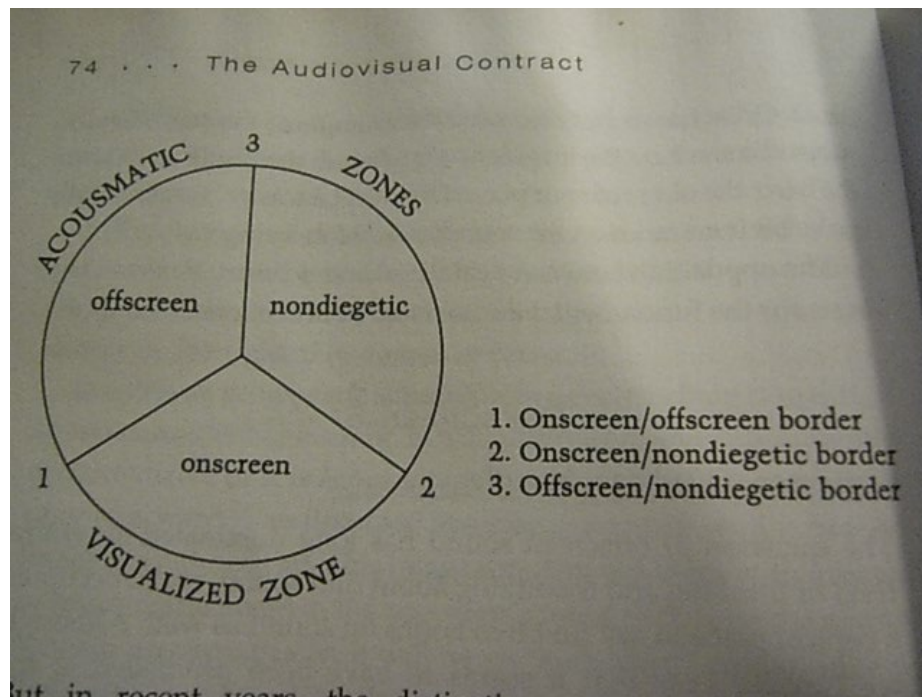
Michel Chion defines Acousmètre as a character being heard but not seen, this is an important concept because of how closely it ties with musique concrète, using raw materials as a driving force, being able to portray a narrative in different ways than the more mainstream media tends to.

Taking a closer look into this, what it means for my character in my concept, it's essentially what power an unseen object has, the natural curiosity, the intrigue, and mystery it holds. Not only this, but it commands attention. The audience naturally seeks the origin of the noise for example, coming from another room. This creates immediate and long-lasting attention and engagement if executed effectively using Chion's described methodologies.

My character Jim himself is an acousmatic character. Jim exists entirely through environmental audio cues. Removing his physical self from the Unreal Engine space. This physical absence makes his presence dominate the bunker conceptually, likewise with the evil entity character, the audience can piece clues and gain an understanding, not just from visual but together, audial visual cues using sound design and musique concrète at the forefront to make an innovative short film animation.

It's because of this, the viewer, essentially assumes the role of an investigator, this is the listening process. They decode the auditory information, the value of such that can be attained within the image itself as intended and curated. They listen to the alarm and the radio as the central pivot that the scene revolves around, additionally using spatial audio techniques to heighten the experience as a whole. This in term allowing them to gradually understand the preceding events much more effectively than you may find in most common films, where often audio is an afterthought in the process and may not get the desired effect.

What's more, is that the tension of the alarm sound that drives forward a sense of dread throughout the short film, creates and signals an immediate danger, an urgency. The audience hears a threat but sees empty spaces, spaces that have clearly been lived in and disrupted abruptly. This sensory disconnect in fact generates an abundant of unease and suspense frame to frame, shot by shot.



[9] From Chion's book, 'Audio-Vision', a diagram for the audial visual contract

4.3 The Uncanny Valley of Sound

Here I will be discussing how lo-fi audio (vintage radios, static) creates nostalgia or unease in relation and surrounding concepts of Hauntology.

One of the prevalent themes in my short film will revolve around the concept of Hauntology. This, a by-product and result of capitalist realism, the undertone of which I will implement into my animation based on the following research.

More specifically in how the sound and the visuals convey and world build around the core radio in the scene and the preceding events. This will be somewhat abstract, but my intentions are to utilise and weave together the theories and certain mythology of Mark Fisher, writer, cultural theorist, philosopher, Marxist and teacher before his tragic death in 2017.

So, how does this relate. Not only do I find Fisher's theories on Hauntology and his book Capitalist Realism fascinating but when reading his material, listening to his interviews and reading articles published throughout his career I realised how prevalent many of the issues around how cultural and political thought in modern day society that undoubtedly is manifesting as a collectiveness and quintessential part of human nature are in everyday life.

Meaning, capitalism being thus much more than just a system but is weaved into us as a species that he talks about more in depth in his sequel to Capitalist Realism, Ghosts of my Life, specially dives more into what Hauntology is, how it manifests, this also regarding to lost futures and the idea that our future is not progressing as it once did in terms of cultural and political gain in modern era (decade to decade for example are slowing at a very high rate) being whittled down to being trapped in a capitalist world.

