



Immersion design and worldbuilding for the development of introspective and alterbiographical narratives in First Person Exploration video games.

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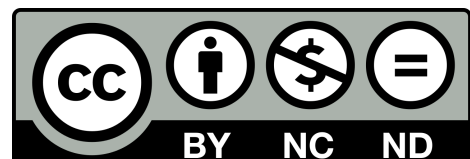
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OCEANS OF REFLECTION



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To my friends, for making me grow and always feeling like home. For making the lullaby shine in endless colors.

To my family, for always having my back. *“Love, Goodness, and Simplicity, That love remains infinite”*

Thanks, to all of you. Nothing, nor this project, would have been the same without you.

Abstract

The hereby document represents the Final Report for a bachelor's thesis on Video Game Design and Development. The following work consists of the design and development of **Oceans of Reflection**, a video game based on introspective and alterbiographical narratives that allows the player to approach their own being through mechanics and environment. More specifically, the aim is to enable the player to construct the narrative jointly with us, the developers, moving away from traditional narratives and adapting the experience for each of the users in such a way that it is completely personalized. The video game could be classified in the First Person Exploration and Puzzle Game genre and it will be developed in Unity 3D for PC using, inter alia, technologies such as Unity Shader Graph and voice recognition.

Key Words

Video Game, Puzzle, Introspective, Alterbiography, Immersion, Worldbuilding

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1. Introduction

In this first section we will explain the bases upon which the project was built. We will describe the initial objectives, the action planning we tried to follow and the arguments which justify the need for this project and the decisions made in consequence.

The general idea of the project was born from the possibility of working in pairs, that is, this work would not have been possible, not even the same one, without the work of my partner Jorge Fernández. So much so, that we decided to divide up the project so that each of us could focus their attention on what motivates him and has invested more time, not on the project, in his career as a student. Therefore, Jorge's work will be directed to the development of mechanics and functional parts of the project. I will, then, focus my efforts on the aesthetic section of the game, working towards immersive environmental narratives and the technical, closer to programming, section of art.

Singular "they" pronoun is used throughout the text, thus not assigning any gender to the player alluded in the paper.

Work Foundation and Objectives

If this final paper tries to demonstrate how much we have learned throughout our studies, we should start with what has been affirmed and proven to us from the beginning: video games are art. An art born in the post-modern era that assumes the characteristics of its own movement and resorts to the rest of the arts to build itself. And it is constantly being built and reinvented. Not so long ago, screens showed models of few polygons as opposed to the current ones that resemble what we recognize as real, even moving away from the uncanny valley. Take, for example, as seen in Fig. 1, *Final Fantasy VII* (Square, 1997) and its recent *Remake* (Square Enix, 2020). The evolution is constant, graphically, functionally and interactively. In one way or another, however, the narrative part is partially put aside, it is not easy to properly relate the different pillars that make video games up, and it is usually chosen to resort to stories that, simply, comply.



Figure 1.
Graphic comparison between *Final Fantasy VII* (1997) and its 2020 Remake

This is not always the case. The hero's journey can be reversed, *Bloodborne* (From Software, 2015) as seen in *Sole Porpoise* (2017), the fourth wall can't even exist, *The Stanley Parable* (Everything Unlimited Ltd., 2011), and the mechanics can be linked to the story so that one doesn't exist without the other, *What Remains of Edith Finch* (Giant Sparrow, 2017). Leaving aside the endless scripts and the classic narrative of which the video game is contrary from its definition, due to its interactivity, we decided to work on a text that was not simple, where we could experience and develop what we, as players, feel when playing. How else can we develop as designers if we do not understand how the player thinks when playing?

This is where we encounter the concept on which the work is focused, alterbiography, coined by Gordon Calleja in *Experimental Narrative in Game Environments* (2009). The author defines it as a concept that is "specific to game environments" and that is generated "at the intersection of the semiotic surface, the coded structure of the game environment and the player's cognitive faculties". The first two can therefore go hand in hand, since there is no room for semiotics without a game world as context and a game world that does not allude to a semiotic whole. This, therefore, leaves a third, an *other* receiver to whom the text is addressed, the protagonist and director of their actions through which they intervene in the text.

Therefore, the relationship of the player-subject with the object of the game appears, and it becomes the variable, since this subject, and its cognitive faculties, are not always the same. Thus we understand that what the subject receives is invariable but its interpretation is not. In this way, we wanted to investigate the possibilities in which a story, or a concrete fact, can be interpreted in different ways by different subjects. And to get beyond that because we didn't only want to explore the relationship of the player with the game, we also wanted to deepen the relationship of the player with themselves.

In that particular, my work in the project will try to make the mentioned gameworld coherent, rich and non-intrusive: that it leads the player by the hand to give place to that introspective relationship, to enrich the game experience and, in short, to communicate, and help communicate, what will be developed throughout the game.

Initial Planning

Task	Time
Research and Level Design	60h
Asset creation - Modeling and texturing	90h
Narrative Design and Scripting	15h
Implementation of depth of view colored fog	20h
Dynamic and Symmetric Texturing	10h
Music and Sound recording	20h
Shaders, VFX and Post Processing	60 h
Final report	15h
Final presentation	10h
Total	300

Related Subjects

VJ1216 - 3D Design

VJ1218 - Hyper Media Narrative and Video Games Analysis

VJ1221 - Computer Graphics

VJ1226 - Character Design and Animation

VJ1227 - Game Engines

Estimated Cost

In this section an estimation of the cost of the project developed will be done. We will take into account the economical cost of production. If someone were to develop this same game and trying to save as much money as possible, it should be considered to hire the different developers as freelancers. Also, the possibility of not having a physical workplace should be taken into account, as work devices and office rentals would be dropped.

Nevertheless, these freelancers should be hired for at least three months and being, at least, three of them, working, each one, an approximation of 240 hours, which makes a total of 720 hours. More hours that we have invested but, as such, more work that could be

invested in other areas. The roles of these workers should be: an artist (both 2D and 3D), a programmer, and someone who could act as narrative, level and sound designer.

We could assume that these freelancers are junior level workers, which could get paid around 1400€, thus making a total of 12600€ just for said workers. Furthermore, software licenses should be added. If we take into account industry standards, software used could be listed as:

- ❑ Autodesk 3DStudio Max: 267€/month. 800€ total.
- ❑ Pixologic ZBrush: 40€/month. 120€ total.
- ❑ Unity: Free if revenue is less than 100k\$ in the last year.
- ❑ Photoshop: 21€/month. 63€ total.

Making up a total of 940€ in software licenses. Nevertheless, this money could be saved as there are other programs that could be used (Blender or Krita, for example), although some methods shown in this paper could take more time to develop.

It could be considered a little scale marketing campaign which's cost could add up to 2000€, hiring specialized companies. Furthermore, if the game is going to be released in the industry's biggest store, Steam, its price for publishing is 100€ which is refunded if the game's sales exceed 1000€.

Taking into account that the game would be self-published, the approximate cost would be around 15600€, if using said licensed programs, or 14600€ otherwise. As can be seen, this is a quite low budget game that could even be raised through crowdfunding sites or even taken into account by little publishing companies, making the journey easier or, even, cheaper.

2. Research and References

This chapter will develop a framework on which to frame the project. This is necessary, as many ideas, concepts or even aesthetic styles that we explore have been already developed by other artists and/or game developers. They are a key part of the construction of a project since they can be used to establish the conceptual base of a project

Game Concept

Video games are spoken of as an active medium, where direct actions are taken and constant attention is needed. Besides, the passive media exists, that is to say, the traditional media. As mentioned by Ian Bogost (2007), the former are treated as "lean forward medium" while watching a movie or reading a book are treated as "lean back" media. In this same text, he asks about the existence of video games that fit into the "lean back" category. In a much later text, Víctor Navarro Remesal (2016, 2020) talks about slow gaming, a kind of trend where players are encouraged to take their time when it comes to relating to their surroundings. Here, he mentions three key features:

- ❑ Time dilation, where time stops showing itself as a resource to reveal itself as a being
- ❑ Serene experience of contemplation, that is, observing the world in a detailed way, not to analyze it, but rather to understand it.
- ❑ Non-economic sense of action (close to the Taoist non-doing).

In this same text he writes about the space that this kind of games leave for introspection. This point really interests us because we wanted the player to maintain a relationship with themselves, where they were given space to breathe and think, where environment and mechanics were not intrusive and could lead to a fertile and comfortable relationship with the game.

Within these characteristics, it is worth mentioning *The Witness* (Thekla Inc., 2016), the work of Jonathan Blow that may also be considered within the slow gaming trend. This video game is undoubtedly a fundamental reference in this project, not only in the visual section, but also in the narrative and game design themselves, as we will develop in the following points. The concept of travelling around an unknown island solving tests that are presented to the player is the backbone of the project. It is here where we decided to try and make the journey a path where the player could relate to the game, give themselves time, explore and be explored. We did not want the player to press a button to "contemplate", we wanted to give them an experience where they could contemplate, perceive and think.

These contemplative games are usually grouped under the wrongly called Walking Simulator genre but these first person exploration video games leave room for introspection and thought while they make part of stories that end up being taken as

personal through well conceived empathic mechanisms. Several examples are worth mentioning: *Firewatch* (Campo Santo, 2016), which is especially interesting because it is based on exploration and adds conversation as a central part of the game, *Journey* (Thatgamecompany, 2012), or *The Sojourn* (Shifting Tides, 2019). Also within this genre it is necessary to introduce *Gone Home* (The Fullbright Company, 2013) or the above mentioned *What Remains of Edith Finch* or *The Stanley Parable*.

As we have already mentioned, videogames are a medium that feeds on different arts and this work does so equally. *The Poet and the Pendulum* is a song by the Finnish group Nightwish, within the longplay *Dark Passion Play* (2007). Several of their phrases served, personally, to conceptualize the game and develop artistic and narrative segments that will be discussed later. But, in particular, the verses: "search for beauty, find your shore/Try to save them all, bleed no more/You have such oceans within", served to finish specifying the game in a kind of introspective dream located in some floating islands (find your shore/oceans within) where something/someone would be saved. In addition, it is mentioned "The white lands of empathica", that seemed to finish rounding off the dreamlike atmosphere of the game.

It is also worth bringing up the path of the player, who sees through their eyes certain statues which represent the souls of people who could not escape. In this way, we could see that the character and the player (if there is such a dilemma, as we will see) follow the path observing condemned souls. Therefore, the *Divine Comedy* is established as another reference from the conceptual point of view or, in general, the figure of the Katabasis, where the hero traveled to the underworld in search of the loved one or knowledge.

Game Design

The game design is strongly linked to the conceptual references already mentioned. That is why we should mention *The Witness* again, since the structure of its puzzles allows for progress in the game and in its narrative. In fact, these puzzles, these series of challenges, are the only thing that stands between the player and the end of the game, so an experienced player, who already knows and understands the puzzles, is not going to find them challenging. Furthermore, it is understood as a game experience: from the beginning to the end, there are no extradiegetic messages, the developer does not speak, there are no tutorials, the player must discover how to advance by themselves. This is the first principle that we decided to follow during the development and design, we, as developers, will not interact, will not interrupt, we will let the player discover the game by themselves.

These puzzles would not be like those shown in *The Witness*, they would not be panels to be deciphered, drawing a line from point A to point B, they would be closer to those seen in the classic graphic adventures, that is, "ambiental" puzzles where the player is shown a scene to be solved. In addition, we decided that they would not have repetitive mechanics, that each one of them would be unique in its solution. That's why it was necessary to rely

on games that use meaningful mechanics, that is, mechanics through which the narrative, design and, in short, what the designer wants to express, are expressed. At this point, *What Remains of Edith Finch* comes in, which uses unique mechanics for each of the characters whose story shows, specifically the one that tells of Lewis' death, where the player can identify with the monotony of the character's work, since they are entrusted with doing his same job, and enter the new life in which he is immersed and ends up leading him to his death.

In this way, we wanted the player to be aware of his actions and understand what they entail. As well as what they imply, their consequences and the different ways of thinking by which they can be reasoned.

Narrative Design

The games of the Japanese company From Software (*Dark Souls* (2011), *Bloodborne*...) are usually a reference in a great majority of aspects, setting, level design, mechanics design... but their narrative design is often overlooked. This is peculiar, because, apart from a small initial cinematic and the few conversations that can be had throughout the game, its narrative is not completely transparent. The story of their world is often locked into descriptions of the objects that the player can find throughout their adventure. This is why the narrative of their works seems complicated, closed and distant to many players who have to rely on external means to understand it. In fact, this could be seen as a puzzle narrative, since until all the pieces are in place, the player cannot understand the play, or at least not in its fullness. It is a kind of fragmented story that is found and discovered through the progression of the game, as it does not only show new challenges which are rewarded with new objects and experience to further build the fantasy, but also rewards with fragments of the story of their characters and their world.

Somehow, a disjunction appears between their frenetic combat full of threats and the necessary pauses that the game requires to understand their history. They are aware of this, since the bonfire system, functioning as checkpoints, establishes safe spaces where the player can rest and recover. The frenzy of the combat is only visual, because it also requires strategic thinking, knowing which is the best attack, when to do it and when to protect oneself. Advancing through the world requires strategic thinking in turn, as the environments are full of traps and dangers. This, therefore, is formed as a new element of the game that the player faces and must study and contemplate, not just because of its general beauty. Therefore, the way to play this kind of games requires some pause, some slowness and some dedication if you want to reveal its history.

This approach is in direct conflict with one of the design agreements we decided early in development, we did not want an inventory or collectable objects. And if we were not going to use objects which the player could read about, we decided that they could, in fact, listen.

The Bioshock (Irrational Games) saga is known, not only for its gameplay, but also for its narrative. In addition to entering the philosophical realm, they decided to segment their information into audio notes scattered throughout the game world in which they develop their characters and universe. This way, we decided to guide the player through audios, build the narrative of the game and give rise to the introspection we desire. In this last case, through philosophical reflections and quotes.

There are several philosophical references that can be seen within the game. Moreover, if we go to the root of philosophy we can see a marked beginning in Ancient Greece, where, besides philosophers like Plato, we can borrow the stories of Orpheus and Eurydice, the fall of Phaethon or the sculptures of the Hellenistic period, as we will see.

On the other hand, within the already mentioned song *The Poet and the Pendulum*, there is the story of a dreamy child and poet, who ends up dying, tortured and guillotined (a reference to *The Pit and the Pendulum* by Edgar Allan Poe can be seen), far from his parents' arms. Since we decided that the appearance of statues would be recurrent, since they are the souls of the different trapped beings, it was the logical path to adapt the story of the song to the progression of the game, thus enhancing part of the narrative we wanted to develop, visual and environmental, paying attention to the contemplation and introspection part of the game. More of this can be read later.

Artistic Design

The aforementioned *The Witness* and *The Sojourn* (Figure 2) were really important in order to clarify the general artistic concept of the game, since in this one, players will travel through floating islands, covered by grass, rocks and trees, populated by ancient, dreamlike sculptures and structures.



Figure 2. The Witness' island general plane and a The Sojourn level

The color should be close to what is seen in those mentioned above, relatively plain saturated colors in the environment that insinuate what the representations in different media show as a dream. It is worth mentioning, in this case, the video clip of the Icelandic music group Sólstafir for the song *Fjara* (Figure 3). Without reaching the shown levels of color aberration and oversaturation, yet giving a good sample of the idea.



Figure 3. Frame from Sólstafir's *Fjara*. Noting the high contrast of the image.

In terms of shapes, we chose to use clear, simple and descriptive forms, like the ones seen in the temples of *Rime* (Tequila Works, 2017), or the island's construction in *The Witness*, that is, rocks, trees and even sculptures. These sculptures that appear in the project are based, as they are a kind of interpretation, on the Hellenistic period of Greek art. Characterized by expression, we decided to use this period to represent the emotions and suffering of the sculptures that appear on the journey. On the other hand, the temples that appear in the game are reminiscent of the structure of the Parthenon that belongs to a previous period, the Doric.

In contrast to this art, there is the so-called Brutalism that we will develop later. Therefore, the union of these last styles requires the appearance of *Assassin's Creed Odyssey* (Ubisoft, 2018) as another of the references, since it also contrasts the Doric style of the period in which the game is placed with the most modern, and intentionally out of place, brutalism to show the technological difference between the societies that appear.



Figure 4. Frame of Sam Mendes' 1917. Where both soldiers take time to admire a field of cut down cherry trees.

Finally, it is worth mentioning the film *1917* (Sam Mendes, 2020) (Figure 4), which influenced us probably because it was released when we were developing the conceptual phase of the project. In this one, which can be argued to be structured like a video game, we see that among frenetic action sequences we may witness sublime spaces where beauty is also present. For example, the sequence where cut cherry trees appear, the sort of oasis where soldiers gather to listen to one of their own singing before going into battle... That is why we are looking, also in our game, for the appearance of attractive spaces between sequences of interaction. Also in hacked down trees which desacralize the created order and the goodness it bears (Strachan, 2020).

Technical References

As in all of the previous segments *The Witness* is likewise posited as a reference in the technical area. Although there are many other examples such as, for example, the case of the *Bioshock* (Irrational Games) saga- to talk about the player's exploration and the partial discovery of the story through a sort of fascicules that are found, or sometimes have to be looked for conscientiously and that are represented by audio tapes, voxophones, playback devices...

On the one hand we have, again, the clear reference to *Portal* due to the use of portals so that the player can move from one place to another, a form of travelling between two points which, in addition, shows a glimpse of the next area. On the other hand we have a clear reference to one of the pioneer games in terms of manipulation of the objects that make up the world as is the case of *Half Life* (Valve, 1998). In our case we use this mechanic to solve a great amount of puzzles throughout the game, giving the player a great capacity of interaction with the world.

Another of the fundamental pillars in the technical section of our project are light and shadow games and in general, visual tricks that force the player to modify the way they understand video games in order to advance, in the style of games like *Superliminal* (Pillow Castle, 2019) or *Superhot* (SUPERHOT Team, 2016).

To conclude the technical section we should mention some mechanics that do not have a clear reference since they are quite new in the industry as are the ones regarding voice recognition and sound intensity. As they are that new, these are complicated to explain to the player, since there are no clear references. Nevertheless these are some of the most important points of the project.

Game design

In this section we will develop the basic design for the game, from its concept, the adaptation to something material, its interpretation and how the player can interact with it. The different mechanics, the flow between levels and their reasoning will be discussed.

Overview

As already defined, the game could be set within the genre of the first person explorer to which is added the component of puzzle solving as a form of challenge and opposition of the player. In addition, a certain component of introspection and contemplation is added for the player's reflections.

As such, always taking into account this introspective component, the puzzles were conceived in such a way that the player could find meaning in them and to influence their vision. The aim was to avoid empty puzzles, used simply to prevent the player's progress and increase the length of the game. Therefore, the design was not simple, as it was intended to show meaningful puzzles to which the player could find meaning and reflect accordingly. In this way, the puzzles were conceived through two aspects, a powerful meaning and that these could be understood without hardly any explanation, since, as discussed, the presence of tutorials was null. We needed, therefore, to show relatively common or explicit experiences.

