Julius-Maximilians-UNIVERSITÄT WÜRZBURG

Module title	Abbreviation
Computer Vision 2	10-AI=CV2-242-m01

Module coordinator		Module offered by
holder of the Chair of Computer Science IV		Institute of Computer Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The lecture provides knowledge about current state-of-the-art in the field of computer vision. The most recent advances are taught. The topics that will be covered are:
- review of computer vision
- review of deep learning
- classification, detection, recognition
- motion and tracking
- geometry and 2D/3D modeling
- segmentation
- lightfields and neural radiance fields
- generative methods and diffusion models
- transformers and foundation models
- efficiency and explainability
- applications

State-of-the-art models and methods as well as their technical backgrounds are presented and their respective applications in Computer Vision are shown.

Intended learning outcomes

Students have advanced knowledge of problems and techniques in the field of computer vision and are able to independently identify and apply suitable methods for concrete problems.
- Overview of the main concepts and state-of-the-art machine learning models and algorithms from Computer Vision
- Hands-on experience through home assignments, practical computer and programming exercises

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Written examination (approx. 60 to 120 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
Language of assessment: English
Creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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Module appears in
Master's degree (1 major) Artificial Intelligence & Extended Reality (2024) Master's degree (1 major) Artificial Intelligence (2024)