Interactive Graphics

Prof. Marco Schaerf
Dept. of Computer, Systems and Management Science (DIAG)
Sapienza University of Rome
marco.schaerf@uniroma1.it

Plan for today

- Syllabus
- Logistics
- Computer graphics

Syllabus (Core)

- Introduction, Color, Graphics pipeline
- WebGL, 3D modeling, Transformation
- Rasterization, Clipping
- Lighting and shading
- Texture mapping
- Advanced Techniques, Global Illumination

Syllabus (Optional)

- Graphics hardware, intro to GPGPU
- Animation introduction, particle systems, rigid bodies simulation
- Topics in animation and modeling
- Research topics

Contents

- you will
  - understand image synthesis principles
  - learn math to make images
  - implement key algorithms
  - write cool apps
  - learn graphics JavaScript APIs (WebGL)
- you will not
  - implement large systems

Website, email, office hours

- Website:

  https://piazza.com/uniroma1.it/spring2018/1044398/home

- Email: marco.schaerf@uniroma1.it

- Office hours:
  Tuesday morning 10.30am to 12.30am in room B220

Recommended Books

- Edward Angel, Dave Shreiner, Interactive Computer Graphics with WebGL, Global Edition, Pearson Education, ISBN 978-1292019345

- Dirksen, Learning Three.js - the JavaScript 3D Library for WebGL- optional

- Alan Watt, 3D Computer Graphics (3rd ed.) - optional
- Wright et al., OpenGL SuperBible (5th ed.) – optional
- T. Akenine-Moller et al., Real-Time Rendering (3rd ed.) - optional

Grading

- Three ways to pass the exam
    1. Homeworks (during the course) + Project
    2. Project + (reduced) Oral exam
    3. (full) Oral Exam
- Homeworks
    - Two or three small individual projects
    - They **must** be delivered within two weeks
    - During the discussion:
        - » Questions about the theory behind the homeworks
        - » Questions about the code you wrote
- Top marks (30 e Lode) can only be achieved with option 1 and project completed by September

Projects

- Delivered when you have it ready (no fixed deadline)
- Individually or in small groups (up to 4)
- You choose the topic, I must approve it before starting to work in the project
- Guidelines available before the end of the course

Lectures and lab sessions

- There will be no lectures on:
  - Monday March 5° (All classes are canceled)
  - Monday April 2° and Tuesday April 3° (Easter vacations)
  - Monday April 30°
  - Tuesday May 1° (Labour day)
- We need to schedule a Lab session approximately every two weeks