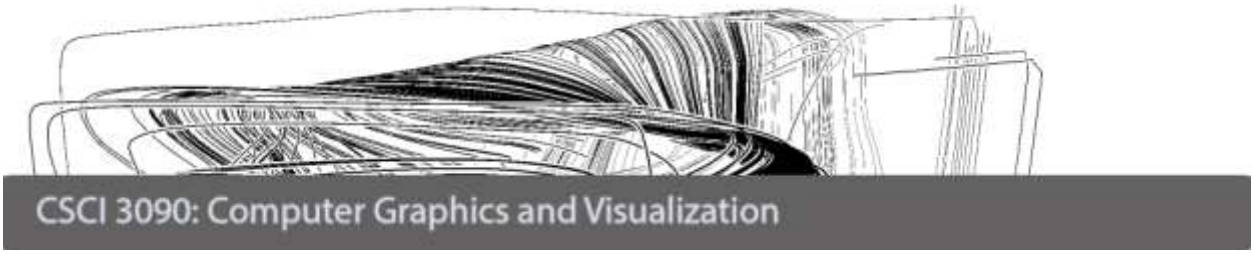

Laboratory Eight: More Texture Mapping

Introduction

This laboratory is based on example eight from class. Start by downloading the example from Blackboard and make sure that it compiles and runs correctly. You should obtain an image of the vase with the glass texture similar to the one presented in class. We will use this example for three exercises.

Exercise One

In this first exercise you will add a specular highlight to the textured vase. Example six shows how to compute specular highlights. You can assume a directional light source for your computations. The texture values can be used as the ambient and diffuse components of the light model.

Exercise Two

In the previous exercise we used the texture value as the ambient and diffuse components of the light model. In this exercise you will compute the ambient and diffuse components, but instead of using a constant object colour use the value retrieved from the texture map as the object colour. That is, the texture value is used to modulate the diffuse and ambient lighting components. How does this differ from the original image?

Exercise Three

In the vertex shader multiply the texture coordinates by 4 and observe how the texture is repeated over the vase. Now go back to the C++ program and find the following two lines in the program code:

```
glTexParameterf(GL_TEXTURE_2D, GL_TEXTURE_WRAP_S, GL_REPEAT);
glTexParameterf(GL_TEXTURE_2D, GL_TEXTURE_WRAP_T, GL_REPEAT);
```

These two lines control how texture values are looked up when the texture coordinates go out of the 0 to 1 range. Change GL_REPEAT to GL_CLAMP and observe the impact that it has on the texture applied to the vase.

Laboratory Report

Submit screenshots of your results in the Blackboard dropbox.