

# Report of Project B (EECS351)

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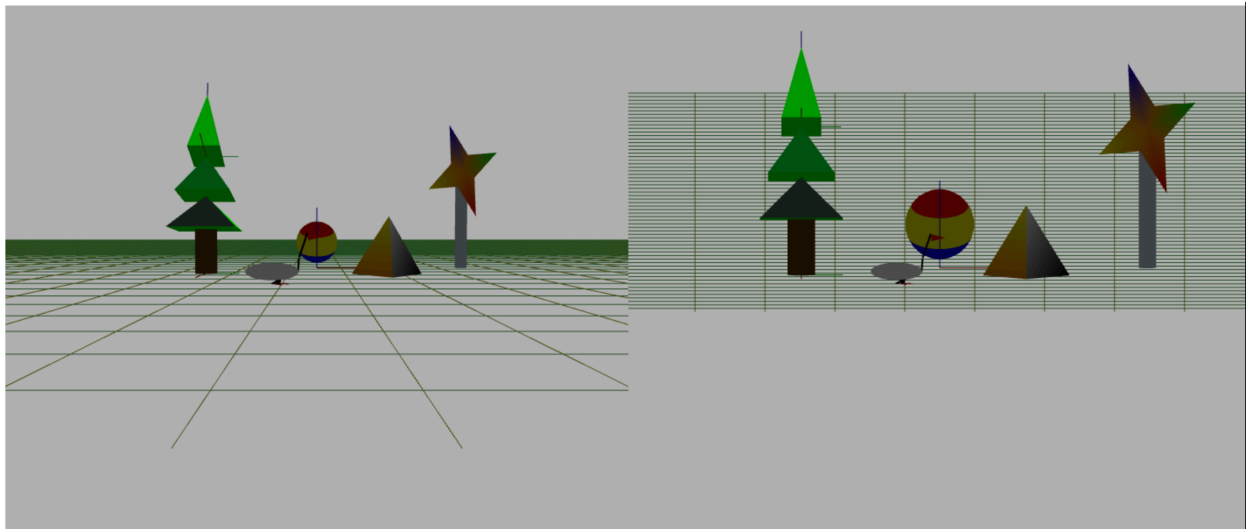
## 1. Goals and Description

The goal of the project is to draw a lively scenery on the ground, and to practice 3D views and diffuse overhead shading. The scenery includes five 3D objects located on the ground: a goose (3-jointed), a tree (3-jointed), a pyramid, a windmill, and a sphere, all of which are multi-colored with no less than 3 vertex colors. The ground grid is placed on the x-y plane ( $z=0$ ) of the world-space coordinate (x-axis: red, y-axis: green, z-axis: blue). Two more axes within the tree are added to show the movement of the tree. The tree has a simple diffuse overhead shading during its movement. The scenery is output into two viewports – a 3D perspective image on the left and a 3D orthographic image on the right. In addition, a camera is positioned above the ground, which can move and change its aiming direction.

