

## REMORA By Callie

Winner: Year 10-12 Unity and Unreal

# **CONSTRUCTION/DESTRUCTION**

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#### Remora Game Design Document

Callie Kirkcaldie

#### Planning

Organisation

#### Responsibility:

Being the sole creator of *Remora*, there was no process taken in dividing up roles between different people. However, here's a general list of all of the "team roles".

- -3D modeller
- -model texture illustrator

-2D illustrator

-game developer

-composer

-character designer

-environment/lighting designer

-animator

-writer

-voice actor

-storyboarder

One very important role that was not taken on by me, but rather by kind friends and family who agreed to help with this project was:

#### Play tester (the hero of the game design process!)

Anybody who helped in this final playtesting phase is credited (if they wished to be credited) in the "special thanks" section of the game, either by name or some other requested alias.

#### Submission guidelines

After creating a basic plot outline that was suitable under the submission guidelines, I wrote down a list of any small/miscellaneous ideas as they came to me, and then divided them into being "suitable for entry" and "not suitable for entry". I felt that it was important to let myself write down whatever ideas I have, so that my creativity wouldn't be hindered, but by keeping this list I can keep ideas in check and create a game that is accessible for all audiences, and able to provide the intended message in a way that everyone can understand. I took the copyright restrictions very seriously, deciding to refrain from even using the starter content provided by Unreal Engine as much as possible. Every model seen in the game, down to the blades of grass, along with each illustrated asset, code "blueprint" and line of dialogue, was created completely from scratch.



Above: screenshots from modelling process. Trunks used on the in-game trees, and an earlier version of the player character, "Lina".

#### Workflow

When considering roles and responsibility while planning *Remora*, I understood from the beginning that I would be working on the project by myself. Therefore, rather than taking time dividing up roles to different people, I immediately focused on dividing up roles into different periods of time. Starting the project on the 1<sup>st</sup> of June with only a few models and ideas ready, I divided all the tasks that I would need to complete over the course of roughly 2 months. To really keep myself on track, I wrote the due date 1 day early to give myself troubleshooting time for upleading it

#### uploading it.

1/6-11/6 Create simple, requrired game mechanics: Dialogue, interaction and inventory. 11/6-19/6 Remodel main character, model side character, handheld device and robots. Implement these into the game with required animations. 19/6 - 21/6 Script all dialogue. Only a small amount is needed. 21/6-26/6 Design puzzles and implement them, 4 types of puzzle 26/6-2/7 Create device mechanics of fixing machines, afterwards, add the neccessity of completing puzzles to these scenes. 2/7-4/7 Storyboard the neccessary cutscenes 4/7 - 14/7 Create \*SIMPLE\* cutscene sets, animate cutscenes in blender. 14/7-16/7 Work on UI for cutscenes and dialogue. 16/7-25/7 Create environmental decorations (5 trees, 4 bush, 6 flower types, 7 rock shapes.) Design environment for gameplay 25/7-30/7 Work on lighting & post processing for improved visuals. 30/7~Any final edits, bug test and play test. DUE AUG 6

Complete if time allows: Create music and SFX for game Create opening screen including "play game" along with behind-the-scenes work screenshots etc.

Above: Initial planned workflow timeline. I wanted to keep my work style loose, so throughout the project I didn't stick directly to this plan.

I feel that I was able to relatively reasonable stick to this timeline over the design process.

Inspiration and points of originality

Initially when planning my game, I set out to create a more story-based experience than gameplay-based. The amount that each of these aspects are showcased in the game changed over time, but I definitely still feel very connected to the idea of a story-based game, other story-heavy games I've enjoyed in the past ranging from Detroit: Become Human to Fran Bow all played a part in inspiring me to go for a story-heavy (for its length) game.

In terms of more literal inspiration, I wanted the appearance of the game – specifically the outer foliage/landscape – to have a similar appearance to popular modern stylised games, i.e., the modern Zelda games, or Genshin Impact. These inspirations are mainly shown in the plants, trees, water, and grass of the world. Another source that influenced this visual style is my love of 2D animation – both as an art-form to consume, and to create myself. I've enjoyed animating since I went into high school, and personally prefer the look of more stylised/cel-shaded animation to CG heavy, super detailed work.



