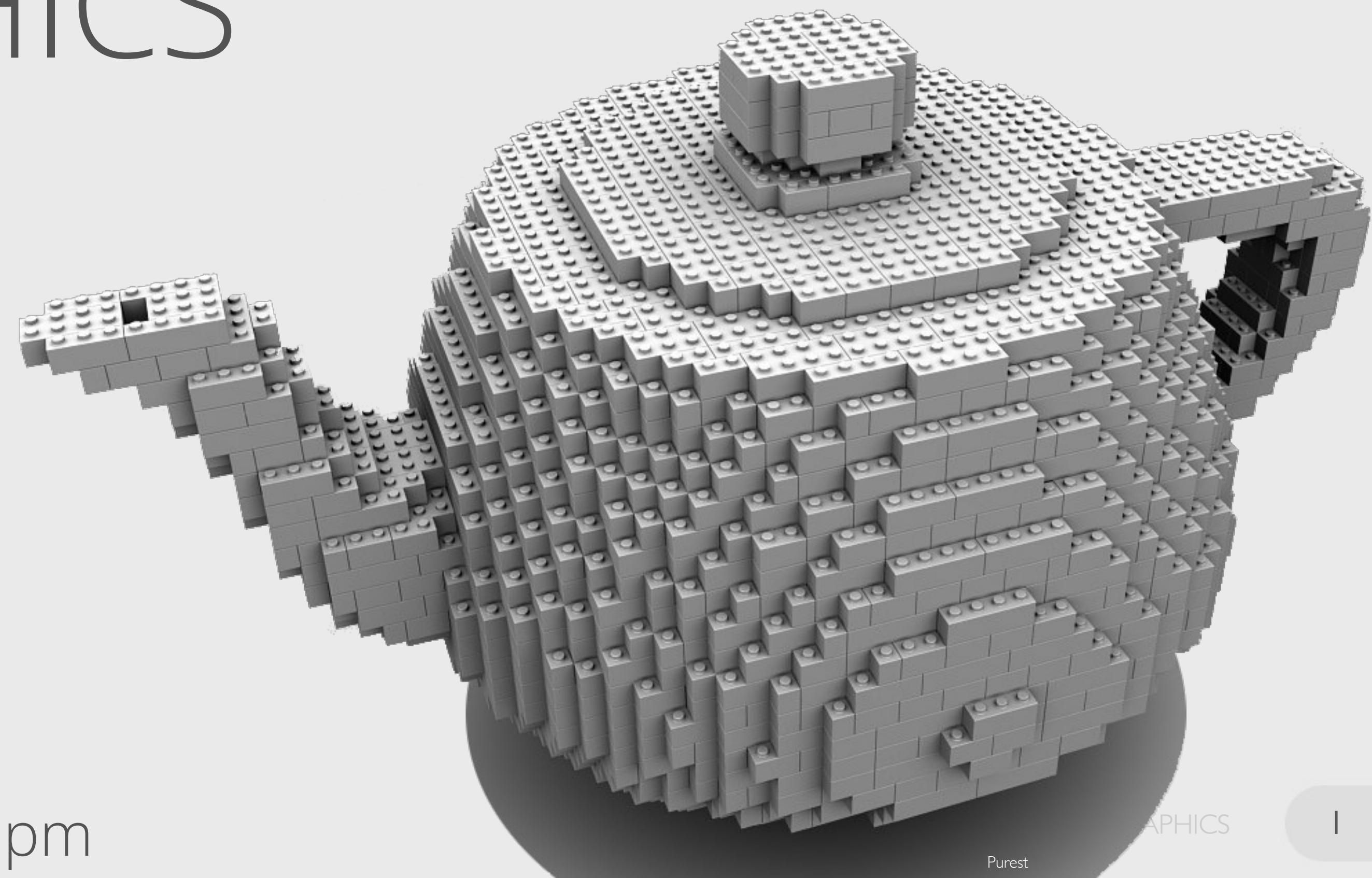


MULTIMEDIA & COMPUTER GRAPHICS

Dr. Arturo Jafet Rodríguez Muñoz

Ing. Bernardo Moya de la Mora

FINAL



Monday & Wednesday 04.00pm – 05.30pm

FINAL PROJECT

Normal mode (61,227 pts)

Fully working ray tracer that includes spheres and OBJs, showing Blinn-Phong materials with ambient, diffuse, specular and shininess. Also, it must include multiple lights (directional & point) and renders shadows, reflection and refraction. Create a story with each image do not use spheres and teapots.

