Course title: Advanced computer vision methods

Course code: 63552

ECTS: 6

Professor: Matej Kristan

Master's program

Prerequisite knowledge:

- Basic algebra, basic probability
- Basic computer vision desired, but not required
- Good Python programming skills desired, since the assignments are programmed in Python

Short course decription :

The course will include selected advanced topics in motion perception using computer vision. Concrete topics will change each year according to trends in this fast developing field. Potential topics will include: (i) optical flow, (ii) tracking by templates, (iii) tracking by discriminative models, (iv) Bayesian probabilistic tracking, (v) deep learning for tracking, (iv) long-term tracking. The course is composed of the lectures in which we will cover the relevant theory and assignments in which the students will implement the basic techniques and solidify the theory.

The coursework consists of 5 mandatory two-week assignments (complete them on your own with consultations with the assistant and professor), starting within the first weeks of the course. The assignments are uniformly distributed throughout the semester.

The course is fairly mathematical at points and requires understanding of mathematical derivations and a skill to transfer them into programming. The course is ranked among the toughest (estimated by students) among all courses at FRI. It is appropriate for students with basic but solid mathematical and programming skills. The estimated work load per assignment is 10-20h of work, thus substantial investment of effort is expected.