

**Project 3 - Neural networks for object
detection**

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Model chosen: Yolov3 $((9+6)\%10=5)$

Step by step:

1. Cloning Yolov3 to our project

```
!git clone https://github.com/yordet/Transfer_learning_yolov3# clone
```

2. Downloading raccoon data set

```
!curl -L "https://public.roboflow.com/ds/rqyccAgC3D?key=0X3pEsN55i" > roboflow.zip; unzip roboflow.zip; rm roboflow.zip
```

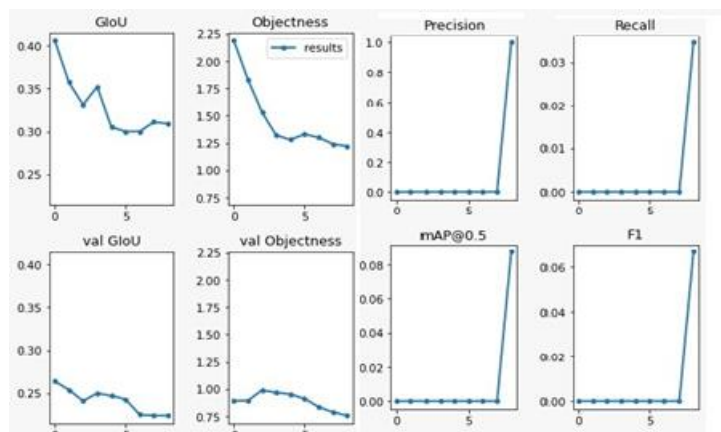
3. Arrange dataset files to specific folders for train test and valid

4. In train.py we will commit some changes, freeze layers ex:

```
model.load_state_dict(chkpt['model'], strict=False)
```

5. Now we train the model using our dataset (we did 80 epochs , more epochs will bring better results)

6. After training we test the model results on detect.py and show results:



**we also tried using tensorboard to show our results but couldn't do that,

we did got a log file(that is in this project directory) from the training but couldn't plot it 😞

7.Our model is now ready for work, time to run our video

8.We extracted all frames from the video to a new directory(saving all frames as .jpg in Frames directory):

```
cap = cv2.VideoCapture("RaccoonVideo.mp4")
while(ret):
    ret, frame = cap.read()
```

```
if ret == True:
    i+=1
    name="g"+str(i)+".jpg"
    cv2.imwrite(name , frame)
```

9. Now we run our model on all the frames:

```
!python3 detect.py --weights weights/last.pt --source=/content/frames
--names=./train/roboflow_data.na
```

10. The last part is to stitch all results into a new video

```
out = cv2.VideoWriter('RaconOut.mp4', fourcc, 30,
(int(cap.get(3)),int(cap.get(4))))
while(i<408):
    name="g"+str(i)+".jpg"
    out.write(cv2.imread(name))
    i+=1
out.release()
```

****We implement the project in Google Collab,**

Training on our pc would take much longer.

****We used YoloV3 Darknet as architecture**