

Lingji Kong

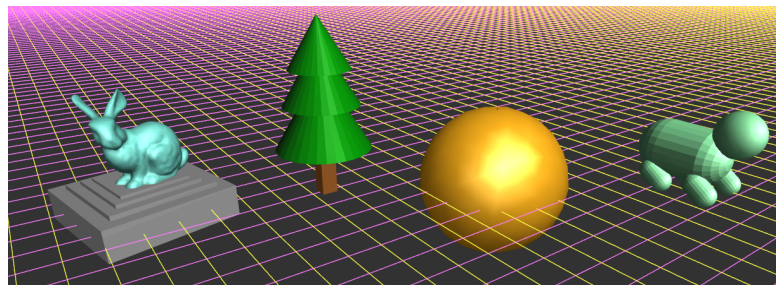
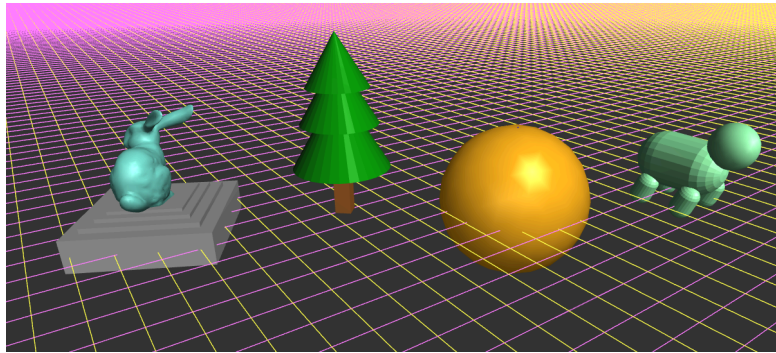
LKV6309

Project C: Christmas Eve: A Christmas Tree, a Dog, and a Rabbit Gift Box

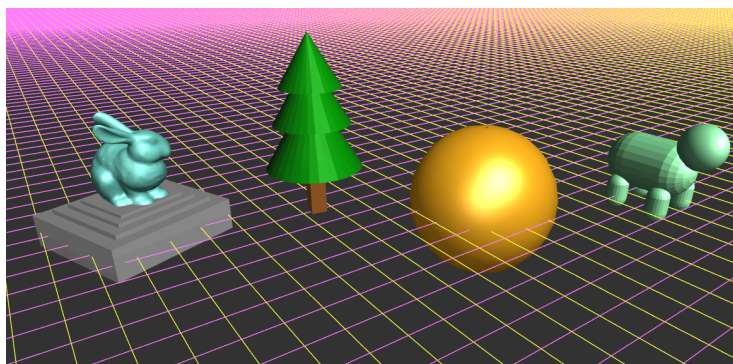
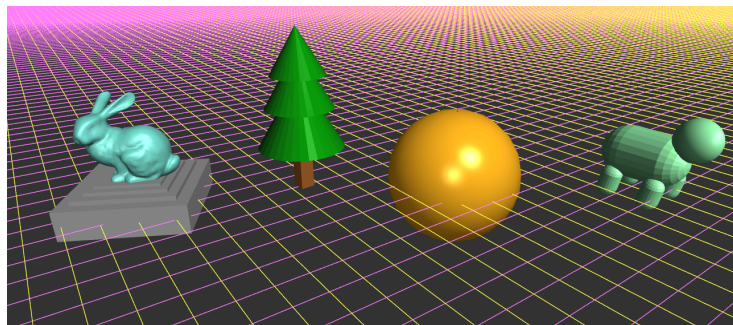
User Guide

- Goals:
 - Build a Christmas Eve scene with various interesting and intriguing shapes
 - Build a camera that can freely navigate through the city
 - Provide a few different options for shading and lighting method
- Camera Navigation Instructions:
 - W/S: moves the camera forward and backward at a fixed height
 - A/D: moves the camera left and right at a fixed height
 - ArrowUp/Down: Aims the camera up and down without moving it
 - ArrowLeft/Right or Q/E: Aims the camera left and right without moving it
 - I/O: moves the camera forward and backward in the gaze direction
- Button Interaction:
 - The name of each button can self explain its functionality.
 - The shading and lighting options are two selection menus; for the shading options, users can choose between Gouraud shading and Phong shading; for the lighting options, users can choose between Phong lighting and Blinn Phong lighting.
 - The sphere material is also a selection menu: there are 12 kinds of materials for users to choose from. It will only change the material of the sphere.
 - The two buttons in the rabbit control section: the first one is the switch of the distortion behavior and the second one is the switch of the rotation.
- Light Controls
 - There are two light sources: a lamp and a head light.
 - For the lamp light, users can change its location and its ambient, diffuse, and specular colors. Users can also turn on and off each part separately.
 - For the head light, users can only turn it on or off, which is controlled by the head light switch button.

