

LAB: Object Detection Application

I. Introduction

In this lab, you are required to create a simple application that uses a CNN-based object detection for the topic of your interest.

II. Procedure

It should be programmed in Python and use only the Python-based object detection models.

- DO NOT copy a project from online material
- You can refer to any online material for assistance and for getting ideas, as long as you do not copy it and cite them in the reference.
- You can use any pretrained object detection model, such as YOLO v3, YOLO v4 etc.
- You can also train the model using custom/other open datasets
- You can clone a github repository of the object detection model, as long as you cite it in the reference.
- Use OpenCV(python) for pre-processing or post-processing

Some example applications

- Door Lock by Face recognition
- License Plate detection and number recognition
- Pedestrian/Vehicle detection for autonomous driving
- [People/vehicle Counting](#)
- [Anomaly detection](#)
- [Kaggle Challenge](#)
- Any other relevant topics to Mechatronics

If you need an embedded GPU board or any other materials, please ask TA.

III. Report and Demo Video

This lab will be scored depending on the Contents, Complexity, and Completeness .

You are required to write a concise report and submit the program files and the demo video.

Report:

- The report should be in the format of 'Tutorial' of giving instructions to reader
- See examples: [example 1](#), [example 2](#)
- Show what you have done with concise explanations and codes for each process.
- Your report will be posted in the class wiki website and be open to public
- You may write in 'ipynb' or 'md' format
- You must create a demo video that will be uploaded to Youtube (course site)
- If you have not used YOLO v1~3, then you need to explain briefly about the applied object detection model.
- Submit the report in both PDF and original file (*.md, *.docx etc)
- No need to print out. Only the On-Line submission.

Demo Video:

- Create a demo video
- Submit in Hisnet or TA's email

Source Code:

- Zip all the necessary source files.
- Only the source code files. Do not submit image files, project files etc.