Above: screenshots from the Legend of Zelda: Breath of the Wild and Genshin Impact

The mixed natural and robotic elements have a similar tone to the Studio Ghibli film Laputa, or the 2008 Pixar film WALL\_E. The similarity wasn't intended, but both films were very important to me as a kid, so I'm sure that they made their way into my subconscious when I was planning the game.

researched a lot of puzzle games before finalising my game mechanics – I wanted the puzzles to be very accessible to any player, while still being unique. In the end, I went for a word-based puzzle that goes into a more physics/space-based puzzle. That first word puzzle section is inspired, out of all things, by a game I played when I was younger called "Scribblenauts" – a sort-of-educational game that allows the player to type any word into a notepad and have whatever they typed materialise in the world around them. Obviously, *Remora* doesn't have that kind of creative freedom, but I wanted to involve this kind of puzzle almost as a proof of concept, to show that it could be implemented along with the secondary physics/space-based puzzle, inspired more by the likes of the Portal series. This side of the puzzle was mainly added to create a more engaging experience, and to further incorporate competition themes by having the player literally build over destruction, using the objects they created.

The actual story of the game has more real-world inspiration than anything else. I've seen a lot of media in the past few years that have tried to cover young people's response to current environmental issues and, while a lot of work is done well, and all of it is done with a good intention, I still feel like it would be nice to have some more work in the subject matter that was made by a young, insider audience. Obviously, *Remora* isn't literally about climate change or

activism or anything like that, but when I heard the theme of this year's competition, I knew that I wanted to go for some kind of environmental message. In the end, I went with a more metaphorical story, there's still literal environmental destruction, but the action taken to stop it is more representative of real action. I.e., player character Lina's decision at the end on whether to choose her own happiness (and maybe even wellbeing) or choosing to help the environment, is a more literal interpretation of making personal sacrifices to go after what's important to you.

By combining this kind of story along with unique but simple gameplay, I wanted to make a game that compels the player to consider what actions they might take in a similar situation. If somebody was looking to play a short game that makes them think while still being engaging along the way, I would hope that *Remora* is a good option.

The final product is built to run on windows, given that my own laptop that the game is being built on runs windows. I'm hoping to also make a mac version, at least to give to my friends with mac devices, but for now it's windows-only. As for the development platform, I'm using the popular modern software Unreal Engine. As someone who has always tried to learn code, but never fully gotten the hang of it, Unreal is the only software I've tried that is both suitable to my personal workstyle and powerful enough to create high quality 3D games, the software is free as well, which makes it highly accessible. Despite all of these upsides, there are still a few issues regarding Unreal – it has a very high storage space, with only one installation, Unreal takes up nearly 40 GB. Unreal's "blueprint"-based coding system has a very high learning curve, each individual command having a specific name, specific inputs and outputs, and a whole array of errors that can stem from the slightest misuse of a code block. However, in my personal case I was able to learn and complete all of my (albeit very simple) ideas without too much issue.

In terms of system requirements, *Remora* requires a windows device with a standard keyboard, either a mouse or trackpad, and some kind of audio output. Based off of friends' testing, the game shouldn't overly strain a device's CPU or GPU to the point of crashing, but the dense forest environment could slow performance.

I have a very solo mindset when it comes to creative work, so I didn't use any resources outside of Those built-in with Unreal Engine and other creative software. (Including Clip Studio Paint for 2D assets, Blender for 3D assets, Treelt for foliage modelling & Quixel Mixer for a couple of object materials). What I *did* use quite often at the beginning of development was online tutorials. I had only used Unreal a very small amount beforehand, so these tutorials were crucial in helping me get to know the environment while working on the game. I have all of the tutorials that I used referenced at the end of this document. In times where I encountered errors, situations that I didn't understand, etc. I used the official unreal engine forums to help with troubleshooting.