When thinking of this, one of Marks quotes perfectly reflects this to the very essence, the quotes as follows, "It's easier to imagine the end of the world than the end of capitalism". As poignant and pessimistic of a view this can be received. However, the more I have read into Fisher's work show how I can pin this undertone to my animation and how it already exists in the concept itself, it's relevance to the story. Not necessarily to teach/educate even though this particular would be ideal to be able to achieve, however would divulge from my core creative vision. The fact of the matter is to create a short film that reflects this tone rather than create genuine worry (or likewise, existential dread) and not to subconsciously make the experience feel like a lesson as that is not at all what I envision for the project.

Instead, the idea is to create true narrative depth, using Hauntology almost as the vessel to portray the environment for example as a character, carrying feelings of unease and nostalgia and how this can even be exacerbated by the character of the evil entity. To show glimpses into a world that has collapsed, whether from societal and/or political reasons we see remnants from times before and 'lost futures' colliding in a single scene using Chion's techniques mentioned prior to create a memorable and thought provocative experience, that is engaging to view and try to piece the story together as intended, while having the flexibility to have a subjective nature in terms of the portrayal of this narrative depth and the techniques used to bring it to life. Overall, this would create a fuller experience from start to finish.

Another way to describe my vision regarding this topic is how the smaller detail in the scene will show that obsolete technology can be unsettling in modern space or when side by side showing perhaps the slowdown of progress from the 20th to the 21st century and each passing decade, a strange in-between, a lost future, in theory to create yet again that sense of nostalgia, for those times once more even though those very times and the state of the world in value and thought may not be as fondly as remembered. Memories in these instances can be somewhat deceiving, hence is where Hauntology comes into play, being the negative counterpoint to nostalgia and similarly having a lasting and profoundly impactful effect.

Linking this concept to specific lo-fi audio elements such as the crackle of vinyl, a static filled radio or clicking of magnetic parts of worn machines that create what we call sonic imperfections, which in this case can be used to symbolise a passage of time and/or past memories that are etched into as well as echoing through the environment itself, bringing it full circle back to Chion's theory of how sound adds value to an image. For example, a silent corridor + a scream = horror; a silent corridor + party music = mystery).

Song choice is also incredibly important, I chose 'gotta get up' by Harry Nilsson because of its upbeat nature, but perhaps more importantly the lyrics that can be tied to Jim's monotonous daily routine before he left. The radio degrades the audio quality over time. The empty room turns a somewhat happy song into a threat and creates further layers on top of the curated sound design for the short.

To further add to this, this also creates a narrative impact. The degraded sound acts as an auditory ghost. It essentially forces the audience to feel a sense of Jim through the physical decay of the music as the short progresses.

5.0 Case Studies

5.1 Skinamarink (2022)

This case study will analyse the primary narrative through the void in Skinamarink, a 2022 horror/suspense film. I will take a close look at how audio cues replace visual action.

Comparatively, and for context I will be keeping in mind Chion and Fishers theories and how they play a role. Starting with the visual style of Skinamarink it takes great advantage of empty spaces, a lack of, utilising shadows, a darkness with shades of greys and dark blues, voids, this can be defined as or a space that has a lack of furniture for example but not limited to.

Often the camera will stare at an empty space, showing corners, ceilings or empty floors, drawing the eye to the void, this can create an instant sense of unease. Naturally, you try to spot details in the emptiness only suddenly to be inundated with a subtle or growing ambience and off camera audio cues, like a chair movement, scaping across the floor, a thud, or a knock on a distant door from upstairs, subverting the audiences' expectations entirely.

This method is not seen too regular in the horror genre, as it can be a risky move. You risk the audience losing engagement if not effectively executed, creating the subtlety or similarly the distinction between Chion's balancing act of the audial-visual contract in what you as a director or the visionary for the project want to portray to the audience in each passing moment, or if they misinterpret all together. However, as seen or likewise heard in Skinamarink the audio cues are created often in sync with the pure intention to driving the narrative and/or to create further unease to a building moment or plot point in a given scene.

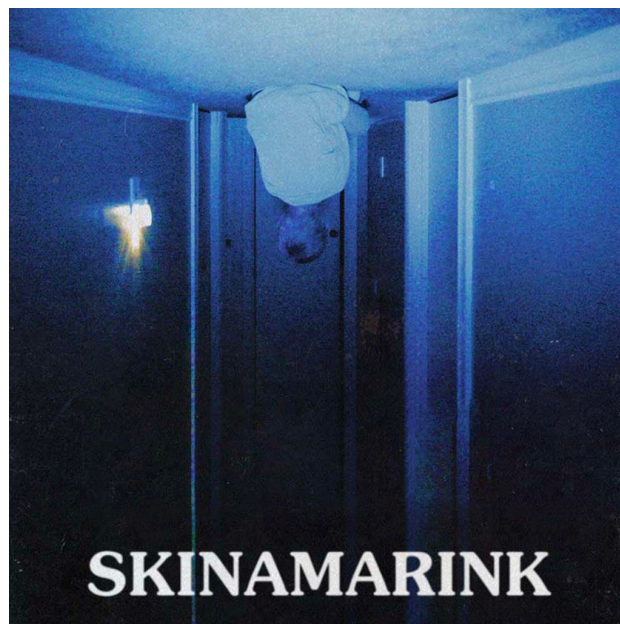
This links directly to acousmêtre and how the unseen entity builds tension through auditory presence. Also, it is about how the degraded audio creates texture. Another example would be when the voice speaks to the children. The voice commands. The physicality this creates in the scene of the speaker generates immense tension. And you can hear the threat without seeing the source.