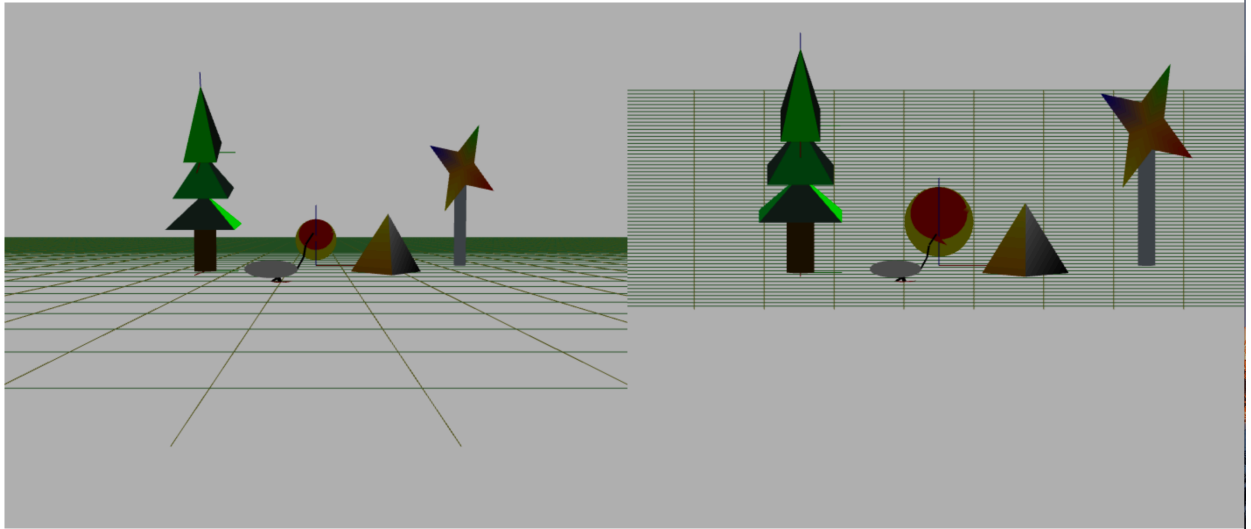
## 2. User Guide

1. Use arrow keys to move up/down/left/right
2. Use A/D/W/S keys to look left/right/up/down
3. Use '</>' keys to sway the tree left/right.
4. Use mouse to drag the pyramid.

