Project proposal François & Andrew

1 PROJECT GOAL

For our project, our goal is to create an artistic interpretation of the different continents. To fit the “out of place” theme, our world will be placed inside of a zoo-like aquarium, reminding us how small our world truly is in the grand scheme of things by placing it in an environment that is usually used to contain and showcase captured animals, making it feel off-putting and out of place. In our image, we want each sphere inside of the aquarium to represent a continent, and to contain a typical biome of said continent. That's why there are also 5 images that serve as inspiration, one for each continent.

2 FEATURE BREAKDOWN (FRANÇOIS, ANDREW)

One of the main goals for our image is to give it a sort of surreal eerie feeling. To do so, we will implement an **Advanced Camera Model**, which will enable certain analog aberrations (our goal is to be able to simulate the use of an anamorphic lens to give it that extra surreal feeling that we get from ultra-cinematic movies).

As our inspiration aquarium image shows us, in order to achieve the true cheap-old zoo vibe, we will want to render out this sort of slightly gucky water. To do this, we will implement **homogeneous participating media** to capture the semi-opaque water, as well as **Perlin Noise** to procedurally model the disturbed surface of said water. We also want the interior of our aquarium to be lit by a dramatic spotlight. To do so, we will implement an additional **simple spotlight emitter**.

To add additional immersion to our scene, we will want to simulate a realistic environment for the area surrounding our aquarium. This will be done using **image textures** and **normal maps**, to add character to the surrounding world, similarly to the wall in our aquarium image. We will also be using **custom meshes** to achieve this goal. Additionally, to create a realistic lighting environment for our micro-scenes, we will implement an **environment map emitter**.

In one of our biomes, we want to represent a land devastated by forest fires (Oceania or north America). To do so, we will implement **Emissive Participating Media** in order to render such fires.

We will also be implementing the **Disney BSDF** to be able to represent a variety of materials within our scene. Additionally, given that our scene will be quite compute-intensive, we will implement several features that will allow us to improve the quality of our final render and reduce the total render-time, such as **Moderate Denoising**, an **extra reconstruction filter**, and **rendering on the Euler Cluster**.

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3 LIST OF FEATURES BY PERSON

3.1 LIST OF FEATURES FROM ANDREW (30PTS ARE >= 15PTS)

Feature	Points
Modeling Meshes	5
Procedural Volumes (Perlin Noise)	5
Normal mapping	5
Images as textures	5
Emissive participating media	10
Environment map emitter	15
Advanced camera model	15

3.2 LIST OF FEATURES FROM FRANÇOIS (45PTS ARE >= 15PTS)

Feature	Points
Simple extra emitter	5
Extra reconstruction filter	5
Rendering on the euler cluster	5
Moderate denoising	15
Disney BSDF	15
Homogeneous Participating Media	15

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