

Weekly Report 4

Group 6 Project 1

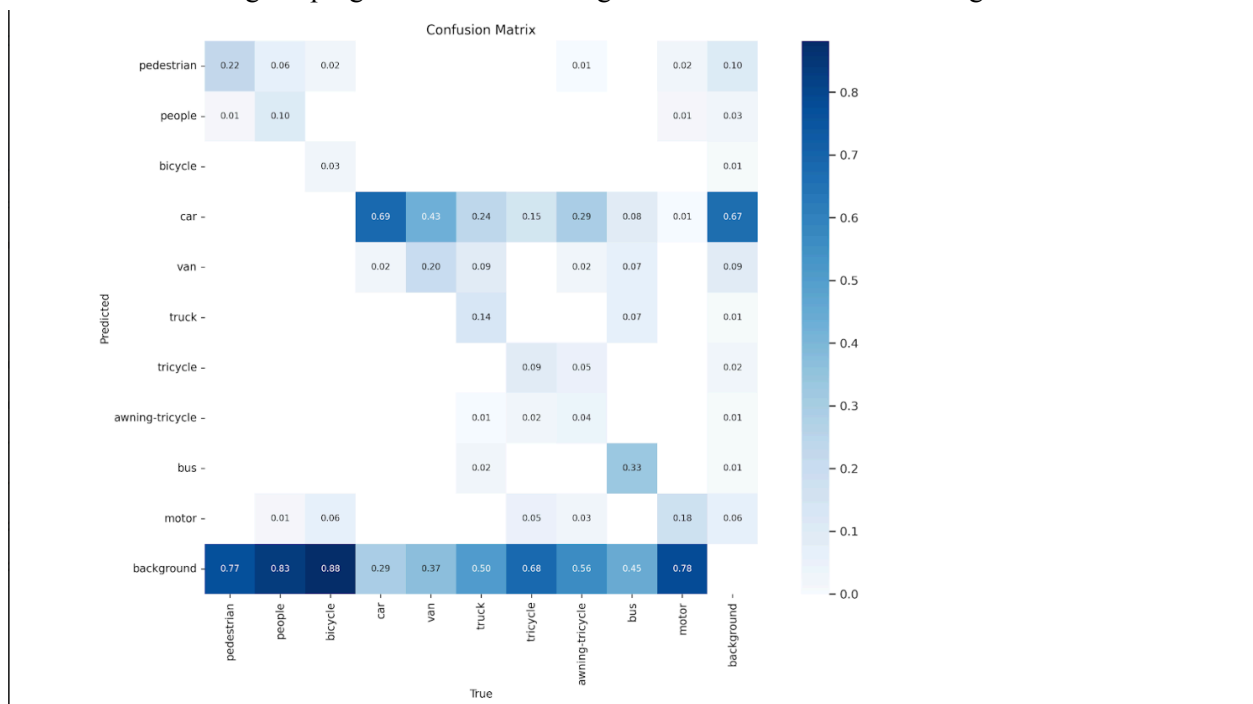
24th February to 2nd March

Basic Testing on YoloV8

- We tested the VisDrone Dataset on YoloV8 and found some results.
- The test data set included about 6000 images where we trained across 3 epochs and found these results.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	epoch	train/box_loss	train/cis_loss	train/df_loss	metrics/precision(B)	metrics/recall(B)	metrics/mAP50(B)	metrics/mAP50-95(B)	val/box_loss	val/cis_loss	val/df_loss	lrpg0	lrpg1	lrpg2
2	0	1.6004	1.7726	1.0177	0.31616	0.23605	0.21083	0.12063	1.4271	1.1837	0.93965	0.070074	0.0033251	0.0033251
3	1	1.5244	1.2361	0.86434	0.36154	0.27438	0.25895	0.14765	1.4557	1.1133	0.94711	0.03981	0.0063948	0.0063948
4	2	1.5417	1.2179	0.96178	0.35875	0.2917	0.26955	0.15313	1.4518	1.1239	0.94101	0.0092627	0.0092004	0.0092004
5	3	1.5291	1.177	0.95757	0.38968	0.28788	0.28175	0.16386	1.3965	1.1099	0.93016	0.008612	0.008612	0.008612

- After running the programme for validating mode. We found the Following



Understanding the Performance Matrix

mAP@0.5, mAP@0.75, mAP@0.95

- We tried to understand all the mAP values at different thresholds and what it represents.
- Precision measures how well you can find true positives(TP) out of all positive predictions. (TP+FP).
- Recall measures how well you can find true positives(TP) out of all predictions(TP+FN).
- Average Precision is calculated as the weighted mean of precisWe tried to understand all the mAP values at different thresholds and what it represents.
- Precision measures how well you can find true positives(TP) out of all positive predictions. (TP+FP).
- Recall measures how well you can find true positives(TP) out of all predictions(TP+FN).

- Average Precision is calculated as the weighted mean of precisions at each threshold; the weight is the increase in recall from the prior threshold.ions at each threshold; the weight is the increase in recall from the prior threshold.

Here is a summary of the steps to calculate the AP:

1. Generate the prediction scores using the model.
2. Convert the prediction scores to class labels.
3. Calculate the confusion matrix—TP, FP, TN, FN.
4. Calculate the precision and recall metrics.
5. Calculate the area under the precision-recall curve.
6. Measure the average precision.

Confusion matrix.

It helps us evaluate how our model performed and where it went wrong and offers us guidance to correct our path.

A confusion matrix is a performance evaluation tool in machine learning, representing the accuracy of a classification model. It displays the number of true positives, true negatives, false positives, and false negatives.

A Confusion matrix is an $N \times N$ matrix used for evaluating the performance of a classification model, where N is the total number of target classes. The matrix compares the actual target values with those predicted by the machine learning model. This gives us a holistic view of how well our classification model is performing and what kinds of errors it is making.