Numerical Methods for Computer Graphics in Java

Academic Year 2023 – 2024

Università degli Studi di Roma “Tor Vergata”
Presentation of the Course

- **Lecturer**
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- **When**
  - First semester
  - Monday 14:00 – 17:00
  - Wednesday 14:00 – 18:00

- **Where**
  - Aula 11 or PC Lab 17
Presentation of the Course

- **Topics**
  - Part 1: Object-oriented programming in Java
    - Java syntax + object-oriented paradigm
    - Development and reasoning about algorithms/programs
  - Part 2: Basic principles of computer graphics
    - Basic 2D graphical techniques in Java (2D drawing, image manipulation, …)
    - General 3D graphical techniques (rendering pipeline, raytracing, …)

- **Related courses in LM**
  - CAN1: Modellizzazione Geometrica e Simulazione Numerica
  - Metodi e Modelli in Computer Graphics
Presentation of the Course

- Application fields of the course
  - Software industry
  - Game industry
  - Movie industry
  - Computer aided manufacturing
  - ...

How to develop software?

+ How to create 2D/3D models?
+ How to visualize models?
Presentation of the Course

- Application fields of the course

Lamborghini Huracán

Ratatouille characters © Pixar

Tomb Raider: Lara Croft Character Evolution
Presentation of the Course

- **Application fields of the course**
  - Software industry
  - Game industry
  - Movie industry
  - Computer aided manufacturing
  - ...

- **Goal of course**
  - Understanding of the basic underlying principles

  \[ \begin{align*}
  & \text{How to develop software?} \\
  & + \text{How to create 2D/3D models?} \\
  & + \text{How to visualize 3D models?}
  \end{align*} \]
Presentation of the Course

• Application fields of the course
  - Software industry
  - Game industry
  - Movie industry
  - Computer aided manufacturing
  - …
  - How to develop software?
  + How to create 2D/3D models?
  + How to visualize 3D models?

• Examination
  - Project assignment
  - Written/oral exam
Presentation of the Course

- Course material

https://www.mat.uniroma2.it/~speleers/teaching/nmcsj/nmcgj.html