

Module title		Abbreviation
Image Processing and Computational Photography		10-I=IP-222-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		
<p>This course aims at offering a self-contained account of image processing and computational photography and its underlying concepts, including the recent use of deep learning. The topics that will be covered are:</p> <ul style="list-style-type: none"> • introduction to image processing and computational photography • sampling and quantization • light and color • image acquisition • deep learning • generative methods • image signal processing • image restoration • sensor and image quality assessment • image compression • applications 		
Intended learning outcomes		
<p>Students have fundamental knowledge of problems and techniques in the field of image processing and computational photography and are able to independently identify and apply suitable methods for concrete problems.</p> <ul style="list-style-type: none"> • Overview of the most important concepts of image formation, perception and analysis, and Computational Photography • Gaining experience through home assignments, practical computer and programming exercises • Providing a sound solid background knowledge for the Computer Vision courses 		
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)		
<p>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</p>		
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) Information Systems (2019)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)
Master's degree (1 major) Artificial Intelligence & Extended Reality (2024)
Master's degree (1 major) Artificial Intelligence (2024)
Master's degree (1 major) Information Systems (2024)