On the other hand, the way of interacting with the puzzles also required attention, since it was not intended to establish a single mechanism that could solve all of them. Above all, because this could be read in such a way that the different problems presented can be solved equally. The problems, puzzles, required unique mechanical solutions. So, what we decided to do was to invest time in mechanics which were capable of transmitting and communicating the story in which they are framed, as can be seen in *What Remains of Edith Finch*.

By combining these two elements, the intention was to promote the aforementioned alterbiography. Leaving space for the player to decide what they think of what is being presented, that is, in the end, to design puzzles and mechanics that are not irrevocable and unique, it was necessary to design tests that would give space for thought and reflection. Bearing in mind that these, in addition, should be simple and clear. The ideal would be to be able to give the player almost infinite capacity to decide and, although this is not possible, given the characteristics of the project, it was decided to try and provide a range of reflections so that the player could see the different ways of thinking that can derive from the actions with which they interact with the game world. Therefore, we thought about designing mechanics and puzzles leaving a certain space for the player, a space that they can inhabit, where they can express themselves and think.

At this point, Victor Navarro Remesal's words echo in the already mentioned text. There, he states: "It is in the thought, and in the enormous gap it opens, where it is best revealed to us that the avatar is an Other". An Other, that is, another being, external to the player himself. The avatar, that is, what, or who, the player incarnates in the fiction. A dilemma that appears between the character and the player who controls it, who are independent beings in both worlds that exist, which are connected by the system that simulates the world of the former. Therefore, we wanted our game to be different, in fact, we wanted to go beyond the creation of the avatar that appears in some RPGs, because, in our case, this "avatar" does not exist, the avatar is the player themselves. We wanted to go beyond what is understood in the world of video games and game studies, we wanted the player to be the one who plays and, at the same time, the one who exists within the game world.

That's why we decided, as far as possible, to make the game playable and understandable for most players, leaving them a space to meet themselves. That's why we did not decide to target any particular set of players, since we wanted to leave room for the vast majority of them, so that they could reflect on our game, although, due to the characteristics and themes that make it up, it would probably reach those who understand video games as artistic manifestations and experiences with which they can grow. Still, we know that our game can be aimed at a certain type of player who decides to take a seat closer to the developer, a kind of co-producer, because they want to get involved and invest time in the game. In addition, we also target those players who are interested in the topics we cover, i.e. players who are close to the philosophy, or who are simply interested.

Therefore, the game can be understood, in part, as a journey through the Plato's cave allegory (Figure 5), because the player will start in a known reality plane, the first sample of the game, until finally being able to reach the sunlight, the form of good, the knowledge, leaving the cave and thus, finding the interpretation that Jacques Lacan makes about this allegory, idea that we will develop in the following points.

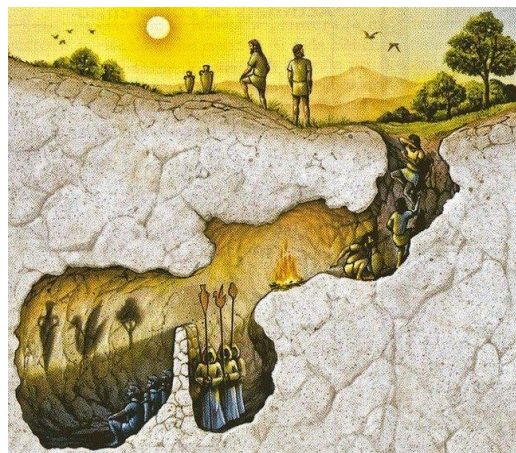
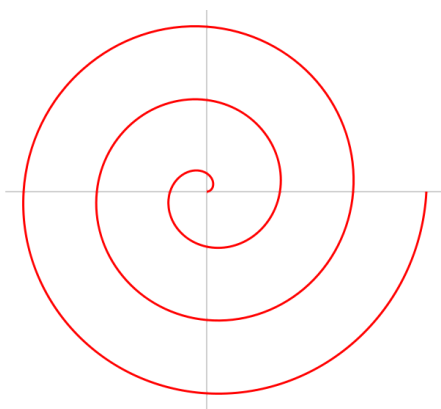


Figure 5. Archimedean spiral and a depiction of the Allegory of the Cave

It is worth mentioning a new twist to the cave, since it is designed as a spiral (Figure 5). That is to say, a kind of temporal loop in which there is no ending that returns to the beginning. The player, at the moment the game begins, is one of the different manifestations of themselves that exist in the timeline, because other "selves" have already traveled that path before them, as they will do in the future, which will influence their path.

Gameplay overview

The actual structure of the game requires this so-called spiral, not only to understand its history, but also since it offers the player the chance to explore the world shown in consequent game sessions. Thus we open the possibility for the player to go through the game and revisit the areas, even taking different actions.

The player's journey takes them through 6 islands, with 2 consecutive endings, which are opposites to each other. The journey is continuous and only works in one direction, as it is understood that the player, when crossing the portal to the next island, has assimilated the teachings of the one they are leaving. Even so, these portals continue to show what they have left behind, because one cannot go back to the past, but one can take it into account in order to move forward. Each journey through the portal is a new step towards the exit of the cave, knowing that in every step, one learns what it is taught and can move towards new challenges. In fact, this way of moving forward emphasizes the Taoist philosophy and its interpretation of letting go.

On each of these islands the player will have to face one or more challenges. These may be new or revisits and expansions of some of the preceding ones. In this way, the player is encouraged to assimilate new knowledge in order to advance, and, certainly, not to forget anything learned. Not only knowledge, but also mechanics and facts. In other words, as it was stated that the mechanics are the verbs with which the player relates to the game, in this case, their interaction has a repercussion, which will be, in each case, projected throughout the game. That's why it's necessary to remember them. Not only do they appear once, they are taken up again.

It is a question of mechanics as forms of communication and transmission of meaning, and for that, we have had to work on them. We believe that we have designed innovative mechanics within the world of video games. These have meaning within the game, they are part of it and through their uniqueness their meaning is erected, because these, in the cases in which they are used, convey meaning based on the specific context in which they are used.

Ultimately, these mechanics occur at specific stages of the game when the player decides to take action, as they are relegated to the moment when the player decides that they are ready to move on. Therefore, the urgency that moves the character is established as

self-imposed, as they can take as long as they want to explore and contemplate. Only one event appears which is dependent on the time it takes the player to get to a particular island but, as such, it is again an action made by the player and we don't expect the vast majority of them to arrive on time, as it has been designed that way.

Based on this event it is important to talk about what forms the basis of the game, since it must end in a sitting. The game does not have a save system and this is an intentional decision. As it is a short game, we hope that the player has enough time to finish it, because this way, if they do not do it, they will have to start the game again from the beginning, so that they can live again what they think they have already overcome. Thus, trial and error is not established as a useful formula to advance in the game so that the player may choose which result they prefer, it will just be the one they have chosen through their actions. This leads us to another of the topics we talked about, the so-called Ctrl + Z syndrome, this is written with computer slang since the possibility of undoing what has just been done is unique to computers. In this way, we force the player to face their decisions and contemplate what they entail.

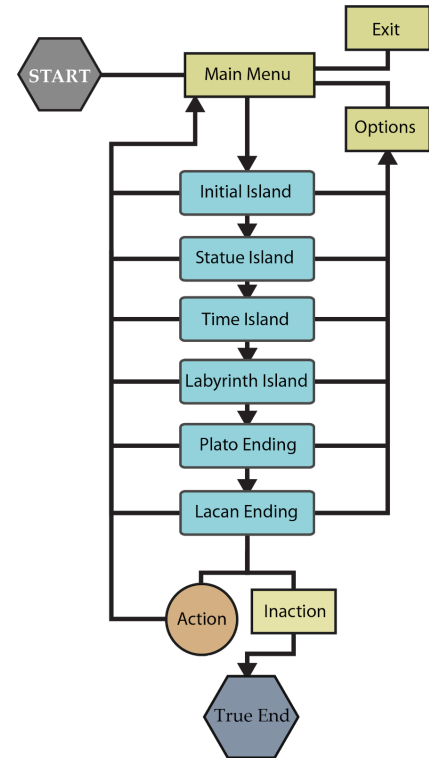
These decisions, somehow, take us, as designers, and the game away from "video games", because there is no way to try again directly, we eliminate the concept of checkpoint so popular in our creative sector, this time the developer nor the player decide their own status. Thus, we show a unique experience that resembles the real world as closely as possible, with time that necessarily moves only forward.

This unavoidable advance leads to the end of the game. As it is well known, every game offers the possibility of replay, whether this is more or less integrated and contributes more or less to the game experience. At the end of the game, the player is shown a decision: action or inaction (understood as the action of doing nothing). If the player decides to do that something, the game will continue as normal, end and can be accessed again as usual, as expected. On the other hand, if the player decides to not do anything, the game will be closed and the player will not be able to start a new game. This decision is the basis for the continuity of the aforementioned spiral. If the player decides to do nothing, it ceases to exist, so it does not make sense for the player to embody more "selves" of the future in the same spiral, and, therefore, starting the game again is no longer an option. Again, the player must face his decisions that, this time, transcend the game world, diluting the barrier between reality and the game world, and thus underlining the player's role not as an avatar within the game, but as themselves.

Game progression and mechanics

In this section we will study the player's progress in the game and the mechanics they will use to advance through it. Although we will talk about this island by island, we will only take into account the use of mechanics, as the narrative core will be dealt with in its corresponding section. A flowchart of the game can be seen in Figure 6.

Figure 6. Game flowchart



Initial Island

After the appearance of several audio clips, the player will be given control in a corridor where they can move forward, even though the solution is to do so in the opposite direction to the one shown. In this beginning, the basic and common controls of computer games are introduced, so the player can move with the WASD keys and explore the environment with the movement of the mouse.

At this point, the player is completely free to move. If they choose to advance in the direction shown, i.e. forward, they will find their attempts useless, as they will not advance. It is logical to think that this will be the initial idea of any player, since, without previous information and with a light at the end of the tunnel, they will decide to advance. After seeing their attempts frustrated, the player will have to turn 180 degrees, where they will find the real exit. Through this first trick and the audio messages with which the game starts, we intend to make the player cease having the closed mentality of the usual video game player, who would expect quick and obvious answers. But rather to take the game, from that moment on, as something different from what they can get used to.

In this first island the player will find the basic mechanics of the game, since this island is established as a kind of playground, a safe space where the player can observe what awaits them in the game, trying out the initial mechanics and adapting to the environment they are shown. Throughout the length and breadth of this island, sound intensity recognition, object movement and portal mechanics will be laid out.

This first mechanic, that of sound intensity recognition, will be repeated throughout the game, although with some modifications in certain puzzles. In a given place on the island

two statues will be found, close to each other. These are visually different, as one is established as a normal sculpture while the other, by contrast, will have the area that corresponds to the head damaged. In addition, the one that does not suffer from this problem can be seen to have a different material than the other, and, moreover, whenever the player's microphone receives a sound, this will be reflected in the material of the statue, as it will be changed. These sounds can be very simple, the movement of a chair or a door, a sigh, a cough or a conversation. On the other hand, the adjacent statue will not show this behavior, indicating the player that they are being heard and that only certain types of sculptures do so, that is, those that do not have their head damaged, as will be developed on the next island.

Probably one of the first realizations that the player will make will be of the portal, which, through itself, will show a different reality but, if they try to go through it, this will not work. Inside the portal, the player will see a tree, which will be in the same shape and position as the one on the island where the player is located. But these differ in that the one located on the other island, the one the player sees through the portal, doesn't have an apple which the first one does.

At this point the next mechanic will come into play, that of the movement of objects, as this apple can be separated from the tree, by clicking on it. If this click is maintained, the player will be able to move the selected objects, moving the very mouse. The player will be forced to take the apple from the tree, which will open the portal, so they will be able to advance to the next island, leaving the safe zone behind and moving towards what they don't know.

Statue Island

In this second island, the player will have to assume the mechanic of sound intensity recognition in addition to the modification that will now be studied. Besides, they will understand that the portals will be what will help them move throughout the game world.

The player, after passing the portal, which as they will see, no longer works since they are trying to travel in the opposite direction, will be overwhelmed by screams and wailing, sounds in general that come from the sculptures of the island. Furthermore, they will see that it is on this island where there is the greatest accumulation of these. There will be some that will be locked up in cages and one that will be on a pedestal. As soon as the player sets foot on the island the voice corresponding to this statue will arise, shouting for the player to assist and to stop the screams. These sounds are designed to make the player feel uncomfortable and their volume cannot be reduced via the game menu.

At this point, the player, also disturbed by the screams, remembering that there are certain statues that hear them and guided by the cries for help of the statue on the pedestal, will be required to shout the right word in order to stop the sculptures confined in prisons. Shouting, then, as we have seen, the game receives the intensity with which the player emits the sounds. In this way, we modify the mechanics described in the previous island,

this time the game will not only recognize the intensity of the sound that the player emits but also recognize the word that they use. The intensity volume will be recognized through visual feedback so that the player can see that they are on the right track and are only required to do so with greater intensity. Once the urgency and stress are over, once the right word is emitted with the right intensity, a quiet calmness will follow in which the portal will be activated and the player will be able to move on to the next island.

Time Island

After the action and the stress generated by the previous island, at this point a third island is shown to them, with a certain point of rest, of oasis, where, at first glance, everything seems simple. Other mechanics appear that are rather simple, and yet transcendent, based on decision. In addition, the player will be shown the results of their actions throughout the game.

On what seems to be a quiet island there is a decision that, in itself, seems irrelevant. Throughout the game, the player has been accompanied by a fish in his fish tank and a flower in his pot at certain locations. Both are the only symbols of life that appear in the game, leaving aside the game's own atrezzo, that is, trees and grass and the souls trapped in sculptures. Both elements have something in common, the water that nourishes them and keeps them alive. Therefore, the player is faced with a decision where they must choose which of the two to save, because they can only divert the flow of water in one direction, towards the plant or towards the fish.

In itself, this is an inconsequential decision for the development of the game but not for the player, as they are two beings that have accompanied them throughout their journey, and now they must choose between one of the two, assume their decision and face what it entails, the death of the other. The player may hesitate to choose and this will lead to the death of both beings to which they will have to add the death of the next one of them, if they do not arrive in time either.

Throughout the game, bells will have rang. These will do so at every certain time, in a manner, at first, innocent, but, as they continue, less will rang. Since, at first, the player will hear five chimes, the second time, four and so on until the last. The sounds will be accompanied by a progressive change in the color of the sky that will become darker and darker until the last bell marking the fall of the night and of the guillotine.

Hence, two possible outcomes are established for the statue that is located on the guillotine. The general case will be the one in which the player does not arrive on time, because as we have said, the game is based on contemplation and introspection and most puzzles need some time of reflection before acting, as well as possible pauses to pay attention to the audio tracks that are scattered around the islands. Therefore, in this case, when the guillotine falls, the poet under the machine will die and, with the fall of night, the clock located on top of the guillotine will be paused. To continue on their journey, the

player will have to show that they have overcome the poet's death, as it is essentially a consequence of their actions. When they see the scene, the player will notice that the time at which the clock has been paused right at the moment of the execution is, coincidentally, quite close to the time when the player is actually playing, since we will use real time, or, rather, the time marked by their computer. To prove that the player is ready to move on and that they have already gotten over the poet's death, they will have to set the time, through the buttons shown on the clock, to the current time of their device and thus be allowed to proceed through the portal to the next island.

On the other hand, if they have arrived, which, as we say, we don't expect in most cases, the poet will not have died but the player will be shown almost the same scene, where the death mechanism can be seen: a guillotine connected to a clock that marks the real time which, in turn, is fed by a solar plate. The player guided by the strange design, which plate will be pointing to the star, and the audios that will emphasize the importance of time and the sun, will understand that this is key to solve the puzzle and thus avoid the death of the poet. Therefore, they will have to prevent the solar energy from reaching the plate and the only way to do so will be by clicking on the sun, turning it off, in the style of the environmental puzzles of the often-quoted *The Witness*. In this way, the hour of death will not come, the poet will live and its soul can be saved so that the player can advance to the next island.

Maze Island

Death and acceptance or salvation, whatever the outcome of the previous island, the player will now face procedurally generated mazes that will constrain their progression and a challenge that requires the use of observation and, again, voice recognition mechanics. This island is presented as a test before the apparent end of the game, where the player will have to prove that they have assimilated the previous mechanics and have managed to open their minds to a new way of thinking.

Before that, however, the player must go through the portal and solve a series of puzzles. Two of them are shown to them at the very moment they appear through the portal on their way to this fourth island. Perhaps the most visual of the two, where a series of figures with strange poses are shown at first sight. Next to it there is a sort of transcription, a form of Rosetta Stone that places the poses of the sculptures at the same level as a series of words. The second puzzle will be revealed as the silhouette of a key on a wall of the labyrinth and, with nowhere else to look and with an open way, the player will go through what is presented to them as a labyrinth, for it is indeed a simple labyrinth. When they reach the end, they will find a room where a Polaroid camera and an empty texture (Figure 7) image will be placed.



Figure 7. Empty Texture

The player, encouraged by the audios and with nothing else to observe, must return to the beginning of the labyrinth, now with the Polaroid that will be shown in the right side of his vision box, and, with the left click, take a picture of the key, so that this image will be generated in the left side of the player's vision. With this image the player will have to return to insert, click, the image that carries in the space of the texture previously mentioned. This camera allows the player to take pictures of what they see at the moment they click and, if they had already taken a picture before, this will be replaced by the new one. Pasting the key will work just like a key would open a door, showing a new pathway.

As has previously been mentioned, the mazes which will be seen on this island will be created procedurally, a method which my colleague Jorge will develop in his corresponding work. This feature opens many possibilities since, at first, each time the player starts the game, each of the mazes on this island will have been shaped differently and, therefore, will have a different path leading to the goal. In this first maze we will use this feature twice. Initially, to generate the maze for the first time and the second, for when the player comes back out of the maze to photograph the key. It will be at this very moment when they will have to face a new layout of the maze, now camera in hand, to find the new exit through which they had entered.

Alternatively, when entering for the third time, now with the key picture in hand, they will find that the tangle of corridors that they assumed to be intricate this time is a simple corridor leading to the room where they had found the camera and where they must paste the key image. Once this door has been opened and the labyrinth has been overcome, a figure will be found with one of the poses that was found at the beginning of the island, this one, as can be seen, will actually be able to listen, as opposed to the first figures that you have found. Now it is time to go back to the beginning of the island and understand that each of the poses in the sculptures corresponds to one of the words that appear in the transcription, which are in fact in sign language. With this new information they must return to the sculpture that is blocking the way and pronounce the word that matches, thus allowing the player to proceed.

The next labyrinth will be a regular one, characterized by two separate rooms that will be related to each other. One of them will seem to be empty, it will only have one differentiating object in it. The other one, located in another part of the maze, will have a kind of screen inside it that will show the other room we mentioned, the player will be able to recognize it by this particular object. The room will be depicted from a zenithal point of view, showing the entrance, the walls and how there is a section through which the player can enter, an illusory wall, since not everything is always what it seems. The player will walk the way back and, through this wall, will exit the second labyrinth.

