CS 557 Assignment Six: The Dragon Menagerie Project

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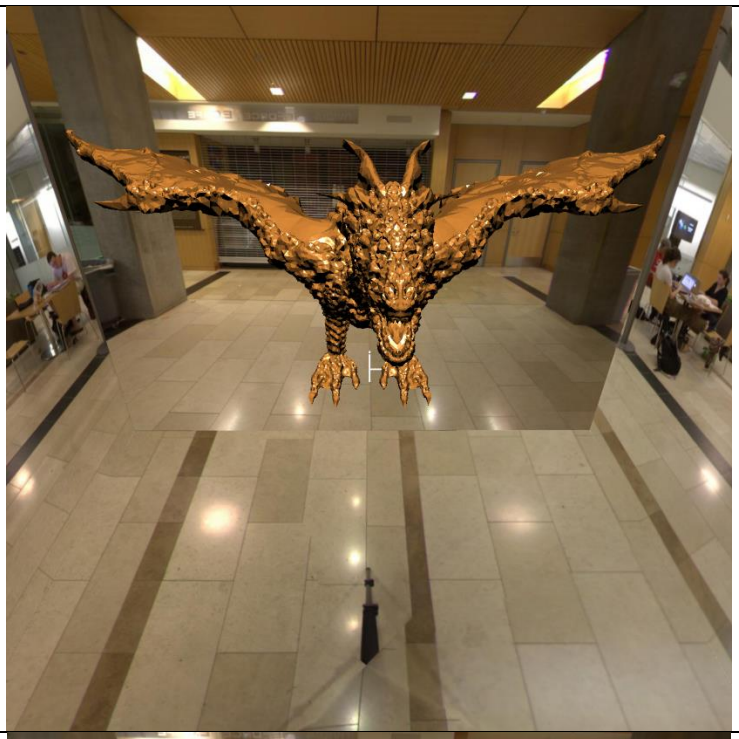
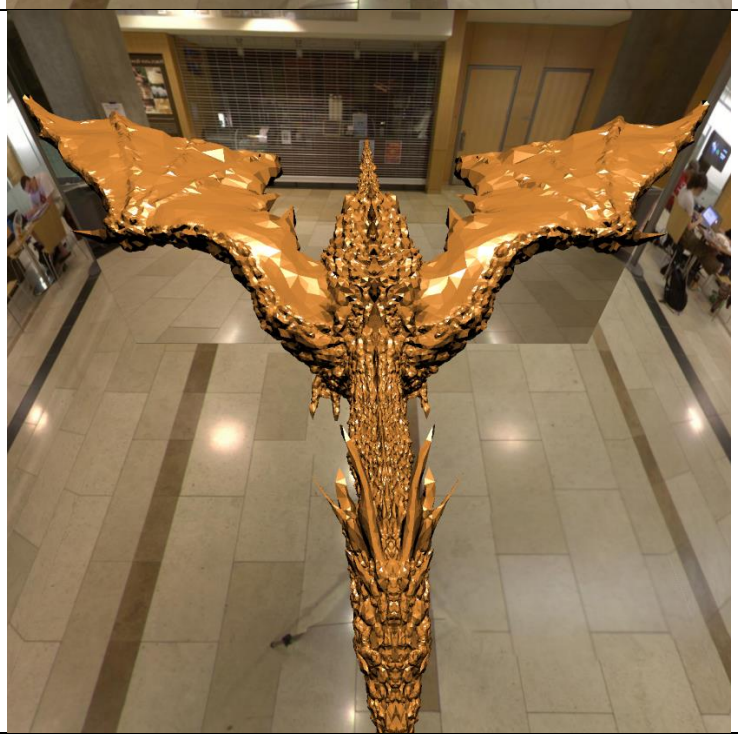
Link: CS 557 Assignment Six - OSU MediaSpace (oregonstate.edu)

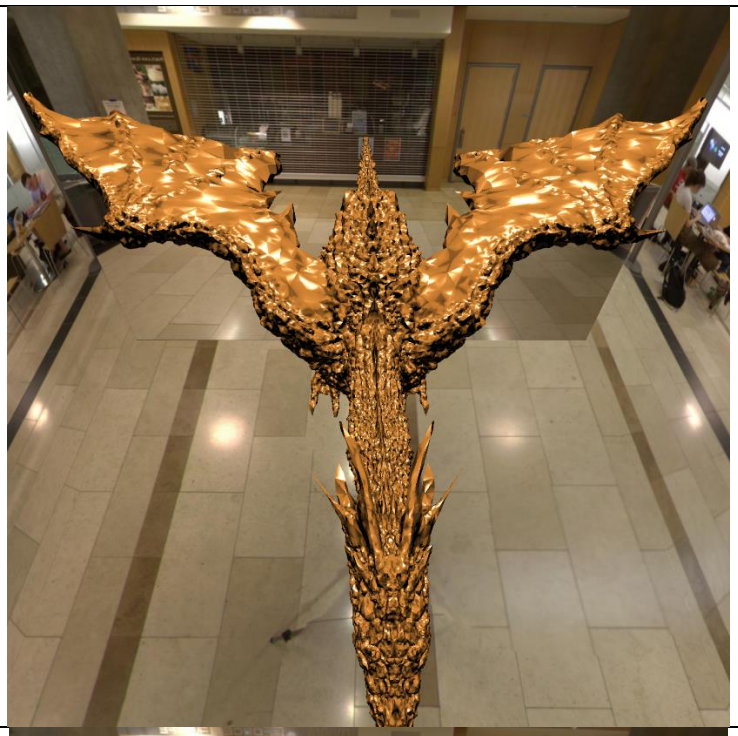
Project Description:

