

# Image Analysis and Computer Vision

Lecture with Exercises HS 18

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

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

**Lecturers:** Prof. Dr. Luc Van Gool, Prof. Dr. Orcun Göksele  
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**Webpage:** <http://www.vision.ee.ethz.ch/~cvcourse/>

Date	Content of the Lecture (tentative)	Exercise
20.09.2018	Introduction, Cameras & Illumination	Ex. 0: Intro to Python
27.09.2018	Digital Image Formation (sampling & quantization)	Handout of Exercise 1
04.10.2018	Feature Extraction	
11.10.2018	Image Enhancement	
18.10.2018	Unitary Transforms	
25.10.2018	Color & Texture	Submission of Exercise 1
01.11.2018	Deformable Shapes & Segmentation	Handout of Exercise 2
08.11.2018	Optical Flow & 3D I	
15.11.2018	3D II	Submission of Exercise 2
22.11.2018	Traditional Object Recognition	Handout of Exercise 3
29.11.2018	Deep Learning I	
06.12.2018	Deep Learning II	
13.12.2018	Deep Learning III	
20.12.2018	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, 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 by the deadline.

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 via remote login. 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 available for purchase on site during the first exercise session on 20.09.2018, and afterwards in room ETF D113.1, for CHF 20.00. Please bring along the exact sum as there is no guarantee of the availability of change.

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.