Finally, the player will find themselves in a room, simple, brief, with a button and nothing else, as they will only have to interact with it to continue. This button, once activated with the click of the mouse, and released, will emit the sound of an object, a metal door, moving. The

player, accompanied by the audio tracks, which will elude the story of Orpheus and Eurydice and how he should not look back, and the sound mentioned, should be able to understand that they shall not press the button and look for the wall opening, but they will have to press the button and, while keeping it pressed, move backwards. If this is done he will be able to get out of the last maze and through the portal to what will look like the end of the game.

Platonic ending

On this next-to-last island, which is reminiscent of the initial one, of apparent grand beauty, is revealed as the final reward after the tough journey. Guided by its similarity to the first island, the player will be able to travel inside the temple and cross that threshold from which they had been frustrated. After reaching the light, a fade will reveal the real finale of the game.

Lacanian ending

This last island will also bear similarities to the previous and initial one, although this appears to be in a much worse state. In the centre of it, before even reaching the temple, whose ascent is blocked, a button will be placed. This button, from the mechanical point of view, is simple, it can be pressed, but, as we have already observed, one can also not take an action, that is, one can not press the button.

As soon as the player appears on the island and approaches the button, they will start to hear screams and wails, as well as cries seeking for help to make them stop. These screams will be the same the player heard on the Statue Island, only that a new one has been added, those of the same player screaming to silence the cries. It is therefore up to them to decide whether to press the button and release the statues from their cages, allowing their other self, now located on the Statue Island, to advance on their journey, then maintaining the structure and possibility of the infinite spiral in which they are immersed, and thus being able to re-enter the game and start a new journey. On the other hand, the player can avoid committing that action that condemns their other self to infinity, they can refrain from pressing the button, not freeing the souls and then leaving the player trapped on the island, breaking the loop definitively, since they will not be able to advance. To the cries, which will not cease, will be added those of their other self, since the player has saved their own soul but condemned those prior to them, in this way the game will be closed and will not allow the player to start a new game, as the spiral has been definitely broken.

It is the mechanics of the button seemingly simple, since, from the general point of view, the players are always encouraged to take action, to have few moments of pause, to an accelerated pace, where, if they recognize a mechanic or a form of interaction, they are sure to execute it. Therefore, the option of non-interaction is shown to be valuable and not very obvious, scarce in the world of videogames (a decision that we made consciously), since it highlights the fact of not doing something, actively ceasing to be active, something

far from the canons of video games, since the medium itself is based on interaction, on action, on agency, on non-passivity.

Interface

Since we want the game experience to be as immersive as possible, we do not want an intrusive HUD restricting the connection between the game and the player, that's why we intend to introduce a minimalist HUD formed only by a scope that facilitates the player's vision and that prevents the player from suffering the well-known motion sickness generated by the lack of it; with this we also pretend to avoid any extradiegetic text that guides the player, nothing about "Press F to Pay Respects" nor "Click here to activate this button".

Regarding the menus, we also try to make them as minimalist as possible in order to keep the player in touch with the playable experience. The game will include the main menu to start or exit the game and a proper options menu to tweak the necessary characteristics of the game so the player can modify its experience to one she's comfortable with. These settings will include, volume, resolution, graphic quality and the toggling the subtitles on and off.

Narrative design

As one could have guessed, the narrative section is a fundamental part of the game since it is the basis on which its mechanics, narrative and, as we will see, its aesthetics are built. The focus on the study of gameworld and environment storytelling throughout the section is remarkable as they are considered a central part of the study for this particular project.

Structured, emergent and environmental narrative

These three concepts can be found in Jenkins (2004) where the author approaches game narratives to the design of each game's world, but, to begin with, the distinction between emergent and structured narrative must be clarified. The latter is established as embracing those pre-set narrative events over which the player has no way of choosing nor modifying, a form of static elements that demonstrate a narrative structure, a clear guide in the narration. In contrast, emergent narrative is treated as that which is born from the player's interaction with the mechanics and elements provided by the game, in a way interpreting that which lives in the fiction and projecting their thoughts and emotions into that which occurs in-game. In Jenkins' words, emergent narratives occur when "game spaces are designed to be rich with narrative potential, enabling the story-constructing activity of players".

From the beginning the intention has been to design a narrative that gives light to thoughts and reflections, which the player can process and elucidate, and not choose and discard quickly. This requires an active part of the player, where they feel involved and can reflect their feelings. The basic pretension, that of generating spaces which give rise to alterbiographies, needs this same relationship, the involvement of the player with the game, an active subject inclined to interpretation. Therefore, both concepts go hand in hand and our game needs this emergent narrative to create said alterbiography.

That's why everything described above, can be read as a display of emergent narrative, especially when we talked about leaving the interpretation up to the player in both game mechanics and design sections. Such narrative is necessary for the development of the project, it is a key part, given that the effectiveness of the project depends on the interpretation and involvement of the player. On each action and consequence, interpretations are offered, on the deafening screams, STOP commands are needed with emotion, on the choice of life and death it must be decided, and it must also be confronted. That's why from the developer's perspective there is no imposition as to what the player should think throughout the gameplay, different actions and their possible interpretations are offered, even giving rise to contradictory standpoints, so that the player can decide which is closer to their own thinking. Therefore, behind everything exposed there is a

reflective player who will process what happens and will manage to join the dots, between what happens, what they interpret and what they think about it.

In the mentioned Jenkins (2004), the author introduces spatiality into game design and how this can change storytelling methods since game designers do not only tell stories, they design worlds and sculpt spaces. It is worth mentioning how these designers tend to give more attention to level design than to character motivation, and taking a step back into history, back where games were just games, without any software involved, board games designers developed their games bearing in mind their setting so the player may develop their character once the game started. Note how the popular trademark *Dungeons & Dragons* states clearly the setting, implying a world with both those elements. One of the most important games should be mentioned too, *Super Mario Bros.*, as it is clearly described as it recalls "*a much older tradition of spatial storytelling: many Japanese scroll paintings map, for example, the passing of the seasons onto an unfolding space*".

Moreover, it is notable how the structure of a world creates and affects the characters that live inside it, the very same bonfire to bonfire mechanic of the *Souls* games can not be understood if it's not framed into its world, as it is the flame of life that the player carries into the final bonfire, to consume themselves or to extinguish it, then deciding whether to carry on the age of the gods or putting it to an end. *The Geralt of Rivia's* book saga (Andrzej Sapkowski, 1993-2013) gives the studio CD Projekt the possibility of expanding its world and the story of their characters and adding more development to them and their world based on the author's created mythology in their *The Witcher* (2007 -) video games.

Carson (2000) writes about how when a designer is trying to build around an idea "*every texture you use, every sound you play, every turn in the road should reinforce the concept*" chosen. Aesthetic development is therefore key to reinforce narrative which will be developed in the following section. Thus, the environment is essential to reinforce the main idea of the game, so "*environmental storytelling creates the preconditions for an immersive narrative experience in at least one of four ways: spatial stories can evoke pre-existing narrative associations; they can provide a staging ground where narrative events are enacted; they may embed narrative information within their mise-en-scene; or they provide resources for emergent narratives*". Then, it is easy to see how the gameworld becomes a central part of the development.

The organization of the game's structure and plot then becomes a matter of designing the geography of the imaginary world on which the player will act. However, the designer should not attempt to fully "*predetermine the uses and meanings of the spaces they create*" so the player develops a sense of place which "*encourages the deposit of a memory trace*." Lynch (1960) in Jenkins (2004). Therefore, the player should be given some pieces and examples of environmental storytelling so they can be perceived, by the player who gives them meaning, as unique and significant. That is why not every sculpture has its own story, although those which are constructed upon intertextualities can be interpreted as evoked

narratives, so the player then can focus their attention on the important ones, those which carry significance and a story, those completely original, the poet and the mother and son. Accordingly, the gameworld and its assets try to set the world as a whole, which is sculpted bearing in mind the figure of the player and aware of what needs to be told and developed.

Moreover, this environmental narrative is not only born in places where the player is an active part of the game, even though it requires the player's agency to appear. Namely, this narrative can also occur in the structural elements of the environment, which the game is rich in. The world is made up of sculptures. Sculptures of those that are enclosed and those that are free, those that listen, those that crown the temples or those of the poet, the mother or the child which are elements that may seem empty yet enclose narrative.

These are, perhaps, the only examples of structured narrative that can be spoken of that are also postulated as clear examples of embedded narrative. A progression is shown for the statues of mother and child: on the first island they are both separated in the sea of islands, in the Platonic ending, they are finally together, happy, but in the Lacanian ending one can see the death of the child. As such, a clear structure can be seen, a beginning and exposure of the problem is shown, both are separated, but, without a narrative body, both ends are reached. Yet, as such, these facts are not exposed to the player literally, for they are simply laid out before them, and their voice fits into the relationship of the facts glimpsed. In short, these are shown as structured elements that are part of the environmental narrative intrinsic to the gameworld, Navarro Remesal (2013). We should also add to this environmental narrative the above-mentioned audios that appear throughout the game. These, according to Navarro Remesal, are established as structured virtual media that complement the narrative of the game in their own way.

These explained environmental narratives come into play as long as they are supported and coherent in the ludofictional worlds, which, in Planells' (2015) words "*are static models designed to be authenticable. The fictional and the ludic composition of the ludofictional world is a static model until the player makes decisions and makes it work in order to later assume its consequences and obtain a balance.*" Therefore, the player sets in motion the actual gameworld, decides their actions and then reflects on their consequences and meaning.

Hence, the player may decide what to think about the facts shown to them but, paradoxically, they cannot decide which path to take in their own story, on the yellow brick road at the end of which they find the wizard Jacques Lacan and his reinterpretation of Plato's cave myth. Both katabasis and hero's journey have been mentioned throughout the document, which could be used to examine the present project. With this, we could talk about the path followed by the player as a clear structured narrative, and this is how -as we will develop- this path is planned and narratively justified but, in the end, also subject to the player's own mental procedures, since the player is not presented with clear signs of narrative.

However, given that the project is structured on the so-called alterbiography, it is necessary to leave the player spaces and actions from which they can structure the narrative, and thus construct their own individual interpretations and, thereby, structure **their** narrative.

Storyline and transformation arch

The narrative that the player will develop will be linked to the storyline of the game, in fact one could say that it also marks the storyline of the player themselves and, therefore, the transformation arch, since there is no other figure as a subject in the game than the protagonist themselves, the player. This arch also includes the successive gameplays, since, in case they could be executed, it would be done in another position of the spiral structure we talked about earlier.

Only at the very first start of the game the player would start from zero, but in subsequent gameplays, they would not, since they would start with that knowledge gained in the previous sessions. This spiral can be used to understand the narrative development of what occurs and of the successive "selves" that appear on the way but also to observe the manner in which whenever the player starts a new game, they does not start from the same point from where they left off, as they have developed new knowledge.

In the following points the storyline of the game will be developed bearing in mind even those that occur parallel to the main one, in the same way that it was done in the Game Design section.

Initial Island

Upon starting, the player will be introduced to several audios in which they will be encouraged to stop thinking as they have always done ("*Forget every rule*") and enter the unknown. At the moment the player is given control, they will see a white light at the end of the passage. This light is meant to be like the one observed on the way out of the cave, the blinding knowledge that those on the way out yearn for. For now, the player must learn that they are not yet prepared, as they cannot reach it, but the fact that they turn around and leave the temple is a first step. The player is no longer chained, watching the shadows on the wall, and can now try to walk towards the exit.

For now, the exit from the partially ruined temple will show the way ahead and the obstacles lying in the way. Displaying something that seems familiar, somehow recognizable, some strokes of evoked narrative may be found here. One of the parallel narratives that takes place in the game, that of the mother and son, can be witnessed on this very island. They are separate in their first appearance, they are on distinct islands, with no communication means, and a void between them. The son, standing on the island where the player is, glimpses the emptiness in front of him without finding his mother,

without finding his home "*If only my heart had a home*". The mother can be found on a small island, floating away from her son.

On the other hand, in the main thread, the player is shown the tree where the apple is found. In this case we refer directly to the biblical verses, where the act of biting the fruit implies the search for knowledge, the birth of the God/man duality and that which is good and bad, what God would and would not do, the birth of ethics. We developers force the player to take this action, we posit ourselves as an evil genius who leads the way and pushes the player into an ethical and moral system in which they must now make the decisions they encounter along the way.

This first island is presented as a kind of known world, in particular the initial sequence and the corridor could be read as the ordinary world, the "real" one, the call to adventure in the audio sequences and the crossing of the threshold at the moment the player decides to turn around and leave the island, entering into this unknown world.

Statue Island

In this unknown world there will be obstacles, dilemmas and statues. These are set up as samples of embedded narrative that will accompany the player on their journey. Their nature is that of lost souls that have been locked up in those stone bodies, unable to escape. They can be distinguished in their ability to listen or not, or, in the possibility of being freed which depends on the time they have spent in this world, these are exclusively presented in this island. Thus their desperation is understood, for only the player with their voice can release them from their prisons and thus silence their cries. To this chorus of cries are added those of the sculpture that screams for them to stop, not in a selfless way, but because this has been condemned, as was Sisyphus, to an eternity of suffering. The latter, not yet aware of the absurdity of her struggle, does not appear to be at all happy as Albert Camus (1942) stated regarding the above-mentioned myth. Or this is the explanation that we give, yet again, without imposing it on the player and letting them reconstruct it.

This evoked narrative in the form of ancient myths is part of the imaginary of the game and helps to establish a fiction that is not completely unknown to the player, but also exposes themes such as responsibility, the inability to escape from problems or stoicism applied to those statues that will remain trapped forever.

Time Island

But even though eternity is a long time, it is not what the poet nor the player have in their pocket to reach the next island. In this one the player will be shown topics related to decisions and their consequences: the aforementioned CTRL+Z syndrome, that there are situations where one cannot save everyone, questioning if one can be responsible for something that was unknown to them, the passage of time, the concept of letting go, from the point of view of both Taoism and Stoicism, and Greek mythology will come back to

guide the player in the gameplay. All of this in the concrete context of the decision taken by the player where they condemn either the fish or the plant or the involuntary sentence of the poet.

In this case, the decision between both elements described is established clearly, where the player is informed of the situation, understands that the decision they make will kill the unelected being and, then, is formed in an irreversible way, establishing this as a canonical decision according to Bura (2008) in Navarro Remesal (2013). Therefore, death is shown as "*an ontological horizon around which we are obliged to define ourselves, to make decisions*" Heidegger (2009) in Martín Núñez, García Catalán, Rodríguez Serrano (2016) and, thus, invite the player to ask about the topics explained above.

In the same line, the figure of the poet is established as another example of embedded narratives. This is a clear reference to the already mentioned song *The Poet and the Pendulum*. The figure is accompanied by elements of the environment that build the background and personality already developed within the lyrics of the Finnish group, which undoubtedly deal with different issues than the ones here displayed, which feed the gameworld and move the constant focus on the player-protagonist towards figures that somehow share environment with them (Cid, 2020). In this case, by showing the "real" time, or at least, the time given by the system, to the player, we join that time inside the game "*that would correspond only to the videogamer from their exclusively subjective experience*" Bergson (1925) in Martín Núñez, García Catalán, Rodríguez Serrano (2016), with that which we pretend (given that this time is subject to the hardware and software of the system) unique and unstoppable, thus reinforcing the close relationship between the game and that which is external to it.

Maze Island

This fourth island contains challenges that could be considered the closest to the *ludus* within the game: the labyrinths. It is also a place for what we propose as one of the defining mechanics of the project. That which moves away from what is usual in the video games industry, the mechanics of voice and how this change of perspective regarding the standards takes part in the challenges of the labyrinths.

In addition to those described, there are also issues concerning the importance of the journey as opposed to the destination and how to learn from it, that problems are seen easier once they are overcome, that there is always a way out, and that there is truth beyond what we see or, as Kierkegaard said: "*Life can only be understood backwards, but it must be lived forwards*". Furthermore, in this case we return to the Greek myths to refer to the myth of Orpheus and Eurydice.

Platonic ending

Upon emerging from the underworld, this time without looking back, the player finds themselves in the idealised form of the first island they step on, this one being revealed in all its grandeur. It can be witnessed how the mother and child have finally been reunited, as the former cradles him in her arms at long last. The player only has to cross the threshold of what they once were deprived of, with the wisdom and knowledge obtained on their arduous journey, thus returning to the initial island but looking at it with new eyes, the hero returning home with the elixir, is, at last, the being who leaves the cave and can see with its very eyes that which is illuminated by the form of good.

Lacanian ending

But, according to Jacques Lacan in Fernández (2015), that which illuminates the form of good is only a shadow of a shadow, the being that comes out of the cave is no longer a champion of knowledge, in fact, it is even more conscious of all that it does not know. It has abandoned everything it knew, its comfort zone, to be driven into ignorance and uncertainty. Therefore, the island itself is now structured as a reflection, or shadow, of those previously displayed, for all that appears there is pure decadence. The temple stands completely collapsed, the mother and child separated by death, and the player is given one final choice.

In this last decision the player is confronted with themselves. They hear in the distance the cries of the statues they have already released but, this time, they are joined by their own screams trying to make them stop. At this moment it falls into their hands the possibility of helping them on their journey, clearing the way, releasing the souls imprisoned but thus perpetuating the loop in which they are immersed, helping them, aiding them, to move forward and reach the same destination, maintaining the loop that imprisons them or, on the contrary, not pressing the button, forcing their other self to stay imprisoned on the island and thus breaking the spiral to prevent the loop from continuing. Either way, the player must choose, actively, even if it involves inaction, to make a decision and accept its consequences.

Characters

As can be seen throughout the project, the player character is the only one that appears so this section will focus on the study of the relationship between these two elements, the player and the character.

The development of the so-called game studies has led to defining different ways in which the player is represented in the game, that which they embody in the diegesis, through their agency, whether functional or fictional. According to Navarro Remesal, there is no room for a specific model, and he proposes the notion of avatars and their analysis from different aspects.

Firstly, according to Jørgensen (2009: 2) in Navarro Remesal (2013) *"The avatar is a "virtual body" that must be a functional extension of the player within the playable world both "emotionally and by allowing the player direct action therein; there must be a continuous and real-time relationship between the player and the avatar" although, on the other hand "Just because the player controls a character does not mean that there is an immediate transfer of behaviours and values"*.

For this reason, this project tries to involve the player, because as mentioned, their presence is key to the development of alterbiographies. Therefore, when it comes to representing the player in the game itself, we decided not to do so, that a physical avatar of the player would not appear, moving away from those proposed by Navarro Remesal *"The audiovisual representation of the subject creates a complex global image that enriches both the rules and the fiction of the game and the representation of the player in both"*. For, if we want the player to be the one who plays, reducing as much as possible the distance between player and avatar, there is no room for a physical representation in which the player does not see themselves represented, since, in that way, it could be thought of as playing a role, thus moving away from first-person value judgments and from the mental processes that are sought, something that takes us away from the purpose of the project.

