TI1805 Computer Graphics Raytracer overview

Our raytracer is capable of calculating intersects with simple planes such as triangles and rectangles. We added functionality for spheres and boxes as well. Our raytracer creates shadows and implements shading using the Phong model. Along with those features, it can create reflection and refraction, and can handle multiple rays per pixel. We mapped these features and modes to various keys on the keyboard for easier user control. We used a KD-tree as data structure to optimise processing and accelerate the speed of rendering.

Our scene is custom made using Unity and Blender, Unity for the terrain and Blender for the spheres floating in mid-air. Using the terrain gives extra shadows and shading features for the final renders. The scene consists of an island and three spheres. One sphere is simple, one transparent and one is made of mirroring material.