Deadline: Tuesday, May 27, 3.59pm

Presentation: Tuesday, May 27, 4.00pm Aula Magna

NORMAL MODE (61,227 PTS)

Ray tracer v1.0 (4,000 pts)

Reflection works (14,000 pts)

Refraction works (14,833 pts)

Coding principles (6,400 pts)

LaTeX report (8,000 pts)

3 complex final renders (9,100 pts)

Jury's evaluation (3,894 pts)

Quality of the presentation (1,000 pts)

FINAL PROJECT

Ray tracer v1.0 (4,000 pts)

Shadows (2,000 pts)

Blinn-Phong (specular & shininess) (2,000 pts)

Reflection works (14,000 pts)

Reflected objects are shown correctly (10,000 pts)

It shows at least 2 bounces (4,000 pts)

Refraction works (14,833 pts)

Refracted objects are shown correctly (10,833 pts)

Light changes direction correctly (4,000 pts)

FINAL PROJECT

Coding principles (6,400 pts)

Does it have unnecessary code? (400 pts)

Does it properly uses OOP? (600 pts)

Is the code reusable? (1,000 pts)

Is the code flexible? (1,000 pts)

Does it have bugs? (800 pts)

Is the code scalable? (800 pts)

Does it have comments? (800 pts)

Is the code a huge mess or neat? (1,000 pts)



FINAL PROJECT

LaTeX report (8,000 pts)

A full report on LaTeX explaining how you created the ray tracer, showing at least 5 images of how your ray tracer evolved and a data analysis comparing at least 3 parameters. Include the explanation for each of the final images.

Description of the process of the ray tracer (2,500 pts)

Explanation of each of the final images (2,500 pts)

Explanation of greatest challenges (500 pts)

Data Analysis using charts, tables and explanation (2,000 pts)

Self-evaluation of all points (500 pts)

FINAL PROJECT

3 Complex final renders (9,100 pts)

Each render has a story (3,000 pts)

Each render measures 4096 x 2160 and it is PNG (2,000 pts)

It contains only non-copyrighted models (2,000 pts)

It is aesthetic (2,100 pts)



FINAL PROJECT

Guided mode (-15,000 pts)

You get my ray tracer v 1.0 as a starting point so you can implement reflection and refraction. It includes Blinn-Phong, Directional and Point lights, it uses materials, and it is parallelized.



FINAL PROJECT

Challenge mode (34,000 pts)

Implement Spot lights (+2,000 pts)

Implement Area lights (+2,500 pts)

Implement Depth of Field (+4,000 pts)

Implement Rotation and Scale of Objects (+2,500 pts)