### **Designing**

My entry for the stem games challenge is titled "*Remora*". I wanted a short, memorable name for the game, and came up with *Remora* when on the hunt for a word that would fit these criteria. A remora, more colloquially known as a "suckerfish" is a small fish that attaches to a larger fish and feed off of their scraps. I thought that the title would be fitting for the game in a similar way to the title of the acclaimed 2019 Bong Joon-Ho film "Parasite", for which the title reflects the way in which both families are parasitic toward one another. In the case of *Remora*, the player character could be seen as the small suckerfish, her dialogue reflecting a feeling that she's "using" the company that she works for, and in a sense feeding off of them for her own gain. However, what becomes apparent over the course of the game is that the company she works for is actually taking advantage of her as someone who works for them, similar to the shark that benefits off of the suckerfish by having any irritating parasites eaten off of its skin. When reading the game, someone wouldn't immediately understand what it's about – rather, they might be curious, and the name is short enough to stick in their mind.

In *Remora*, you play as Lina – a young woman hired to work on a project for an incredibly influential technology company, named SELAC. This project involves Lina being sent to the future to activate four energy generators; these generators feed off of resources remaining after humans have left earth, and the energy is sent back to the past, so that it can be used by humans while they're still on earth.

The player goes through the process of turning on the four generators and completes puzzles along the way. The initial objective is set up as "you have to activate each of the four generators", but the player learns through dialogue and visual cues that turning on these generators is damaging the local environment. Ultimately, the player has to make a choice about what matters more in the situation – completing the job they set out to do while keeping themselves safe, or making sacrifices in the face of something that matters to them.

*Remora* is intended for a teen/young adult audience. It follows a story with themes of environmental destruction and has a younger outlook on the matter. While *Remora does* have a main target demographic, it is intended to be playable by all audiences, with accessible puzzles and mechanics.

The central objects and character of the story are the generators that Lina was sent to activate, Lina's "handheld" device (Her own prosthetic arm which has been fitted with extra technology that allows her to make calls over time, and activate each of the generators) Lina herself, and a more mysterious character she meets partway through the game.

These four generators and the company they were built by are representative of ideas of corporate damage to the world. The bigger forces that play a huge part in environmental

destruction compared to the average person. SELAC, the company that Lina is taking this job for, appears to be an innovative, modern and inspirational place that makes real change in the world, while behind the scenes they are willing to destroy, and to take advantage of their workers, all as a means to an end.

Lina's prosthetic/handheld device is her link to this company. While it's something that belongs to her, it has been changed by the company. On the brighter side, she can create new objects by connecting her prosthetic to interfaces, while she also inadvertently uses it to sap energy and natural resources out of the world around her.

Lina herself represents the average person pushed into a hard situation. She's young to match the target audience of the game, and is designed to exemplify her youth, along with her slightly more rigid personality and values at the start of the game



Lina's star accessories and nostalgic fashion sense show her young age, while the cold blues, blacks, whites and metals of her design show her rigidity. On the chest of her outfit is a SELAC logo, and she has a company-made piece of eyewear on her left eye.



As Lina is the player's "insert" character, I wanted to make her capable of a wide range of expressions when needed. I used blender's "shape key" feature to create lots of blend-able expression parameters. Anything from closing eyes, to smiling, to furrowing eyebrows to moving her mouth side to side or puffing out her cheeks. As a personal note, this was probably one of the most fun parts of the process!

The secondary character who appears in the second part of the game, named "Chandra", acts as a counterpart to Lina. She represents activism and those who stand up for what they believe in. On first glance, she's a strikingly different person to Lina, always kind, while strong in the face of any adversity, and willing to make a change. This comparison between the two is reflected in Chandra's design, which basically inverts the Lina's colours and features to show the dichotomy between the two.



Another theme running in Chandra's design is "butterfly". In the game's opening cutscene, Lina is shown unconscious on the grass before an orange butterfly lands on her face and shocks her awake. Later, Chandra is the one who shocks Lina into "waking up" and facing the issues that have been caused to the environment around them. This butterfly motif is incorporated in her orange colour scheme, along with the shape of her torn jacket. Everything about the two characters' designs, from their eyes to their clothing to their hair is intended to seem starkly different. Despite this, the similar clothing style, and complementary shades of blue and orange mean that the two look like a unit when placed next to each other, visually indicating that they can share the same values and goals if the player chooses so.