In this first-person perspective, chosen in favour of immersion since *"There is a great sense of being "in the world" as the player sees and hears along with his character"* Bates (2001: 48) in Navarro Remesal (2013), we also reject the use of a HUD since *"The coexistence of the HUD, as a non-diegetic element, and the playable world on the screen create, in Rhody's opinion, a separation between subject and player"*. Finally it was decided not to use any kind of death as a penalty for the player, in the words of Fernandez-Vara (2010): *"Eliminating the death of the player character encourages players to complete the game, rather than abandoning it after dying in the same area several times in a row for no clear reason"* and, in the words of the creators of Loom (Lucasfilm Games, 1990) in Fernandez-Vara (2010), which we fully subscribe, *"We believe that you buy our games to be entertained, not to be whacked over the head every time you make a mistake. [...] We think you'd prefer to solve the game's mysteries by exploring and discovering, not dying a thousand deaths"*.

That is why the project proposes an approach to the concept of avatarism from a point of view in which, according to Frasca (2001), it is easy to *"see that the distance between the player and the video game character is minimal"* since the complete involvement of the player is required for the project to be considered a success.

Artistic design

Since this is a project that involves two people, part of my work will be directed to the artistic part of it, so, broadly speaking, my work will be similar to that of the art directors of major audiovisual productions. Consequently, everything related to aesthetics will fall into my hands and it is especially important to mention and establish certain fundamental pillars for everything that will end up being produced.

As we have already mentioned, the current project has two aspects: the artistic one developed by me and the functional one, developed by my partner Jorge Fernández. That is why this section is the one in which more time has been invested and will require more development. However, once the artistic design is described and argued, in the next section where the functional specifications are explained, the technical art will be displayed. As such, here will be described those rules which establish the aesthetics of the game and, in the following, how these can be merged with programming.

Aesthetic Basis

It should be recognized in this first section that everything previously mentioned requires an adequate representation since, otherwise, the lack of coherence or certain aesthetic dissonance between the elements of the gameworld can damage the immersion to the same extent as a bug in the functional area, which is why it is necessary to establish some bases on which to construct and argue the decisions taken.

Firstly, it would be appropriate to take up what was defined in the initial stages of the present document. The game we are dealing with tries to take notes of what is defined as slow gaming to build the contemplation and introspection that are central to gameplay. That is why everything stated in this section should not be in any way an obstacle to the development of the required introspection, but rather, it should take part and enhance it, thus helping the immersion so that it can be deemed that a good work has been made.

Defining immersion, according to Navarro Remesal (2013), "*as the coherence of the game's fiction and its acceptance by the player, a combination of agency with fantasy*", and taking the gameworld as part of the fiction which "*offers the possibility of experiences similar to those we associate with narrative*" Klastrup (2009) since "*every fictional element contains the inherent possibility of serving a narrative, and the playable world is (alongside the characters) the centre of fiction in the game*" is why the gameworld and everything it includes is key to the narrative which is why it is necessary to adequately develop it in the aesthetic section as well.

These mentioned moments of contemplation and inaction need a gameworld which accompanies and contributes to them. We can distinguish two key concepts that are defined by Scully-Blaker (2018) to talk about the moments of inaction in games, these are

Stasis and Stillness. The former is defined as "inaction brought on intentionally or unintentionally through a game's mechanics" in other words "any moment in which a game forces the player to stop because of a device that exists outside the game's explicit narrative". On the other hand, Stillness is referred to as "inaction brought on by or through a game's aesthetics" and part of its distinction is based on the fact that "one cannot so much design for stillness as they can design towards it. The second that a game "forces" a player to stop and admire the scenery, perhaps in a cutscene, a moment of stasis is created". He also talks about certain cases, such as *Animal Crossing* in which "the tone set by these games encourages players to find spaces within the virtual world where their avatar may stop and a moment of stillness can occur" and this is where we are aiming for. Namely, not to force the player to admire the landscape, but to leave space for this to happen.

Therefore, that task committed is to create, from its aesthetics, a world open to moments of stillness where this one is equally important for the narrative and the development of this one. It is worth highlighting, therefore, the points on which this design falls. The visual section, as we see, should focus on adding to the immersion and following guidelines that help the player to focus their attention on the specific parts that are required to them, thus moving away from frustration and withdrawal, but maintaining the consistency of the pact made with the player. It is necessary, then, to maintain a robust world that follows its own rules.

Gameworld - Aesthetics as narrative

The rules established for the aesthetic design go back to the mentioned *The Witness*, clear and descriptive forms were required, which can add complexity if it is required to center the player's attention on these bodies, which, even if they are simple, still emphasize their place in space. Therefore, the way chosen was a low poly aesthetic, that is to say, with few polygons and marked lines and shapes, with flat but saturated colors, thus obtaining simplicity and expression to give consistency to the world.

At this time the statues came in as part of the playable world and, in search of references, it was inevitable not to end up in the Greek sculptures of the Hellenistic period, among them the *Venus of Milo* or the *Victory of Samothrace* (Fig. 9). Thus, the Hellenistic period in particular and Greek architecture in general are accepted for the design of the gameworld.

Figure 8. Pergamon Altar and Victory of Samothrace. Displays of Hellenistic architecture and sculpture.



This architecture, in general, is characterized by simple forms, relatively plain and geometric, so it fits in the initial idea. Although those alluded pieces were highly decorated, which frontally confronts the low poly style chosen, as we will develop. In addition, it should be mentioned that the general imaginary of philosophy has a close relationship with ancient Greece, which just rounded off what was proposed.

And if, as mentioned, the video games take references from different arts, they can also take references from their own environment. It is at this point that we should mention Ubisoft's work, *Assassin's Creed Odyssey*, which takes part in this ancient Greece, more specifically in the Third Peloponnesian War. The development of this AAA, whose saga is known for a certain historical rigour (in fact, the previous release, *Origins* (2017), set in ancient Egypt, and this very one, received an exploration mode designed for teaching and, moreover, a second one, *Unity* (2014), set in the French Revolution, is being used for the reconstruction of Notre Dame Cathedral), leads to take it as an artistic reference, more for the collection of information than for its originality.

Although, as in all his releases they add certain elements of fiction and take certain licenses. At certain times, they speak of a civilization that came before "ours" and as such, they receive a different artistic treatment. This, in particular, is based on its architecture: they use elements with marked geometric shapes that protrude from the surfaces, forming simple shapes from complex surfaces through the overlapping of simple forms. As such, they are used as a contrast to the Greek style, since this other art appears as external, strange (Figure 9).

This other style resonates with that seen in the most recent *Control* (Remedy, 2019). It also uses it as a counterpoint to that art which is recognised as familiar, in this case that of a network of offices decorated and formed by flat concrete blocks (Figure 9).

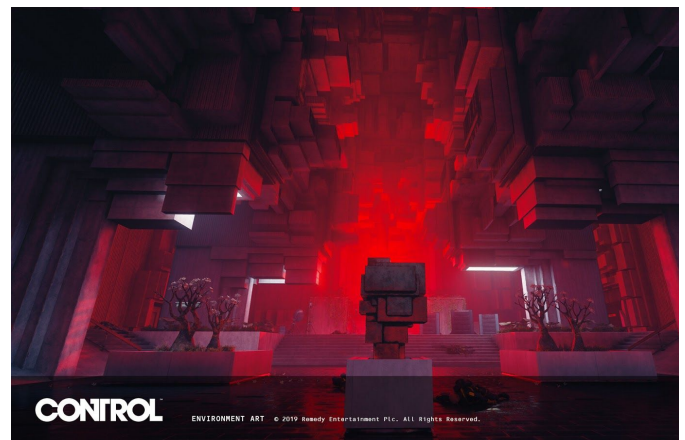
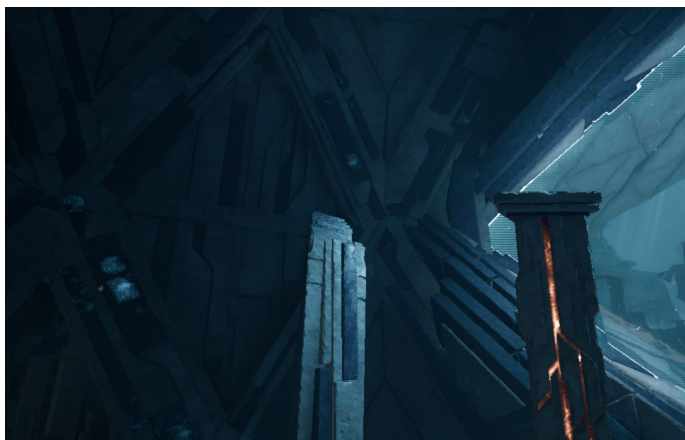


Figure 9. On the left, Isu architecture from AC Odyssey. On the right Control's brutalism.

From both games we acquire this proposal of contrasting that which is classic and familiar with a framework of geometric forms. For this reason, it is established that for the art of the project, that which is established as natural to the gameworld, to that journey that the player goes through, it is used the style of the Hellenistic period, that is, for portals, temples and sculptures, that which the journey requires in order to exist.



Figure 10. Example of the adaptation of Hellenistic Architecture into the game. Plato's island temple.

By contrast, and as we have seen, this loop in which the player is immersed can be broken, thus keeping the player from being part of it. This breaking requires certain change concerning the usual, regarding that which is repeated and established as a norm. This is where the style seen in *Assassin's Creed Odyssey* and *Control* comes in, this brutalistic-geometric style depicted. This approach is used for everything associated with change: the serpent on the Eden's fruit tree, where the figure asking for help is placed on the island of statues, or the very button where it is decided whether to stay in the spiral or to break the loop (Figure 11).

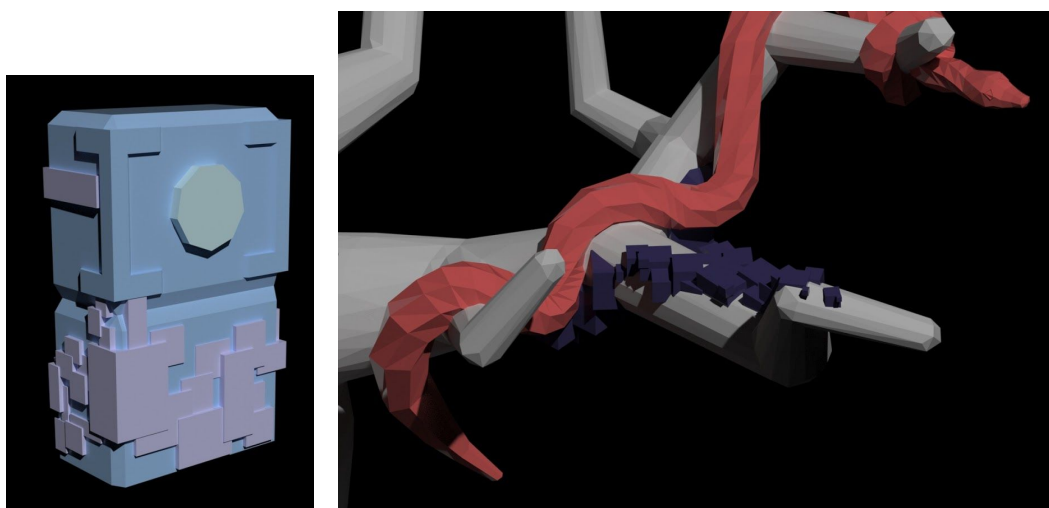


Figure 11. Example of the adaptation of Brutalism into the game. Final Button and Eden's tree.

However, far from these two, a third style is established. It is close to that which is referred to in the low poly style but adding an approach towards curving, without becoming so. Referred as chamfered (Fig. 12), it refers to the tool in one of the programs used with which an edge is transformed in two, and in this way, that edge becomes less aggressive. Therefore, this other architecture, closer to the curved, will be used for those objects that derive from human creation, that is, the tape recorder, the guillotine or the camera.

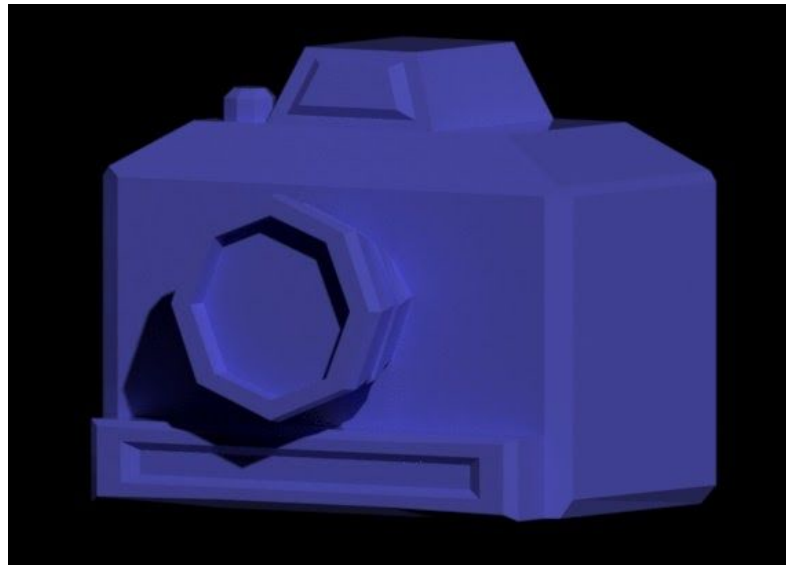
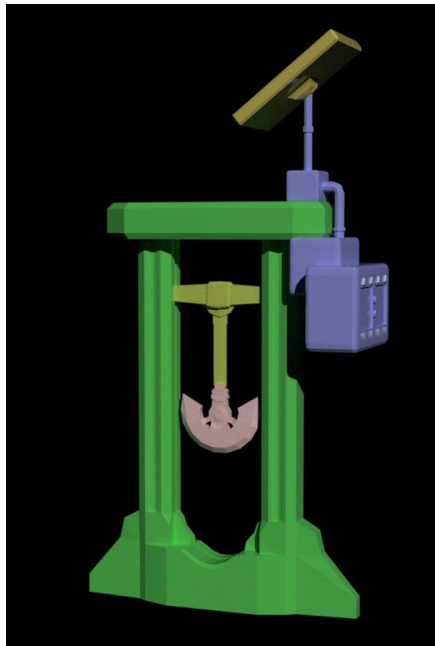


Figure 12. Example of the named chamfered architecture. On the left, the guillotine and on the left the photo camera.

Therefore, the gameworld itself is used not as a prop, but as part of the game in which the narrative continues. Where what happens in gameplay transcends the mechanical and manages to appear in the world as well, so that the game is understood as a functional whole that nurtures itself and its parts.

Characters - Or their non-existence

As mentioned in the previous section, there are no characters as such, there are sculptures that might be treated as such, and which, in the end, constitute part of the gameworld. Nevertheless, they are treated as such in this section for structure's sake.

As mentioned before, the Hellenistic sculptural style is taken as reference and it appears in those statues that can be found in the game. It is not that they are simply taken as references, some of them appear directly, although adapted to the game's needs.

This is established as a key issue, since, as is the case, the will to insert the *Victory of Samothrace* (Fig. 13) in the game does not imply at all that this is possible. Mainly due to the fact that the great majority of the referenced statues would require a lot of detail, which, as we have seen in the previous sections, is contrary to what had been established. In this

way, everything taken must be adapted to what the game requires. This is the case with the different figures that appear on the statue island. On this one, there are remarkable figures of the Hellenistic style. This approach is, in fact, based on the representation of naturalistic and expressive figures, far from the preceding style which represented ideals of beauty and physical perfection. In the game, there is room for the appearance of: Laocöon and His Sons, in this case without his children, the Ludovisi Gaul, the Barberini Faun and the already mentioned Victory of Samothrace.



Figure 13. Example of some of the developed sculptures. On the left, adapted Victory of Samothrace and on the right an adaptation of Bouguereau's Dante and Virgil (1850)

Additionally, there are also sculptures of own creation, such as the series of the mother and the son, the poet or the rest of the statues of that island. It is worth adding to the list of references, the album cover of the aforementioned group Nightwish's *Once* (2004) where the so-called *Angel of Grief* (1884) by William Wetmore Story appears, crowning the temple of the initial isle. It would also be appropriate to mention Bouguereau's work called *Dante & Virgil* (1850) (Fig. 13) which serves as a reference for the statues that appear in the Lacanian ending in order to emphasize the aggressive atmosphere of the island.

Functional and technical specifications

As explained above, this work has been developed in pairs and it was my partner, Jorge Fernández Sánchez who was in charge of this part of the work. Essentially it consists of the control of the player, the creation of the puzzles and their programming, as well as all the events that occur in the playable world.

The control of the camera has been handed over to them and as we have seen it is placed in the eyes of the player, even in the absence of a mesh, as is general practice in first person games. In addition to the control of the camera, the player will be given the ability to pick up and move certain objects. Since mechanics are a key part of video games, there is room for some experimentation to suggest new ones which, in this case, follow the path of what is presented in the narrative sections, since mechanics are another form of narrative mechanism.

Among the other mechanics that have been implemented are the random generation of labyrinths, voice and sound intensity recognition, the creation of portals between which one can travel and see through and the management of real time embedded into the game. In addition to the system of events that moves the game, everything that happens in the game is in his hands: the control of the general flow of the game, movements between screens, menus and options. Certainly, he also takes part in the execution of the audio tracks, and the subtitle system that accompanies them, which are not only executed to the player's will, but also in less concrete moments of gameplay.

Finally, and undoubtedly important, he is in charge of the smooth flow of the game and its optimization, as well as the testing and debugging to make sure that everything works correctly and that the technical section is not an impediment to the enjoyment of the game experience, but on the contrary, it is a great ally.

Technical art - Motion as Stillness

Everything that has been discussed so far, whether it is the gameworld or the characters, have had their solidity and their permanent nature in common. In a justified way, that is to say, if they are infinitely captured souls, it makes sense that they are locked up in stone prisons, this solid material that is usually used as a metaphor for eternity.

That's why in some way it is necessary to add certain movement, since otherwise, the consistency of the gameworld is partly compromised, it ceases to be a coherent world as it does not seem a living world. This, in the case at hand, is given by the so-called shaders. A kind of program used for shading 3D scenes that has evolved into VFX and post-processing. They have many uses, rendering the wireframe of a model or shading an entire scene with many light sources and real time shadows, for example.

The game engine used in this project is that one developed in our course. Known for its accessibility, Unity would not be any less regarding Shaders, and although the following versions have made this work more affordable and unified, we have worked on the 2018 High Definition Render Pipeline. Unity Shader Graph uses a visual interface for what would otherwise require many lines of code, making this tool another option for artists and not exclusive to programmers. This so-called Visual Scripting is a concept that is being recently adapted and used for programming in Unreal Engine or for texturing in Substance Designer.

Extending, therefore, what was seen in the subject VJ 1221, Shader programming is used for the creation of several elements that are part of the game and help its consistency as a gameworld. In the first steps of the project, it was thought to create a shader for the camera which, as in *Firewatch*, interpreted the distance between the camera and its surroundings, shading each one of the segments chosen by the programmer in a different color that could also be chosen (Figure 14). Since *Firewatch* was such an important game to us and to the project, we decided to try and implement it.

