Numerical Methods for Computer Graphics in Java

Academic Year 2024 – 2025

Università degli Studi di Roma "Tor Vergata"

Programmazione in Java e Gestione della Grafica

Academic Year 2024 – 2025

Università degli Studi di Roma "Tor Vergata"

Università di Roma Tor Vergata

Presentation of the Course(s)

- Lecturer
 - Hendrik Speleers
 - speleers@mat.uniroma2.it
- When
 - First semester
 - Monday 13:00 14:00, 16:00 18:00
 - Wednesday 14:00 18:00
- Where
 - Aula 20 or PC Lab 25

PJGG

- Dora Giammarresi
 Time TBA
- Jacopo Zuliani
 Second semester

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• Topics

- Shared Part 1: Object-oriented programming in Java
 - Java syntax + object-oriented paradigm
 - Development and reasoning about algorithms/programs
- NMCGJ Part 2: Basic principles of computer graphics
 - Basic 2D graphical techniques in Java (2D drawing, image manipulation, ...)
 - General 3D graphical techniques (rendering pipeline, raytracing, ...)
- PJGG Part 2: Graphic management in Java
 - Advanced 2D graphical techniques (graphical user interfaces, ...)

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- Related courses in LM
 - CAN1: Modellizzazione Geometrica e Simulazione Numerica
 - Computer aided geometric design (Bézier and spline curves/surfaces)
 - Metodi e Modelli in Computer Graphics
 - Advanced raytracing and radiosity
- Related courses in STM
 - Too many to enumerate...



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- 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?

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• Application fields of the course



Lamborghini Huracán

Ratatouille characters © Pixar



Tomb Raider: Lara Croft Character Evolution





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

- Goal of course
 - Understanding of the basic underlying principles

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- Application fields of the course
 - Software industry
 - Game industry
 - Movie industry
 - Computer aided manufacturing
 - ..
- Examination
 - Project assignment
 - Written/oral exam

How to develop software?

+How to create 2D/3D models? +How to visualize 3D models?







- Course material
 - NMCGJ

https://www.mat.uniroma2.it/

~speleers/teaching/nmcgj/nmcgj.html

- PJGG

https://www.mat.uniroma2.it/

~speleers/teaching/nmcgj/pjgg.html

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