COMPUTER VISION

Mondragon Unibertsitatea
Goi Eskola Politeknikoa

General information

Semester: **1 and 2**

Language: **English**

Description

This course is designed to provide students with a comprehensive understanding of computer vision, a rapidly growing field that has revolutionized various industries. Throughout the course, students will learn how computers can process and interpret images and they will develop practical skills to tackle real-world problems. This course provides students with a solid foundation in computer vision and equips them with practical skills and knowledge to succeed in this exciting field.

Methodology

- Theoretical concepts will be understood by reading selected papers and book chapters, as well as videos and tutorials, which will be complemented by a discussion session for each topic.
- The guided mini-project, carried out by teams, serves to understand the theory's practical aspects..

Contents

1. Introduction to Computer Vision.
- Camera types.
- Communication protocols.
- Lenses and lens equation.
- Illuminations.

2. Camera modelling.
- Introduction to geometric transformations.
- The pin-hole model.
- Distorsion models.
- Affine transformations.

3. Homographies.
- Definition and estimation.
- Use cases.

4. Fundamental image processing techniques.
- Thresholding and segmentation.
- Edge detection and filtering.
- Blob analysis.

5. Mini Project: Detection and classification of objects in a real application.