

CG Programming II – Assignment #4

In this assignment you will implement *one* of the following BRDFs:

- Lafortune
- Add anisotropy to Cook-Torrance
- Ashikhmin
- fakefur

Required graphical elements:

- Rotating object with *more than* 8 surfaces. Any object will suffice, but it must be more complex than an octahedron.
- Animated point light source.
 - Light source moves (e.g., orbits the object).
 - Light source has constant color.
 - Light source is represented on the screen using a point. Setting the point size > 1.0 would be helpful, but is not required.
- Specular and diffuse reflection performed in a GLSL fragment shader using *one* of the above BRDFs.
- Exchange the T and B vectors passed to the fragment shader.

Required inputs:

- Escape must terminate the program.
- A key sequence must be available modify the various parameters to the BRDF. *All standard parameters must be modifiable at run-time.*
- A key sequence must be available that causes the vertex shader to pass (B, T) to the fragment shader instead of (T, B). This will change the way anisotropic BRDFs look.
- A key sequence must be available to pause the animation of the object.
- A key sequence must be available to pause the animation of the light source.

<i>Criteria</i>	<i>Excellent</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Marginal</i>	<i>Unacceptable</i>
Code Function	Program correctly implements all required graphical elements in a manner that is readily apparent when the program is executed. Appropriate algorithms and data structures are used in the implementation.	Program implements all required graphical elements, but the operation of some elements may not be obvious. Appropriate algorithms and data structures are used in the implementation.	Program implements all required graphical elements in some fashion. Algorithms and data structures are used that perform the required function, but may be less than ideal.	Program implements most required graphical elements in some fashion.	Most or all of the required graphical elements are missing or do not function correctly.
Code	Program code is	Program code is	Program code is	Program code is	Program code is

<i>Criteria</i>	<i>Excellent</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Marginal</i>	<i>Unacceptable</i>
Mechanics	formatted in a consistent manner, variables and data structures are named in a consistent, logical manner. Code is commented adequately.	mostly consistent, but contains some occasion inconsistencies.	readable. Individual functions or code blocks show consistent formatting, but that formatting does not carry through the entire program.	not consistently formatted, but is still somewhat readable.	a mess and may be more suitable as an entry to the International Obfuscated C Coding Competition.
User Interface	The program is responsive to input. All required inputs are implemented, and the user is informed, by the program, what the inputs are. The program can be terminated by the user.	The program is responsive to input. All required inputs are implemented. Some of the inputs are documented by the program.	The program is unresponsive under some circumstances. All required inputs are implemented. Some of the inputs are documented by the program.	The program is unresponsive under some circumstances. Some of the required inputs are either not implemented or are not implemented correctly. Some of the inputs are documented by the program.	Many of the required inputs are either not implemented or are not implemented correctly. The program lacks documentation for the inputs.