The game is set in a natural future. The vibrant and multicoloured foliage is meant to fit an idealistic/optimistic view of how the world could look if humans either left or stopped interfering with nature. Scattered across the area is modern machinery, placed there by the company that Lina works for, SELAC. This machinery is in very stark contrast to the natural environment, and an

intentional effect has been placed around each piece of machinery that desaturates the grass, further showing the pollutive nature of these machines. The environment effects the gameplay by needing the player to be in particular locations at particular times. For this reason, I had to provide dialogue that pushes the player to move to specific places, along with physical block-offs that stop the player from leaving the required areas, without necessarily feeling too restrictive.



The theme for this year's Australian Stem Video Game Challenge is "Construction and destruction", a theme that the challenge website specifies can be followed either by using one of the ideas individually, or both of them in tandem.

*Remora* incorporates the theme of "Construction and destruction" mainly through its story themes and gameplay. The story shows destruction with the effect that SELAC's machines have on the environment, and the gameplay shows construction through its main mechanic of using word puzzles to create physical objects. I wanted to incorporate both aspects but limited each to their own part of the game, rather than just having both be in the story or in parts of gameplay.

On the topic of gameplay, it involves the player navigating through the 3<sup>rd</sup>-person 3D world and completing a set of pre-made puzzles. The early game introduces the player to basic controls, along with the word-puzzle repeated in most parts of the game, before the player goes through a short tutorial section that shows the player another main mechanic, that being the ability to move and place objects made through this word-puzzle mechanic. The player goes on to experience a few puzzles that tests this object movement ability, one which requires specific object placements and one that utilises objects as triggers to push down buttons.

The aim of the game as it is explained at the start is to activate four energy generators around the map. By the end of the game, this goal has switched to finding a way to deactivate these generators that they worked hard to turn on. In the end, the player finishes the game by making a final decision that triggers one of two endings, based on which side the player chooses – the comfortable safety of returning to the company that Lina works for, or the risky but hopeful decision to help the secondary character Chandra in destroying the generators.

In order to keep players out of the dark, pressing the TAB key at any time will show them the controls, even during cutscenes. These controls are basic keyboard controls, and anything not listed in the control panel is shown on screen through a prompt.

#### x Controls

Pan camera - Mouse/Trackpad Walk - WASD Run - Hold shift Activate "X-ray" mode - Hold X Proceed text - F Switch 1st and 3rd person mode - C

Object Movement Pick up/put down object - Z Rotate object - R and T

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Visually, I designed the game to have detailed and expressive designs to fit with the dialogueheavy experience of playing the game. The aforementioned landscape inspirations I took when planning the game remained my main point of inspiration throughought the design process – in order to keep the game running and optimise it to a point where it's playable on lower spec devices, I had to sacrifice a bit of environmental detail that I really would have wanted, but I tried to create a visually interesting environment nonetheless, through post-processing effects and interesting layouts. At a certain point in the testing process, a play tester commented that the game had a "nostalgic, PS2-like appearance", which I took as inspiration and leaned into, allowing me to improve performance with an intentional lack of anti-aliasing, as well as fog that would somewhat hide foliage appearing/disappearing as it was culled.

The game's audio design is mainly used to emphasize important sections, such as using a single vocal line at the start of the game to jar the player into feeling similarly to Lina at the start of the game, or using the cue of a door opening to inform the player that they've finished a puzzle later on in the game. Other than this, quiet immersive sounds like natural ambience and footstep noises

were added to bring the player into the game's world, and the backtrack creates a unique mood that fits the mysteries explored in the story.

The game only uses platform assets in minor areas like basic cube/cylinder/sphere shapes, simply because the creation process when using these basic shapes is identical to how it would be if making them in Blender, the software that I used for making most of the assets. Other than this, I use metal materials from the Unreal Engine library throughout the project, because they fit my intentions well with the appearance of my models.

All of the character models and major objects like the generators and trees were made early in the process, while the music and sounds were added around the end. During downtime, I would work on illustrated assets like character sprites and additional images.