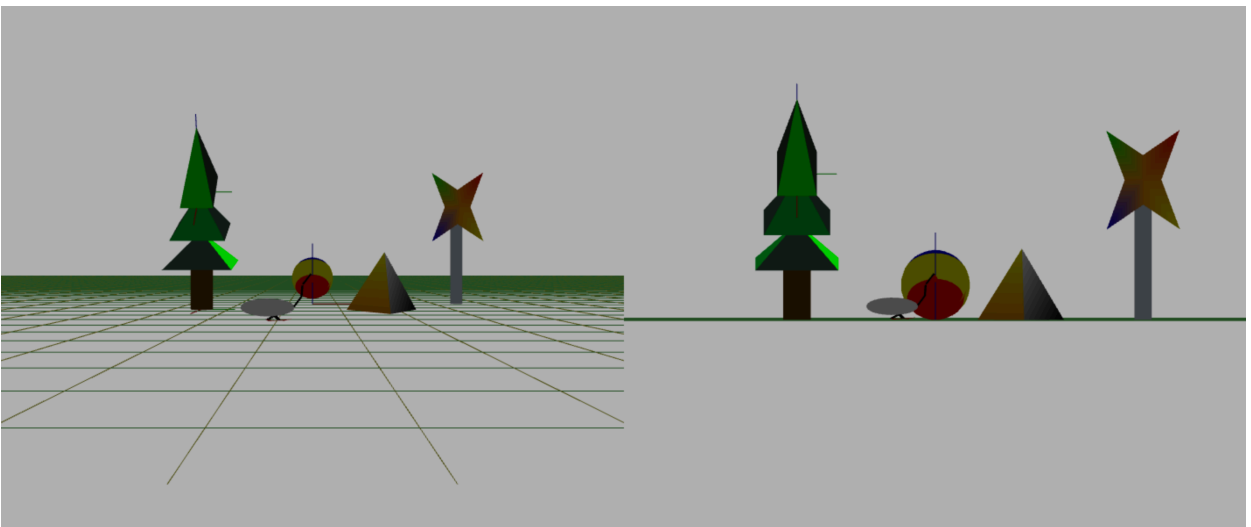
## 3. Results



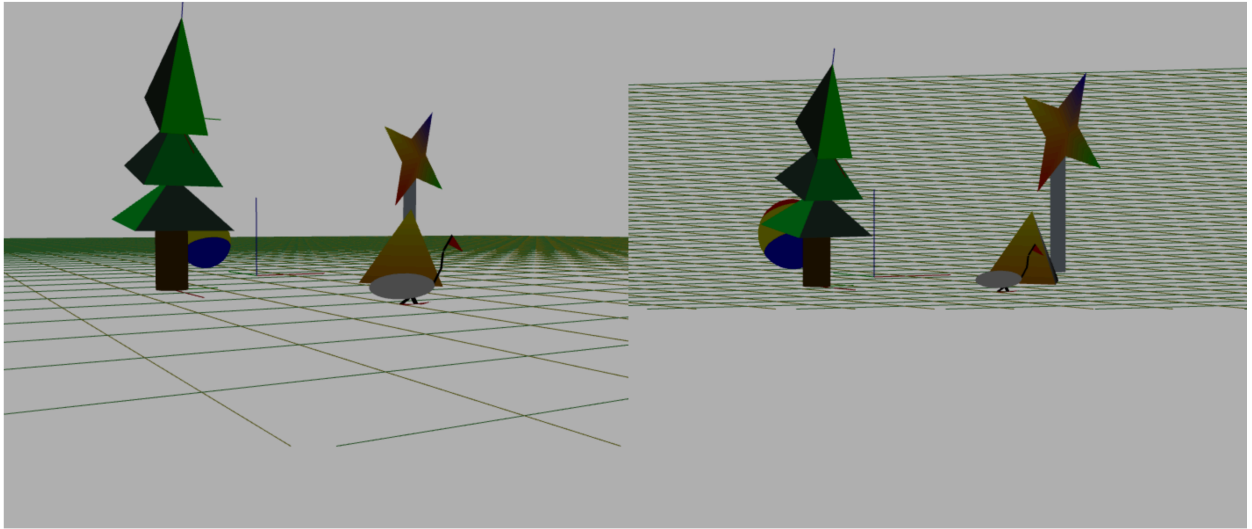
original scene



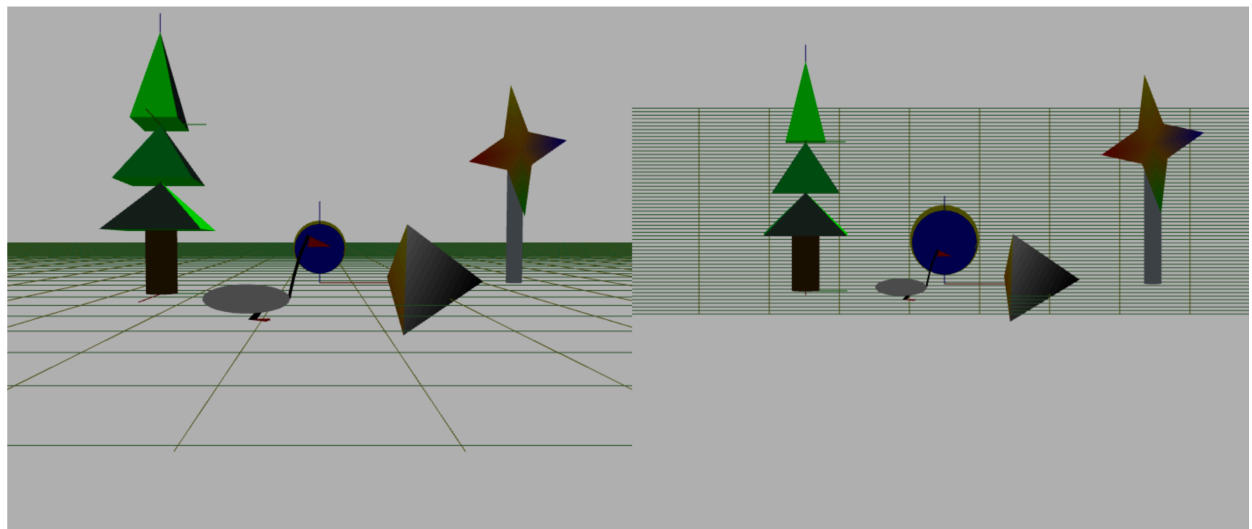
diffuse overhead shading (Tree)



look up



look left



drag the mouse

#### 4. Scene Graph

