

Interactive Graphics

Homework 1

Online April 12th, 2017

Deadline: **May 7th, 2017**

Tasks to do

The homeworks must be completed alone. Each student should do its own homework. Download the file Homework1.zip from the course homepage in Piazza

<https://piazza.com/uniroma1.it/spring2017/1044398/home>

After unzipping you will find this file, and 2 directories, one (Common) contains the required libraries, and one contains the files to modify (Homework1.html and Homework1.js). You need to modify the files so to obtain the following effects.

1. Add one positional light, one directional light and one spotlight in the scene. Compute lighting according to the model presented in slides 7 and 8 (more precisely, use the model of slide 8 of file Angel_UNM_14_8). Your solution should be able to use either Gouraud (per-vertex) or Phong (per-fragment) shading. Add a button that switches between the two lighting models.
2. Add one button for each light to turn the corresponding light on and off.
3. Add a checkerboard texture (256x256) that multiplies the lighting value.
4. Combine the lighting with another texture (256x256) that models the emission of light by the object. Generate this texture randomly with values between 0 and 128 for each component. The amount of light emitted by the object must be added to the computed lighting (including the checkerboard texture).

How to submit the homework

After you finish completing all the tasks, create a zip file CONTAINING ONLY THE TWO SOLUTION FILES (html and javascript), do not include the Common directory and the PDF file. The name of the zip file should be your student ID number (numero di matricola). If you have a uniroma1.it email account please fill in this form (requires logging in your uniroma1.it email account):

<https://goo.gl/forms/2ylzqzd8FB7qZ3P32>

and upload there the zip file. Otherwise, put it in any other sharing website and send me

(marco.schaerf@uniroma1.it) the link. As a last resort, send me the zip file as an attachment in email. **Don't post solutions on Piazza.** Use Piazza only for questions and clarifications.