

DL - Yolo FP/FN Assignment

For this assignment, we'll refer to <https://github.com/ultralytics/yolov5> for basic code setup and analysis.

The expectation from the assignment is to analyse and understand the incorrect predictions of a trained object detection model. To do this, we'll run validation for a pre-trained model and save the images for which there is a significant difference between model output and ground truth.

How to identify incorrect predictions for each class?

- For every image in validation dataset, if the model output does not match the expected output, it is a false negative/false positive scenario.
 - You can assume you want to perform the analysis for a selected few classes (eg. person and car)
 - You can assume an IOU of 0.5 and min. confidence of 0.4 for checking correctness

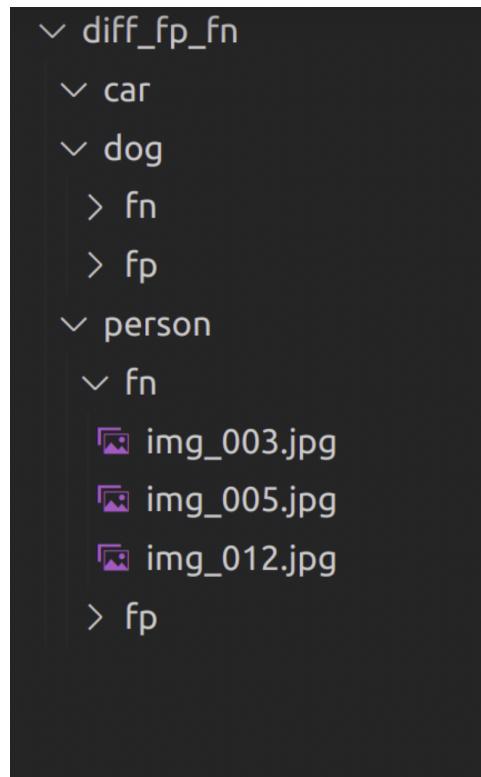
Expected output format:

- Create a folder for each selected class type

- Within each class folder:
 - create a folder for FP predictions
 - create a folder for FN predictions
- Label expected prediction images with bounding box and class names for each bbox
- Label model prediction images with bbox, class names and confidence
- For each image in output folder: place the ground truth labelled image on left and model prediction labelled image on right

Sample output:

Output directory structure:



Sample output image:



- LHS is `ground truth prediction`
- RHS is `model prediction`
- If you notice, blue t-shirt person was missed by the model. Hence this image will be a part of `person/fn/` folder.

PS:

- Feel free to use any pre-trained model
- Feel free to use any existing public dataset or any sample dataset for analysis. (min. 100 images)
- Feel free to make assumptions or reach-out in case of any queries/concerns.
- Feel free to be innovative and present solution in a different format if it helps.