Relating this to my independent project, another key element I have been investigating and carrying out experiments are ironic counterpoint. In Skinamarink, in one scene you can see a TV that uses public domain cartoons in the background. The cheerful music drastically contrasts quite sharply with the dark house. This choice of music and its style and tone create

an ironic counterpoint. In this instance, you hear safety but can see danger, this is what the human brain has been naturally programmed to be attune to in evolution and is why this is a very effective technique.



[10] 'Movie Madness' Skinamarink Is A Child's Worst Nightmare Come True



[11] "Skinamarink," IGN Nordic.

5.2 WALL-E (2008)

Analysis of "Ironic Counterpoint." How contrasting audio/visuals create tragic backstories.

In this section I will analyse WALL-E, specifically the opening sequence where I will be running some experiments on ironic counterpoint to see how changing the music can prelude to a completely different tone alongside the visuals that only depict one thing.

In the opening the camera pans across the polluted earth. You see towering skyscrapers of compressed garbage. This visual shows a complete planetary ruin, where no humans remain.

The song however, 'Put on your Sunday clothes', plays over the desolation. This music starkly contrasts with the wasteland below. And this contrast creates the basis of the ironic counterpoint in this sequence. You can hear joy but see destruction as far as the eye can see and observe.

The environmental storytelling also comes into play here. The music acts as a relic, of human civilisation, of lost futures, or in this case is indeed to show how the future of earth has been lost underneath mountains of what had been left behind from hundreds of years whiles humanity 'out grew' the planet only to leave it in total ruin, quite the statement, even symbolism and juxtaposition only in the first few minutes of the opening sequence that is very impactful.

The song also implies a past filled with consumerism, circling back to Mark Fishers views in 'Capitalist Realism'. This visual decay also shows the consequences of past actions and how they have stacked up to a breaking point and left for WALL-E to 'clean'. There are a lot more themes throughout the film however we are only narrowing down on these aspects in relation to my specific research of the previously mentioned theories and likewise techniques I can bring forward and expand on in my short film.

Primarily in this instance the environment similarly to that of the Bunker, is the primary storyteller in simultaneous connection to the audio and chosen music that carry's these underlying tones and sets up an engaging story for the audience to enjoy from the get-go.

To explain further how an environment specifically can portray preceding events, you first need to understand the backstory without explicit dialogue and to be able to pick this up with scattered context clues throughout.

The contrast between the music and dead planet here tells the audience that humanity destroyed their home, in the course of pure capitalism and greed. The audio fills the narrative

vacuum and not only tells this story but adds value to the image, being that it expands the creativity and engagement the audience get from the scene overall from these very depictions.

Furthermore, I will be applying this exact method in the Bunker, using similar techniques and following Michel Chion's architecture through his teachings and abundance of research undertaken and utilising this to creating something fresh and that will have a unique spin.

I would be using as mentioned the song 'Gotta get up' by Harry Nilsson, inside the abandoned space. The contrast forces the audience to reconstruct Jim leaving in a panic. And the audio guides the interpretation of the empty room using the audio-visual contract blended with visual depictions and representations of Hauntology as the core driving force of the film to show how effective these techniques can be especially in the horror genre but can also be adapted in many different types of media and genres likewise.



[12] "Opening sequence analysis: Wall-E," Ishan Aziz's Media Blog.



[13] "Opening sequence analysis: Wall-E," Ishan Aziz's Media Blog.

5.3 Comparison

Both studied films rely on unique styles of sound to communicate past events. They remove visual explanations that are commonly seen elsewhere and instead use sound and music as the vessel and primary narrative tool. This in effect means audiences must interpret preceding actions through auditory cues in both instances.

Skinamarink applies more diegetic sound effects that often indicate off-screen action. This audio signals a physical entity operating outside the visual frame. Whereas *WALL-E* applies music more to establish historical context, in the opening that I analysed. The upbeat song acts as the relic of human consumerism. Likewise, this music contrasts with the visual decay to explain the destruction and desolation of the planet and the state it is in.

Sound used in both of these ways can force the viewer to fill in the gaps, the audio dictates the narrative in this fashion that utilises the theories I have researched and is precisely how I can utilise both, bringing them together to create an effective short film in capturing the audience's attention, not just in the abstract nature of audio-visual contract that people do not necessarily understand but in the creativity and uniqueness of the techniques used to bring it to life so to speak that makes it engaging.

As mentioned, I will be blending both of these approaches in my independent project. The *Bunker* will feature a diegetic alarm and a diegetic radio. The alarm will create the immediate tension, similarly, as seen in *Skinamarink*. Whereas the radio broadcasts an upbeat song to create ironic counterpoint as seen in *WALL-E*. Their combined methods while utilising the techniques of Chion to their fullest will tell the story of Jim fleeing the room with a glimpse into the leadup, past and future elements with garbage and obsolete technology scattered with added audio cues using raw material and the intention of adding value to the image.

