Virtual and Augmented Reality

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Course objectives

To provide an overview of the opportunities and the main issues related to designing and developing VR/AR systems architectures, both in local and in distributed (even web-based) contexts, and to the development of VR/AR applications with a multimodal perspective and approach.
**Structure**

The course will provide a general introduction of Virtual and Augmented Environments followed by an analysis of features, requirement and issues in real-life applications. The course will include practical exercises aiming to design and develop a simple 3D real-time interactive applications exemplificative of real-life contexts.
Topics

Virtual Reality:
- 3D Graphics
- Real-time rendering
- Interaction
- 3D Audio
- Devices
- Networking
- VR application development

Augmented Reality:
- Tracking
- Computer vision
- Devices
- AR application development
Exam

Test + Project

Thesis opportunities

- VR/AR basic technologies
  - Tracking
  - Immersive visualization
  - Interaction
- VR/AR applications
  - Industry
  - Cultural Heritage