CG 2013-14
Assignment 2: Texturing

Out: Nov 26. Due: Dec 10.

Introduction

In this second assignment, you will setup texture coordinates in order to map 2D images on 3D objects. Interactive rendering will be done through OpenGL directly into the provided template code.

You have to perform the assignment using the C language and, as usual, we are providing a template code to perform basic vector calculations, interaction with the 3D scene through a trackball and the basic functions to initialize and update the rendering.

In order to compile the provide template code you will need `freeglut` (a free implementation of the glut library). Instructions to install `freeglut` on windows and MacOSX are available on the web page of the course.

To ease your debugging, we are providing the compiled version of the solution code, which can be used to compare your results with ours. Do not decompile the code.

For a specification of OpenGL, see
http://www.opengl.org/sdk/docs/man2/

For a specification of GLUT, see
http://www.opengl.org/documentation/specs/glut/spec3/spec3.html

Template code

The provided template code initializes an interactive window which draws the virtual scene 60 times per second. Furthermore, the template code provides the following functionalities:

Texture Manager: helper class used to load `raw` images and convert them to OpenGL textures.

Shapes: functions to draw different geometric primitives: a cube and a sphere. See the code for additional comments.

Requirements

1. Texturing two tori.

Write a function to draw a textured torus and compose a scene like in the provided example tori.exe, including the texture maps. You need to think about how to map a texture onto this surface and how you want to utilize tiling.

The function for drawing the torus shall have the following declaration:

```
void Torus(float out_radius, float int_radius, int tx);
```

where

- out_radius is the major radius
- int_radius is the minor radius
- tx is the texture id of the texture map currently used

Submission

Send the code for each point ***within the 10th of December*** to
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