6.0 Methodology

To define the production process I set out a scope that is achievable, while ambitious still very achievable and strategize based on my previous works with agile management in various team leader roles, this included with Into games work experience with Creative Assembly, and group projects throughout my HNC, HND and as of most recently the virtual production and emerging trends modules on this degree. Meaning, I had the expertise to guide my independent projects management in the right direction from the start.

By setting my objectives and creating an easily accessible and modular Gantt chart I kept my deadline in sight and stayed on task using the Gantt chart as the guide while having the flexibility to research in my own time towards this dissertation.

The first objective thus being related heavily with the sound design process, being at the forefront, I had to decide on my methods of asset creation and/or gathering. I considered what would best suit my needs, how it would impact my project weather positive or negative and then finally I weight up the aspects and compared with similar projects to determine which methods to use.

Comparatively the asset gathering was between using sound files from the reliable websites of Freesound and Pixabay, this against recording custom foley sounds, that I had to make the sacrifice to be able to meet all deadlines while still maintaining the highest possible quality standards. This decision ultimately decided to choose the route of accessibility, in that I have more time to source the perfect audio files using Chion's theory's to utilise and make sure the sounds are being used correctly, to heighten the value of the image and to show how raw materials combined in a scene can have a lasting impact.

In terms of development software, the practical side of the project will be created using Unreal Engine. This is due to its flexibility and user-friendly nature; I can easily adapt many aspects of a typical short film workflow and all the roles easily in one software with efficient time management. I can also import from other software's like Blender, effortlessly as well as use the integrated Pixel Bridge plugin and Epic Games Marketplace known as Fab for other asset sourcing.

In terms of internal sound design I can use attenuation as volume drop off based on the physical distance the camera is from the audio source, in this case the radio being the central pivot.

For external and post-production, I will be using DaVinci Resolve 20 for its again multi facet workflow designed for all aspects of a typical production process such as the edit, colour grade and sound design using Fairlight.

Connecting these technical methods to my core thesis will align the project scope in conjunction to the relevant workload at a given time making sure the audio builds a constant narrative vacuum being able to portray the proceeding events with auditory cues (audio-visual contract) and to show how spatial audio reinforces this and the acousmatic presence of Jim in the image itself, both audio and visual elements being able to stand on their own thus proving the hypothesis to be indeed an effective narrative tool in a 3D environment.

6.1 Project Planning/Gantt Chart

This Link to Miro outlines my research sequentially giving task deadlines.

This is a in depth and interactive method of detailing my time spent on every stage and subsequent milestone to make sure I hit each deadline and stay on track and in line with my set timeline.

Independent Project Gantt Chart

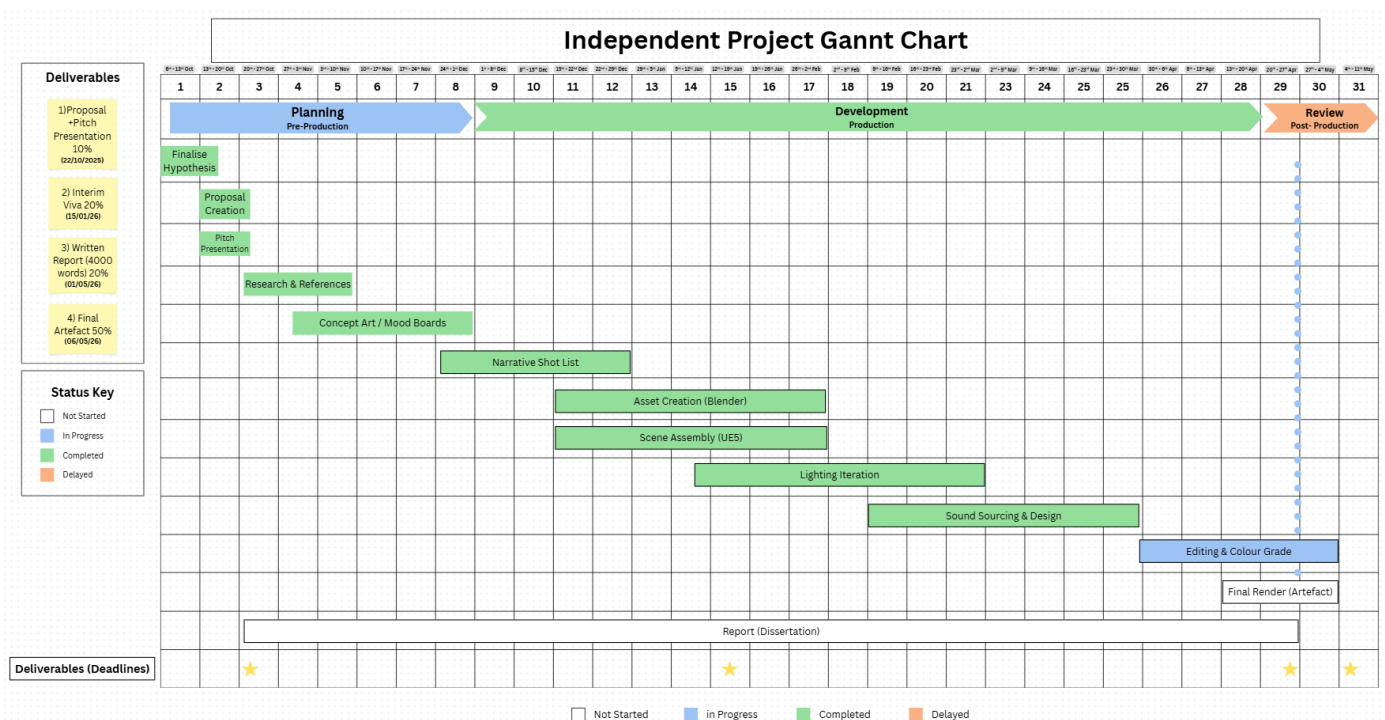


Figure 3 [Independent Project Gantt Chart]

