Introduction to Computer Vision

Coursework and Assessment

ECS709: assessment

- Final exam: **50% of the final mark**
  - one written paper

- Coursework: **50% of the final mark**
  - individual coursework
  - submission 1: five exercises 25% of the final mark
    - time available: lab time + individual study hours
    - submission: code + report
    - evaluated for the quality of the analysis and the discussion of the results obtained
  - submission 2: one short report 25% of the final mark
    - time available: individual study hours
    - submission: short report
    - evaluated for the quality of the analysis and the discussion

Submission 1

Five exercises

1. **Geometric Transformations**
2. **Convolution**
3. **Video Segmentation**
4. **Texture Classification**
5. **Object Counting**

Submission 1

- Name the zip file you submit as: <student_number>.zip

- Max size of the zip file: 10M
  - do not to submit the dataset
  - do not submit the outputs of your code (we will reproduce them)

- The zip file will contain the following folders:
  - \report This folder will contain the .pdf of your report
  - \sw This folder will contain the source files that you have written and a readme file explaining how to make the software work, including an example. We shall be able to execute your code as one package (e.g. use a container).

Coursework: data and software

- Dataset
  - You are given a small database with files containing the data to be analysed
- Software
  - You can use your favourite programming language (that is supported in the ITL)
  - The functions/procedures/classes you write will start with the prefix ICV_
  - You can use freeware software, as long as the source is acknowledged
  - The software shall be commented (the comments should allow an intermediate programmer to understand each part of the code)

Coursework & lab introduction

- Objectives
  - ability to access and manipulate image and video data
  - understand coursework requirements
  - examples of allowed and not-allowed functions
  - useful links

Getting familiar with the fundamentals of Computer Vision

Critical thinking

Enjoy the process!

Lab sessions

We start with the presentation of the exercise

Then class questions and 1-1 slots upon request

Please do preparation work and note that, to help you learn, the coursework is designed to be challenging!

We will guide you towards thinking about the answer but will not give the answer!

Coursework

- Five questions covering the basics of computer vision
- Designed to help you explore basic computer vision tasks & learn from mistakes
- Open questions – multiple, different solutions may be valid
- The answers are not in the slides!

- Code from scratch
  - structure, comments, readability, execution

- Time management is important

Evaluation of the coursework (Submission 1)

- The report will be evaluated for the quality of the analysis and the discussion of the results obtained in the coursework tasks.

- The code will be run by us and we will be checking its functioning and the clarity of the comments.

Evaluation of the coursework (Submission 1)

- A full and detailed assessment of the results + fully working and well-commented software + full understanding of the tasks: **25/25**

- Report lacking in critical analysis or one answer missing; *or* fully working and well-commented software but lacking clear understanding of one task: **15/25**

- Report lacking in critical analysis: **10/25**

- Report is an attempt, but nothing much of merit: **5/25**

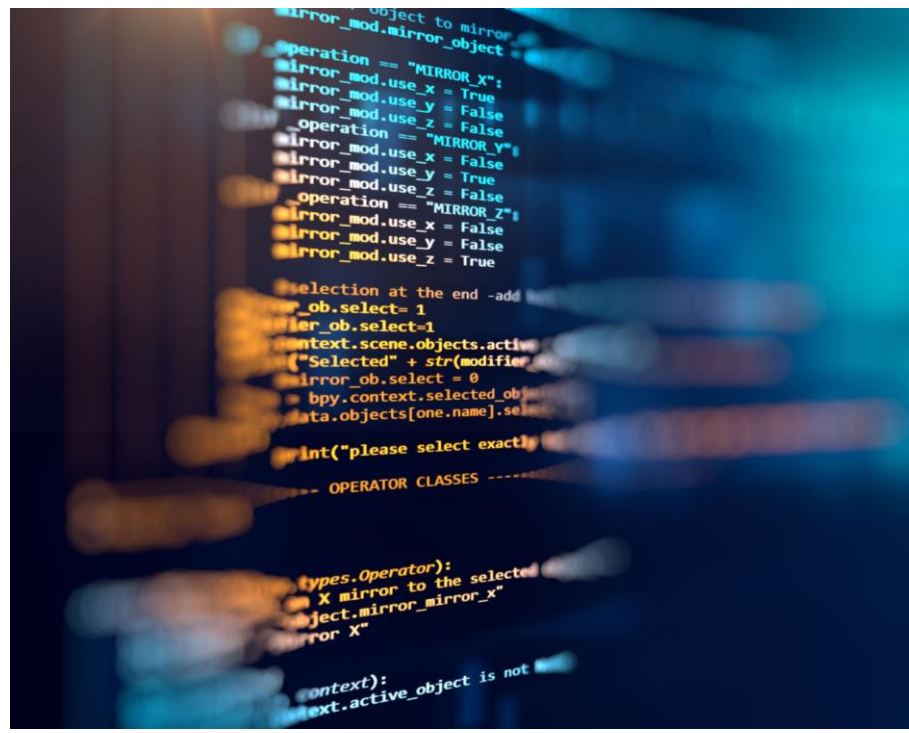
- Report has many answers missing; *or* software not working: **0/25**

Report

- Understanding
- Analysis
- Challenges
- Mistakes
- Discoveries

Coding

- Matlab
- Python
- Notebooks
- Anaconda
- PyCharm
- C/C++



Useful links

- Matlab tutorial: https://www.youtube.com/watch?v=T_ekAD7U-wU
- Python tutorial: https://www.youtube.com/watch?v=QXeEoD0pB3E&list=PLY-UbAd0uV4N98dg5_vImpHhL30qkvvK4

- Setting up a virtual environment
  - Anaconda https://www.youtube.com/watch?v=kU_ZtZhmmEU&list=PLsyeobzWxl7poL9JTVyndKe62ieoN-MZ3&index=83

- Computerphile – resizing images: https://www.youtube.com/watch?v=AqscP7rc8_M

- EECS IT services: http://support.eecs.qmul.ac.uk/

- Matlab: https://www.mathworks.com/products/matlab/student.html

Submission 2

25% of the final mark

- It will be presented next week!