

CIS 636 Introduction to Computer Graphics

CIS 736 Computer Graphics

Spring 2008

Homework 2: Machine Problem

Viewing, Shading, and Texturing in OpenGL

Assigned: Fri 15 Feb 2008
Due: Fri 22 Feb 2008 (before midnight)

The purpose of this homework is to give you more experience with viewing, shading, and texturing in OpenGL.

This homework is worth a total of 30 points (3%). Upload an electronic copy of the assignment in PDF form (converted from your word processor, or scanned) to your K-State Online (KSOL) drop box before the due date and time.

Acknowledgements

This machine problem is adapted in part from:

Dunham, D. (2007). Lab 5, CS 5721 (*Computer Graphics*), fall, 2007. Duluth, USA: University of Minnesota. Retrieved from: <http://tinyurl.com/2q5phg>.

References

NeonHelium tutorials: <http://nehe.gamedev.net>

OpenGL FAQ: <http://www.opengl.org/resources/faq/>

OpenGL viewing docs: <http://www.opengl.org/resources/faq/technical/viewing.htm>

1. **(30% for 636, 20% for 736) Parsing scene files.** Download the sample scene files from <http://snurl.com/1zpp1> and look at the inline specifications. Write a program in C/C++ to read in these scene files. Turn in your parser as part of `mp2.c`.
2. **(60% for 636, 40% for 736) 3-D low-polygon rendering.** Next, adapt your OpenGL programs from Labs 1 – 2 to do the following:
 - a. **(15% / 10%) Vector test render.** Display a wireframe of the house. Turn in your source (`mp2.c`) and a screenshot (`mp2-2a.jpg`).
 - b. **(45% / 30%) Shading.** Display smooth-shaded versions of the rest, following NeHe tutorials 3 through 5. Turn in your source and a screenshot (`mp2-2b`).
3. **(10%, 636 only) Rotations.** Make each object rotate about the *y* axis as in NeHe tutorial 5, but put in a delay so that it does not rotate as quickly.
4. **(30%, 736 only) Texture mapping.** Follow NeHe tutorial 6 to texture map the object with <http://snurl.com/1zppk> and display it. Turn in your source and a screenshot (`mp2-4`).

Class Participation (required):

Select a term project topic by Fri 22 Feb 2008. Post a brief discussion of the topic you are considering in the class mailing list CIS636-L@listserv.ksu.edu or CIS736-L@listserv.ksu.edu before you finalize your choice, and ask any questions you like. State your choice by e-mail to CIS736TA-L@listserv.ksu.edu.