7.0 Project Development

- *Critiquing my own work.*
- **The Alarm Sequence:** Did the sound of the siren sync with the light? Did it create the intended urgency?
- **The Radio Sequence:** Did the loop of "Gotta Get Up" successfully imply Jim left in a hurry?
- **Survey Data (Optional):** If I showed it to peers, did they understand Jim was missing? If not, why?
- Explanations of the work up to the latest version, such as various prototypes and build versions whether edited or not/had any post-production completed to this point?

As with any project, organisation is key to the success of not only deadlines but creating an efficiency within the project files that will make everything fast, easily accessible and professional. Below you can see the example of this structure in the Unreal Engine outliner where I organised folders for the 3D environment, creating each room separately as I went, and have a separate folder for cinematics, such as cameras and sequences as well as a folder dedicated to lighting, including environmental and internal scene lighting assets.

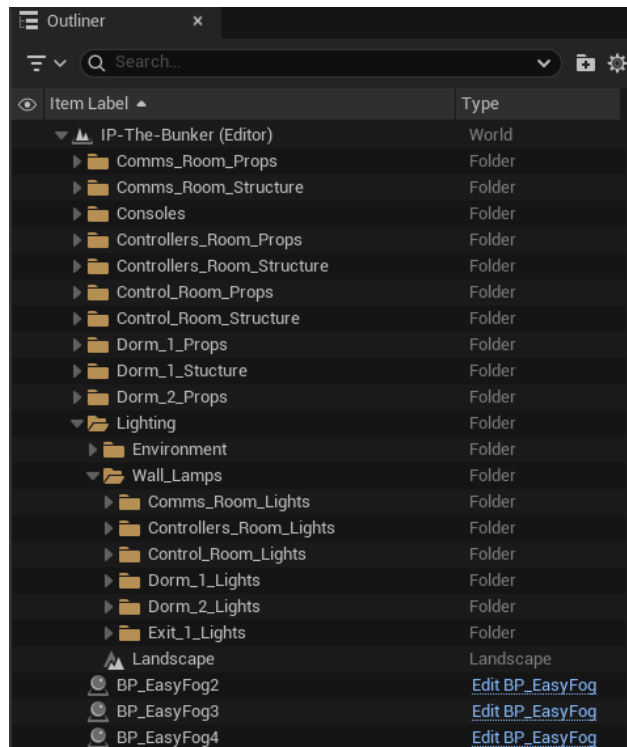


Figure 4 [Unreal Engine IP Outliner]

Likewise, keeping to the theme of organisation, the contents browser has also been categorised into the folders I use most. This is where the asset for the project goes, even the ones that I don't end up using. I can view them here beforehand, customise or add/remove the assets to suit my project using effective asset management means, keeping track of what I am using and for what purposes to gain the most from each asset as to not overload the project with anything unnecessary that would subsequently create a larger file size and slow the process down, especially when it comes to saving as this can also cause problems such as crashes. This has been effectively managed with version control, with regular backups to prevent data loss.

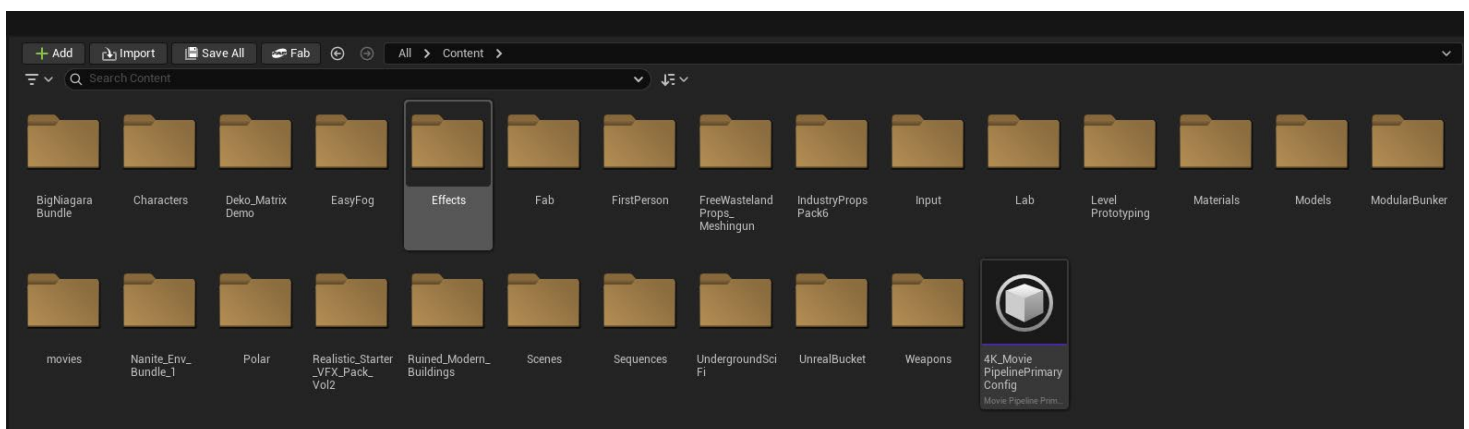


Figure 5 [Unreal Engine IP Contents Browser]