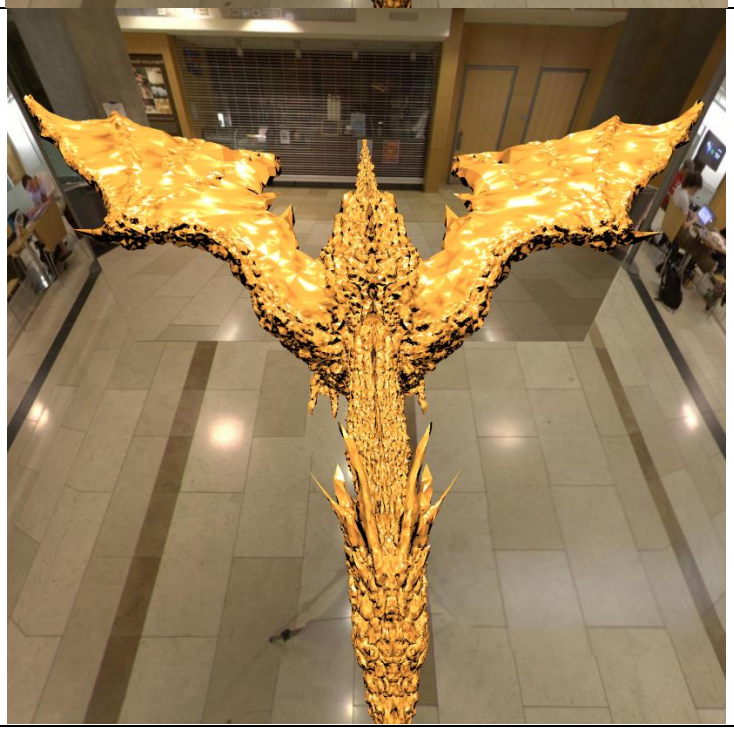
This project is a GLSL (OpenGL Shading Language) fragment shader, primarily used for calculating the lighting effects on the surfaces of objects in a scene. It calculates ambient, diffuse, and specular lighting effects based on the normal (Normal), light source direction (Light), and viewer position (Eye) vectors. The intensity of the diffuse light is based on the dot product of the light source direction and the surface normal, while the specular light intensity is determined by the dot product of the reflection direction and the view direction, with the Shininess parameter controlling the sharpness of the highlights. Finally, the shader determines if it is near an outline by calculating the dot product of the Normal with the Z-axis vector. If it is close to an outline, it sets the fragment color to black; otherwise, it sets the color based on the calculated lighting effects. This gives objects in the 3D space a more realistic visual appearance, including variations in light and shadow and an emphasis on contours.

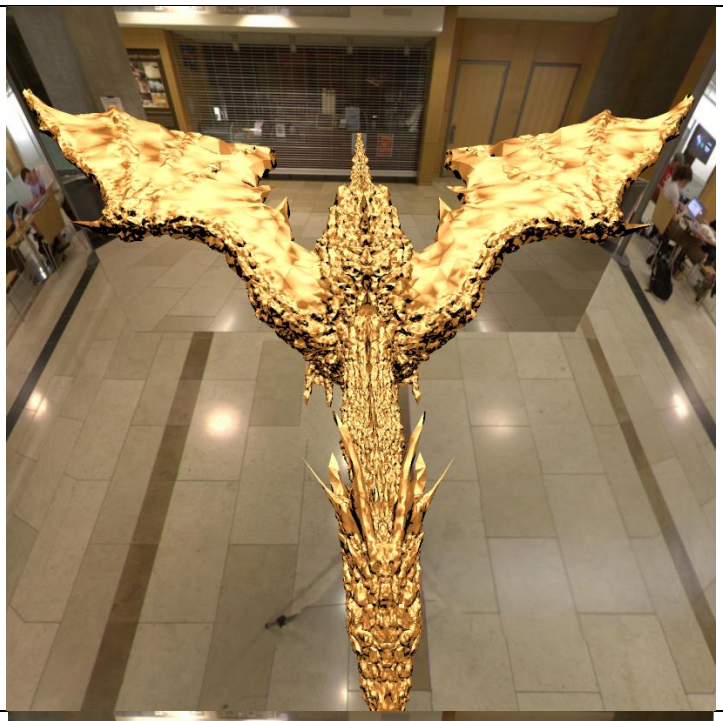
Project Screenshot:

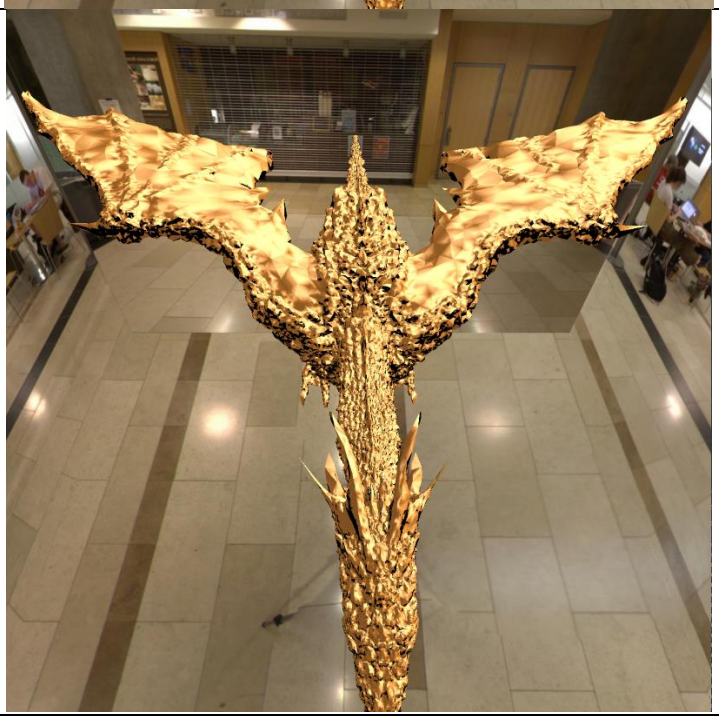


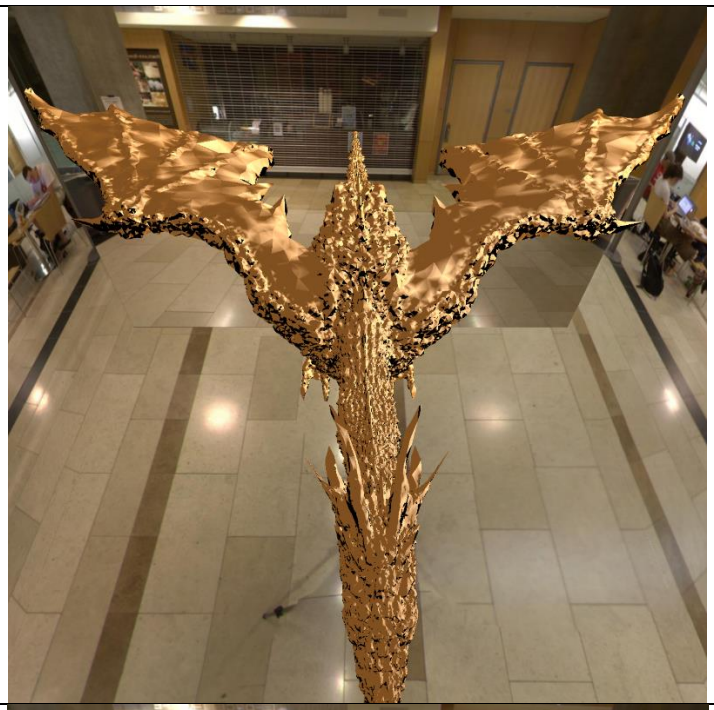


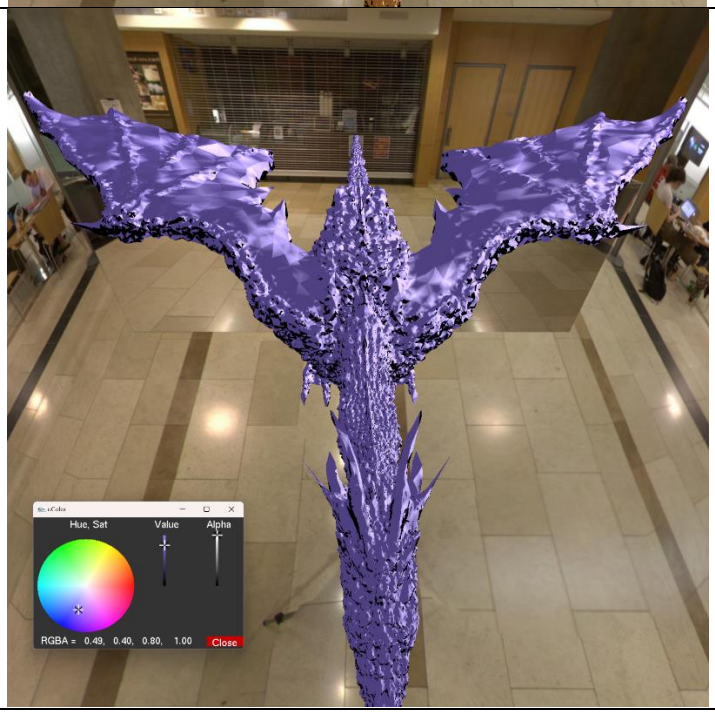








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