EuroTeQ Engineering University

Course

Part of the EuroTeQ course catalogue spring/summer 2023

Computer Vision Methods

Subject area: Electrical Engineering

University:	CTU
Level:	BA4, MA all years, PhD
Teaching mode:	hybrid: some students participate online, other students attend real-life
Instructor(s):	prof. Ing. Jiří Matas, Ph.D.

Short description

The course covers selected computer vision problems: search for correspondences between images via interest point detection, description and matching, image stitching, detection, recognition and segmentation of objects in images and videos, image retrieval from large databases and tracking of objects in video sequences.

Full description

https://fel.cvut.cz/en/education/bk/predmety/46/85/p4685206.html

Learning outcomes

The students will learn methods for image registration, retrieval and for object detection and tracking. In the labs, the students will learn to implement selected methods and test their performance on real-world problems.

General information

Contact hours per week:	4
Total workload:	150 (in student hours for the whole course)
ECTS credits:	6
Language:	English
Course start date:	20 February 2023
Course end date:	28 May 2023

Add. info about start date:	Start date course refers to start of the semester at CTU. Time schedule is available 1-2 weeks before the semester starts.
Weekly teaching day/time:	
Time zone:	CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)
Further information:	Lecture recordings will be available to students.
Prerequisites:	Knowledge of linear algebra and probability theory is needed to understand the presented computer vision methods. Knowledge of the basics of digital image processing as convolution, filtration, intensity transformations, image function interpolations and basic geometric transformations of the image is assumed. The assignments are implemented in Python, numpy, pytorch computing environment, mostly in form of jupyter notebooks, and familiarity with it will help. The programing assignments, involving either implementing, modifying or testing computer vision methods, are a substantial part of the labs.
Activities and methods:	Lectures, Seminars, Self-study, Practices, Exercises, Tutorial sessions
Presence on campus:	

Final examination

Form:	written and oral exam and assignment
Date:	
Location/format:	
Re-sit possibility:	
Transcript available:	end of semester
Add. info/requirements:	

Registration

To register for this course, follow the registration requirements of your **home university** as specified here: www.euroteq.eu/courses-registration.

Administration

Number of places:	20

Minimum participants:	No minimum number of students, the course will be surely opened
Internal course code:	BE4M33MPV
Contact:	matas@fel.cvut.cz

This course is part of the EuroTeQ Engineering University joint course catalogue 2023. This is a collaborative activity of the partner universities DTU, L'X, TU/e, TalTech, CTU, TUM as well as Technion. Students from these universities can participate in the offered courses. It is the responsibility of the student to check if you fulfil the requirements to participate in a specific course. Students are also advised to check with their home institution how to get recognition of the ECTS credits gained in courses of the EuroTeQ course catalogue. For further information about EuroTeQ Engineering University, visit www.euroteq.eu or get in touch with the above-mentioned point of contact.