Figure 6 [Unreal Engine IP Bunker Creation/Layout - Dorms 1]



Figure 7 [Unreal Engine IP Bunker Creation/Layout – Comms Room]

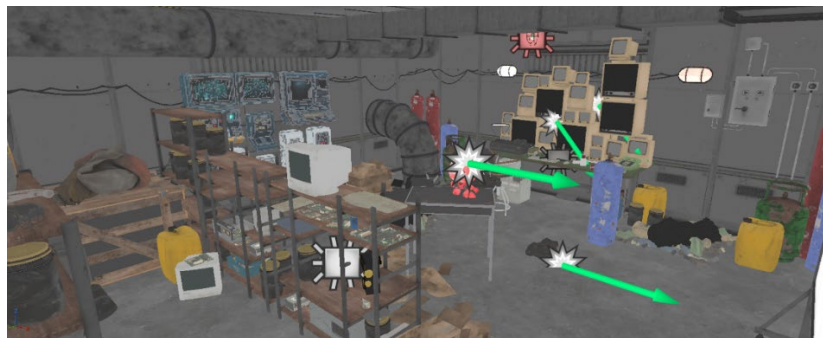


Figure 8 [Unreal Engine IP Bunker Creation/Layout – Comms Room]



Figure 9 [Unreal Engine IP Bunker Creation/Layout – Controllers Room]



Figure 10 [Unreal Engine IP Bunker Creation/Layout – Dorms 2]



Figure 11 [Unreal Engine IP Bunker Creation/Layout – Recreation/Dining Room]



Figure 12 [Unreal Engine IP Bunker Creation/Layout – ventilation/decontamination room]

I used asset packs from FAB that match my themes of the Bunker, including that of Hauntology to be utilised that shows obsolescence and decay, showing a lived-in space and using some assets for shots that will create story beats in the environmental storytelling.

I created these rooms using an iterative modular process, firstly blocking out the environment in conjuncture to the bunker schematics and then began to create each planned space focusing on detail and quality and customizing the assets as needed, for example, I edited and

tweaked the radio material to a worn optimistic yellow colour, I did this by using the assets parental material and using a colour ramp to set the gradient and amount using a multiplier, as seen below.

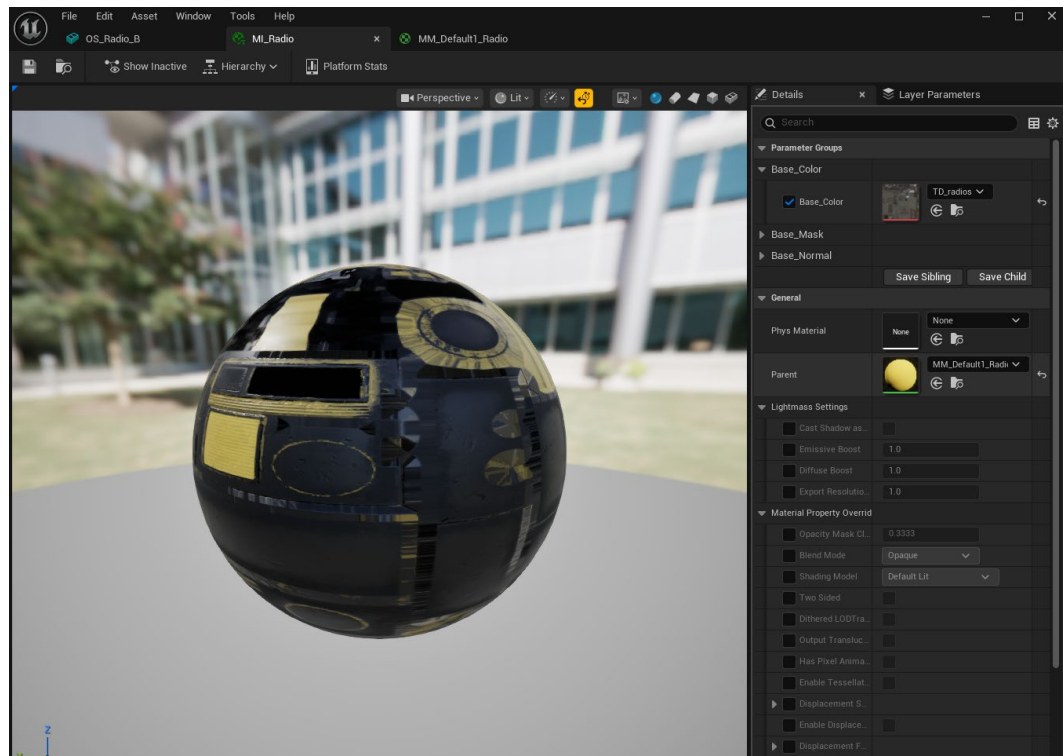


Figure 13 [Unreal Engine IP Bunker Radio material attributes]



Figure 14 [Unreal Engine IP Bunker Creation/Layout – Radio Focus Point]

When it comes to rendering, I wanted to ensure quality of the image, so I used a 4k resolution, using game override to set the defaults to cinematic as well as setting the anti-aliasing to high so that the details would not be lost.

