CS351 Computer Graphics Project B Report
3D World Exploration

Yiwei Zhang
yzh1927

Goal of this project

The goal of this project is to create a large, animated 3D world that user can explore and view with a movable 3D camera. My goal is to implement the camera navigation and quaternion dragging. I implemented the camera navigation in the way that the camera can turn around its head aiming at any direction. And the camera can move forward/backward in the direction that it is aiming at. In addition, for the quaternion, based on the mouse dragging, the object can rotate according to different axises.

User's Guide

1. Use keyboard arrow ← → for strafing
2. Use keyboard arrow ↑ ↓ for navigating forward and backward
3. Use keyboard W A S D for turning the camera around
4. Use keyboard H G for lifting up and down
5. Use keyboard J K to control the spinning speed of robot
6. Use mouse drag to drag the pyramid
7. Press P to stop/start both objects
8. Double click to stop/start Top only
9. Click the spin button to control the spinning speed of the Top
10. Click the spin button to control the spinning speed of the robot

Results

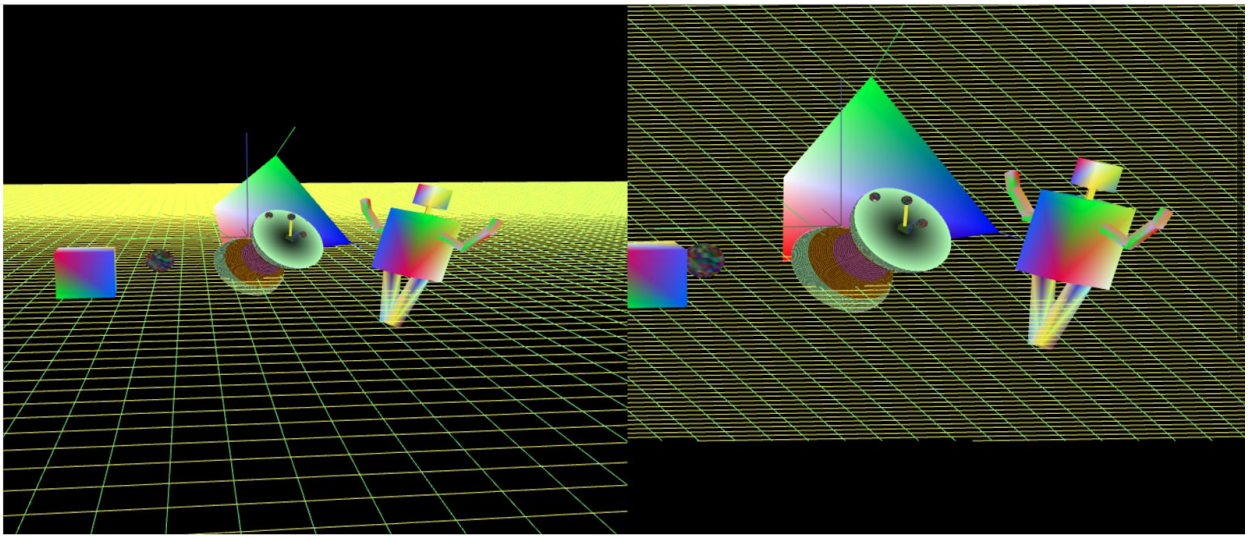


Figure 1. Open the web browser for the initial Scene

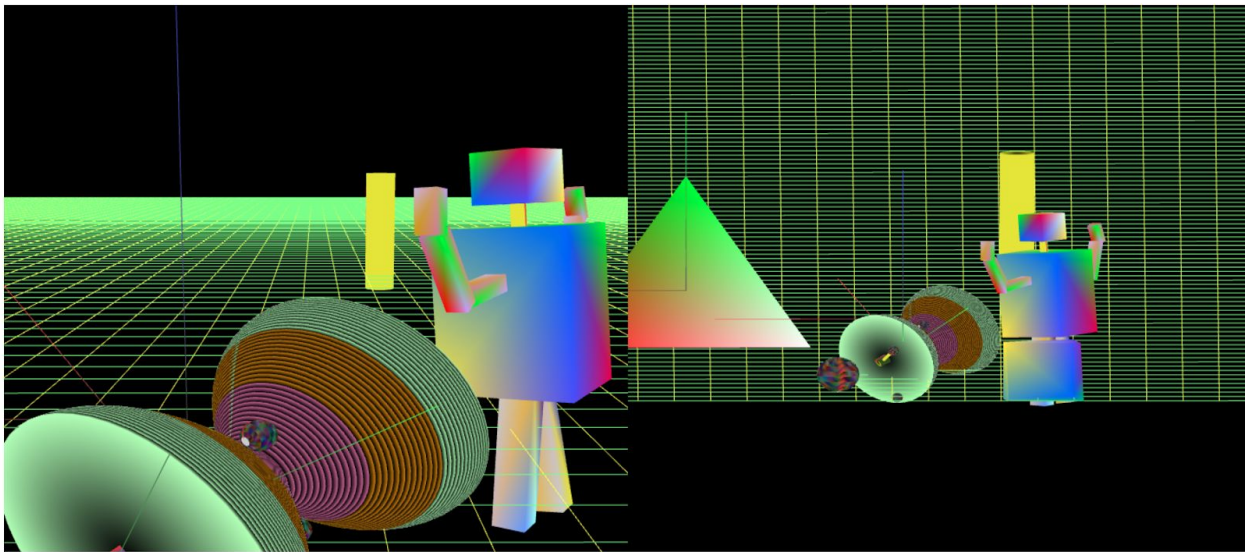


Figure 2. Use up arrow key to navigate forwards

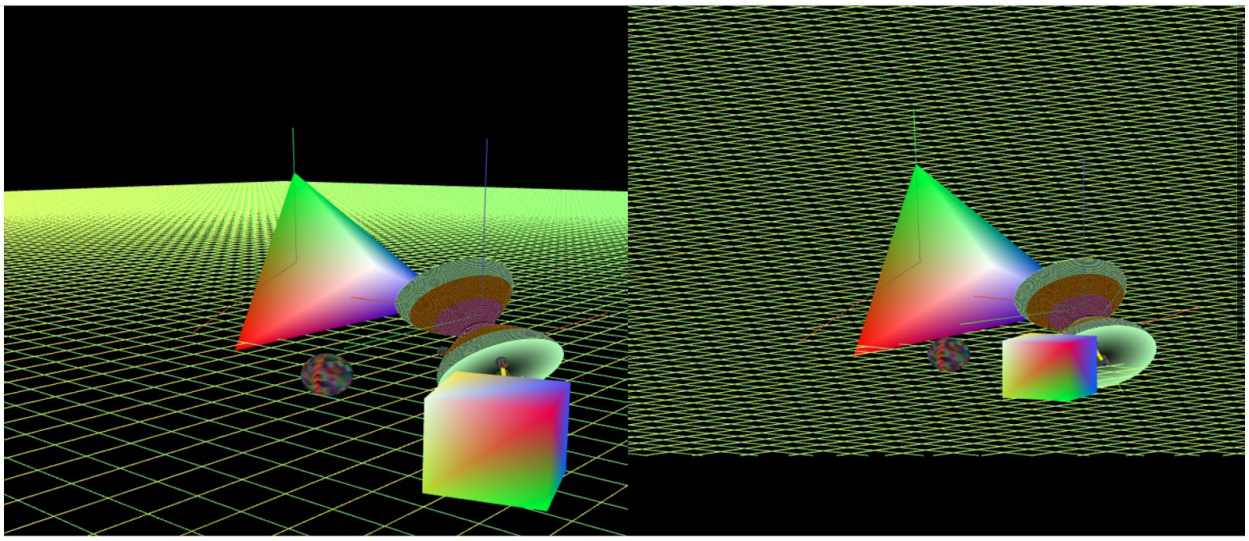


Figure 3. Face toward the pyramid and drag mouse

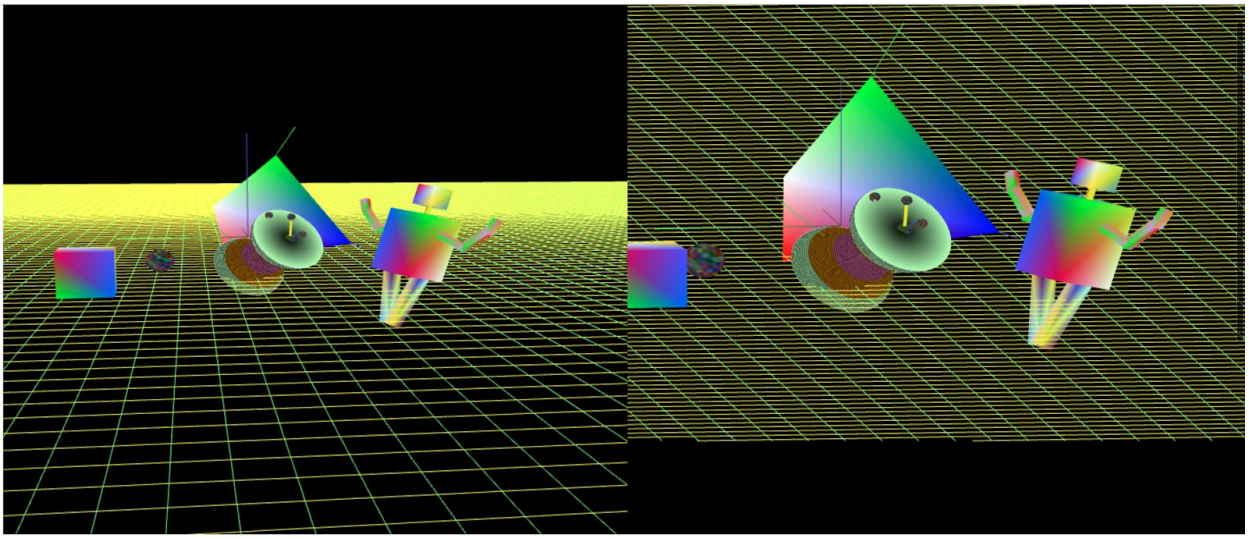
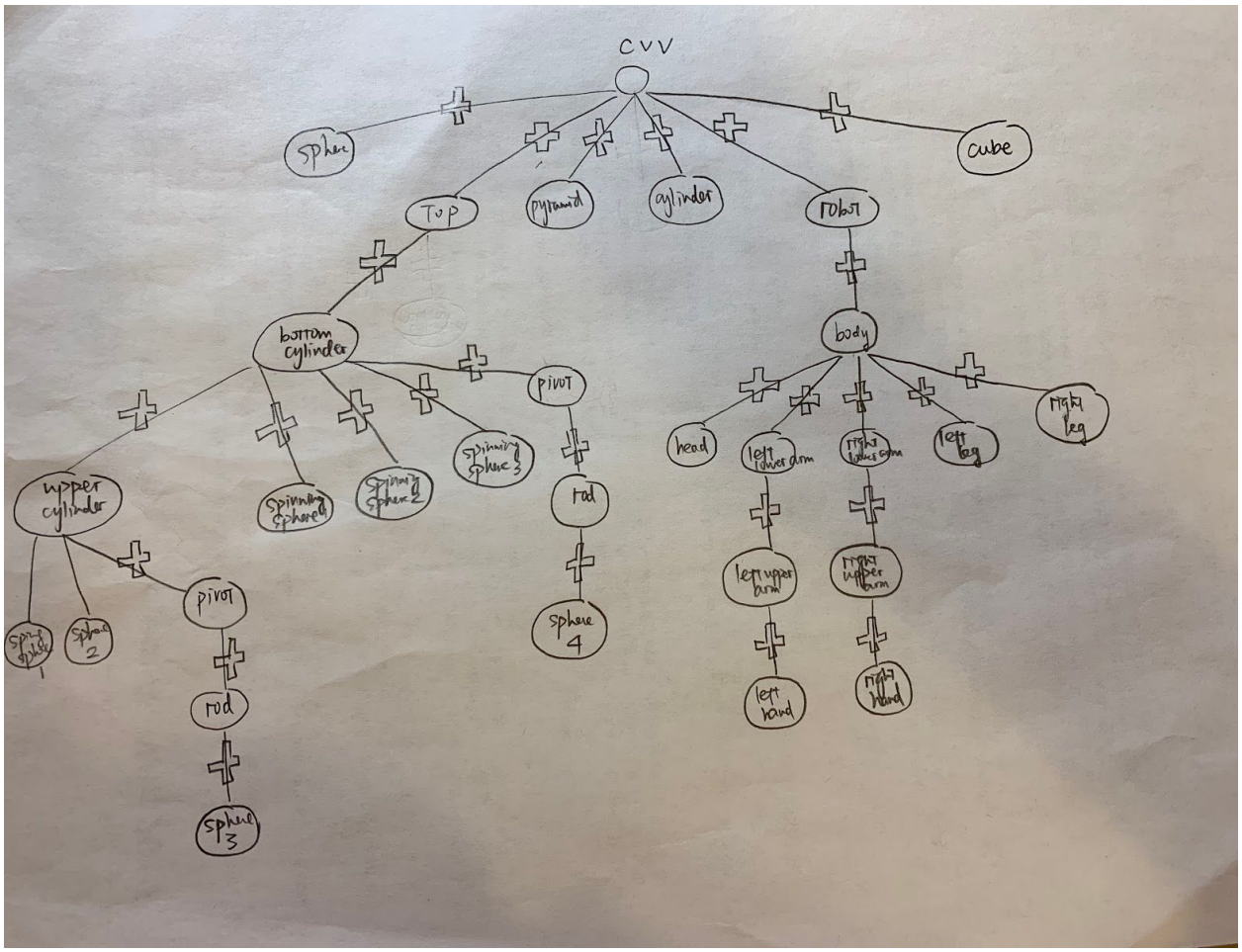


Figure 4. Navigating to the side of the initial scene

Scene Graph for this project (At the end)