Additional section – Audience response

I wasn't entirely sure where to put this, but before creating my game, I drafted up a few different story drafts and created surveys to receive audience feedback before finalising my plan.

After establishing the core story and characters, I took to receiving feedback on my ideas. With the story written out, I shared a survey containing both this original story as well as some questions regarding player preferences and opinions in a game. I sent this survey to my friends who were able to share it around until the survey received 21 responses.

The survey's response group roughly fit into my intended group, being generally of the target age group of 15–25-year-olds. One group trend would be that a lot of the respondents found the survey through a friend of mine's Instagram story, this friend of mine being a popular fan artist for a few different games, so the response group was largely people who enjoyed these games.

Initial questions in this survey surrounded more general ideas like habits and preferences. The first question was mainly used to narrow down who was answering the survey so that later questions could be filtered based on this first response in case I wanted to see answers from frequent game-players or infrequent game-players.

The survey showed that visuals and mechanics were highly valued in a game, along with story. For the optional "else" answer that I included, people seemed to care about music.

Answers showed that people, once again, appreciated beautiful game environments and engaging game mechanics. The most enjoyed form of puzzle was "riddles", which I ended up using when creating the word-puzzle mechanic included in Remora.

Responders generally found character death and similar events to be emotionally intense, given the rating constraints of the Australian Stem Games Competition, I couldn't kill off a character, so I instead decided on an optional ending that hinted at this idea – being Lina giving up on her job and destroying the generators, cutting off access to medicine that kept her healthy.

After these general questions, I presented the survey takers with (the original version of) the premise and asked for feedback on it based on different criteria.

The original version of the premise focused only on "environmental destruction bad", without including the major player choice at the end that focuses more on personal sacrifices for what you believe in. Along with this, early ideas of the game had barely any playable mechanics at all – both factors meant that the original prompt of the story didn't deeply explore the competition themes of "Construction and Destruction", as seen through the non-insubstantial number of results saying that the theme was explored in a very surface-level manner. Generally, people considered the character decisions and original ending to be weak points in the story, this advice helping me rewrite the game from a fresh perspective.

The original premise had an incomplete ending where the two characters called the people working back at the company and tried to convince them to destroy the generators. I wasn't sure whether this call should be successful or not, so I asked in the survey. In the end, survey takers

unanimously agreed that the call should not be successful – this response pushed me to have the company be a more obvious villain in the story.

After receiving this feedback, I updated the premise and reshared it for survey-takers to reassess. In the end, I received much better feedback.

#### Reflecting

Looking back at the experience of designing and creating *Remora*, I have a lot of mixed feelings. I try to think of the entire process as something that I learned a lot from, and a final project that, if nothing else, I am proud of, but a lot of the design experience was very draining. Going through a full school day each day only to get home and keep working every single day for weeks was an unhealthy strategy. I would experience burnout or anxiety attacks while working, and basically just have to push past them and keep going because I didn't give myself a large enough time frame to comfortably complete the project.

I'm incredibly grateful for all of the help that my friends and family gave me, not only in putting up with my constant "sorry, I can't hang out right now I have to work on my game's, but also for their incredible amount of help in the testing stage.

To ensure that the game ran comfortable on different devices, I sent the game out for each of my friends to individually play at home, with extra requests for them to record their screen & audio while playing, as well as filling out an additional feedback form after playing. Each person who took on this testing was an integral part of the process.

I was able to finish the game to a satisfactory standard, and even if I look back and wish that I had given myself more time and leeway to work on it, in the end I'm just glad that I was able to get the story that I wanted to tell out there. The next time that I develop a game, I would give myself a much larger time frame and collaborate with others for ideas throughout the whole process. I think that the surveying I did early in the process was a good idea.

Thank you for reading through this long document, and for playing Remora!

How To Make A Dialogue System In Unreal Engine

How To Create a 3rd Person Character with Animations

How To Use The New Enhanced Input Action Mappings In

Inventory System Tutorial Series

How I make Trees for Prismatica In 5 minutes

Unreal Engine : How to create Stylized Water Material - UE4 tutorial [Distance fields - reflection]

How to Grab Objects and Move Them Around in Unreal Engine 5