Marine Blender

By Zach Shaffer, Henry Macht, Mitchell Campbell, and Adrian Shirazi

Clients: Dr. Lisa Durbeck, Dr. Peter Athanas

CS4624: Multimedia, Hypertext, and Information Access
Professor Fox
Virginia Tech, Blacksburg VA 24061, 05/12/2023
Outline

- Project Refresh
- Current Status
- Project Structure
- Next Steps
- Acknowledgements
Project Refresher

- Model a section of the Florida intracoastal waterway environment in Blender
- Dr. Lisa Durbeck’s goal is to train an onboard optical sensor to help boats navigate
Current Status

- Completed model of the intercoastal waterway
- Created and placed assets in the environment
- Rendered images and video of scene
## Implemented Assets List

<table>
<thead>
<tr>
<th>Object Name</th>
<th>Object Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Scene Object</td>
</tr>
<tr>
<td>Land</td>
<td>Scene Object</td>
</tr>
<tr>
<td>Sky</td>
<td>Scene Object</td>
</tr>
<tr>
<td>Sun (Lighting)</td>
<td>Scene Object</td>
</tr>
<tr>
<td>Buoy/Markers/Signs</td>
<td>Static Object</td>
</tr>
<tr>
<td>Barge</td>
<td>Static Object</td>
</tr>
<tr>
<td>Sailboat</td>
<td>Dynamic Object</td>
</tr>
</tbody>
</table>
Our World

- GIS data
  - Elevation data
  - Satellite imagery
- Created main land as well as Pauntu island
Ocean Model

- Dynamic ocean model
- Renders at a steady 30 fps
- Sized proportionate to land, but may be adjusted to be up to 30x larger without a performance decrease
- Testing done using a viewport resolution of 15
Adjusting Ocean Model

- Simulate different weather conditions
- Can increase/decrease size of waves via choppiness and wind velocity
- Can increase/decrease land area the ocean covers
Object Animation

- Objects interact with the water

- Moving Boat
- Floating buoys
- Moving Camera
Rendering Scene

- Produces final scene animation
- 30 Frames per second
- Sample video took about 2 hours
Timeline

February
2/23: Familiarize with Blender
2/28: Gather assets online

March
3/16: Complete static land terrain (waterway, landmasses)
3/23: Render assets together in scene

April
4/6: Create air and lighting parameterized objects
4/20: Create the water parameterized objects

May
5/2: Render animations and flyover
5/4: Final touch ups
Moving forward

- Config file that populates the world with assets based on user input
- More lighting and weather situations
- More detail with environment, specifically the land
Acknowledgements

- Professor Dr. Edward Fox
- Cell Matrix Corporation:
  - Dr. Lisa Durbeck
  - Dr. Peter Athanas