Computer Graphics Final Project

Team

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Project Summary

Our project proposal is to use a javascript library called three.js to render the Utah teapot into a scene and apply some graphical properties to the rendering. We thought it would be cool to take some 360 degree pictures around the Computer Science department and stitch those pictures together into a scene that the teapot could be rendered into. We would like the teapot to have a reflective property to appear more realistic, as well as the ability for the user to click and drag the scene to view the teapot from any angle. We will also set the lighting of the scene to match the lighting of that particular image, and add text components to the scene that explains some graphical concepts of the Utah teapot.

Project Tasks

Load Scene

The three.js library gives us the option to take either a single 360 degree photo of the scene we wish to render or take six square photos of a cube representation of the scene and load those images into a scene. The scene is then rendered to the dom element of the page using a WebGL renderer.

Render Utah Teapot

First we will have to load the Utah teapot from the obj file that was given to us in our homework into the scene we have created. Then we will have to figure out how to apply lighting techniques and the reflective properties to the teapot as well as correctly shading and smoothing out the teapot triangle faces similar to what we did in the homework.

Add User Interactivity

The final steps in the project will be adding user controls to the scene so that they are able to drag around the teapot. They should be able to see the lighting techniques applied to the teapot change as they move the teapot around as well as see the surrounding scene reflect in the surface of the teapot.

Finishing Touches

If our team has time at the end of our project we would also like to add some text visuals to the rending that explain what the teapot is as well as why we chose the scene we did. This text will appear to float above or in front of the teapot and as the user drags the scene around the user will be able to see different text visuals appear on different sides of the teapot. This will motivate the user to drag the scene around and explore the visualization and learn more about the teapot.

Hosting

We would like to host our teapot rending in a Github Pages site so that anyone visiting the URL can view our project and learn more about the Utah teapot. Our site will include some descriptions of how we accomplished the rendering as well as some text explaining the graphical concepts we used in the project.