

CS 557

COMPUTER GRAPHICS SHADERS

FINAL PROJECT PROPOSAL

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For my final project, I plan to create a visual of **Oregon's Crater Lake**, complemented by several additional features. The key focus of this project involves using a noise function with displacement on a plane to generate crater mountain and the lake in between. The height of the mountains in the valley will be controlled using a slider, while the lake will incorporate reflection and refraction effects. I will use a similar approach to cube mapping. Additionally, I will use bump mapping to create waves on the water surface, with a slider to control the water level.

My project will also consider temperature and its impact on water's molecular state(solid Ice, Liquid water, vapor gas). A temperature slider will allow users to manipulate temperature, causing the pool to freeze into ice when it is low and evaporate when it is high. The mix function and geometry shaders will be employed to achieve this effect.

For the part where I think I will struggle the most is where I'm planning to add a rain aspect. This effect will be visually striking, with bump mapping used to create waves on the pool surface caused by raindrops. One significant challenge will be finding an efficient method for creating the raindrops.

This is my take on the project and some pictures of the crater lake from when I visited:

