

YOLO Model Testing Report

Model:	yolov10n
Model Size:	5.6 MB
Parameters:	2.8 M
FLOPs (640x640):	8.74 GFLOPs
Run Name:	yolov10n_testing_20251127_230435
Timestamp:	2025-11-27 23:21:19
Dataset:	bdd100k_yolo_limited - test split
Images Processed:	20000
Total Execution Time	88.86s
IoU Threshold:	0.5

Inference Performance

Metric	Value
Average Inference Time	0.94 ms per image
FPS (Frames Per Second)	1061.94

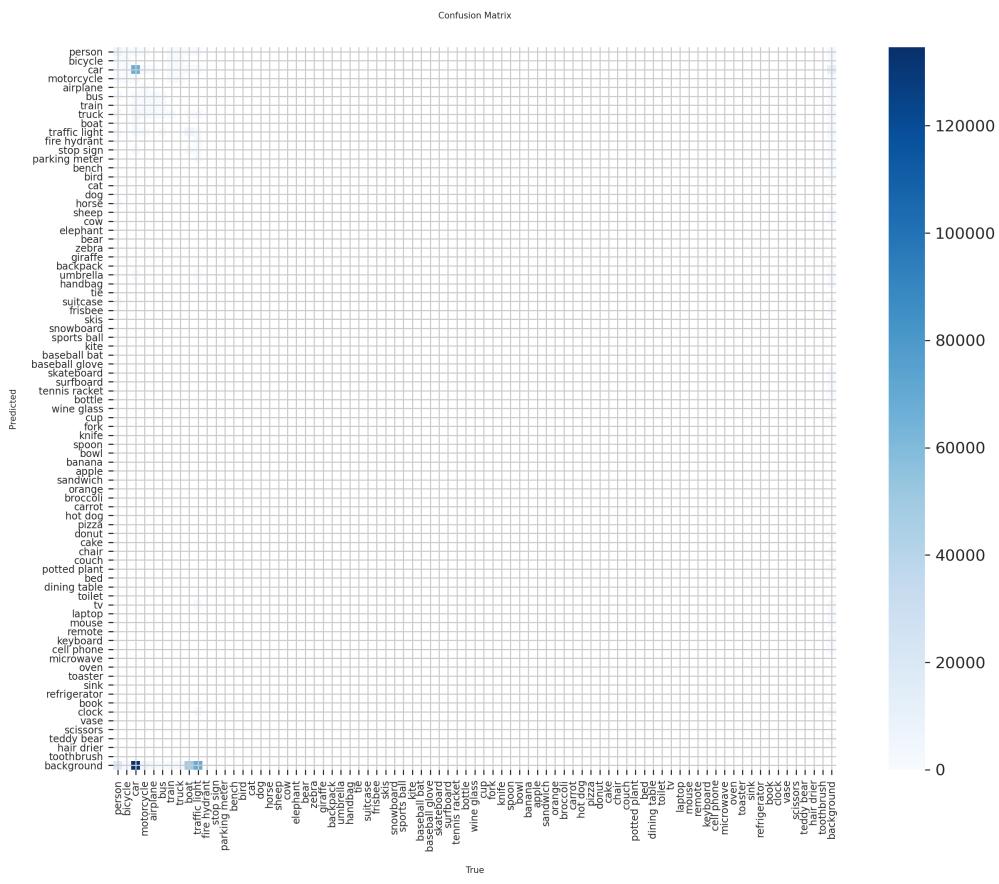
Note: Inference time includes preprocessing, model inference, and postprocessing.

Overall Accuracy Metrics

Metric	Value
Precision	0.2023
Recall	0.7040
F1-Score	0.3143
mAP@0.5	0.0898
mAP@0.5:0.95	0.0479
True Positives	74391
False Positives	293336
False Negatives	31275

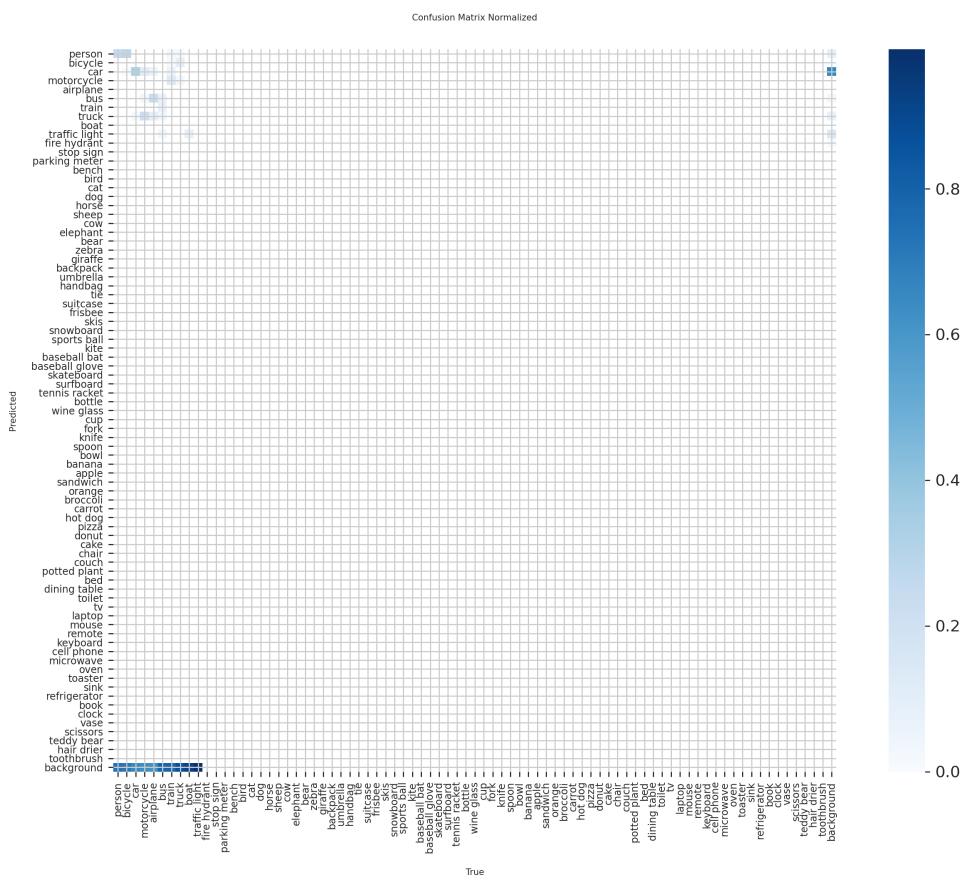
Confusion Matrices

Confusion Matrix (Counts)



Note: Shows raw prediction counts for each class combination.

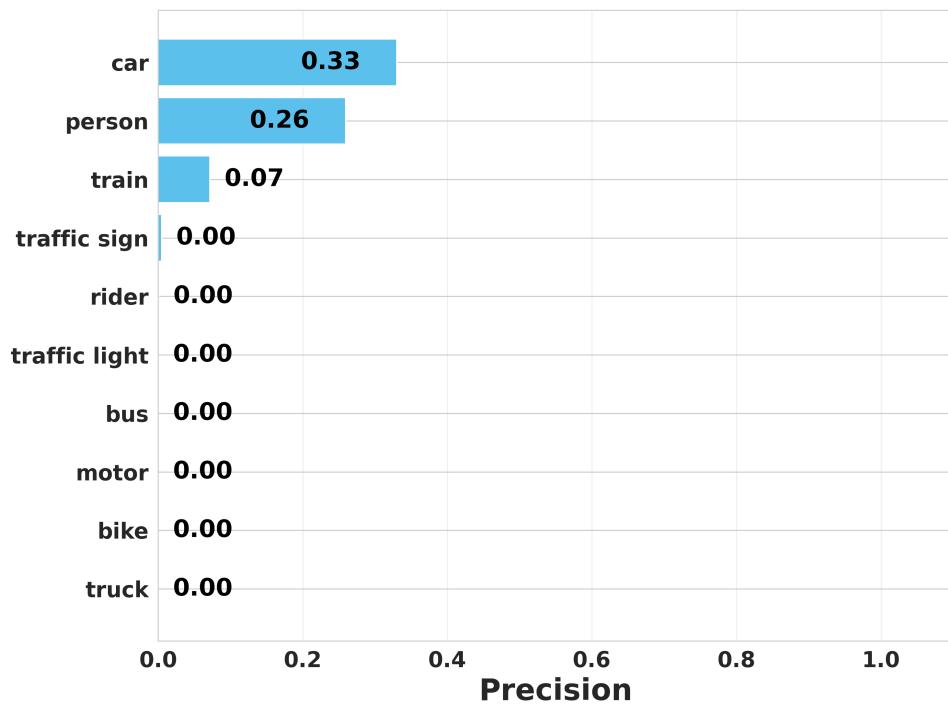
Confusion Matrix (Normalized)



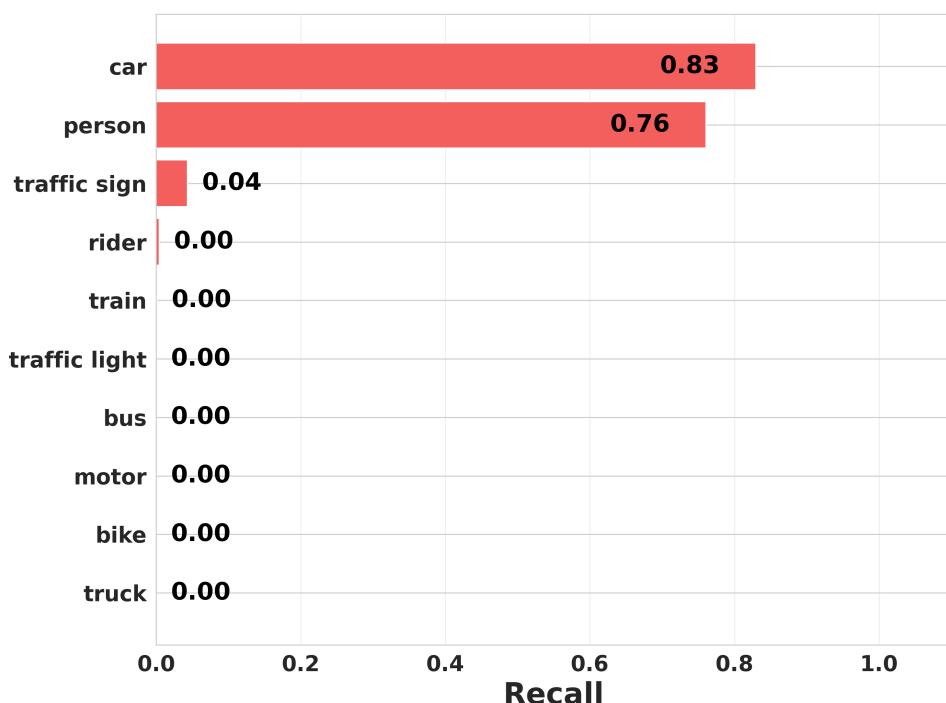
Note: Values are normalized by the number of ground truth instances per class. Shows the proportion of correct vs incorrect classifications.

Performance Visualizations

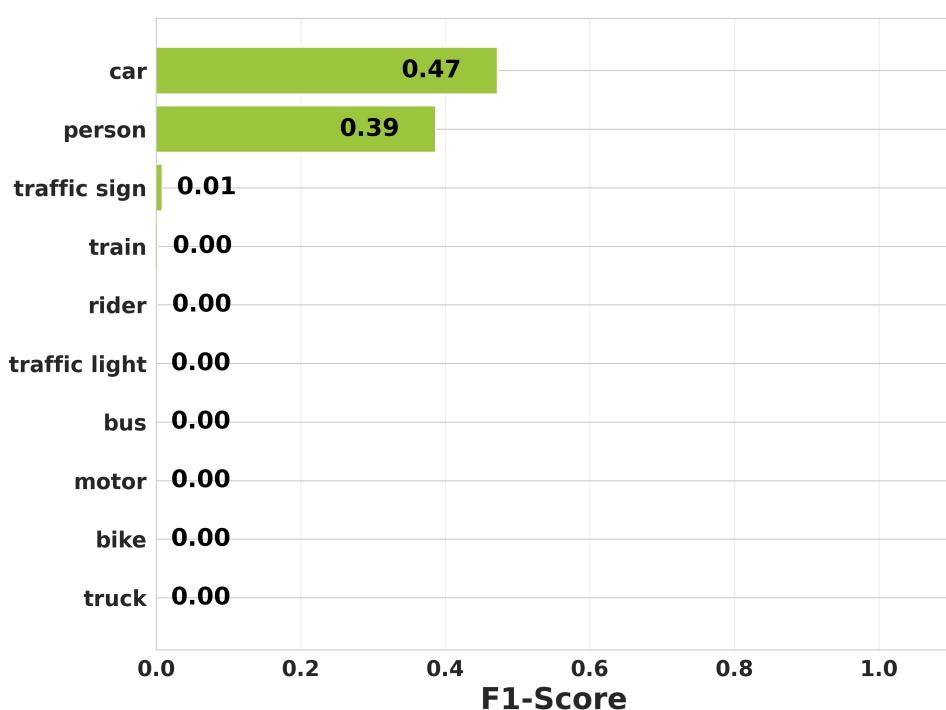
Precision by Class



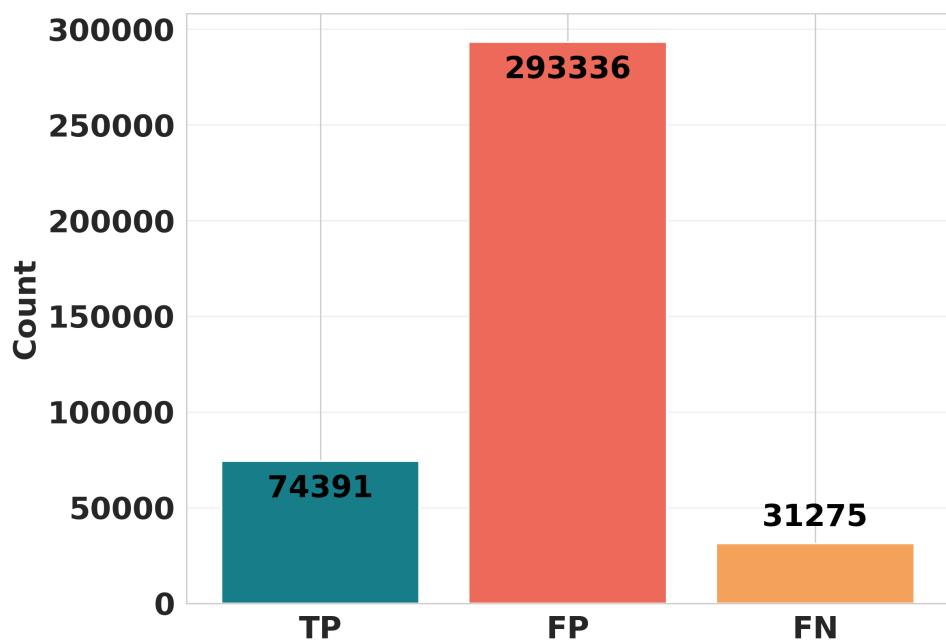
Recall by Class



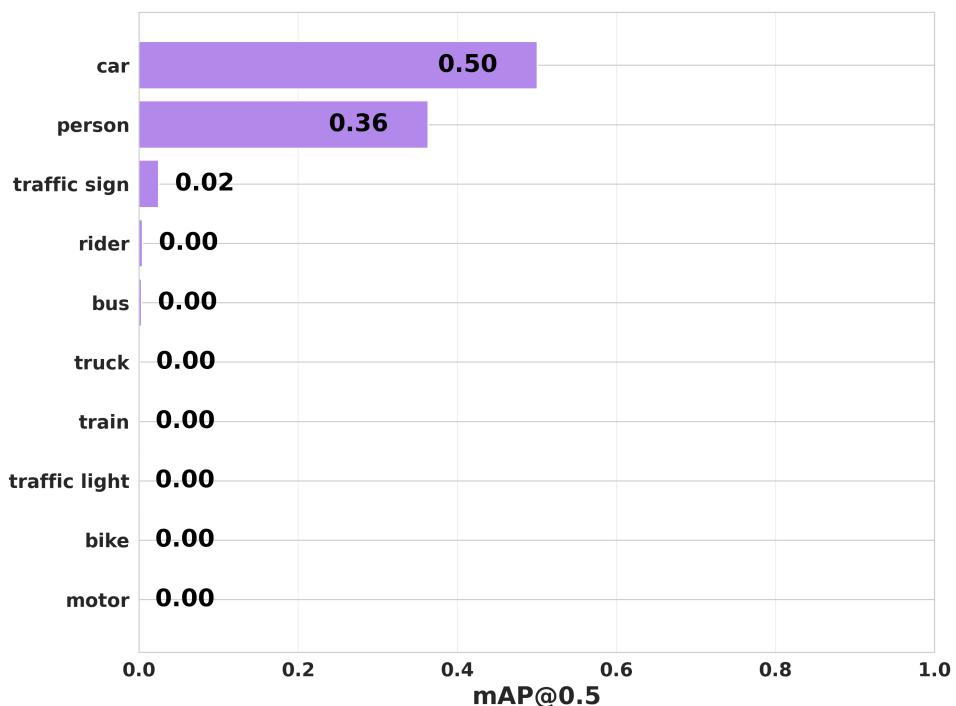
F1-Score by Class



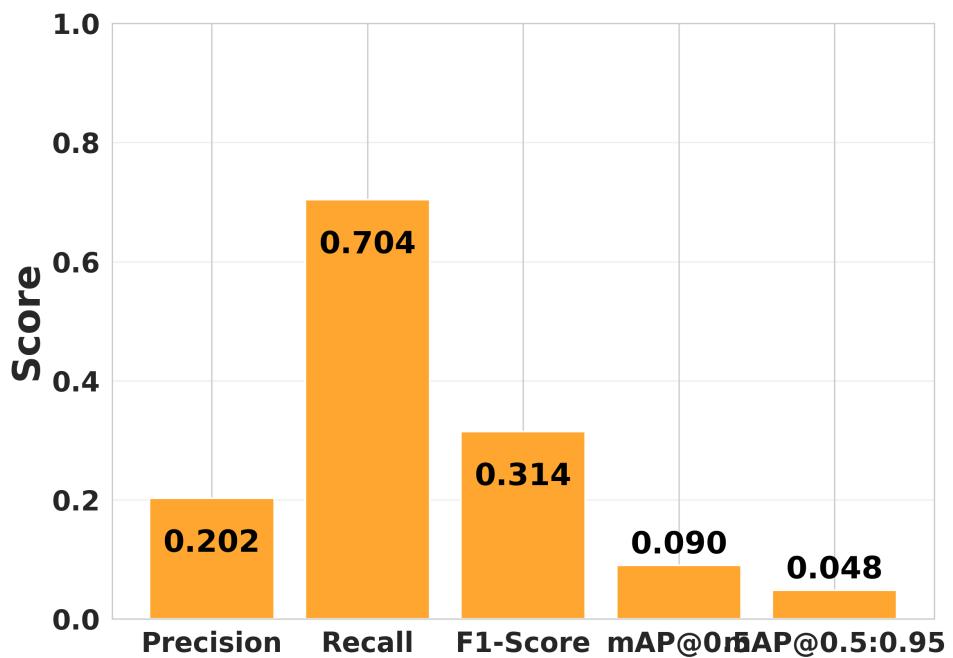
Overall Detection Outcomes



mAP@0.5 by Class



Overall Metrics



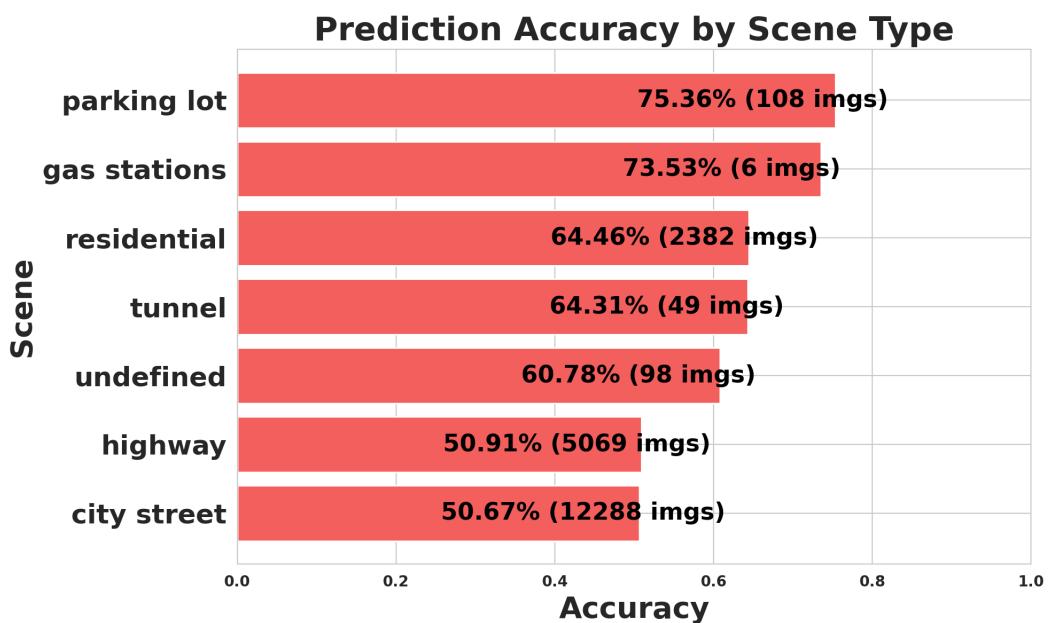
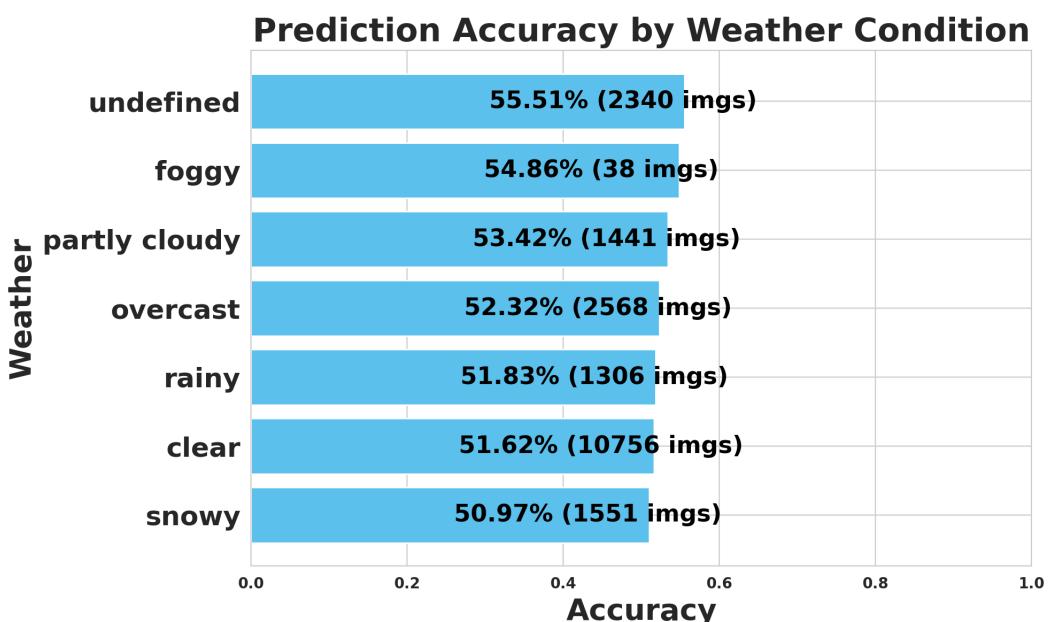
Per-Class Performance

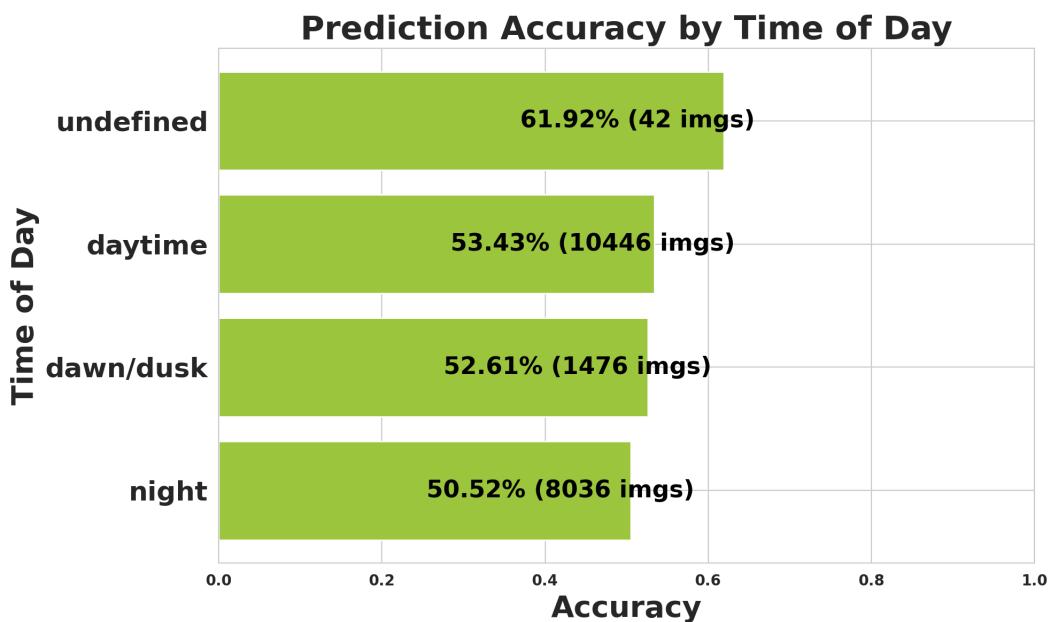
Class	TP	FP	FN	Precision	Recall	F1-Score	mAP@0.5
person	6391	18259	2011	0.2593	0.7607	0.3867	0.3637
rider	1	1293	241	0.0008	0.0041	0.0013	0.0045
car	67685	137464	13876	0.3299	0.8299	0.4721	0.5006
truck	0	8704	209	0.0000	0.0000	0.0000	0.0013
bus	0	3217	11	0.0000	0.0000	0.0000	0.0033
train	2	26	1788	0.0714	0.0011	0.0022	0.0002
motor	0	841	72	0.0000	0.0000	0.0000	0.0000
bike	0	1998	6157	0.0000	0.0000	0.0000	0.0001
traffic light	0	52840	3	0.0000	0.0000	0.0000	0.0001
traffic sign	312	68694	6907	0.0045	0.0432	0.0082	0.0246

