

Final Project – Assignment 6

Due: December 3, 2007

Fall 2007 Computer Science 484
Principles of Computer Graphics

Instructions: Please submit your solution to the following problems by 23:59 on December 3, 2007 via WebDAV dropbox «<http://dropbox.ecs.fullerton.edu/cs484/asgt6/>». Your submission must, at a minimum, include a plain ASCII text file **README**, all necessary source files, libraries, and build configuration files to allow the submission to be built and run independently by the instructor. **All files** must include a header identifying the author, author's contact information, and a brief description of the file. The **README** file must describe any bugs and features along with a description of what was or was not completed in the solution. The **README** must also describe the use of the program and if there are any external dependencies.

By completing the minimum requirements of the assignment you will earn at most 90% of the points possible for this assignment. Completing one or more of the suggested improvements will earn you up to 100% of the total points.

Place your submission in a folder and name it *yourlogin_asgt6*. **Zip** the folder and submit the zipped folder, named *yourlogin_asgt6.zip*, via WebDAV dropbox «<http://dropbox.ecs.fullerton.edu/cs484/asgt6/>».

Failure to follow these instructions will detrimentally effect your assignment's score.

Plagiarism and academic dishonesty is not tolerated. Correctly and properly attribute all 3rd party material and references.

Assignment

Objective: The final project for this course is a non-trivial programming assignment of your choosing. A list of suggested topics is included in this assignment description.

You will first select a topic that interests you. After selecting an appropriate topic and having it approved by the course instructor, you will have the remainder of this quarter to complete the project.

The assignment will account for 20% of your grade. The grading of the project is not only on the quality of your programming but how well you present what you have done to the class.

Additional Material to Submit: You must include a **plain text file** named **README.txt**. In this file, describe in 25 words **or more** what your project is and what were the results. If you prepare digital slides, please submit this along with your project as well. (If your slides are not ready on the due date, you can submit them separately the day your present.)

Additionally, prepare at least two screen shots of your project in *JPEG* format. Include an HTML file (named *yourlogin.html*) that includes your name, the project description, results, links to your slides and links to your screen shots.

Project Presentations: On the last day of class, you will present your final project to the class. You should come prepared to talk about your final project either using prepared slides or notes. Your presentation should be no more than 5 minutes long and allow for questions from the audience. Other members of the CS community may be invited to attend the final project presentation.

During your presentation, you must cover, at a minimum, the following points:

- Title of your project
- Goal of your project
- Outline the novelty of your project
ex. algorithms, data structures, shaders, etc.
- Site previous work and/or sources
- Project demonstration
- Thank the audience

Your presentation to the class is as much a part of your final project as the program you are submitting.

Suggested Projects:

- Texture Mapping for Arbitrary Surfaces
- Mipmapping
- Silhouette Rendering (Non Photorealistic Rendering)
- Charcoal Rendering (Non Photorealistic Rendering)
- Mirror Reflections with Scene Duplication Shadows
- Flock/Swarm Simulation
- View Dependent Adaptive Tessalation of Bezier Patches
- Curve Explorer
- Terrain Rendering with View Frustum Culling
- Bump Mapping
- Antialiasing in Ray Tracing
- Antialiasing using Accumulation Buffer
- Antialiasing using Alpha Channel
- Environment Mapping
- Order Independent Transparency
- Projected Texture
- Cel Shading
- Model Carving Using Octrees
- Hierarchical Transformations for Animations
- View Frustum Culling using BSP Trees
- 3D Stereo Rendering
- Stereogram Creator (From a Polygonal Model)
- Stereograph Creator (From a Polygonal Model)
- Motion Blur
- Physically Based Simulation of Ocean Waves
- Physically Based Simulation of Solar System
- Physically Based Simulation of Water
- Physically Based Simulation of Magnetic Field(s)
- Physically Based Simulation of Cloth
- Physically Based Simulation of Hair
- L-Systems for Generating Plant Geometry
- High Dynamic Range Image Creation w/ Tonal Mapping
- Anaglyph (Red/Blue) Stereo Image Processor
- Madelbrot Set Explorer
- Free Form Deformation
- 4D Fractal Explorer
- Light Field Rendering
- Lenticular Imaging
- Level-of-Detail Rendering

A list of who is working on what final project will be available on the class website.