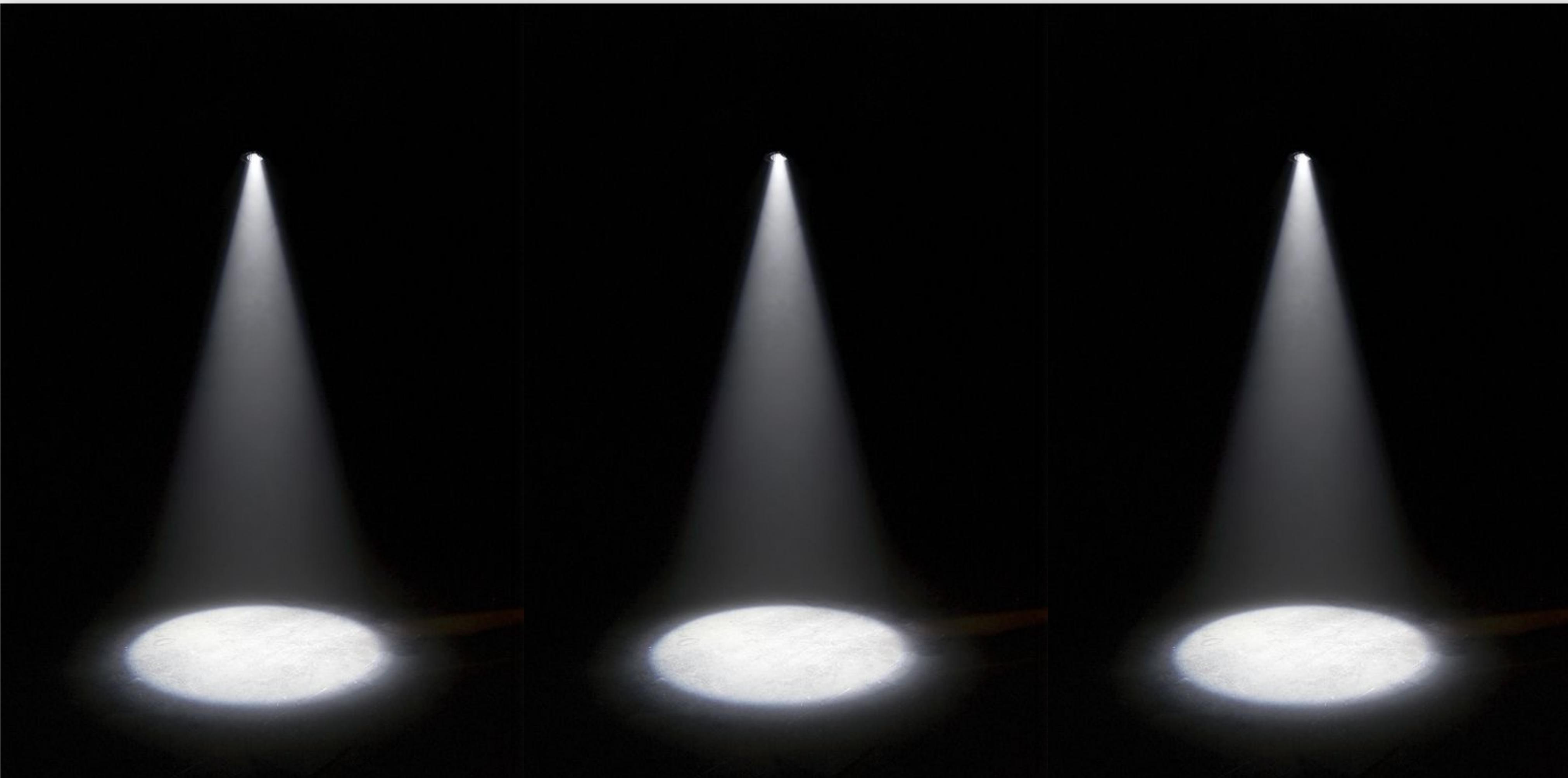
Implement Cook-Torrance (+8,000 pts)

Implement Subsurface Scattering (+15,000 pts)

