

# Numerical Methods for Computer Graphics in Java

Academic Year 2024 – 2025

Università degli Studi di Roma “Tor Vergata”

# Presentation of the Course



- **Lecturer**
  - Hendrik Speleers
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- **When**
  - First semester
  - Monday 13:00 – 14:00, 16:00 – 18:00
  - Wednesday 14:00 – 18:00
- **Where**
  - Aula 20 or PC Lab 25



# 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
- ...

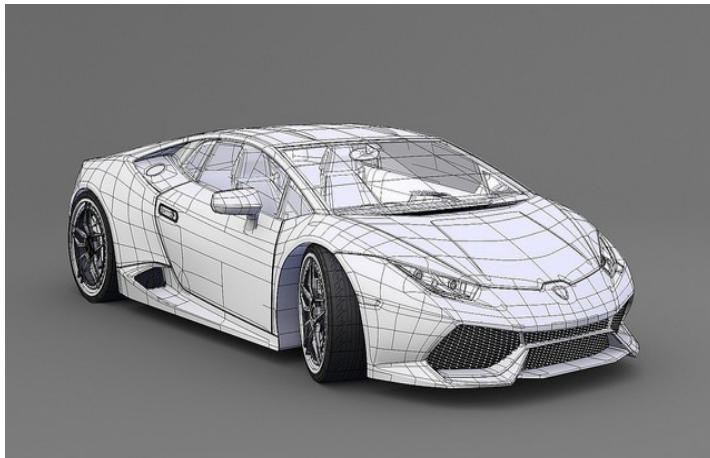
How to develop software?

+How to create 2D/3D models?

+How to visualize models?

# Presentation of the Course

- Application fields of the course



Lamborghini Huracán



Tomb Raider: Lara Croft Character Evolution

Ratatouille  
characters  
© Pixar



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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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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/nmcgj/nmcgj.html](https://www.mat.uniroma2.it/~speleers/teaching/nmcgj/nmcgj.html)