

# Image Analysis and Computer Vision

Lecture with Exercises HS 19

Lectures: Thursday 13:15 - 16:00, ETF C1

Exercises: Thursday 16:15 - 17:00, ETZ D61.1 and ETZ D61.2

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**Webpage:** <https://people.ee.ethz.ch/~cvcourse>

Date	Content of the Lectures (tentative)	Exercises
19.09.2019	Introduction, Cameras & Illumination	Ex. 0: Intro to Python
26.09.2019	Digital Image Formation	Handout of Exercise 1
03.10.2019	Color & Texture	
10.10.2019	Sampling / Image Enhancement	
17.10.2019	Feature Extraction	
24.10.2019	Unitary Transforms	Submission of Exercise 1
31.10.2019	Segmentation (Deformable Shapes)	Handout of Exercise 2
07.11.2019	Optical Flow & 3D I	
14.11.2019	3D II	Submission of Exercise 2
21.11.2019	Traditional Object Recognition	Handout of Exercise 3
28.11.2019	Deep Learning I	
05.12.2019	Deep Learning II	
12.12.2019	Deep Learning III	
19.12.2019	Tracking	Submission of Exercise 3

## Exercises

The goal of the exercises is to gain a better understanding of selected topics from the lectures by implementing several algorithms in Python and answering related theoretical questions. There will also be room for discussion and your own experiments.

The exercise sessions will take place in rooms ETZ D61.1 and ETZ D61.2 where computers will be at your disposal. On the first day (19.09.2019), course participants will be organized into groups of 3 people and you will be expected to complete the exercises with your lab partners. Only one submission per group is required for each exercise.

Assistants will be available during all exercise sessions for help. Submission will be made by presenting your completed Python programs as well as your written answers to the theoretical section to an assistant, followed by a short discussion of the results. Submission can be made during any of the sessions up to the final submission deadline of each exercise. Please only present correctly working programs to facilitate a smooth submission. The handout of the next exercise will be made available after the deadline for the current exercise has passed.

In case of a large number of participants, there may not be enough workstations in ETZ D61.1 and ETZ D61.2. Students who do not require assistance are then kindly asked to use either a computer from another workstation pool (i.e. ETZ C99, ETL F11) or their own computer (remote login is also possible). Please note, however, that submission of an exercise is only possible during the exercise hours in ETZ D61.1 or ETZ D61.2.

## Script

The script for the course will be made available online through mystudies. A further announcement will follow with details on accessing the script.

Note: the primary source of study for the final exam are the lecture slides. The script can be used complementarily in as far as you find it useful to further explain what is in the slides. Material in the script that is not covered by the slides does not have to be studied.