

Final Project Report

Project Requirements

Power of ray-tracing: As the lanterns emit light, they color-bleed on surrounding regions, such as the tree trunk, the grass, and the bottom-left lilypad. The water showcases a blend of transmissiveness and reflectivity. For example, the bottom-left lilypad and the silhouette of the tree and cat are reflected onto the lake, but submerged components (bottom of the duck, parts of some lilypads, some grass) are also partially visible. Lastly, to mimic the wetness caused by rain, I decreased the roughness of the plants, allowing them to be more reflective.

Main Geometry: Except for the lanterns, I created all the geometry in my project myself.

UV Mapping & Texturing: I UV-unwrapped the big leaf object, specifically BigLeaf8 (Collection → BigLeaves → BigLeaf8). However, I was able to texture it using material nodes, as opposed to directly using the UV map. I also used material nodes to create the textures of other plants, the dirt, and the water. I used weight-painting as well to assign grass particles and flowers onto the terrain.

Advanced Feature: I used motion blur/shutter to create the rainfall effect in the image. Furthermore, I leveraged Blender's physics simulations to create ripples onto the lake and to give the lilypads a cloth-like texture.

Contributions

This was an individual project.

Assets

The following assets were imported from online. All other assets were made by myself.

- Lantern: https://www.turbosquid.com/3d-models/black-lantern-2320908?dd_referrer=
- Environment HDRI: https://polyhaven.com/a/kloofendal_overcast_puresky

Tutorials

I referenced the following tutorials for my project.

- Cat: <https://youtu.be/HEA-XUfawOI?si=q9gNWpR-i873mf6v>
- Terrain: https://www.youtube.com/watch?v=AO45Q_rgw8k
 - Weight-painting: https://youtu.be/-1CfPLNo-j4?si=Dst_2Ppw-z_uU4aZ
- Plants:
 - Tree Trunk: <https://youtu.be/N8wd6DDa4JM?si=pGguqMhq0g3ZN-a->
 - Flower and Plants: <https://youtu.be/1mbtEs54odo?si=KvF8UxoX0ZBLW08f>

- Dirt/Ground: https://youtu.be/-kWTJJ4Grrk?si=NagNkX7fVGhXD_9B
- Grass: <https://youtu.be/ELNZgUya5no?si=qaMBqZGalq2u-hFS>
- Leaves: <https://youtu.be/0q-NcGIW0jg?si=DFNi5gqDQDH0-ai>
- Lilypads: <https://youtu.be/dvObBDNYlAw?si=3pO2TNWSVXLfibzr>
 - Cloth Physics: https://youtu.be/BXwlO_1AhA8?si=nRltz35gIx1lL_nP
- Water:
 - Lake: <https://youtu.be/hJPwE6dKg2c?si=MmmQ0KVzU54W2sQJ>
 - Rain: <https://www.youtube.com/watch?v=x0If5d2tq2s>
 - Ripples: <https://youtu.be/h2CH60QLhIQ?si=j2yaGG1nFfQi14eW>