

Faculty of Mathematics and Physics
Charles University in Prague
10th March 2015 / 17th March 2015



OpenGL 3.3 Unleashed!

HW for Computer Graphics

Workshop 2 – OpenGL 3.3 Tutorial – Part 2

Workshop 2

Outline

1. Workshop Terms
2. *Resources* (permanent slide)
3. Assignments



Workshop Terms

Score-based Grading

Workshop Number	Tuesdays [C.ODD]					
	Topic	Assignment	Scoring	Bonus deadline	In-time bonus	
1	24.2.2015 OpenGL 3.3 Tutorial 1	Sierpinsky Triangle	4	9.3.2015 23:59	2	
		Animated S. Triangle	5	9.3.2015 23:59	2	
		Cube Madness	6	9.3.2015 23:59	2	
2	10.3.2015 OpenGL 3.3 Tutorial 2	Camera Rotation	5	23.3.2015 23:59	2	
		Standard Shading	5	23.3.2015 23:59	2	
		Light Adjustments	5	23.3.2015 23:59	2	
		Model Animation	5	23.3.2015 23:59	2	
3	24.3.2015 OpenGL 3.3 Tutorial 3					
4	7.4.2015					
5	21.4.2015					
6	5.5.2015					
7	19.5.2015					
SUM			35		14	
Total workshops	7					
Max Practice Score	49					

Check the full version [HERE!](#)

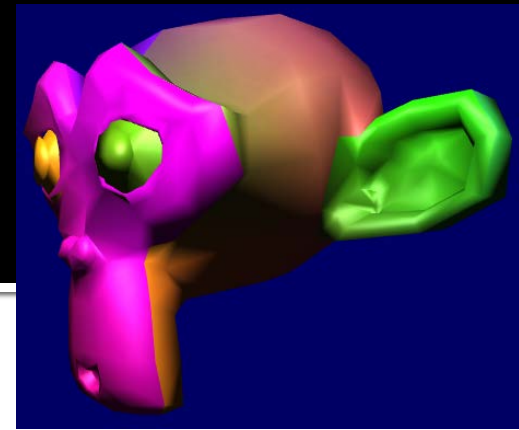
Resources

Permanent Slide

- Lectures web
 - <http://cgg.mff.cuni.cz/~pepca/lectures/npgro19.current.cz.php>
- Workshops web
 - http://pogamut.cuni.cz/pogamut-devel/doku.php?id=hardware_for_computer_graphics_2014-15_summer_term
- OpenGL 3.3 Tutorials
 - <http://www.opengl-tutorial.org/>
- OpenGL 3.3 Reference
 - <https://www.opengl.org/sdk/docs/man3/>
- GLSL 3.3 Specification
 - <https://www.opengl.org/registry/doc/GLSLangSpec.3.30.6.pdf>
- OpenGL Superbible Book
 - <http://www.openglsuperbible.com/>
 - <http://www.openglsuperbible.com/previous-editions/>

Assignment 02.1

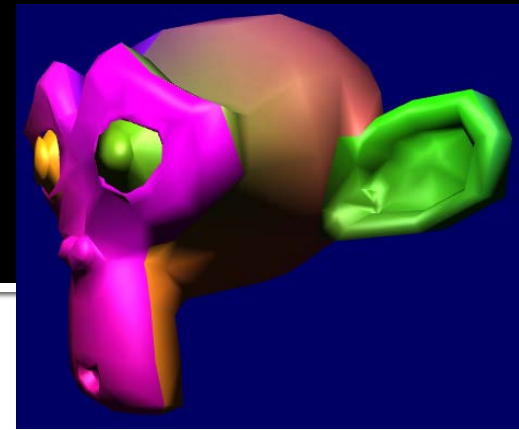
Camera Rotation



1. Follow the tutorial 6-8
 - <http://www.opengl-tutorial.org/>
2. Use Tutorial 8 code as your base and:
 - Use different .OBJ file (preferably by installing Blender, downloading some free model and exporting it)
 - Create a camera that rotates around the object rather than floating within the environment
 - Provide a way to switch between camera float/rotate modes (switched via 'C' key)
 - 5 (+2) points

