Computer Graphics Fall, 2014

TP 2

3 Octobre

Problem. The main goal of this assignment is for you to become familiar with vertex and fragment shaders. You will have to do these things:

1. Implement the Phong shading we covered in class. Compute the diffuse color, then the specular color, and add them to get the final shading.
2. In the code that implements the Phone shading model we studied in class, the light position and color is a variable in the fragment shader. Move it to main.cpp, and access it in the fragment shader via uniform variables. More precisely, add the four new uniform variables `vec4 mylight_position`, `vec4 mylight_color`, `vec3 mylight_direction`, and `int mylight_type` to your fragment shader. Set them to the correct values in your main file.
3. Implement code in shaders to do the other two types of lights: directional lights and spot-lights. The type is light is set by the variable `mylight_type` above. When it is 1, it should be a point-light (that is what we did in class. Remember that point-light uses `mylight_position` and `mylight_color` only). For 2, it should be directional light (which uses `mylight_direction` and `mylight_color` only), and for 3 it should be a spotlight (which uses everything). The key 'l' should cycle through the three types of lights.
4. Compute the Silhouette of an object in the fragment shader. The key 's' should turn the silhouette on/off.