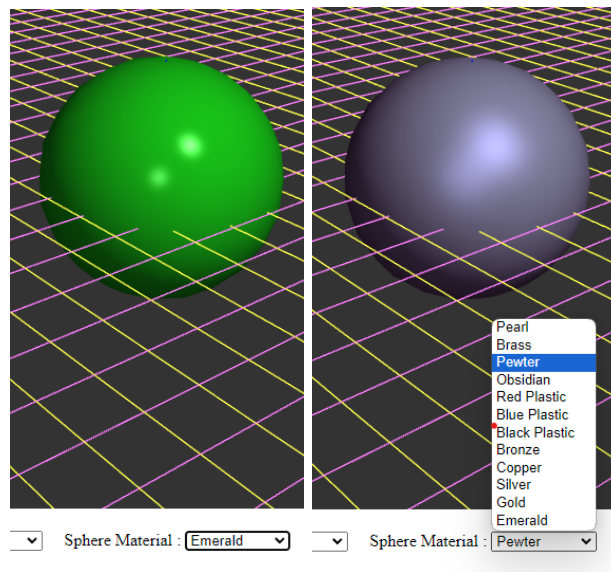
Results



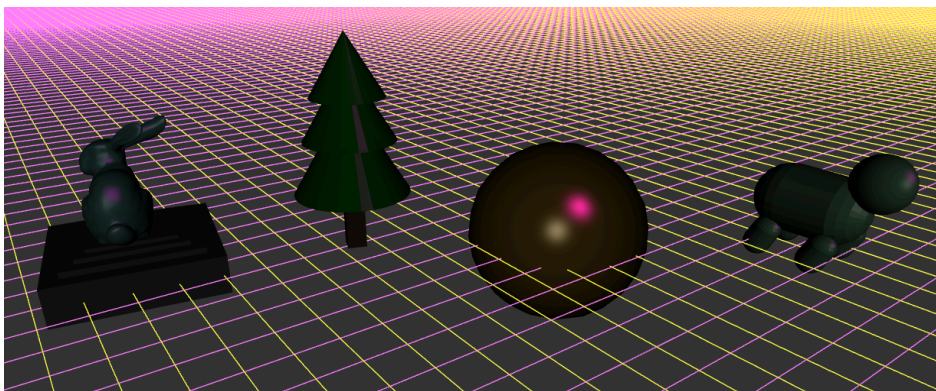
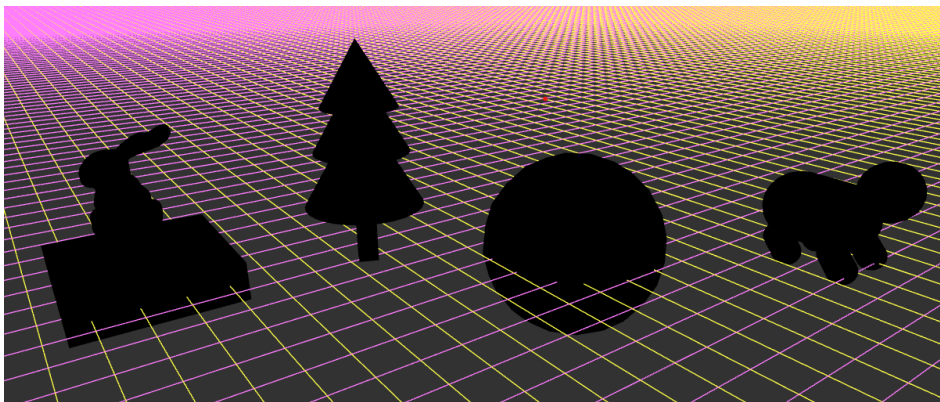
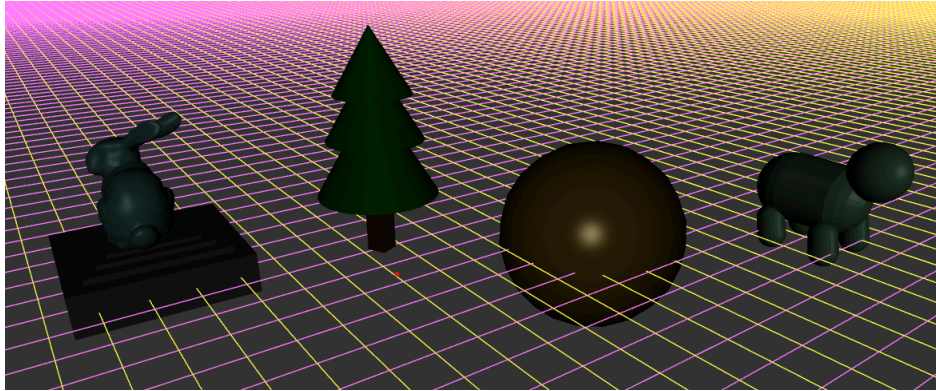
The first picture is Gouraud shading with Phong lighting, while the second picture is Gouraud shading with Blinn Phong lighting. We can notice the specular term is not circular even though the sphere is very smooth.



The third picture is Phong shading with Phong lighting, while the fourth picture is Phong shading with Blinn Phong lighting.



These two pictures show how we can change the materials of the sphere. There are 12 materials to choose from.



These three pictures here show how we can play with the light controls. The first one shows only the head light on: the head light is a weak light source but it is easy to notice the specular term at the center of the smooth sphere. The second one shows no light on. The third one shows the head light on and the specular light from the lamp is on. The specular light is changed to pink and we can clearly notice the change.

There are more interesting things going on: for instance the distortion of the rabbit. It is hard to show it using pictures, so remember to check it out!

Scene Graph

