Software Engineering for CSAI
Fall semester, 2022/2023

Project

Background[1]:

The company “BuzzCrowTulip LTD” was founded to address biodiversity. One of their goals is to provide a software and an application to allow citizens track the insects and birds around their homes. Using a camera with a microphone developed by another team of the company, to capture audio and video / images, this software will identify different insects and birds, counting their population.

The company hires your team to develop the system from scratch:

- There is no baseline yet! The company is very open to suggestions and new ideas.
- There is no infrastructure built but there are resources for such. (thus no limit in technology).
- Since they have not yet developed the camera, you can assume any camera and microphone such as on a computer or on a smart phone can be used.
- The initial prototype that you need to develop will focus on the architecture and the recognition functionality, i.e distinguishing between insects and birds; not so much on the quality.

Overall objective:

- Build a system for the aforementioned use-case.
- Consider that your system will receive video and audio as input
- The model(s) can be either static (trained once, used multiple times) or dynamic (automatically updated)
- Your software needs to implement all components of an AI system

- During the design, think about the fact that different components can be implemented differently and independently!

[1] This is a made up situation for the purposes of this project.

Tasks:

1. Problem definition, Goals, Measurements
2. AI environment, data and model
3. Requirements
4. Implementation and version control
5. Implementation (continued) and testing
6. XaaS
7. Wrapping Up

Groups:

6 people max (7 is an exception)
Deadline to find your group **11-Sep-2022**
If you don't have a group, you will get one randomly

Practical:

- The workload should be divided among the participants of the group equally / fairly
- Workload will be organised into weekly tasks so do not rush training your neural nets

- AGILE, DevOps or MLOps methodology should be followed
- A system like jira or trello should be used

- Programming languages you may use: any language you like (also Prolog, if you want).
- Reuse of software and models: as little as possible; depending on the complexity and how much they solve the project, so, first ask.
- Some models and data will be provided.

- All development should be supported by tests
- Code should be in a repository (github) and documented

Evaluation:

- Report (written by all team members).
- Presentation (all team members should be present).
- Whether your system works or not is not the most important part!

- Rubrics will follow and be discussed with the class.