Assignment 02.2

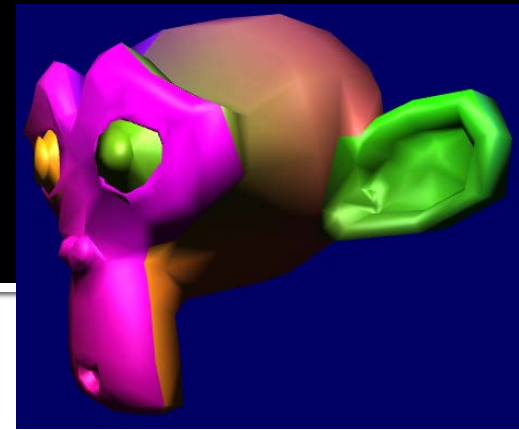
Standard Shading



1. Follow the tutorial 6-8
 - <http://www.opengl-tutorial.org/>
2. Use Tutorial 8 code (or preferably Assignment 02.1 code) as your base and:
 - Adjust fragment shader (or create new one/s) so you can dynamically enable/disable “ambient”, “diffuse”, “specular” parts of the lighting (keys ‘A’, ‘D’, ‘S’)
 - GLFW_PRESS behaves more like “key press state changed”
 - 5 (+2) points

Assignment 02.3

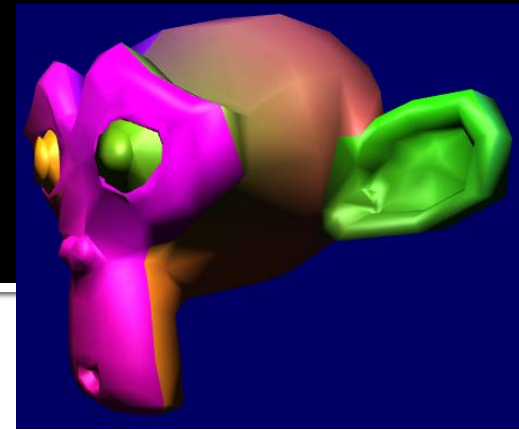
Light Adjustments



1. Follow the tutorial 6-8
 - <http://www.opengl-tutorial.org/>
2. Use Tutorial 8 code as your base (or preferably Assignment 02.2 code) and:
 - Allow light to be repositioned via 'L' key
 - Adjust fragment shader (or create new one/s) so you can adjust light intensity via '+', '-' key (or mouse wheel)
 - Provide means to rotate the light around the object via 'R' key (turns light rotation on/off)
 - 5 (+2) points

Assignment 02.4

Model Animation



1. Follow the tutorial 6-8
 - <http://www.opengl-tutorial.org/>
2. Use Tutorial 8 code (or preferably Assignment 02.3 code) as your base and:
 - Rotate and “Weird Pulse” the model when ‘P’ is pressed - scale up/down the model along X and Y (== non-uniform scaling!)
 - 5 (+2) points

Assignment 02.x

Send me an email!

- Email: gemrot@gamedev.cuni.cz
- Subject: **HWGR – 2015 – Assignment 02.1 / 02.2 / 02.3 / 02.4**
 - Or preferably submit the assignments as a single project (having 02.1-02.4 included) under subject **HWGR – 2015 – Assignment 02**
- Content:
 - Assignment code (zipped tutorial project folder)
 - Screenshot(s)
 - *If you have trouble sending zip with "executable", just rename x.zip into x.zi_;-) to fool the almighty Google*
- Award:
 - Up to 20 (+ 8) points
 - Use correct email subject or face -2 penalty per mail!

Questions?

I sense a soul in search of answers...

- Sadly, I'm far from OpenGL-experienced-guy
- But I will try to help you with any serious problem you might encounter during the workshops so don't hesitate to contact me!
 - Jakub Gemrot
 - gemrot@gamedev.cuni.cz