

CS351-2 Project B

— RZC1021
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1. Goals

This project implemented ray tracing and ray marching to build a world with different light and material effects on different shapes of objects. There are four scenes altogether, with two light sources in each scene, and different shape and material of objects, including disk, sphere, cube, ring, CSG-sphere.

2. User-guide

Anti-aliasing: Press 'Super-Sampling' button and see the number of 'sample/pixel'

on the screen to adjust super-sampling rate, and then press 'T' to trace. Press 'Jitter' button

to switch on/off jittering. Higher super-sampling rate may take much more time to

compute.

Recursive Depth: Press 'Change Recurse Depth' button to adjust recursive depth.

Change Scene: Press 'Change Scene' button to change to another scene.

Current

scene number is shown on screen. There are 4 scenes for choice.

Lamp Control: Press 'switch lamp1' or 'switch lamp2' to switch on/off the lamp.

Press another time to toggle. Press 'I' 'K' 'J' 'L' 'U' 'O' to move lamp1 position, and lamp2 moves with camera.

Camera Navigation: Press 'W' 'S' to move camera forward/backwards. Press 'A' 'D' to strafe left/right. Press 'Q' 'E' to strafe down/up. Drag mouse to turn camera's aiming direction. Camera can be seen in the left viewport as a small sphere hanging in the sky. Press 'T' to ray trace after update.

3. Sample pictures