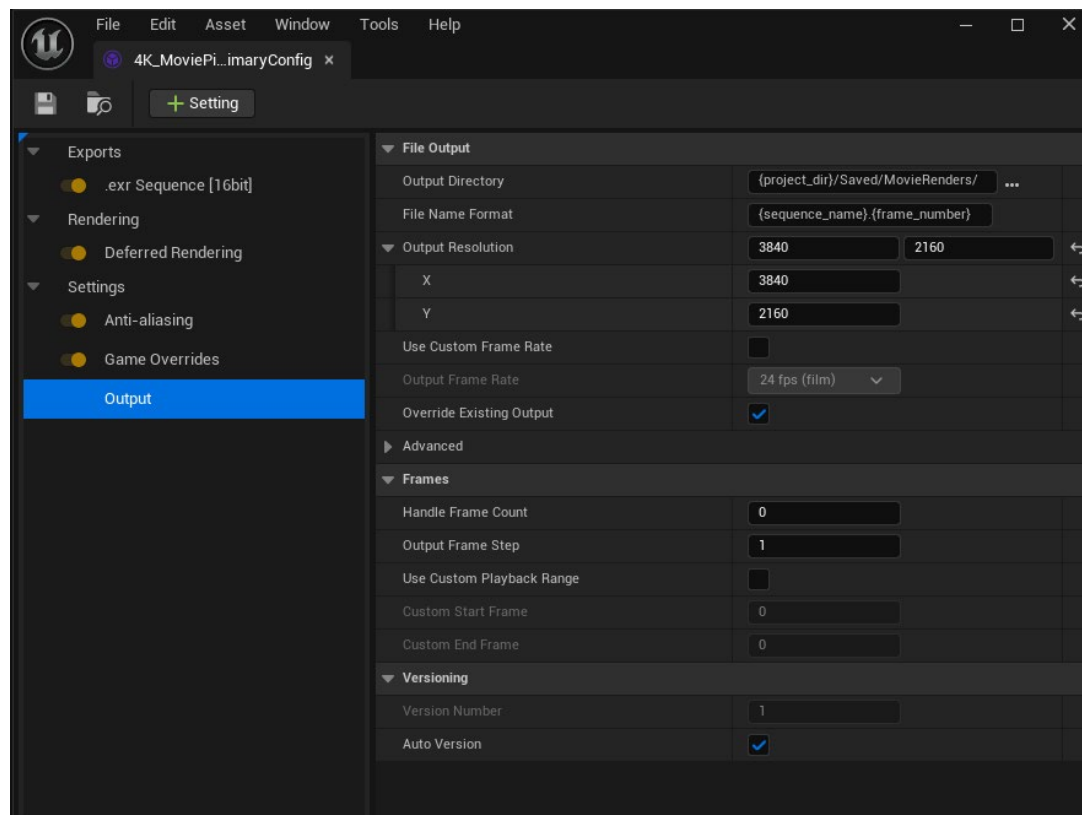


Figure 15 [Unreal Engine Movie Render Plugin - Render Queue Settings]

As with any projects there will always be challenges faced that need to be overcome. Initially when working in Unreal, during the early lighting tests after I completed the first room, there was visual noise in the dark areas of the bunker. Unreal Engine 5 uses Lumen for lighting. However, Lumen can struggle when it comes to low light environments. This also made the shadows appear grainy and unstable, even causing some mild artifacting on the edges, particularly in the darker areas.

The solution to this was to add a post process volume to the overall scene, being able to control specific parameters in the areas that had less light while maintaining quality. I clamped the minimum and maximum exposure setting to a fixed value, this made it much more stable. I then increased the final gather quality in the lumen settings which gave the high-quality result wanted, giving sharper shots where the light bleed was visible and not grainy as before.

One of the other prevalent problems I ran into was an audio bleed through the geometry that instantly broke the effect wanted. I placed the radio inside the communications room firstly. I heard the song playing through solid walls in the adjacent corridor. The sound bleed also subsequently ruined the suspense in finding the source.

There were a few methods in which I could solve this, the first being the most practical and most effective would be to use DaVinci resolve to create the spatial audio within Fairlight. This being the most modular and customisable approach. However, the other method would be to modify the sound attenuation settings in Unreal. This would effectively reduce the falloff distance of the inner radius from the source. I can also enable audio occlusion in the project settings to let walls block the sound waves.

I experimented with both methods to see which would be the most effective in the overall workflow in relation to the other sound assets needed and the scope of further work to be completed.

