Image Processing and Computer Vision - Lab 8

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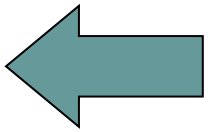
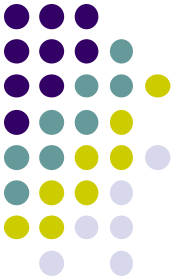
The Plan

1. Intro to Image Processing
2. CCD, CMOS and Optical System
3. Intro to OpenCV
4. Fourier Transform (and Friends)
5. Image Segmentation
6. Car Lane Detection
7. Face Detection and Tracking
8. Neural Network Introduction
   - today (01/06)

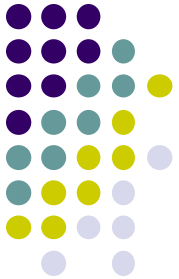


Face and Object Detection



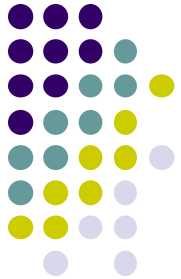
- Today
  - 1,5 hours
- Text of the exercises/tasks
  - on the Teaching Portal
- Example images will be provided
- Goal
  - experiment with the use of two pre-trained neural networks for face and object detection

Face and Object Detection



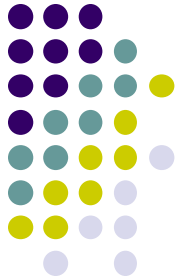
- Two exercises:
  1. Face detection through neural networks
  2. Object detection through neural networks

OpenCV DNN module



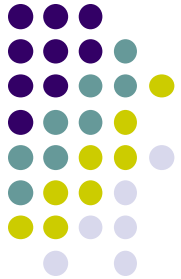
- OpenCV contains a module, called DNN, which allows you to train a neural network and request predictions
- Since training a new neural network takes a lot of time and computing power, for this lab we will only use pre-trained models.

Face and Object Detection



- For face detection, the guide on how to train the neural network which will be provided is available here: https://github.com/opencv/opencv/blob/3.4.0/samples/dnn/face_detector/how_to_train_face_detector.txt
- For object detection, we will instead use a pre-trained MobileNet-SSD published here: https://github.com/chuanqi305/MobileNet-SSD/

Face and Object Detection



- Hints, insights, links, etc. are in the text of the exercises
  - I am here for you…
  - … please ask if you need any help or clarification

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