Such shader was not possible to develop in Unity's Shader Graph, so its process would be harder and take more time. As explained, the shader had to take everything that the camera displayed to calculate the distance between these two objects and then color the scene with that data. Given a gradient of colors and taking into account some variables which moved the fog closer or further from the camera (fog distance) or changed its opacity (fog intensity), the shader was ready to store the camera's position in screen space and get its linear depth from the camera's depth texture to process it into a $[0,1]$ spectrum which then was multiplied by the mentioned fog distance. The shader would then, taking into consideration the fog's intensity, color the fog using the spectrum's value by comparing it to the provided color ramp's values, namely, taking its value in the spectrum as UV coordinates, considering 0 is the left and 1 is the right end of the ramp given.

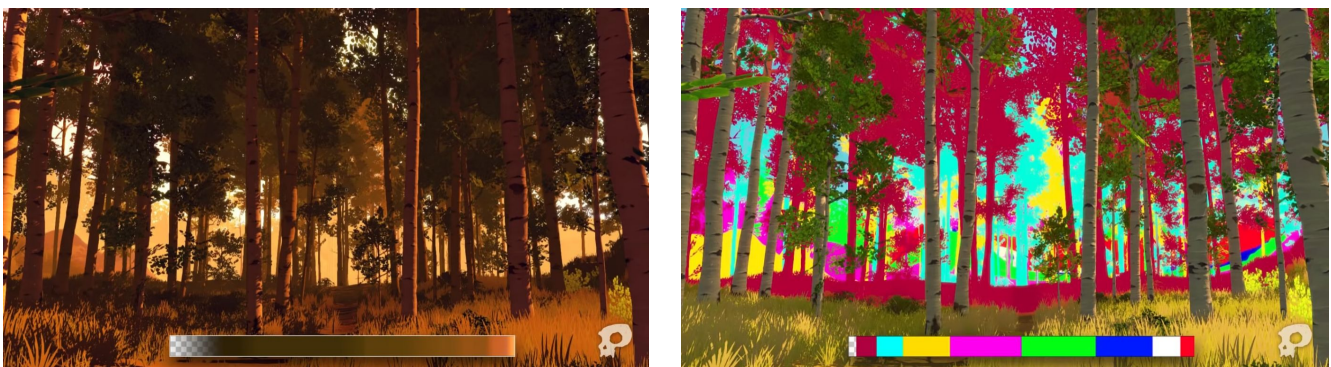


Figure 14 *Firewatch's* stylized fog samples. Taken from *The Art of Firewatch* (Jane Ng, 2015) at GDC

As said, this was a shader we decided to develop in the first stages of the game, wanting to get close to *Firewatch*'s aesthetics. Then it should be taken into account that this game is set in a large forest where many things are displayed on the player's screen. Thus, the shader would give many information to the player and help establish an atmosphere which would support the game's narrative. That was also our intention but, as we were developing the game, the idea of floating islands rose and was kept. This made us question the actual use of this fog shader since these islands were going to be far away one from the other and they were going to be big enough so puzzles were placed in them but not as large as to show the different colors of the fog.

This change in the project's direction plus the problems which involved the portals, as they also take into account what the camera perceives, and the compatibility with Unity's chosen version, as some problems involving the way shaders were processed through the camera's script, arose due to this election, which made us set this shader aside, even so the code developed can be seen in the Annex IV section. Nevertheless, Unity's Deferred Fog was used, as it is built in the Post Processing Stack employed, which will be developed later, and as it gave the project a feel of completeness and eeriness.

The skybox (Figure 15) used in the game is a procedural animated material that adapts its texture coordinates to a sphere and uses their height to colour its own material. This material can be rendered as a proper skybox or directly printed upon a giant sphere in the sky, their results are the same. To render such an animated skybox Unity has to be given its world position normalized, that way we acknowledge that we are working on a sphere. Doing some mathematical operations, as seen in Boysen (2020), the texture coordinates are obtained. Using a linear interpolation between two colors and processing the UVs obtained the shader can now display what could be a gradient sky, which will vary its color depending on the world coordinates.

Stars are now added using a saturated, inverted and a step function applied on a Voronoi map. Then, a script should be created to reference the main directional light in the scene and taking its direction in a Vector3. Following the normalization of the camera's direction, in the world space context, the calculation of the processed light's direction and normalized vector's dot product plus a step function between 0 and 1 values and its inversion, a sun/moon disk would make an appearance on the sphere. Now we used a stepped noise map which was then offsetted over time and applied to the obtained UVs, sampling them with their noise texture to just use their grayscale values through, in this case, their red coordinate, although it should be the same for any of them. A mask for these clouds is created, since they now cover all the sphere, using a smoothstep for the V component of the spheres UVs then inverting this values, stepping them and then doing a linear interpolation between the colors, the clouds and the mask which is used as a the interpolant.

Some more shaders have been developed: a water one (Figure 15) which is done through the movement of Voronoi maps and the stepping of Perlin noise maps to simulate its foam and a dissolving effect which is constructed upon a vertical mask, a spiraling stepped texture (in this case The Fall of the Damned (Rubens, 1620)) which indicates that a portal is closed, and a stepped noise map, taking into account the material's metallic property which can be accessed then through scripting so it reacts to the players audio input.

One last presents a simple function, although quite time consuming without the use of Shader Graph (Figure 15), is the generation of normals on a diffuse texture. The application of this shader generates normals based on a given texture, which is also applied, so that the object is rendered with its own texture plus its normals which influence its lighting. This allows the introduction of text, in the form of an image, on planes, which will then have relief.

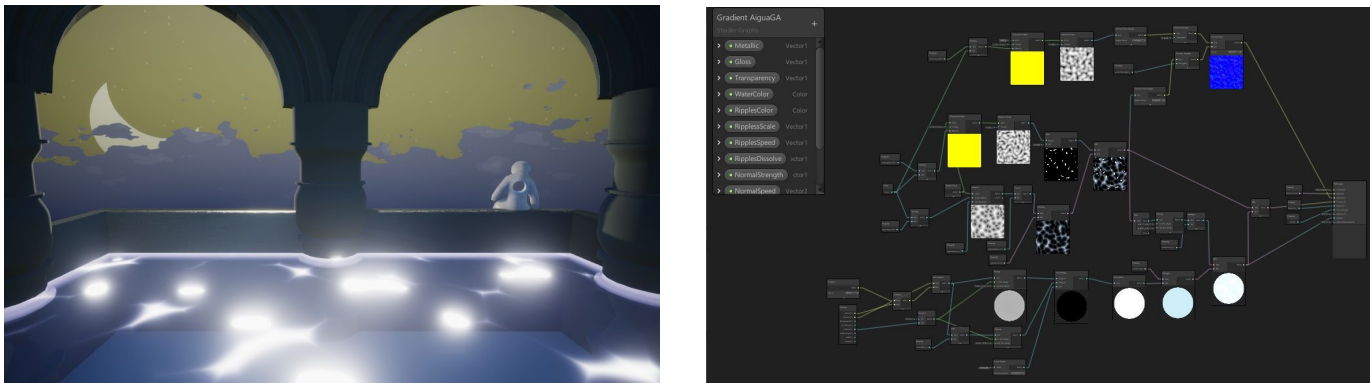


Figure 15. On the left, an example of water and skybox shaders. On the right Shader Graph's node interface

Lastly, three particle systems have been developed. These weren't taken into account at first, since they started as just a simple one. With the development of the project and the testing phase, we came to realize that some more could be added. The freed soul particle system emitted white particles with trails which followed them travelling with the direction given to them by a noise map. A water particle system which emitted sprites with different shades of blue. Lastly, a fire one was added which instantiated, at random, four different sprites with shades between yellow and red. Additionally this last had three other subsystems which emitted smoke, glow and sparks.

Lighting & Post Processing

As already discussed, saturation was a necessary effect for the configuration of the gameworld. This is given, in this case, by the insertion of three directional lights in different directions so that they create a much natural lighting, since with only one it looks like the world is being lit by a spotlight. Somehow, this helps the generation of a credible illumination and shadows.

However, Shader Graph is not the only thing the project benefits from by choosing the High Definition Render Pipeline, it also implies the possibility of using various post-processing techniques. Among these, the artificial saturation that is produced in illuminated areas, the Bloom that is added to the lights to make them brighter, the use of a slight vignette in the corners of the camera or an ambient occlusion that is slightly above the usual, giving the game a certain dreamlike atmosphere which was definitely aimed at. Finally, a slight fog is also used, which helps the believability of the gameworld by giving a light blurring effect to those islands in the distance. Results and comparison in Figure 16.

The use of different types of lights and lighting systems has been discussed. Mainly we debated between the use of real time light or pre-calculated lights through lightmaps. This system calculates the amount of light received at each selected point so the engine does not calculate it in real time although, as it seems to be as the very same light sources are used. Alternatively, real time is a simulation of light rays that the game calculates while it is being executed.

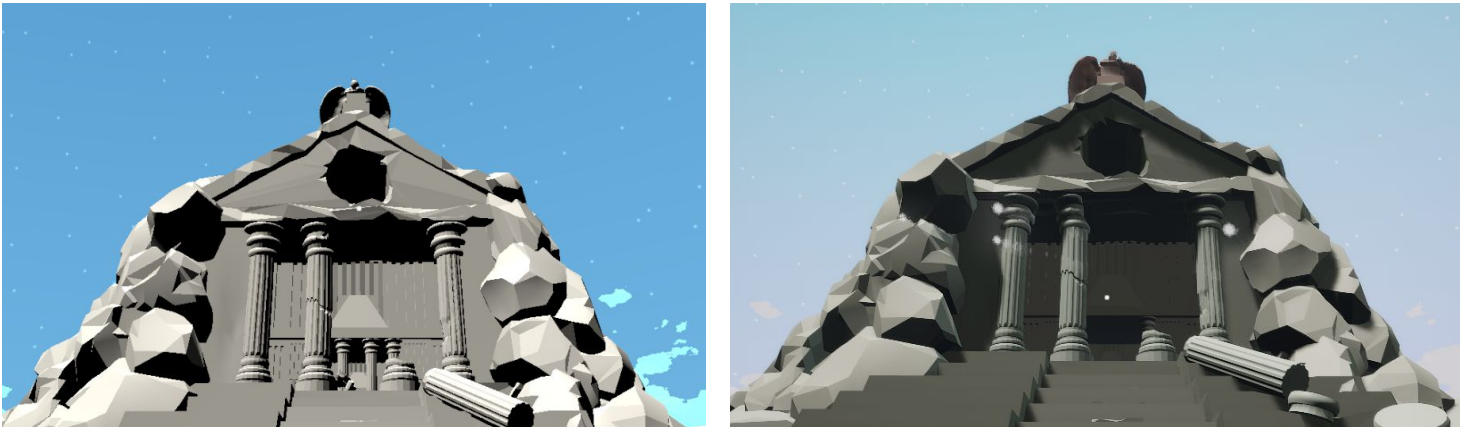


Figure 16. Initial Island's temple. On the left without any post-processing nor support light sources. On the right a more defined and vibrant take, with everything described on.

There are several factors that influence this choice. Firstly, the game's GPU usage is taken into account; if it is to be optimized, pre-calculated lighting will be used. Secondly, if it's a matter of simulating reality and setting dynamic lighting changes within the game, then real-time lighting will be used.

This is why the game we are dealing with is particular, because it does have a certain change of lighting, that is, when night falls, but the very light may not change, mainly because the color of this light is not completely warm, and it is very adaptable to both day and night. In addition, there are no moving objects that enter or leave areas of shadow, the player, as seen, has no physical representation through a mesh, so this is not to be adapted to light changes. This works in both directions, since there are not many moving objects, so little calculations have to be made for the real time lighting, so it will not be overconsuming. Using this option would certainly be the most comfortable, since it is the

standard in Unity but, even taking into account the above, it would undoubtedly make better use of resources if the light probes and pre-calculated lighting were used.

In the end, we ended up using mixed lighting. An option which lets the developer choose which are the objects that are not going to move in any case in the game so their lighting can be calculated and printed into lightmaps (Annex IV). These will be applied to the objects once calculated so their lighting won't be taken into account in runtime. This way, the objects which will move in the game, such as the jails or maze walls, will have their lighting calculated in run time but those others which stand static won't need to be, namely, sculptures or trees, thus helping the game's optimization.

Model optimization

A standard in the games industry is that a game has to run smoothly if the hardware requirements are met. In our particular game we decided that the game had to be as optimized as possible, giving ourselves the duty to meet this industry standard so that we had to care about the assets and scripts we used in the game.

The Victory of Samothrace that can be seen in Annex III consist of 770000 polygons, something that is quite a standard, or even short, for models developed in digital sculpting tools. But the game does not only consist of this mesh. Every other asset and script has to be rendered and executed in run time. If the game is to be played, the assets used cannot be as high poly as this is. Then that model cannot be thrown, just like that, into the gameworld, some optimization has to be made. Through remeshing and decimation processes provided by the software used the sculptures reduced its polygons and got closer to that which the low poly aesthetic required.

This low poly style helps the game's optimization too as the temples displayed, and every other mesh besides the sculptures, has been created using geometric modeling software, meaning that they are rendered in the game world with very low load on the engine and its processes.

One other form of optimization, which can be used to conceal some objects in game, are Unity's built-in Level of Detail Groups. These take into account the space they occupy in the player's screen and if they take up less than that established, they disappear. In the project we used these LoD Groups to make the statues in the Statues Island disappear since they add up to great amounts of polygons. Additionally the whole Lacan Island is not shown until the player stands on it since its access is not made through a portal so the player does not see it until they are teleported to said position. Thus relieving the engine to render an entire island of polygons.

Project monitoring and management

Since the general of the degree is individual projects, as far as final degree works go, our case is somehow special, since coordination between two people is necessary for the development of the work. Nevertheless, this has not been a problem since my colleague Jorge Fernández and I are roommates, so in the early stages of the development of the project our contact was constant. In later times, due to the state of alarm, communication was partially compromised. Although we were not in constant contact, we established daily meetings for the development of the denser phase, the conceptual and narrative development.

After that phase, knowing what work we had to do and how to develop it, we went on working independently. However, we contacted each other at least week by week, updating our work, asking for help and opinion if necessary, and finishing the outline of what needed to be done. We did not follow any kind of methodology since, after four years working together, we know and trust each other, so we are confident that when the work is required to be done, it will be made, and so it has been.

In the same way, the communication with our tutor, Marta Martín Núñez, has been carried out satisfactorily. We have contacted her when we thought it was necessary, knowing that we could count on her help. Generally, we met with her to update the status of the work, share doubts or ideas and, in general, to receive feedback. While we were in Castellón, these meetings took place in person and, later, through video conference on Google Meet. Despite the exceptional nature of this last phase, we are pleased with the treatment received and we certainly think that the work would not have been the same without her help.

As for the initial planning, it would be optimistic to say that it has remained the same. It has been modified, no doubt, but we can say that it was still accurate. There have been changes and eliminations as to what was decided to do but in these cases they were invested in other tasks that emerged during the development of the project.

Nevertheless, the initial hour estimation ended up not being so accurate. In the end, the hours dedicated to the project are over 350. These were dedicated, partially to testing and debugging for a total of 10 hours overtime. Hours regarding Narrative research, Level Design and Scripting took up over 20 hours more than those calculated, such as the Dynamic and Symmetric Texturing which did not end up in the game which were used as time for the development of technical art. Lastly, for the Final Report we stated just 15 hours which ended up being 20 hours short, taking into account the time used to record trailers, gameplay and screen capturing in the game.

Results

From the beginning of the project, even before we could call it a project, we were urged to develop a small playable demo that could show what we could prove in the future, if we were given the time and the opportunity. The initial idea was to establish a well-polished basis on which to hypothetically build.

Our case, personally, seems to be far from this. Without a doubt, we are far beyond these 15 minutes of gameplay and, moreover, we think we have overcome the so-called "demo". Without a doubt, what is presented is a demonstration of what could be a bigger project, but we think that, honestly, from this other project we are only separated by our capacity to invest time. Well, the foundations are clearly laid: the conceptual development part is done and, although there is still room in terms of pre-production and expansion of knowledge and authors to talk about, this would only need more time for development, as the groundwork has already been established.

With such an established foundation and such a wide field to expand on, it would only require the commitment to continue with the project, including the involvement of other collaborators and, thus, points of view. This way, we could think of what we present as a first prototype, with a certain feeling of a finished game, on which to build and expand the experience.

Right now the game lasts an average of 30-45 minutes and is developed along 6 islands, although initially the project consisted of only 3 of them. It consists of more than 40 audio tracks and a total of 13 minutes of audio recordings, scripted by us and recorded under our supervision by 3 professional dubbing actors.

This is established, therefore, as a completely original work, in which we have been able to develop what we wanted, since we were the ones who created everything that came into play. There are, therefore, assets, mechanics and audios developed by ourselves of which we can feel very proud.

Project Access

Below are shown links to sites of interest:

Trailer: <https://tinyurl.com/y9eumb82>

Gameplay: <https://tinyurl.com/yb5lghj7>, <https://tinyurl.com/yckn9jb2>

Executables link: <https://tinyurl.com/ydh4478b>

Repository link: <https://github.com/jfez/TFG>

Conclusions

As mentioned above, we believe in the possibility of continuing to develop the product to a more or less final stage. However, even if this does not end up being the case, this stands out as the first major project with which to present ourselves to the labour market. This has been able to develop over more time than any of the previous events in the career and that is clearly noticeable.

It has been possible to invest time in the pre-production phase and in everything that was developed from a conceptual point of view, so that with clear guidelines, it has been possible to build, both from the mechanical point of view, as well as from the narrative and aesthetic standpoints. Therefore, these were not independent, they could interact and feed off each other (something that was left out in other projects of the degree due to pure time limitations) so we believe that we have developed something that we can show to the public.

Personally, I would have loved to have even more time and to be able to develop something more high poly, something closer to what you can see in *The Sojourn* (Shifting Tides, 2019). That is, to be able to show some statues, temples and, in general, much more defined gameworld, but like any detailed piece it would require time and dedication. It's not that I'm unhappy with what was shown, but I would have liked to have been able to further develop some parts of what was created. In the end, this is part of project development, being able to recognize the time available and adapting what you want to do with what you can do and that none of that suffers along the way.

On the other hand, I am satisfied to have expanded my knowledge in certain areas that we find in the degree. Things like the creation of complex shaders, the deepening in digital sculpting tools or the creation of complex and coherent gameworlds from an aesthetic point of view.

We should add that we have tried to move away from that which is established in the world of video games, mostly because this is a research work in which we can experiment, so we did not want to do what may be common in the industry, which may be easily reproducible and which may be clustered in a genre in a simple way. That's why we have tried to move away from the standard in the industry, proposing new mechanics and forms of interaction between the player and the game, thus forcing ourselves to think beyond the norm and trying to push, with our small contribution, the industry and its standards towards new ideas, projects, experiences and forms of entertainment and art.