8.0 Evaluation

The practical development of The Bunker allowed me to gain very clear insights into environmental storytelling and its surrounded roles such as narrative and learning about similar themes relating. With organizing files inside the Unreal Engine outliner, this accelerated my workflow speed vastly. Sorting the 3D models and lighting sequences into their distinct folders prevented software crashes and/or potential data loss and managed with effective version control as I have had much practice before on smaller projects to create contingencies plans.

I used downloaded assets from FAB to populate the rooms, ethically sourcing them and ensuring they are under creative commons. This decision saved production time, as creating all the assets from scratch on a film project like this would have been unfeasible with the amount of time given. I also for similar reasons sourced audio files from Freesound and Pixabay. Relying on library sounds allowed me to focus almost entirely on the spatial audio implementation and post-production methods in the 'cutting room', using Fairlight.

I encountered and solved specific technical problems where they cropped up, relating to visual artefacts, or technical issues such as slow render time, and being able to manage this with small adjustments such as lowering anti aliasing slightly that greatly reduced the render time.

Lumen lighting caused visual noise inside dark corridors. I added a Post Process Volume to the scene. I clamped the exposure settings manually.

I increased the final gather quality to sharpen the shadows; this was an effective solution to the previously mentioned problem. Furthermore, sound bleed presented another challenge, deciding early on to shift to the Fairlight workflow in post ensured I hit the deadline while still having the advantage of using Chion's techniques with the full features of DaVinci Resolve 20.

I identified several areas for improvement that were very important to the success of how engaging the final product would be. While I relied on downloaded audio assets, recording custom Foley audio would have perhaps provided deeper texture to the final mix and giving a more raw finish to the *Musique concrète* I was trying to achieve.

I used modular 3D assets for the environment. However similarly to the audio assets, creating custom models in Blender would offer greater visual control to the theming however I feel the outcome was affecting with the handpicked assets I sourced. As mentioned, I attempted to mix the spatial audio directly inside Unreal Engine 5 and experimenting with spatial audio inside the engine taught me how flexible these methods can be to creating an immersive and adaptive 3D environment/scene. Processing the audio mix inside DaVinci Resolve using Fairlight would offer much finer tuning capabilities.

I learned crucial lessons during this production. I learned to override automated lighting systems to achieve specific moods. I also learned to align sound physics strictly with visual geometry and how this can be adapted to apply sound theory. I learned absence forces an audience to listen actively, an effective method for capturing an audience's attention and maintaining it. Removing the physical character pushes the environmental audio to the forefront of the narrative. As a result, I proved careful sound design replaces the need for visual actors.

Investigating this hypothesis has also taught me how to more efficiently manage a multi-faceted workflow with keeping tasks organised using the agile workflow to my advantage. It has also been an invaluable experience on the research side as I have had the opportunity to fine tune my researching techniques, making my learning experience more effective and enriched to bringing forward the knowledge learned to practice projects such as the independent project. It is this reason why research in any circumstance and media project likewise is so important.

9.0 Conclusion

- **Answer the Hypothesis:** "To a significant extent, sound design *can* shape interpretation..."
- **Limitations:** Acknowledge that sound needs *some* visual context (the bunker) to work.
- **Future Work:** How this applies to VR or immersive gaming.

In a Characterless 3D setting, this project examined sound design as a key narrative element. I investigated how aural clues can direct audience interpretation in place of physical actors.

Furthermore, my research examined the theories of Michel Chion and Mark Fisher. I applied the concepts of the audio-visual contract and acousmatic presence to understand on a deeper level and from a filmmaker perspective on how unseen narratives have forces beyond the typical methods often used instead, where sound is forgotten. I analysed hauntology and audio degradation to establish the atmosphere of unease.

I then reviewed Skinamarink and WALL-E to observe narrative delivery through void and ironic counterpoint as well as these in conjunction to the research theories that they can apply to and/or heighten their effect. I applied these identical methods to my animated artefact.

Following this, I constructed The Bunker using Unreal Engine 5 and the movie render queue plugin. I also implemented spatial audio and Lumen lighting to build an isolated setting that builds the world physically and narratively while having abstract means and auditory cues to deliver the desired effect to the viewer. I faced technical challenges with audio bleed and lighting noise amongst other visual and unreal render errors. I solved these issues by clamping exposure settings and testing enabling audio occlusion and adjusting render and project settings to my needs.

I can also apply this research to virtual reality and immersive filmmaking in the future. Virtual reality removes the fixed camera frame. If for example I were to create a game using this research where players control their own visual focus, the engagement and effectiveness remain the same. I could employ spatial audio to guide player attention toward narrative events instead of the cliché of yellow tape for example. In addition, I can also implement acousmatic sound to create tension without requiring physical characters in either game and/or film projects to this extent.

My understanding of the audio-visual contract prepares me to build interactive environmental storytelling. I will apply audio degradation to establish atmospheres in future 3D projects and further expand on these techniques in having sound and visual as equal parts in measure and both of importance.

My final evaluation proves the original hypothesis. I communicated Jim fleeing his post using a diegetic alarm and a degraded radio broadcast. I demonstrated environmental audio functions through the audio-visual contract as a complete storytelling device and showing that sound design as a narrative tool in a characterless 3D environment is another effective means to in this case but not limited to portraying preceding events and theories in a without the need of a physical character acting as the primary storyteller.

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