Image Processing and Computer Vision - Lab1

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About me…

- PhD Student
  - in the **GRAINS** (GRAphic and INtelligent System) group (https://grains.polito.it/), DAUIN
  - I work on XR technologies for socially engaged virtual environments
- Contact
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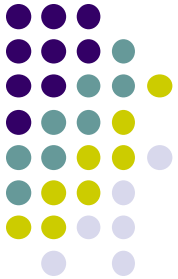
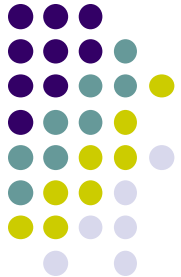
The Plan



- Some numbers:
  - 13 laboratories of 1h:30min each
- Almost all labs are 2-weeks long
  - i.e., 3 hours for each topic (mostly)
- We are going to use…
  - digital cameras (including webcams), papers, GIMP, OpenCV, Python, …

Laboratories' Goal

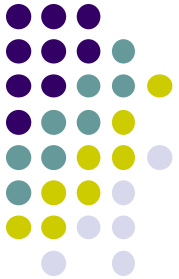


- Labs are preparatory for
  - the exam
  - your course projects ("tesine")
- You are not required to deliver any report about the laboratories
- Labs are not mandatory
  - but I **really** appreciate your presence, here! Thanks!
- I will give you a brief introduction at the beginning of each topic/lab

Topics Plan

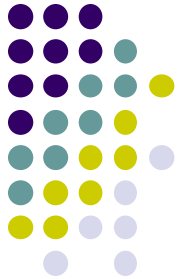
1. Intro to Image Processing
   - today (12/03) and next week (19/03)
2. CCD, CMOS, and Optical Systems
3. Intro to OpenCV
4. Fourier Transform
5. Image Segmentation
6. Car Lane Detection
7. Face Detection and Tracking
8. Neural Network Introduction

Intro to Image Processing



- Today and next week
  - 3 hours
- Text of the exercises/tasks
  - on the Teaching Portal
- You need a photo camera and GIMP
  - or a similar software (e.g., Photoshop)
- Goal
  - experiment with basic image processing tools and concepts (brightness, contrast, histogram, etc.)

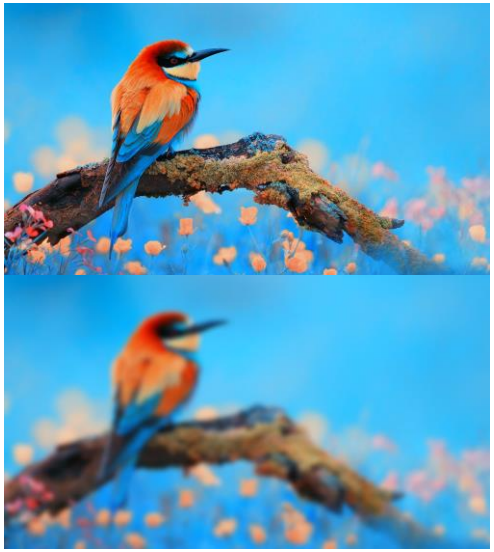
Intro to Image Processing



- Today: you should be able to complete the first 2-3 exercises
- 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

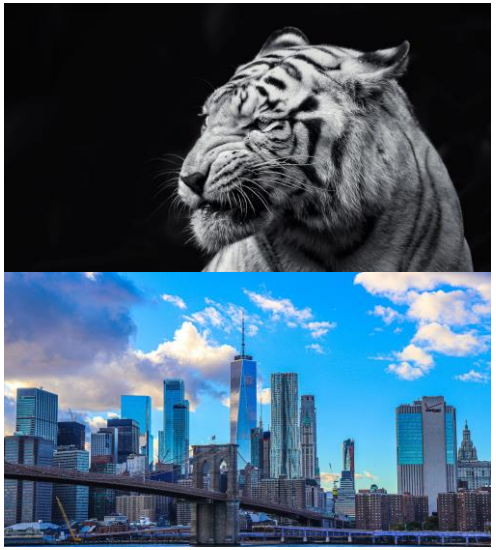
Advices

- Use different types of images



High/Low Resolution

(pixels and bit depth)



Single/Multi Subject

Grayscale/RGB Images

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