

# Portfolio of 3D Assets and Interactive Production Work

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## Documentation

In this assignment, I was tasked to learn about creating and using 3D environments and assets to produce interactive gaming experiences. I would need to model and texture objects using Maya to create 3D assets and to create an interactive 3D environment in Unity which I could then integrate my models therein. In addition, I would also need to add interactive elements to my 3D environment to create an interesting user experience.

The theme of the game is about Pirates. In planning for the game development, I would need to research the theme and think of different ways to explore it in the interactive application. As a start, I looked for inspiration that could be used to create a scene that evokes this piracy theme.

I broke down the assignment into three main steps:

- 1) **Visual ambiance:** the look and feel of the 3D environment;
- 2) **Environment interaction:** things which I could do in the 3D environment that would lead to a fun player experience; and
- 3) **Inclusion of my 3D models:** to think about how my 3D models could be created to fit into the theme, and where they would be placed.

Below is an account of each step in detail, along with the references that have inspired me for the idea.

## Visual Ambiance

Given the theme, my first thoughts were digital piracy and romanticized pirates from the previous turn of the century. However, due to my lack of knowledge on digital piracy and difficulty in visualizing it, I decided to focus on romanticized pirates. With the type of piracy chosen, I decided to create a scenery that would involve a coastline and wooden ships, which represented well the piracy theme. In addition, I have looked into examples of famous pirate-themed movies and video games. My main inspirations were as follows:

### 1) Assassin's Creed Odyssey

The tropical shores of Assassin's Creed: Black Flag was one of the first examples of pirate-themed environments in games I thought about. Most of the game takes place in the Caribbean Sea, a location famous for its pirate history and lore, which has been portrayed in pirate-related media many times before. In this game, many locations, such as Nassau (Figure 1), were possible inspiring locations which could fit into a pirate-themed environment. They were beautifully showcased in the Ubisoft game[1].



Figure 1: The Nassau map in Assassin's Creed: Black Flag.

Notwithstanding the above, in my opinion, one of the franchise's best representations of a pirate's secret base happens in the Pirate's Coast map (Figure 2), located in the Persian Bay near Greece which is portrayed in Assassin's Creed: Odyssey [2]. Although it is in a different location in the world, to me, it still evokes the tropical feeling of the Caribbean pirate-filled coastlines. Furthermore, the natural rock formation around the pirate base would portray a seclusive image for the location that I found visually very appealing, so I used it as the main inspiration for the environment.



Figure 2: The Pirate's Coast map in Assassin's Creed Odyssey.

## 2) Pirates of the Caribbean Franchise

Another famous piece of pirate media could be found in the Pirates of the Caribbean movie franchise. In this case, one location that caught my attention was the Sola Fide Island[3], a simple island that appears in Pirates of the Caribbean: On Stranger Tides (Figure 3).



Figure 3: Sola Fide Island, as portrayed in Pirates of the Caribbean: On Stranger Tides.

Though there is not much on the island itself, the desolate feeling of abandonment and disconnection from the world that evokes from it appeals to me, so I considered originally creating an island scenario before settling into the final coastline shown in this assignment.

### 3) Assorted References

Aside from the famous media references, I also chose to look at some ideas from artists on the internet with a view to exploring different possibilities for environment design, such as a medieval setting (Figure 4) or airships reminiscent of the “Final Fantasy” franchise (Figure 5). In the end, I decided to adhere to the traditional pirate-themed environment as I considered it simpler to handle.



Figure 4: Medieval setting idea for the game[4].



Figure 5: Steampunk setting idea for the game[5].

## Environment Interaction

Apart from creating a pirate-reminiscent environment, I wanted to add some dynamic elements for the player to interact with for challenging user experiences. Initial ideas were a horde / survival type situation where pirates land on the beach to loot the people living in the coastal town / village (fishing / trading / fort, etc.). The player can either lead the pirate or the colony during the battle. Whichever the player chooses, they will get a bunch of NPCs to help them defend / attack the other NPCs on the opposite team. It could also be an impoverished seaside settlement deciding to take up arms / steal a merchant seafaring vessel. This would be a fight / stealth interaction with NPC villagers, merchants and guards. Another idea would be a ship-to-ship battle. After researching, it was noted that most naval conflicts using wooden boats would seldom use cannons before the 16th century, and most pirates would try not to damage ships they planned to loot so as to keep them for future use. Therefore, most piracy are usually boarding attacks followed by occupation. It would consist of fighting a set number of enemies with inconsistent footing due to being on the sea (mostly without firearms, pretty sure flint/matchlock takes a while to load and unsteady footing will interfere with aiming).

