Assignment 4

Fog and Vertex Arrays

This assignment builds on the carousels scene of Assignment 3. You will add fog to the scene. The user shall be able to select from a menu entry whether there is fog in the scene. Use a grey background color and fog color in the implementation, and the squared-exponential (GL_EXP2) density decay function.

For the polygons in the posts, as well as the floor, and roof triangles, change the implementation to use vertex arrays. For each structure, implement both GL_VERTEX_ARRAY and GL_NORMAL_ARRAY for the data. This will involve pre-computing the normal values for the polygons.

For 5 points extra credit, implement the ability of the viewer to jump onto one of the carousels and ride around. It can be on any of the carousels. The viewer should be on the outside of the carousel at about the radius of the supporting poles, looking in the forward direction of rotation. This should be done by menu or keyboard selection. If the viewer is "riding a horse" and goes up and down with the horse, add an additional 2 points.

Assignment 4 will be worth 15 points.

Submittal

Assignment 4 is due **April 24, 2012**. Assignments that are one week late will receive about two thirds credit. Assignments that are two weeks late will receive about one half credit.

Submission of this assignment should be in the form of **well-commented** source code, preferably written in ANSI C. C++ is also acceptable. Well-commented means that I want a comment for every significant step, even if it consists of only one line of code.

For these simple programs, I prefer that you simply email me the source code so that I can build the program on my system. Since these programming examples will be relatively short, I prefer that you include all source code in a single file for ease of compilation. There is no need to submit executable code, or any other files generated by the development environment.

Academic Honesty

I expect all code submitted by students in this course to be **their own**. In exceptional

circumstances, it is permissible to borrow appropriate small sections of code from other authors. Whenever this is done, the student must **provide appropriate reference**. Reference must include the author of the code and a location that I can use to check the source. References should take the form of comments *within the code* that delineate exactly what lines were used. In other words, there should be a comment at the beginning and end of the borrowed code. Submissions that include copied but unreferenced code will receive **zero credit** .

Return to 91.546 Home Page