Faculty of Mathematics and Physics
Charles University in Prague
28th April 2015

OpenGL 3.3 Unleashed!

HW for Computer Graphics

Workshop 5 – OpenGL 3.3 Tutorial – Part 5

Workshop 5
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	Textured Cube	5	6.3.2015 23:59	2
			VBO Indexing	10	6.3.2015 23:59	2
4	7.4.2015	OpenGL 3.3 Tutorial 4	Normal Mapping	5	20.4.2015 23:59	2
			Render To Texture	10	20.4.2015 23:59	2
5	**28.4.2015**	OpenGL 3.3 Tutorial 5	Shadow Maps	10	11.5.2015 23:59	2
6	5.5.2015					
7	19.5.2015					
SUM				**75**		**24**
Total workshops	**7**					
Max Practice Score	**99**					

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 05.1
Spot Light

1. Follow the tutorial 16
   - http://www.opengl-tutorial.org/

2. Use Tutorial 16 code as your base and:
   - Work with `tutorial_16_simple` project
   - Provide a way to change the direction of "omni light"
     - Render its shadow map texture into the picture
   - Add "spot" light + provide way to change its position and direction
     - Render its shadow map texture into the picture
   - 10 (+2) points

Assignment 05.2
Shadow Acne

1. Follow the tutorial 16
   - http://www.opengl-tutorial.org/

2. Use Assignment 05.1 code as your base and:
   - Implement various methods to fight Shadow Acne
     - http://www.digitalrune.com/Support/Blog/tabid/719/EntryId/218/Shadow-Acne.aspx
   - Depth Bias, Slope-Scaled Depth Bias, Normal Offset, View Direction Offset
   - Provide a way to control these during runtime
   - 10 (+2) points

Assignment 05.x
Send me an email!

- Email: gemrot@gamedev.cuni.cz
- Subject: **HWGR – 2015 – Assignment 05**
- 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 10 (+ 2) 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