COMPUTER GRAPHICS ASSIGNMENT #3 OPENGL MODELER

January 3, 2019

Introduction

In this assignment you will replace your software renderer with an OpenGL version.

REQUIREMENTS

Your assignment is to use OpenGL for rendering. You should change the (internal) implementation of the renderer so it will use OpenGL, as demonstrated by the demo app. The new OpenGL should implement as much of the previously existing features as you can, but at the very least, you should implement all transformations (Model, world, camera, lights, etc.) and Phong shading. Wireframe, visualization of normals and bounding cubes, etc. are less important. In addition, you should implement two of the following:

- Texture mapping. Use texture-coordinates when available, and additionally implement two canonical texture coordinates (for example, projection on a plane and a cylinder). To load textures you can use Texture2D which we provided for you with the OpenGL demo app.
- Bump/Normal mapping.
- Environment mapping.
- Toon shading (without the sillhouette).
- A volumetric procedural texture.

An example on how to use implement texture mapping using Texture2D and ShaderProgram classes appears in the OpenGL demo app. Please inspect them and use them in your code.

SUBMISSION

Submission is mainly frontal, but you should also submit your code electronically. Before the submission deadline, we will schedule timeslots for you to come and see us. Presentations will last 15-20 minutes, during which you will show us your work and answer our questions.