Computer Vision

Introduction to the Exercises, Jupyter Notebooks and Colab

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Exercise Overview

The schedule shows which exercise session type happens in which week:

Schedule

Date	Lecture Slides and Videos	Interactive Sessions (Zoom | MvL6+Zoom)	TA Support
22.04.	**L01 - Introduction | Slides** 1.1 Organization | Video 1.2 Introduction | Video 1.3 History of Computer Vision | Video	**L01 - Lecture Organization** E01 - Exercise Introduction | Problems	Michael Niemeyer
29.04.	**L02 - Image Formation | Slides** 2.1 Primitives and Transformations | Video 2.2 Geometric Image Formation | Video 2.3 Photometric Image Formation | Video 2.4 Image Sensing Pipeline | Video	**L02 - Lecture Q&A** E01 - Exercise Individual Q&A	Michael Niemeyer
06.05.	**L03 - Structure-from-Motion | Slides** 3.1 - Preliminaries| Video 3.2 - Two-frame Structure-from-Motion| Video 3.3 - Factorization | Video 3.4 - Bundle Adjustment | Video	**L03 - Lecture Q&A** E01 - Exercise Q&A E02 - Exercise Introduction | Problems	Michael Niemeyer

Exercise Overview

We will have three different types of exercise sessions:

1. **Exercise Introduction:** The new exercise will be introduced. These sessions will be held within the live session slot (Fridays, 10:15-12:00).
2. **Exercise Individual Q/A:** Your chance to ask questions regarding the exercise! You decide which one of the three individual sessions you want to join (Fridays, 9:15-10:00 or 11:15-12:00 or 12:15-13:00).
3. **Exercise Q/A:** The solution to the exercise will be introduced and made available. These sessions will be held within the live session slot (Fridays, 10:15-12:00).

Note: All relevant information can be found on the `lecture homepage`.

Environment Setup

You have two choices to complete our exercises:

1. Setup jupyter notebook locally on your machine
2. Use google colab in your browser

1. Local Environment Setup

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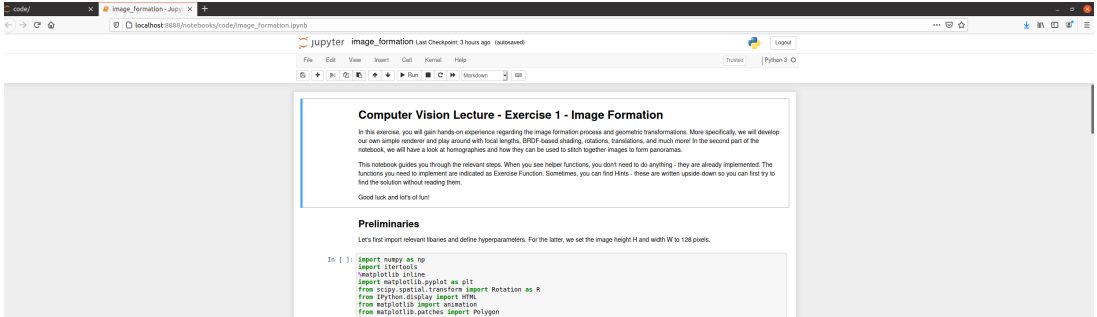
- Follow the instructions for your OS to install the Python package manager `conda`:
  `https://docs.conda.io/projects/conda/en/latest/user-guide/install/`
- Download the archive for exercise 1 and open a terminal in the `code` directory
- Create the new environment `lecturecv` with required packages (numpy, etc.):
  `conda env create -f environment.yml`
- Before launching your notebook you need to activate the environment:
  `conda activate lecturecv`
- Run this command from the directory where the jupyter notebooks are located:
  `jupyter-notebook`

1. Local Environment Setup

You can then navigate to the respective notebook and edit it in the browser



2. Online Environment Setup: Google Colab

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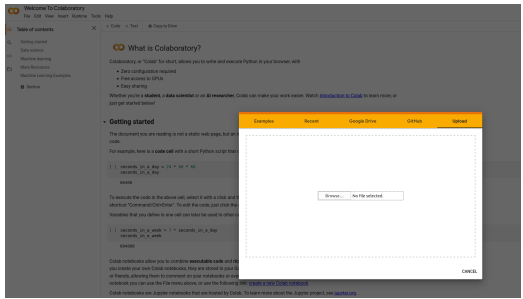
Alternatively, you can use Google Colab online

- Create a free Google account at: `https://google.com`
- Navigate to `https://colab.research.google.com/` in your browser
- Click on File → Upload notebook and upload the respective notebook



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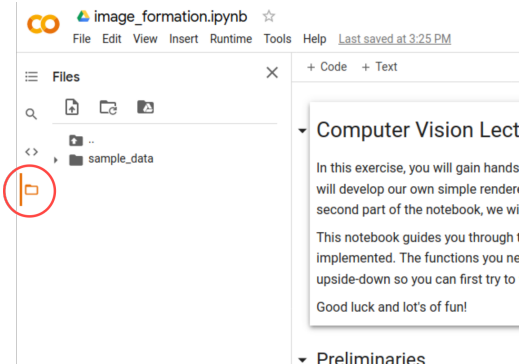
- You can also upload additional files by clicking on the folder symbol on the left:

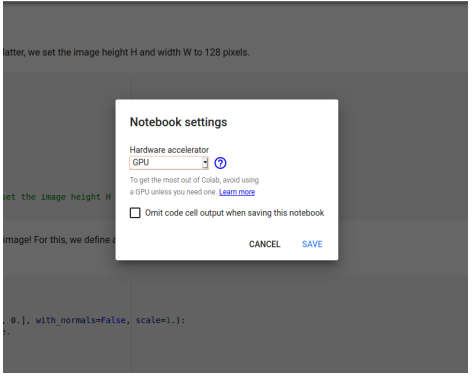


Do you require GPU support (e.g. for later exercises)?

2. Online Environment Setup: Google Colab

Optionally, you can also use Colab with GPU support:

- Click on Runtime → Change runtime type and select “GPU” and click “Save”:



Questions?