

Title: Computer Graphics with Lab (CSCI 1230 + 1234)

Abstract:

For my Capstone course, I took Computer Graphics with the Lab component under Professor Andries Van Dam. I implemented substantial extra credit features for every project assignment, and completed a final project. Some memorable extra features include implementing alpha blending and an extra special brush for the Brush project; rendering a torus and a mobius strip with correct normals in Shapes; implementing two-dimensional Discrete Fourier Transform (DFT) to carry out image blurring in the frequency domain for Filter; implementing GPU Texture Mapping and Adaptive Level of Detail for Sceneview; and constructing an Octree accelerated data structure, creating multi-threaded capability, and implementing super sampling for anti-aliasing in Intersect and Ray.

For my Final Project, I partnered with Jason Zagorski (Brown '20) to create an animated scene of textured spheres bouncing around in a Cornell Box. We have accurate collision simulation as well as compelling shadows. Here is a link of the final result: <https://www.youtube.com/watch?v=FHWymkbtuRk>.

All projects in the class were written in C++ using OpenGL, as well as GLSL