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Annexes

Annex I - Audiotapes

Script - Quotes

Opening sequence

- [Requirements and recommendations]
- [Baby crying]
- Dear child, stop working, go play. Forget every rule... There's no fear in a Dream. **Song of myself. Nightwish.**
- You are master of what you silence and slave to what you speak. **Sigmund Freud**
- To know how to speak, you must know how to listen. **Plutarch**
- Talk very little about yourself, little about others, a lot about things. **Paolo Mantegazza**
- If something is never talked about, it's as if it never happened. **Oscar Wilde**
- Every tongue is a temple in which the soul of the speaker is enclosed. **Oliver Wendell Holmes**
- "Most people do not really want freedom, because freedom involves responsibility, and most people are frightened of responsibility." **Sigmund Freud**

Lighted corridor

- That the same fears that blind us are windows overflowing with light
- Those who do not move, do not notice their chains. **Rosa Luxemburgo**
- And when the time comes, the slave will be freed from his chains and will be free to leave his prison. But... can you call your home a prison? The only place you know, your comfort zone... No...
- It is knowledge that is the true pain because once you are aware of that which exists but cannot be reached, life is condemned to a permanent state of anguish.
- Insanity is doing the same thing over and over again expecting different results. **Unknown**
- The goal can never be reached when the right path is not taken.
- The light... the knowledge... the unknown. Not being prepared is just one more part of the preparation.
- Everything that made up reality is only a mirage, a shadow; but before looking at the light, the eyes must be prepared.

Initial island

- Speak so I may get to know you. **Socrates.**
- Born from silence, silence full of it. A perfect concert my best friend. So much to live for, so much to die for... If only my heart had a home. **Dead Boy's Poem, Nightwish**

- What is it you dream of, child of mine? Never met a kinder heart than yours. Let it bleed, leave a footprint on every island you see. **Ghost River, Nightwish**
- Thus the serpent said "For God knows that when you eat from it your eyes will be opened, and you will be like God, knowing good and evil." **Genesis 3:5**
- The path to follow is clear, the path of knowledge, the truth... but what exactly is the truth... that which I know with certainty? Or that which no one doubts? How can I be sure of anything then, if everything can be the fruit of the cruelest deception? Does this question even make sense, or is it just one more of the threads pulled by the evil genius?
- The turtle, swept away by the fierceness of the rushing river and fearing for its life, locked itself in its shell without being aware that the shelter it needed was not there.

Statue island

- Sisyphus's punishment was a straightforward task – rolling a massive boulder up a hill. But just as he approached the top, the rock would roll all the way back down, forcing him to start over ...and over, and over, for all eternity. **Greek myth.**
- It's common to be fearful, one cannot face what one is not prepared for. Running away is the smartest approach when the other side is facing a certain death. / Certain death? The only true death is that of uncertainty. Ignorance and anguish will be that which kills you. / I rather choose uncertainty with a glimmer of hope than the certitude of defeat. / From certitude one can draw lessons; in uncertainty all there is left to do is to flee, for there is no pain more intense than that of being unable to escape, since what one flees from is within oneself. / It is all too easy to speak from your position of safety, where nothing bad might happen to you. It's me who's playing this game. / You must never forget that it's not just your game, it's ours.
- No matter how hard one wishes, one cannot save everyone; one is only responsible for what one does, not for what one does not do; and as was demonstrated in Coventry, to make an omelette, one has to crack a few eggs. Especially if you never find out who has their hands stained. We could say that all's fair in love and war.
- Inaction is just one of the other actions available, the action of doing nothing. Choosing inaction is likewise a decision and, as such, the "non" executor must be held responsible as well.
- We suffer not from the events in our lives but from our judgement about them.
Epictetus.
- Time, a relentless enemy, strikes at the once inert and now eroded rocky shelter as an unmistakable symbol of the past. There is no mercy, no exceptions, just a constant ticking, tick tock, tick..tock...
- Shut them up. I can't stand this any more. Make them stop! Tell them to STOP! STRONGER! ORDER THEM, MAKE THEM STOP! SCREAM IT OUT! YELL IT OUT! SHUT THEM OUT! SHOUT THEM TO STOP!

Time island

- It is not the blade that renders the sword mortal, but its irredeemable action. It must be honed, not the weapon, the mind, for the wound does not always heal.
- Everything in life has its consequences; we may not be aware of them or we may be reaching a decision without knowing that it is one, yet that does not stop one from being responsible for it.
- Can anyone be held accountable for the path that has been laid out for them? Destiny is fixed and we are just puppets to the music of strings that never belonged to us. We are insignificant and our decisions are even more so, since they were certainly never ours. And whosoever believes themselves to be the owner of their destiny and master of their actions, must know that by believing so and acting accordingly, they are only fulfilling that which had already been written.
- There is no way out; it is like a madman in a madhouse; if he says he is mad, everyone will testify to it; and if he tries to deny it, his madness will be further proven.
- Actions, unlike words, do not understand intentions. It is what it is. Objectivity in its purest form. What is triggered by these actions is something beyond control. The only thing that can be done in the face of this is to embrace it stoically and move forward, as the past cannot be changed, only its echo in the present can be modified.
- The world is in the throes of a desperate desire to change the past. Yet, no, the past is unchanging. There is no key to undo our actions and that hurts us as it takes us away from our **Control Zone**.
- And one of the reasons why the past is unreachable is because time flows unidirectionally forward. There's no way to go back or to stop. Time is a river and trying to swim against it will only leave us exhausted and frustrated. The only way to live is to let go.
- Phaeton, son of Helios, riding the sun chariot, rode away and provoked blizzards, came close and scorched the earth. The sun, wounded, cursed the child for taking him away from his kingdom. And Zeus, unyielding, condemned the boy. Thus returning the sun king to his heights, from where he watches over on his errant journey. **Greek myth.**
- One cannot live trapped in the past. Mistakes cannot be erased but one can learn to live with them. The only way not to die in life is not to lose sight of now. The present. This moment.
- Night descends and sleep awaits. Helios, pursued by his sister Eos, makes way for Selene who makes the night shine and with sparkling reflections populates the sky. She and her white-haired horses guide the being on its way through the night until welcoming the new day whose sun blesses the earthly pastures. **Greek myth.**
- "Everywhere I go I find a **poet** has been there before me." **Sigmund Freud**

Maze island

- Because sometimes it seems that the mind is the greatest enemy. Blessed and treacherous, it casts darkness and light into every corner. And it is in that moment,

locked in the depths of my beaten mind, where I find chimeras wherever I look, when I remember that there is always a way out and I rise to walk, determined.

- Upon this ridge surrounded by cherry trees, in company of butterflies, contemplating the meadows of heaven before me, it is when I look back and recall that if something defines us, it is the journey, each step, more confident than the one before it, and that the destination, in the end, is only a sigh.
- Because in the end, "Life can only be understood backwards; but it must be lived forwards." and that titanic problem, just a water drop in the sea.
- In these times we cling to the past, we carry idols of past moments, deaths of instants that we intend to immortalize, equally mortal framed absences. The only opportunity to grasp eternal life. Hoping, still, that they will be the key to take us through the next crossroad.
- Is not blind the one who only sees with the eyes? Or deaf the one who only hears what they want? Five senses were gifted to us, and we only seem to use half of them; we cannot even discern between truth and illusion.
- I'll tell you where the real road lies: Between your ears, behind your eyes, that is the path to Paradise. Likewise, the road to ruin. **Wait for me II. Hadestown**
- Where are you? Where are you now? -EURYDICE: Orpheus, hold on, hold on tight. It won't be long. Cause the darkest hour of the darkest night comes right before the dawn. **Doubt comes in. Hadestown**

Platonic ending

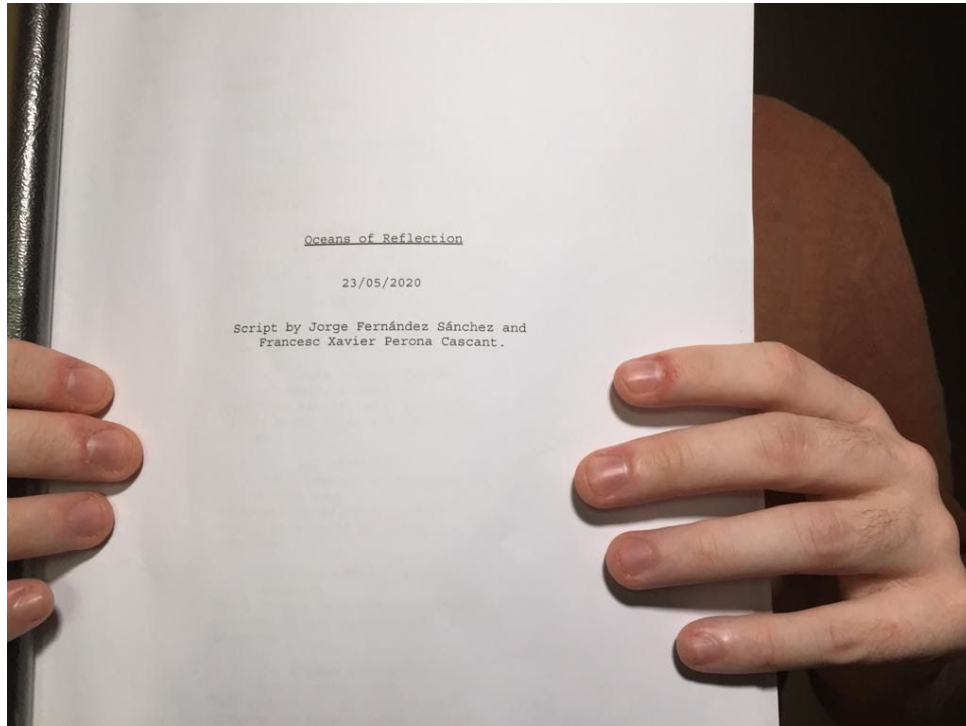
- Beyond all mortality we are, swinging in the breath of nature. In early air of the dawn of life... A sight to silence the heavens. **Song of Myself. Nightwish**

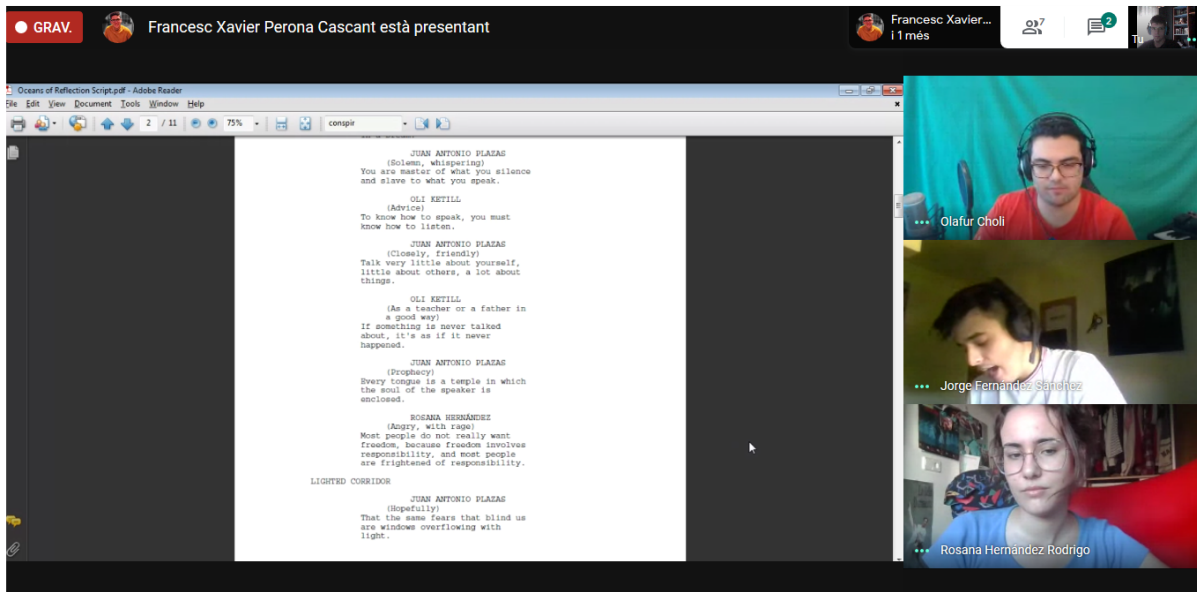
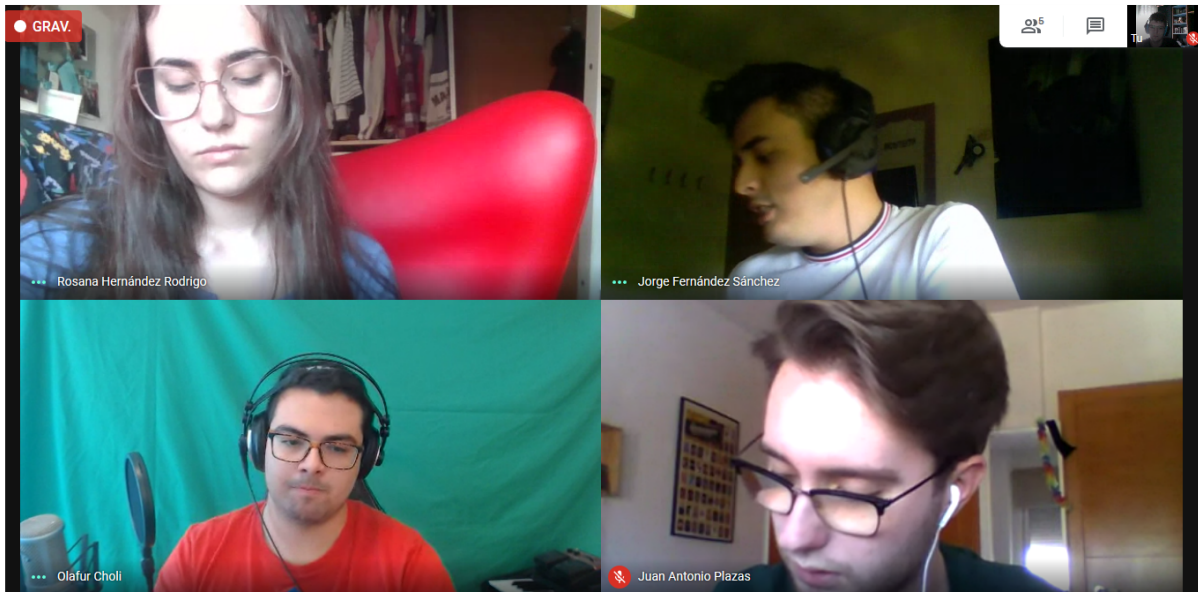
General gameplay (peals of bells: Tempus Fugit)

- Thus every creature , and of every kind ,the secret joys of sweet coition find: not only man's imperial race
- but they... that wing the liquid air ; or swim the sea, or haunt the desert...
- . . . rush into the flame; for love is Lord of all; and is in all the same.
- While we too far the pleasing path pursue; surveying nature , with too nice a view
- But time is lost , which will never renew. **Virgil. Translation by Rhodes**

Dubbing Sessions

We contacted Rosana Hernández, Juan Antonio Plazas and Oli Ketill. Three students from the School of Dramatic Art of Murcia (ESAD). They were willing to work with use and we were delighted to use their voices as part of our game. In the following images it can be seen the dubbing process used and the three actors involved. Personally I could not be there since the travelling restrictions caused by the COVID-19. It can be seen images relating the virtual meeting we had with them, the explanation made about the project and the pipeline used.






GRAV. Francesc Xavier Perona Cascant està presentant

Unity 2018.4.15f1 Personal - [PREVIEW PACKAGES IN USE] - Game.unity - TFG - PC, Mac & Linux Standalone™ - (D011)

File Edit Assets GameObject Component Tutorial Internal Window Help

Game



Gameplay 1 21 | Full HD (1920x1080) | 30 FPS | Unity 2018.4.15f1 Personal

Francesc Xavier...
i 1 més

Jorge Fernández Sánchez

Juan Antonio Plazas

Olafur Choli

GRAV. Francesc Xavier Perona Cascant està presentant

Oceans of Reflection Script.pdf - Adobe Reader

File Edit View Document Tools Window Help

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JUAN ANTONIO PLAZAS
(Solemn, whispering)
You are master of what you silence
and slave to what you speak.

OLI KETILL
(Advice)
To know how to speak, you must
know how to listen.

JUAN ANTONIO PLAZAS
(Closely, friendly)
Talk very little about yourself,
little about others, a lot about
things.

OLI KETILL
(As a teacher or a father in
a good way)
If something is never talked
about, it's as if it never
happened.

JUAN ANTONIO PLAZAS
(Prophecy)
Every tongue is a temple in which
the soul of the speaker is
enclosed.

ROSENA HERNÁNDEZ
(Angry, wild rage)
Most people do not really want
freedom, because freedom involves
responsibility, and most people
are frightened of responsibility.

LIGHTED CORRIDOR

JUAN ANTONIO PLAZAS
(Hopefully)
That same fears that blind us
are windows overflowing with
light.

```

Olafur Choli

Jorge Fernández Sánchez

Rosana Hernandez Rodrigo







Annex II - Sculptures & Gallery

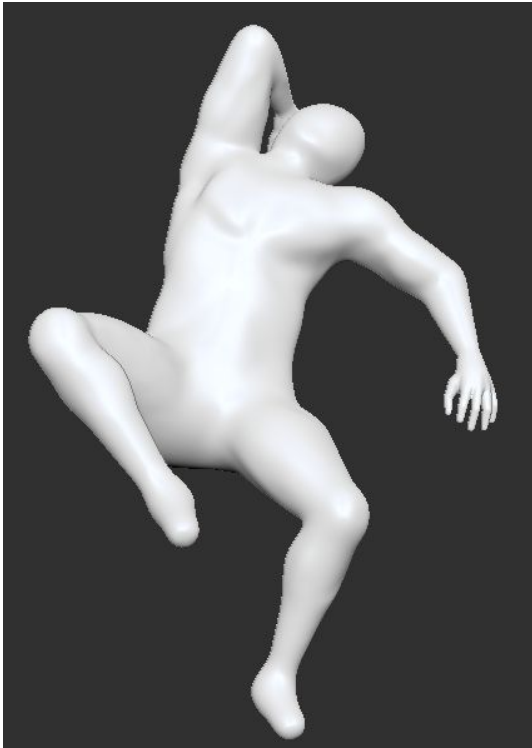
Sculptures



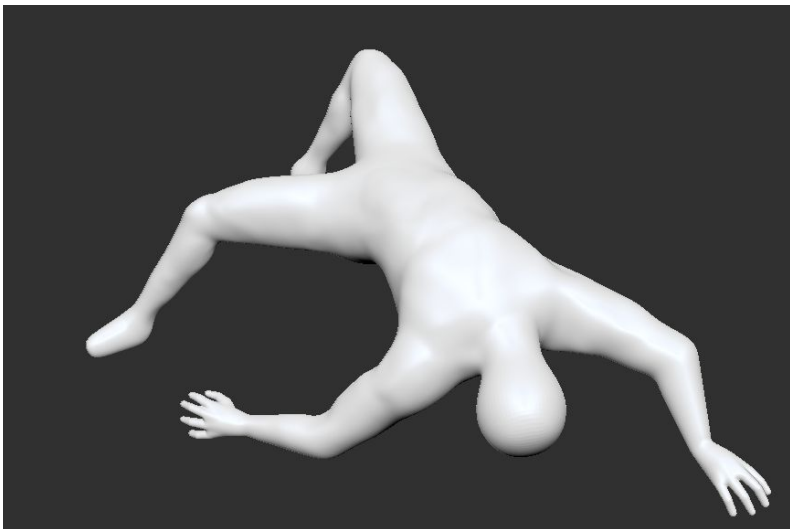
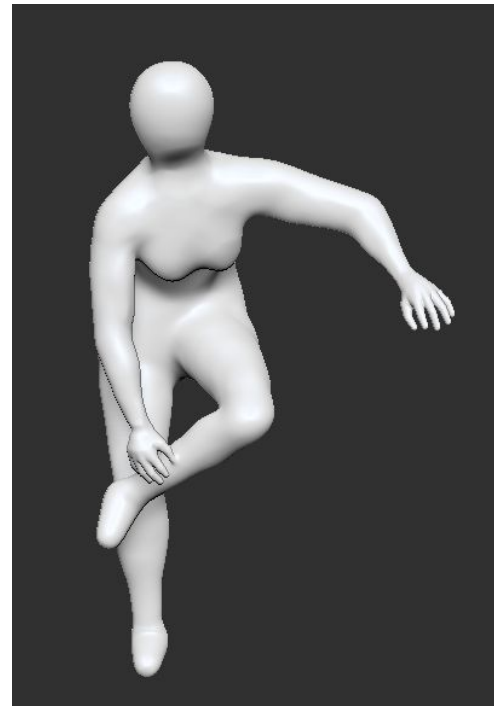
One of the imprisoned sculptures. Referencing the famous sculpture Laocöon and His Sons.



Another of the referenced sculptures. This one references the Ludovisi Gaul.



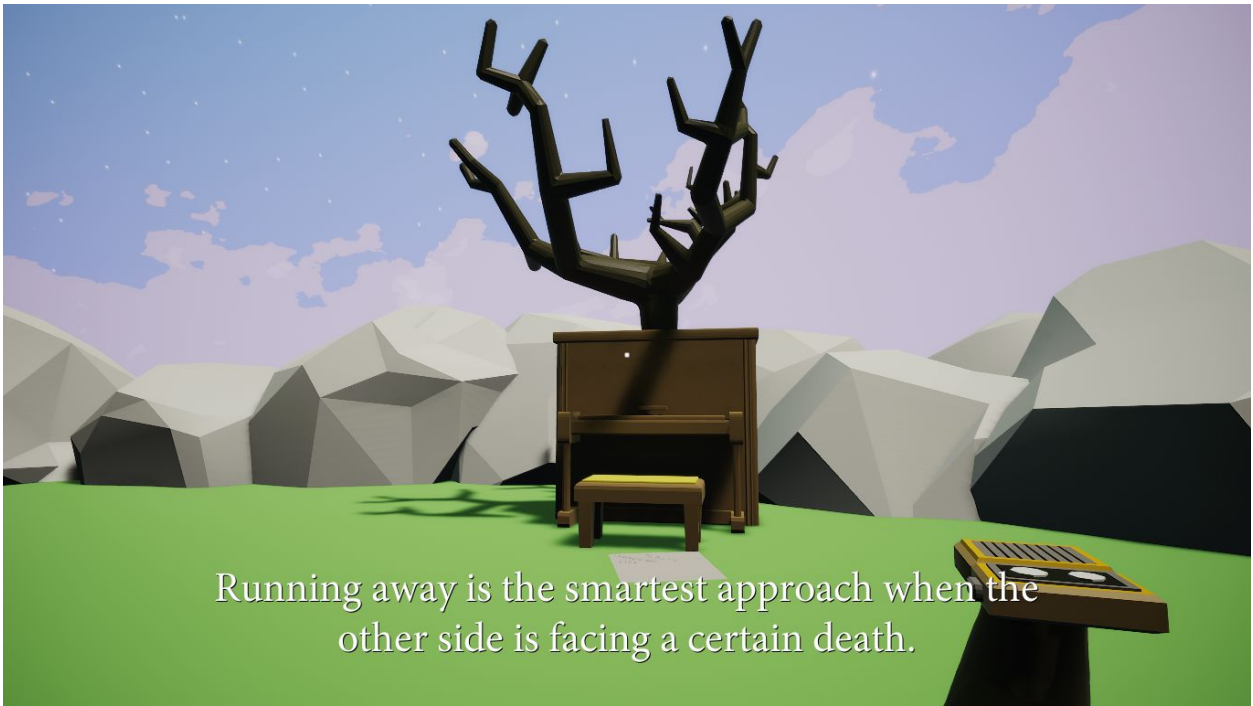
This references the Barberini Faun. Following this one, in order: Dying Eurydice, The Fall of Phaeton and sour depiction of the sisyphus myth.



Gallery:







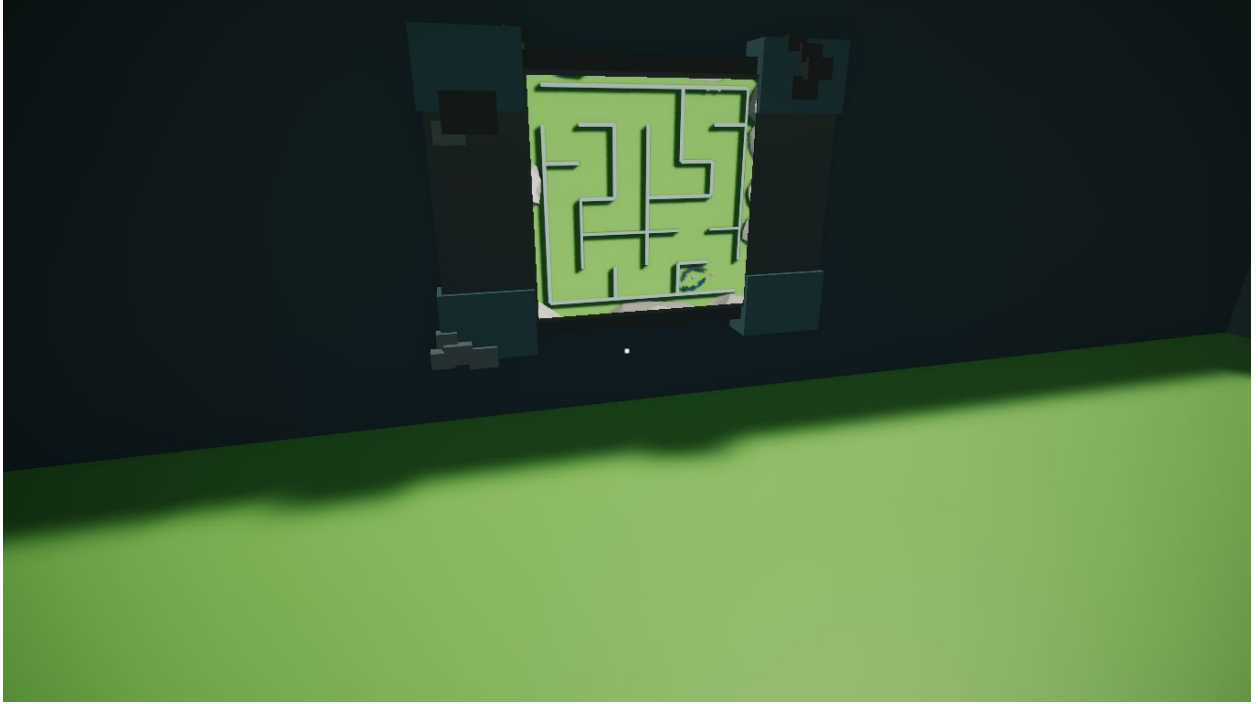


I'd rather choose uncertainty with a glimmer of hope than the certitude of defeat.



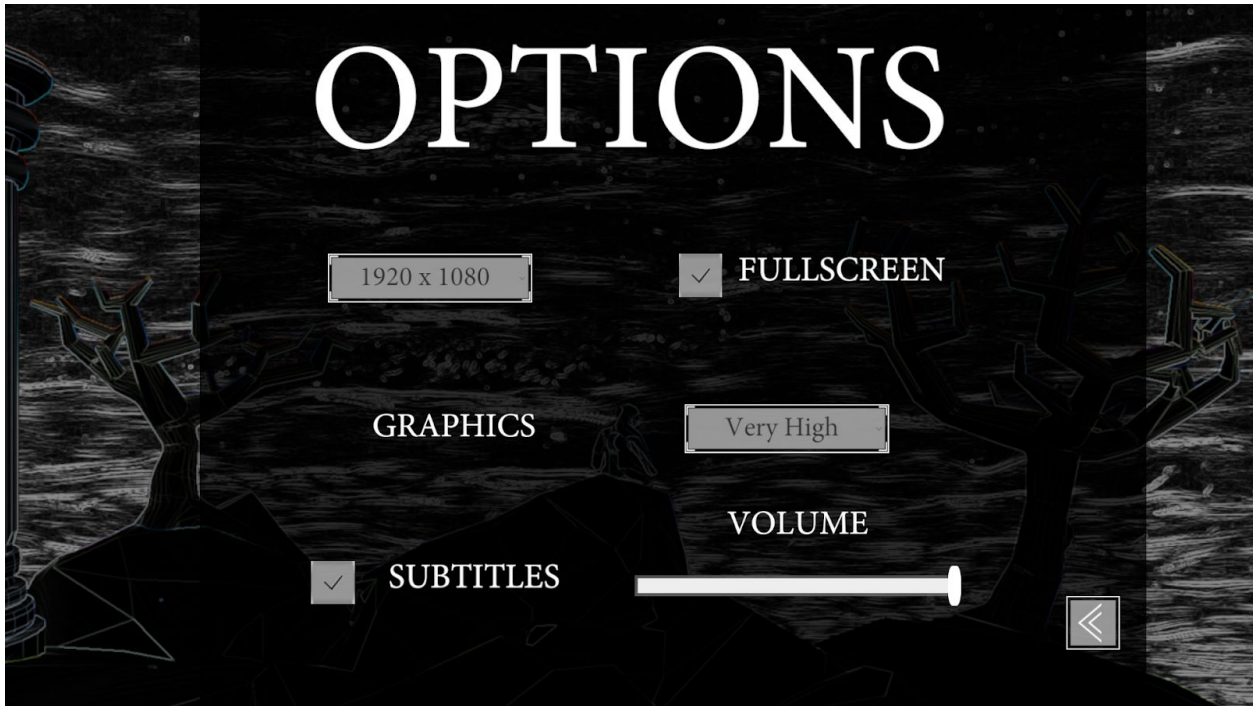
than that of being unable to escape, since what one flees from is within oneself.





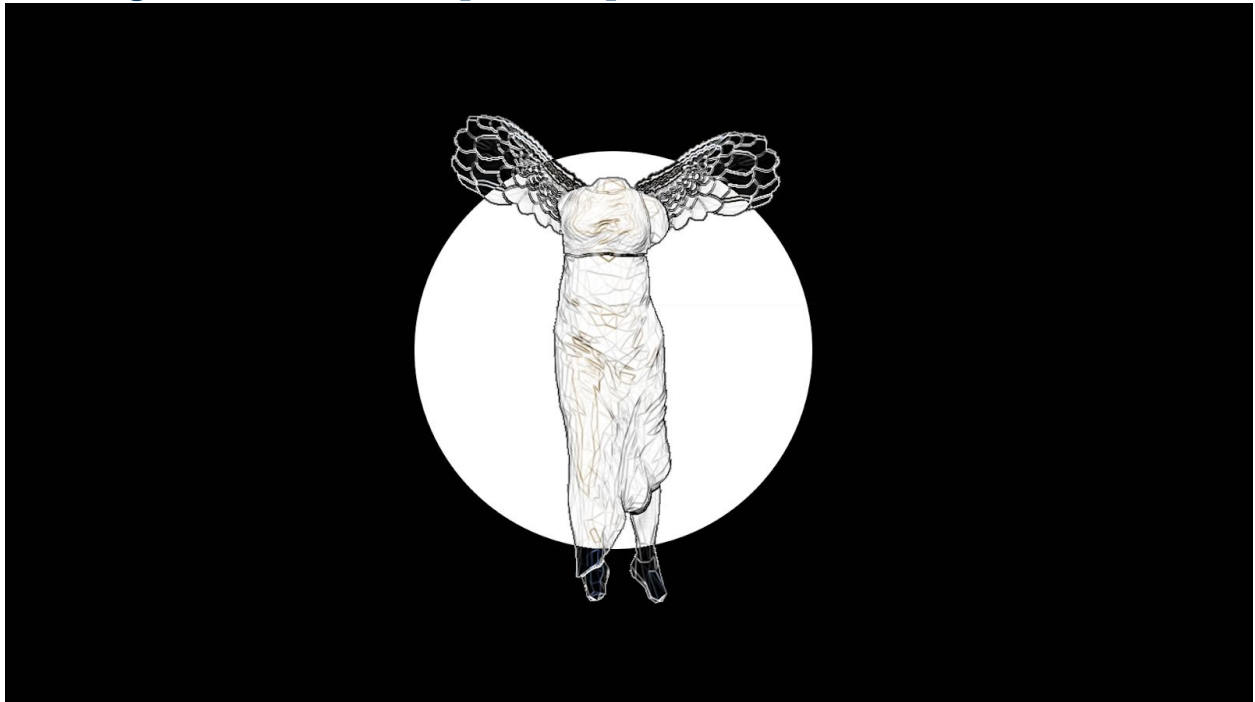


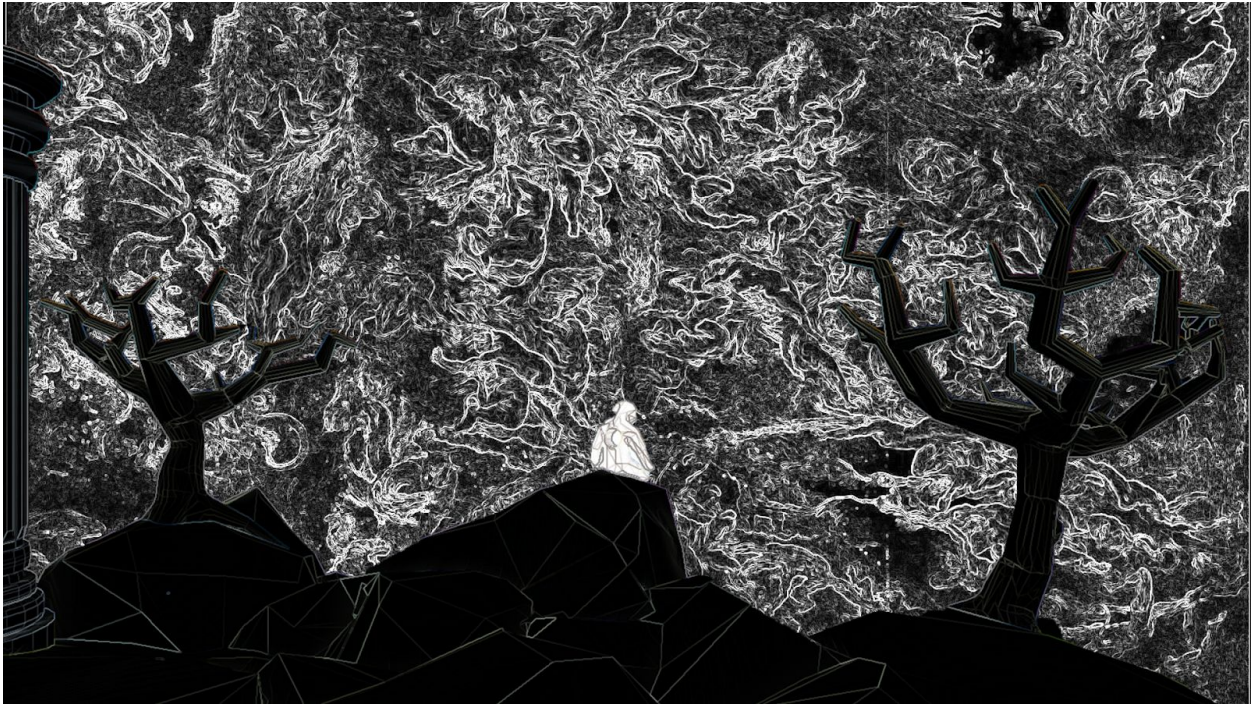


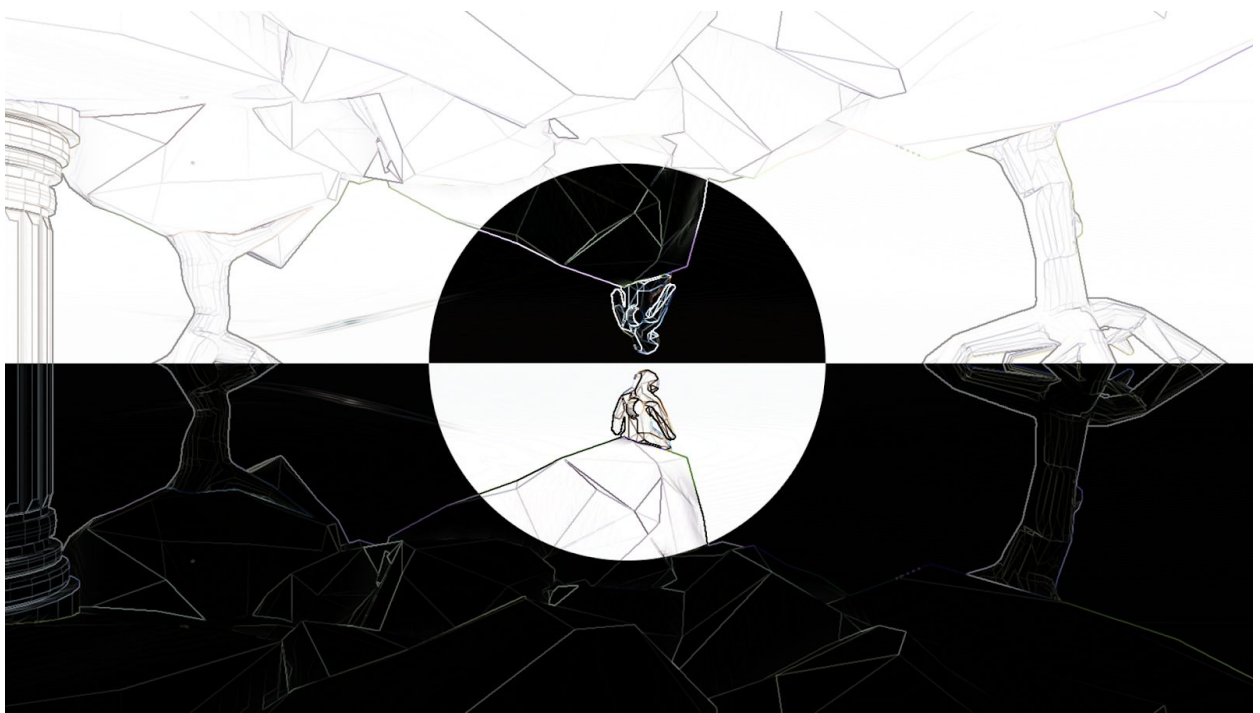




2D Images made as Conceptual Experiments



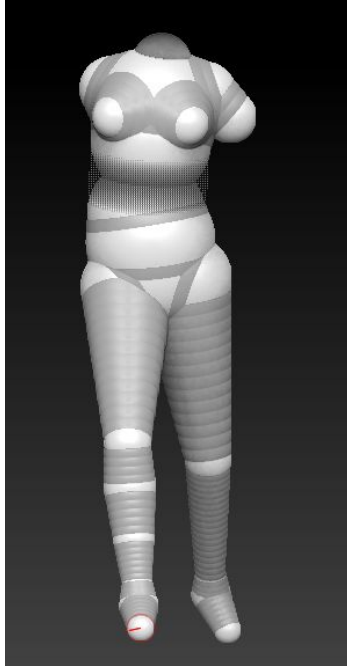






Annex III - Sculpture Pipeline and general optimization

Sculpture Pipeline



At first, the sculpture's pose was determined using Zbrush's ZSpheres.



Then, a high poly mesh was produced around said spheres

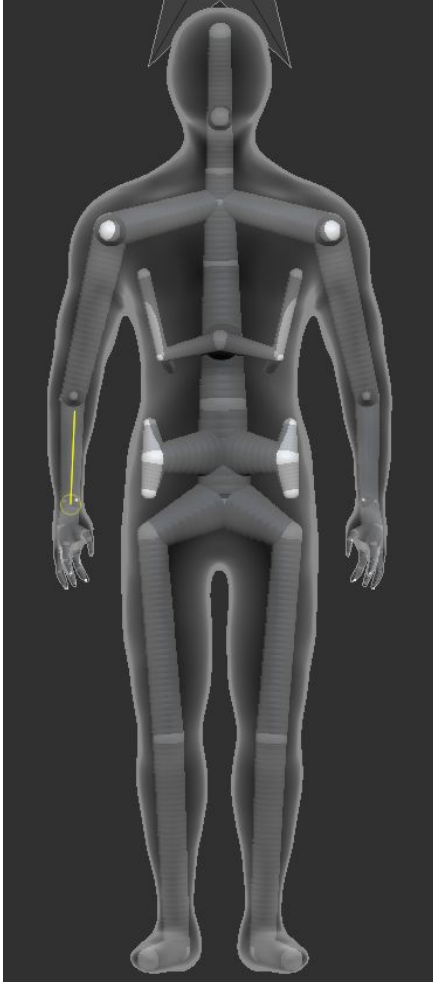


This high poly mesh was sculpted upon, were details where placed. This mesh consisted of 770000 polygons.



This last iteration displays a low poly mesh which only consisted of 17000 polygons, a big enhancement and optimization. The low poly style which we were looking for can be seen and the details could be kept.

Another workaround was used for some of the sculptures. In this, the mesh was created first and then a bone system was linked to the mesh's vertices. Then, those bones were moved so that the mesh moved with them. Resulting in a posed mesh which needed a bit of polishing.



Annex IV - Shaders and code, lightmap

Stylized Fog Code:

