

Lab 3 – CSC 572

Due 10/23/08 to be demoed in lab

This project is to be worked on in pairs or individually (any pairs you'd like)

Objective: Exposure to mesh complexity and the need for simplification

Create a program, which generates and displays indexed face set meshes (of type .m)
The meshes must be displayed with three rendering options, flat, smooth shaded or wireframe and must be able to be translated along the z axis (or move the camera along – z). Ideally, they should be able to be rotated as well, but that is up to you.

Please use one of the following code bases to help you start your program (these files all parse the input and include varying degrees of mesh data structures and display support):

- i. A C style file is called MeshParser_release3.cpp
- ii. A C++ style parser and mesh data structure (called BasicModel) in NewMeshParser.tar (includes headers and other needed classes)
- iii. A C++ style parser and mesh data structure with much more connectivity information, useful for more complex operations like mesh simplification, called meshSimp.tar (includes headers and other needed classes)

Any of these can be downloaded from:

<http://www.csc.calpoly.edu/~zwood/teaching/csc476/material/>

Example mesh files (of this format) can be found at:

<http://www.csc.calpoly.edu/~zwood/teaching/csc471/data/>

Next, enable 2D bitmap fonts in order to display text to the screen and display the frames per second for your program, the number of faces in the current mesh and the current position along the z axis of the center of the mesh. I recommend using a variety of online code to assist you. For example, refer to:

<http://www.lighthouse3d.com/opengl/glut/index.php3?bmpfont>

for a tutorial on bitmapped fonts.

Refer to:

<http://www.lighthouse3d.com/opengl/glut/index.php?fps>

for an example program to calculate frames per second

Finally, download and display the following files:

bunny_orig.m

bunny10k.m

bunny500.m

Please answer the following questions:

What is the average fps for rendering each file as you are trying to move it along z?

Find a position along z, where each mesh looks fairly similar.