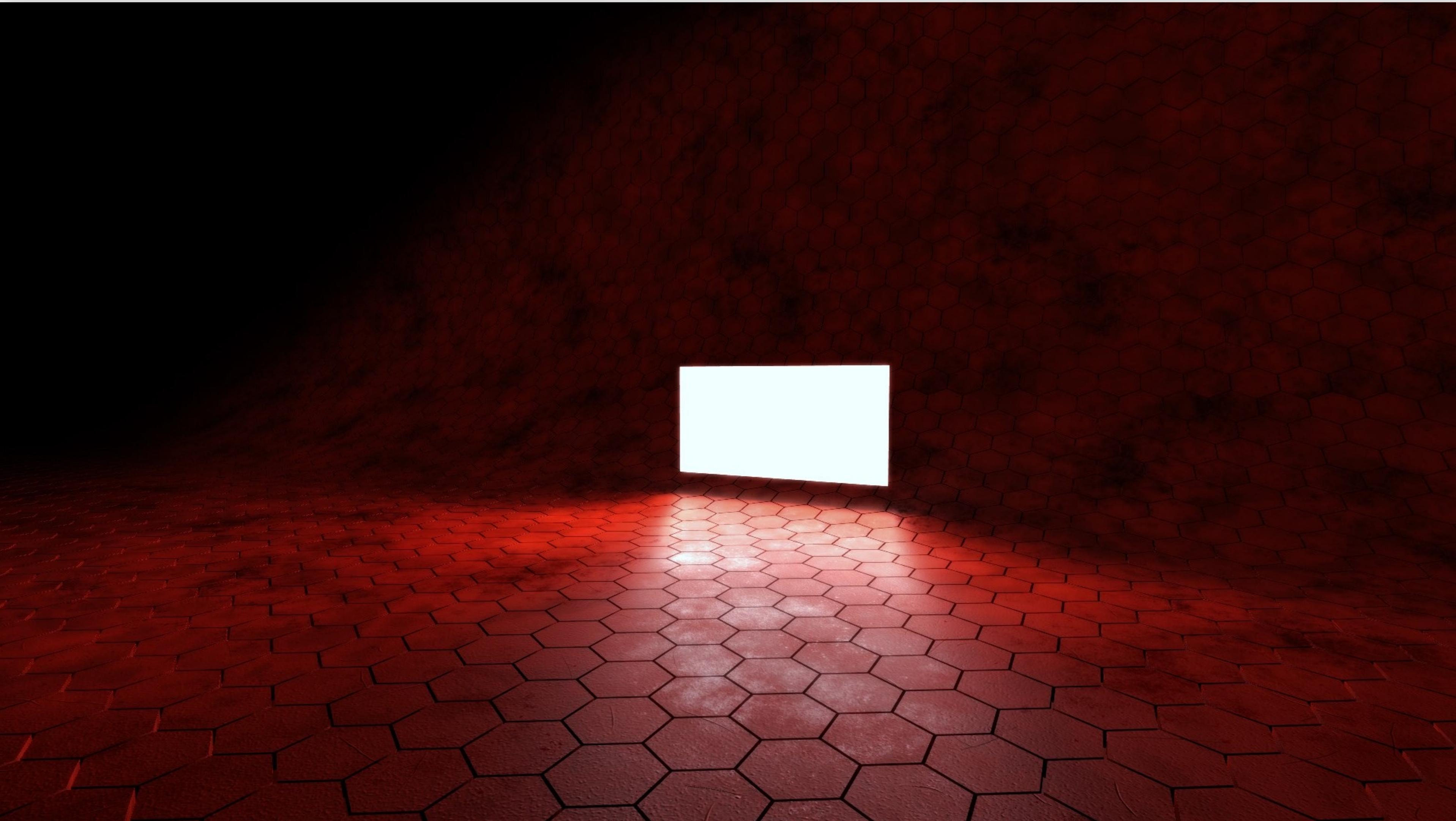
Open to other proposals (+To negotiate pts)



SPOT LIGHTS



AREA LIGHTS



DEPTH OF FIELD



SUBSURFACE SCATTERING



FILES TO DELIVER

Presentation

Report in LaTeX (PDF file and a zip with .tex and others)

3 Complex renders in PNG measuring at least 4096 x 2160

All progress renders in a zip file

Code in zip file

All in separated files directly in Blackboard



PRESENTATION

Demonstrate each feature in a separate image (Reflection, Refraction)

Explain how you achieve each feature

Show how much time it took each image to be generated

Greatest challenges

You have 3 minutes to present on English

Please, have everything ready to present

