

Stereo vision

PhD Course
University of Bologna
May 2016

Instructors and Affiliation: Stefano Mattocchia
DISI – University of Bologna stefano.mattocchia@unibo.it

Time span: 15 hours

Final exam: Research project

Course Outline: The course will present some relevant research topics in the area of stereo vision algorithms for dense 3D reconstruction

Objectives: The course will introduce basic stereo vision principles and algorithms for dense 3D reconstruction focusing on cost aggregation strategies and on methodologies suited for fast implementation. At the end of the course the students are expected to have gained sufficient skills to implement a dense 3D reconstruction system.

Prerequisites: computer vision

Program:

- Introduction to 3D sensing technologies
- Basic principles of a stereo vision system
- Local methods and accurate cost aggregation strategies
- Global methods with focus on efficient approaches
- Disparity refinement
- Confidence measures

Learning and assessment modalities:

The course will be organized in three lectures (5 hours each). It will be taught in either Italian or English at the preference of the students. The final assessment consists of a project on one of the course topics.

Material:

All the course material is in English. A copy of slides and references will be provided to students.

Schedule:

- Thu May 26, 14.00-19.00 (Sala Consiglio)
- Fri May 27, 13-18 (Aula 5.1)
- Tue May 31, 14-19 (Aula 1.5)