



Course number: AIN 32550
3D - Computer Vision
Study Level: Bachelor /
Undergraduate

Prof. Dr. Georg Umlauf
Language of Instruction: English
ECTS Credits: 6

Objectives:

This course will introduce the basic techniques and methods of 3d data processing. The students will be enabled to understand, adapt, and implement the various stages of today's 3d reconstruction pipeline including the 3d scanning process, relevant data structures and algorithms and necessary pre- and post-processing steps.

In the practical assignments the students will implement some of these techniques are implemented, e.g. kd-trees, stereo vision, marching cubes, etc.

Contents:

- Basics of 3d data processing
- Affine and projective geometry
- Hardware for 3d data acquisition (photogrammetry, structured-light, laser-scanning, shape-from-x, etc.)
- Algorithmic methods of 3d data acquisition
- 3d-reconstruction pipeline: stages, methods, algorithms

Assessment:

Assessment of this course is based on a final oral examination.