COSC4370 Spring 2021 HW4 - Texture Mapping

Due: April 8, 11:59 PM, 2020

1 Introduction

In this assignment, we will practice texture mapping in OpenGL and shader.

2 Setup

This homework will use the same libraries as we did in homework 3. So no additional setup is required.

3 Compiling and Running the Code

For Linux and OS X, we have included a Makefile that will automatically compile the homework, assuming you have the correct libraries installed. Just run make in a terminal. The program that is generated is named hw4.

On Windows, you can use Visual Studio in the usual way to compile and run your program.

Note that the files needed for compilation include main.cpp and Shader.h. Your vertex and fragment shader files are loaded by OpenGL at runtime; you do not need to compile them with the other files.

Note that the program takes no command line arguments etc. - you can just compile and run.

4 The Main Assignment

The goal of this assignment is to implement texture mapping in OpenGL. The uv data is hard coded in the main function. You will write code to transfer the uv data to OpenGL buffer, just like what we are doing for vertex position. You will also write the code for binding texture in the rendering loop and shader code to draw the texture. A tutorial on texture mapping can be found at https://learnopengl.com/Getting-started/Textures. If you implement everything correctly, you should be able to reproduce a rotating textured cube like the following:

5 Deliverables

Submit all deliverables to your Github reporsitory.

- Do the assignment independently.
- You need to write a detail report(50 percent points of the assignment, pdf format), you should state the assignment problem, explain the algorithm or method you use, explain details of implementation, discuss your results and etc.
- upload your source code
- upload your final results(such as screen shots and etc)
- In your Github readme file, put your name and student ID there, and also coding

environment and compiling method (command).

- You can only use the library we provide.
- You will lose points if violate any requirement above