```
Shader "Custom/StylizedFog"
{
    Properties
    {
        _MainTex ("Texture", 2D) = "white" {}
        _FogAmount("Fog amount", float) = 1
        _ColorRamp("Color ramp", 2D) = "white" {}
        _FogIntensity("Fog intensity", float) = 1
    }
    SubShader
    {
```

Cull Off ZWrite Off ZTest Always

```
    Pass
    {
        CGPROGRAM
        #pragma vertex vert
        #pragma fragment frag

        #include "UnityCG.cginc"

        struct appdata
        {
            float4 vertex : POSITION;
            float2 uv : TEXCOORD0;
        };

        struct v2f
        {
            float2 uv : TEXCOORD0;
            float4 vertex : SV_POSITION;
            float4 scrPos : TEXCOORD1;
        };

        v2f vert (appdata v)
        {
```

```

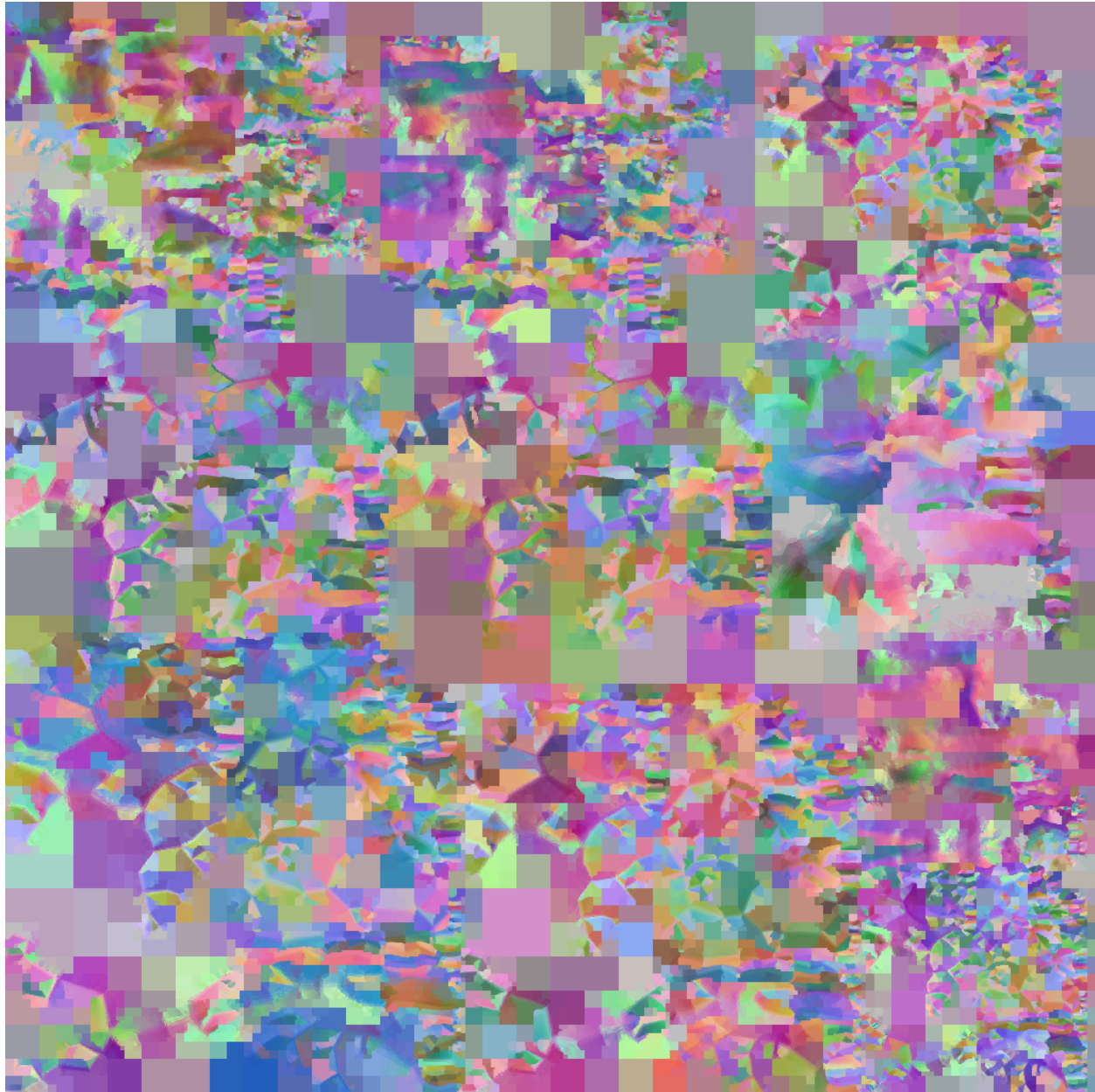
    o.vertex = UnityObjectToClipPos(v.vertex);
    o.uv = v.uv;
    o.scrPos = ComputeScreenPos(o.vertex);
    return o;
}

sampler2D _MainTex;
sampler2D _CameraDepthTexture;
sampler2D _ColorRamp;
float _FogAmount;
float _FogIntensity;

fixed4 frag (v2f i) : SV_Target
{
    fixed4 orCol = tex2D(_MainTex, i.uv);
    float depthValue = Linear01Depth (tex2Dproj(_CameraDepthTexture,
UNITY_PROJ_COORD(i.scrPos)));
    float depthValueMul = depthValue * _FogAmount;
    fixed4 fogCol = tex2D(_ColorRamp, (float2(depthValueMul, 0)));
    return (depthValue < 1) ? lerp(orCol, fogCol, fogCol.a * _FogIntensity) : orCol;
}
ENDCG
}
}
}

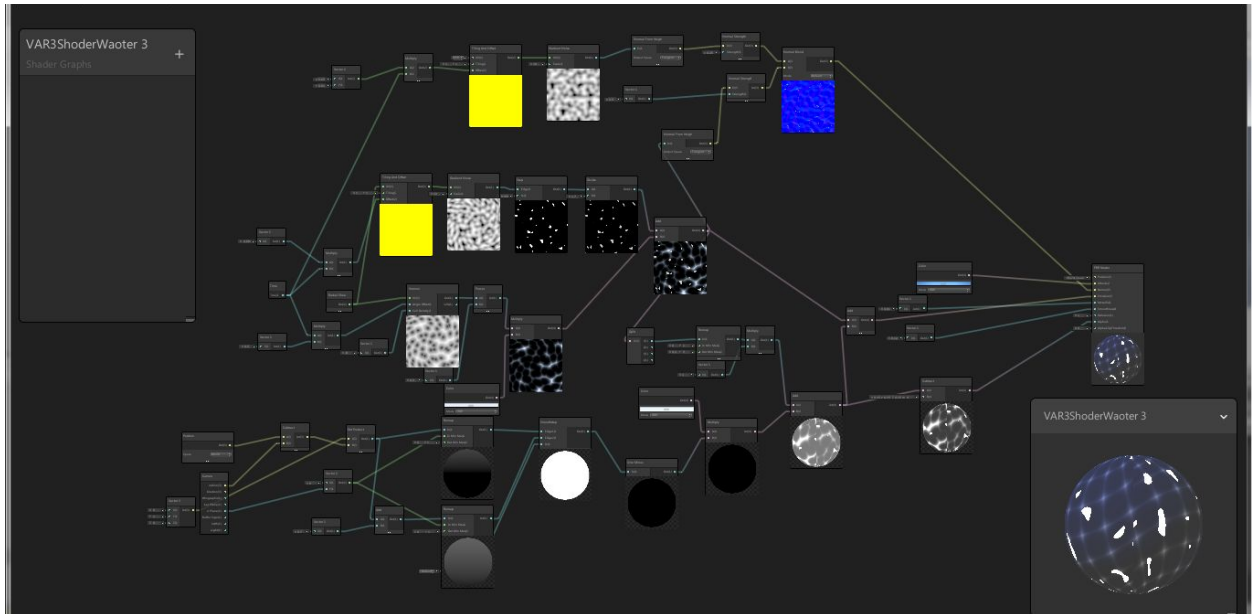
```

Unity Generated Lightmap Example:

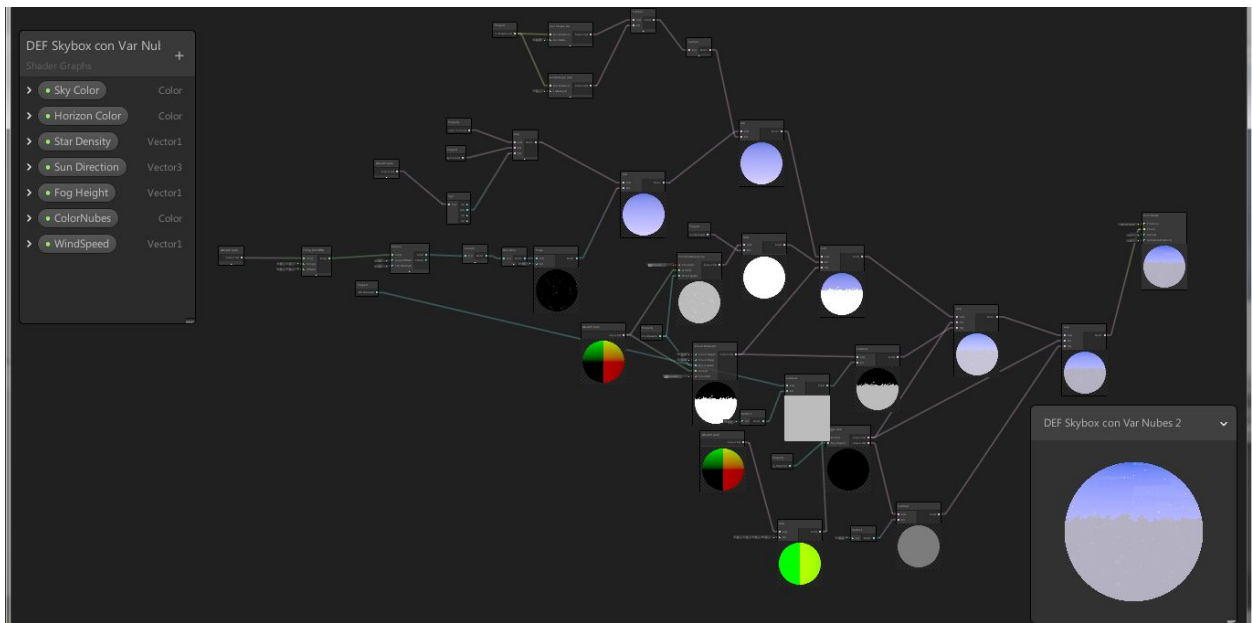


Shaders

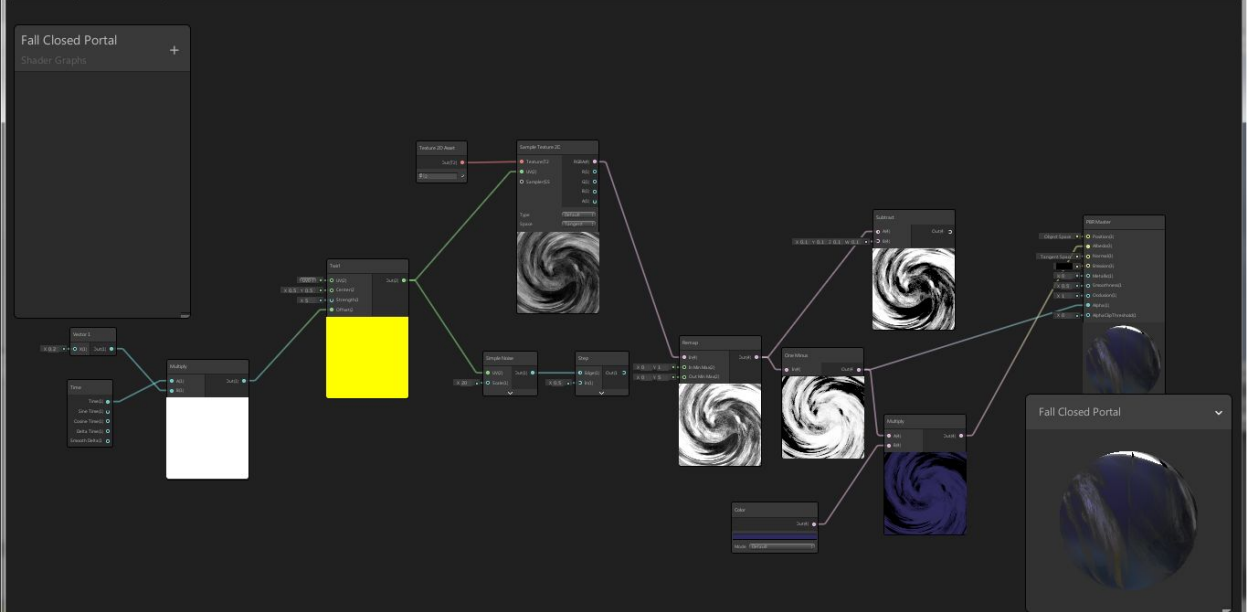
Water Shader



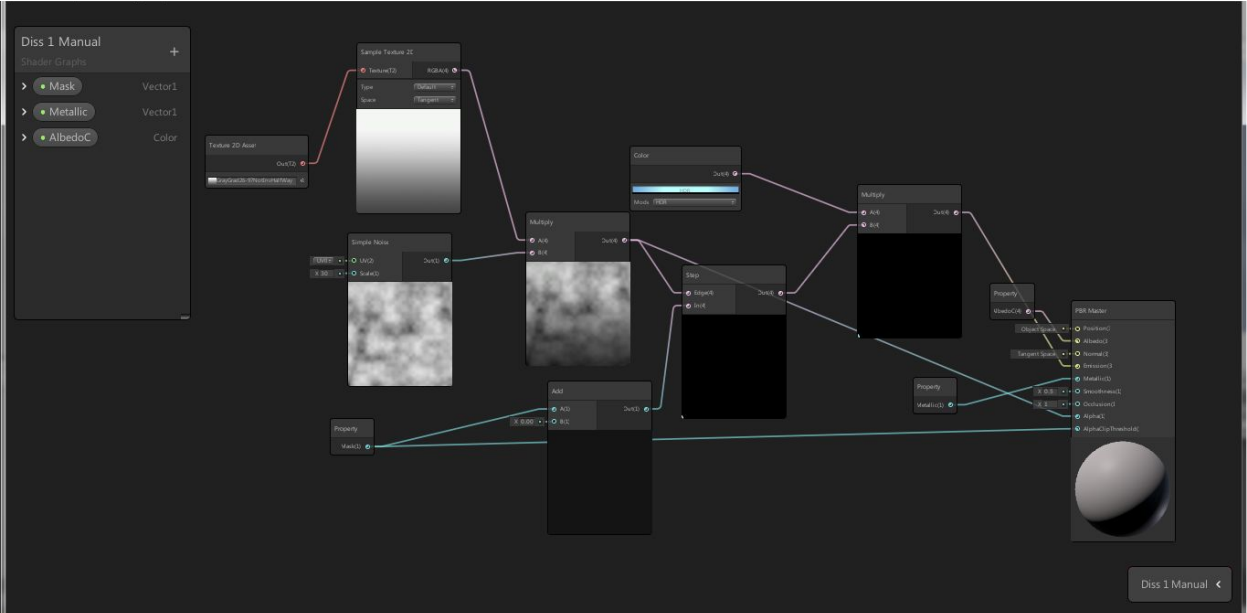
Skybox Shader



Closed Portal Shader



Dissolve Shader



Annex V - Music and used assets

At first, we wanted to make our own music. That is to say, to spend time with recording sessions and to create our own music. Something in the style of Solstafir, the already mentioned post-rock group. Something in those lines. Something close to ambient music which would add up to the game feel.

Provided that the hours spent on the project were reaching close to the limit. We decided to take copyright-free music from the internet and modify it. Therefore, we used The Earth's foundations by Spark the Forest by taking the first minute of the track and looping it for the main menu.

Gameplay wise, we ended up not using any music. We tried many but we felt that the game was better off without it. Then it is only the game and the player, with nothing else between them.

Other assets used were: Modern & Clean GUI by Sotirios Graphics.