LEARNING-BASED DENSE DEPTH ESTIMATION FROM STEREO AND MONOCULAR IMAGES

A course for PhD students, Alma Mater Studiorum, Università di Bologna, January/February 2019

Instructors

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About the Course

Inferring dense and accurate depth measurement is of paramount importance for several 3D computer vision applications and recent years have witnessed a paradigm shift towards learning based methods. The course will introduce stereo vision principles and algorithms based on conventional methods. Then, we'll describe learning-based methods, representing state-of-the-art, for depth estimation from stereo and monocular cameras and strategy to infer confidence estimation.

Syllabus

- Introduction to depth from images and confidence estimation
- Learning-based confidence estimation methods and applications
- Deep-learning for depth from stereo images
- Deep-learning for depth from monocular images
- Domain adaptation methods

Learning and assessment modalities

The course will be organised in five slots of 4 hours each. It will be offered in either Italian or English at the preference of the audience. The final assessment consists of a technical report on a recent paper on one of the course topics.

Teaching materials

The instructors will provide slides and a list of bibliographical references and additional material. All the course material is in English.

Schedule

10/1/2019: 11-13 14-16 aula 5.1*
17/1/2019: 11-13 14-16 aula 5.1*
24/1/2019: 11-13 14-16 aula 5.1*
31/1/2019: 11-13 14-16 aula 5.1*
07/2/2019: 11-13 14-16 aula 0.2*

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