Using the romanticized version of pirates, the interaction could be having the player following a “Treasure Map” and locating “Hidden Treasures” on an island, going through terrain obstacles. This is similar to the “Treasure Hunt” idea which many of us have played during childhood, when we were boy scouts or girl guides or simply during Easter Egg Hunt. This should be easy to comprehend by players. Hence, in the end, I decided to follow up with the “Treasure Hunt” idea, which is to create a list of tasks the player must complete by interacting with the environment in order to finish the experience.

The player starts on a docked ship, and must find a way to leave the cove. However, the player finds that the only way out is blocked by an NPC. The NPC expects the player to find artifacts hidden around the area before allowing the player to leave the beach, and suggests that the player should look around the nearby tavern for clues. The NPC also suggests that the player should keep hydrated, as the hot Caribbean weather can affect the health of the player.

Once the player has explored the tavern, they will find a map on top of a table, containing a description of three artifacts hidden around the area. By delivering these to the tavern owner, the player is awarded with a clue to find the treasure itself.

The first artifact is a sacred idol, which is hidden right outside the hut on the backside. The second one is a crystal jewel hidden next to a flag in the area, while the final one is a special sword hidden in the captain’s quarters.

To get to the first artifact, the player needs to go to the tavern to read the map. The player may pass by a closed 3D wooden treasure chest created by me using Maya, and open it out of curiosity. Then, he needs to go outside the hut on the backside using the provided hint to find the sacred idol.

To get to the second artifact, the player needs to locate the flag using the provided hint. The player will need to find the flag at one end of the map to collect the crystal jewel.

To get to the third artifact, the player will need to enter their personal quarters on the ship. Yet, the door of the ship is locked. One of the players' crewmates has the key, but he is on the other side of the map looking for something to drink. The player must find a drink and give it to the crewmate who would in turn give the player the key to unlock the door of the ship and collect the final artifact - the special sword. The drink is in the form of a cut coconut or the so-called coconut cup created by me using Maya.

With all these three artifacts in hand, the player can talk to the owner of the tavern and secure the location of the final treasure. Once the player finds it, the player can leave the area by talking to the NPC guarding the exit passage. At this point of time, the game is finished with the player accomplishing the “Treasure Hunt”.

## Inclusion of My 3D models

For this assignment, three specific 3D models have to be created and developed using Maya. Given that the project is low-poly, I have taken extra care to keep the number of triangles present in my models to a minimum.

### 1) Drinking Vessel

For the drinking vessel, I decided to use a half-cut hollowed coconut (Figure 6). This choice would fit well with the Caribbean pirate theme, and also allow me to partially reuse this model later for the fruit part of the modeling assignment. It will be featured when the player searches for the third artifact.

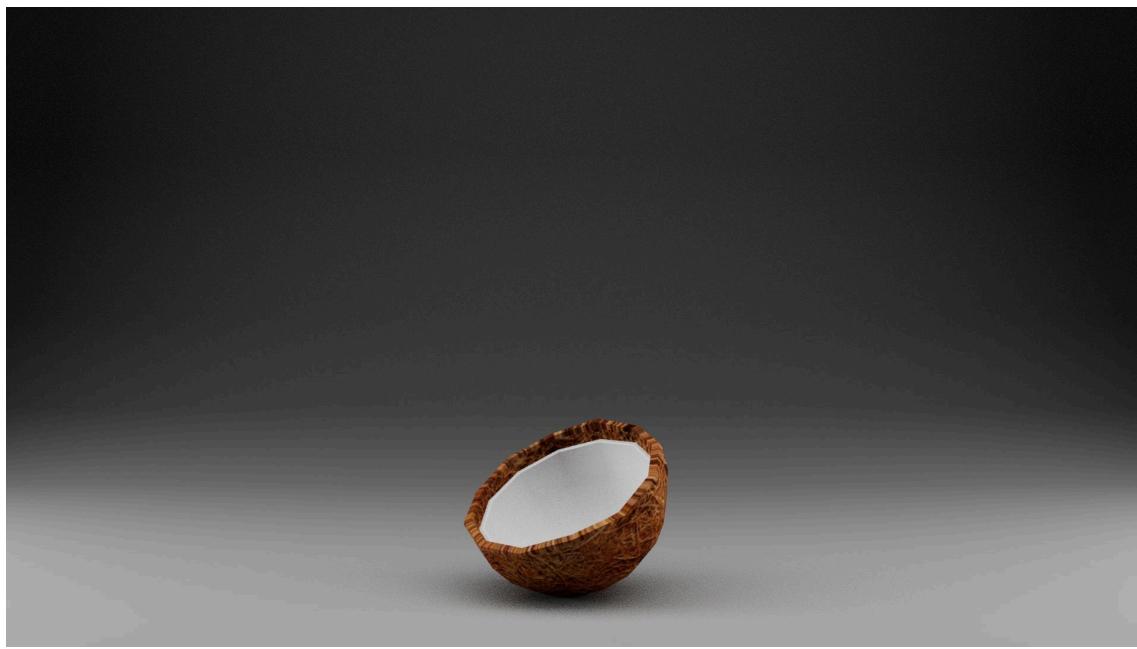


Figure 6: Coconut Cup Render.

### 2) Fruit

For the fruit, I decided to use a coconut (Figure 7). As with the drinking vessel, there were two main reasons for that. First, a tropical fruit such as a coconut would fit well within the Caribbean pirate-themed game. Secondly, using a coconut as the chosen fruit would allow me to partially reuse the model for the required drinking vessel, lowering the time spent in 3D modeling and allowing me to focus more on level design. I have also checked that coconut is indeed classified by botanists as a type of fruit, instead of a nut though it has the word “nut” in its name. A coconut falls under a sub-category known as drupes, which are defined as fruits with an inner flesh and seed surrounded by a hard shell. The coconuts created will be placed in the game, hiding the cut coconut.



Figure 6: Coconut Render.

### 3) Box

For the box, the main requirement was to make a box that opens and closes. To dovetail with the thematic elements of the scene and the Caribbean pirate theme, I chose to create a treasure chest that the player can open when interacting with it (Figure 8).

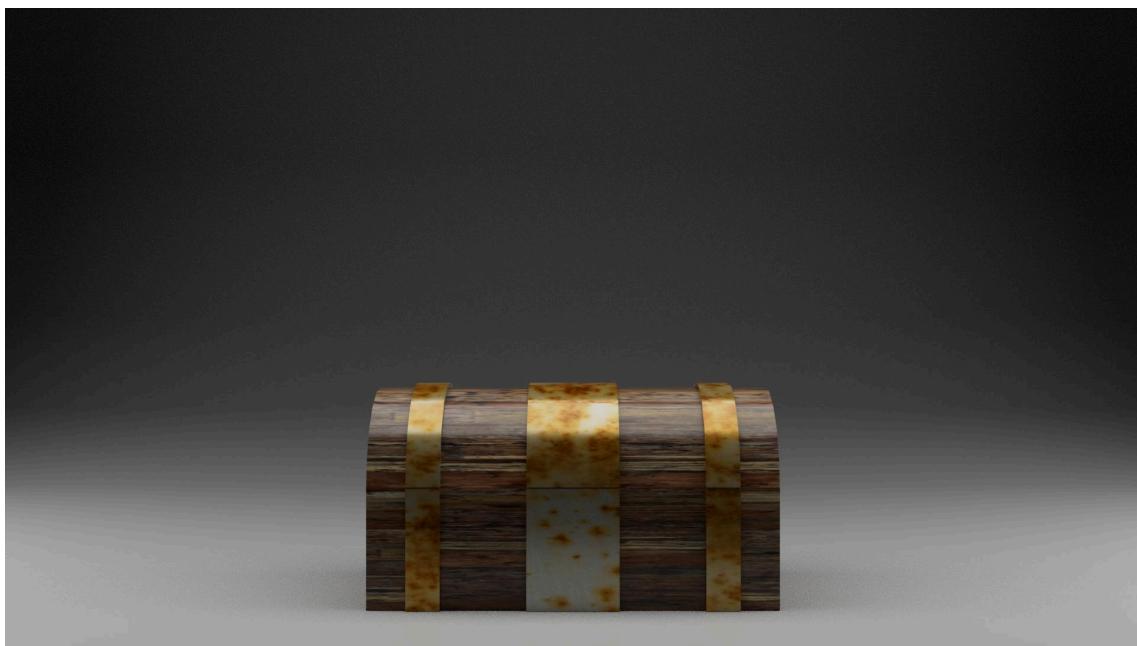


Figure 8: Chest Render.

## **Reflection and Conclusion**

In the course of planning and developing the 3D pirate-themed interactive game, I have faced two major challenges. The first and foremost one was the lack of time to implement certain features, particularly the inclusion of music. Music would have greatly enhanced the immersive experience of players. However, due to time limitations, it was not feasible to incorporate it into the assignment. Another challenge was related to 3D modelling itself, which was a demanding task. The need to keep the models low-poly to fit with the constraints of the assignment has added to the complexity of the work. Notwithstanding that I have followed some online tutorials, it was still challenging to make the models visually appealing and significant effort and iteration was required.

Having said the above, I found three positive aspects and achievements in undertaking this assignment. A significant achievement was the creation of a robust game loop that included small side quests. The treasure hunt concept provided a cohesive and enjoyable player experience, guiding them through various tasks and interactions that enriched the overall gameplay. The second one was that the visual ambiance has effectively captured the romanticized pirate theme, similar to those other games that offer similar experiences. Last but not least, the inclusion of interactive elements such as NPC interactions has added depth to the gameplay. These features made the game more dynamic and encouraged exploration of the map.

In summary, this assignment was a valuable learning experience, teaching me both the coding and modeling aspects of game development. The successful implementation of key gameplay mechanics and the creation of an engaging environment were significant accomplishments in my opinion, and the development of the game was made so that it can be expanded in the future if needed.

## References:

- [1] Ubisoft, Assassin's Creed IV: Black Flag, Nassau. Available from: <https://assassinscreed.fandom.com/wiki/Nassau> [Accessed 3 July 2024]
- [2] Ubisoft, Assassin's Creed Odyssey, Samos Pirate Coast. Available from: [https://assassinscreed.fandom.com/wiki/Pirate\\_Coast](https://assassinscreed.fandom.com/wiki/Pirate_Coast) [Accessed 3 July 2024]
- [3] Pirates of the Caribbean: On Stranger Tides (2011). Directed by Rob Marshall. USA: Disney+. Available from: [https://pirates.fandom.com/wiki/Sola\\_Fide\\_Beach](https://pirates.fandom.com/wiki/Sola_Fide_Beach) [Accessed 3 July 2024]
- [4] Academic\_Guitar\_1353, Port Town with Night Time Version. Available from: [https://www.reddit.com/r/inkarnate/comments/13qd76h/port\\_town\\_with\\_night\\_time\\_version/?utm\\_source=share&utm\\_medium=web2x&context=3](https://www.reddit.com/r/inkarnate/comments/13qd76h/port_town_with_night_time_version/?utm_source=share&utm_medium=web2x&context=3) [Accessed 3 July 2024]
- [5] Merlin Ambrosuis, Nanna Dagan. Available from: <https://www.artstation.com/artwork/Jerq1z> [Accessed 3 July 2024]

## Assets Used:

- Basic Bandit (Will Morillas)  
<https://assetstore.unity.com/packages/3d/characters/humanoids/humans/basic-bandit-89978>
- Eyepatch (RigModels)  
[https://rigmodels.com/model.php?view=Eyepatch-3d-model\\_e6cfabc7496d4e1996459d99c4fdaf7](https://rigmodels.com/model.php?view=Eyepatch-3d-model_e6cfabc7496d4e1996459d99c4fdaf7)
- Fish - PolyPack (Alstra Infinite)  
<https://assetstore.unity.com/packages/3d/characters/animals/fish/fish-polypack-202232>
- FREE - Low Poly Swords - RPG Weapons (Blink)  
<https://assetstore.unity.com/packages/3d/props/weapons/free-low-poly-swords-rpg-weapons-198166>
- FREE - Modular Character - Fantasy RPG Human Male (Blink)  
<https://assetstore.unity.com/packages/3d/characters/humanoids/humans/free-modular-character-fantasy-rpg-human-male-228952>
- FREE Stylized Textures - RPG Environment (Blink)  
<https://assetstore.unity.com/packages/2d/textures-materials/free-stylized-textures-rpg-environment-204187>
- Idol (Maksim Bugrimov)  
<https://assetstore.unity.com/packages/3d/environments/landscapes/idol-24534>

*LOW POLY MEDIEVAL SHIP (BERCEST STUDIO)*

<https://assetstore.unity.com/packages/3d/vehicles/sea/low-poly-medieval-ship-266731>

*Low poly rocks | Multiple variants (BlinkTool)*

<https://assetstore.unity.com/packages/3d/environments/landscapes/low-poly-rocks-multiple-variants-254461>

*Low Poly Tropical Island Lite (JustCreate)*

<https://assetstore.unity.com/packages/3d/environments/low-poly-tropical-island-lite-242437>

*Modular First Person Controller (JeCase)*

<https://assetstore.unity.com/packages/3d/characters/modular-first-person-controller-189884>

*Ocean Shack (SmeTheWiz)*

<https://www.turbosquid.com/3d-models/lowpoly-ocean-shack-700185>

*PBR Lion Statue | 3 Variants (Tumdog)*

<https://assetstore.unity.com/packages/3d/props/pbr-lion-statue-3-variants-168377>

*Poly Angel - Mini Pirates Island (Poly Angel)*

<https://assetstore.unity.com/packages/3d/vehicles/sea/poly-angel-mini-pirates-island-267015>

*Simple Gems Ultimate Animated Customizable Pack (AurynSky)*

<https://assetstore.unity.com/packages/3d/props/simple-gems-ultimate-animated-customizable-pack-73764>

*Stylized Crystal (LowlyPoly)*

<https://assetstore.unity.com/packages/3d/props/stylized-crystal-77275>