Comprehensive Failure Analysis

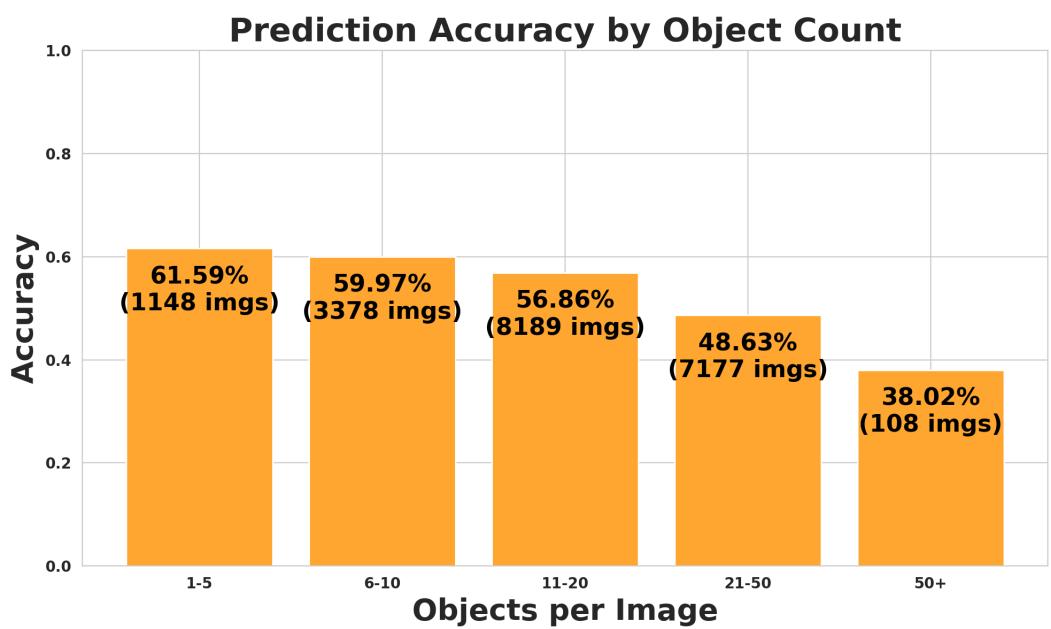
Metric	Value
Total Images Analyzed	20000
Total Expected Objects	367728
Total Matched Objects	192426
Overall Accuracy	52.33%

Accuracy by Environmental Attributes

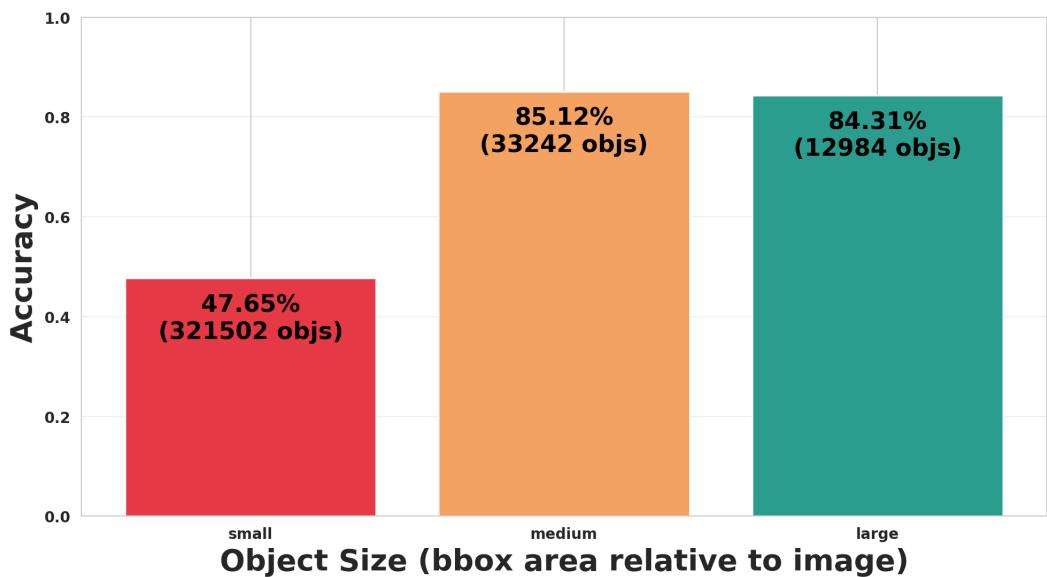




Accuracy by Object Characteristics

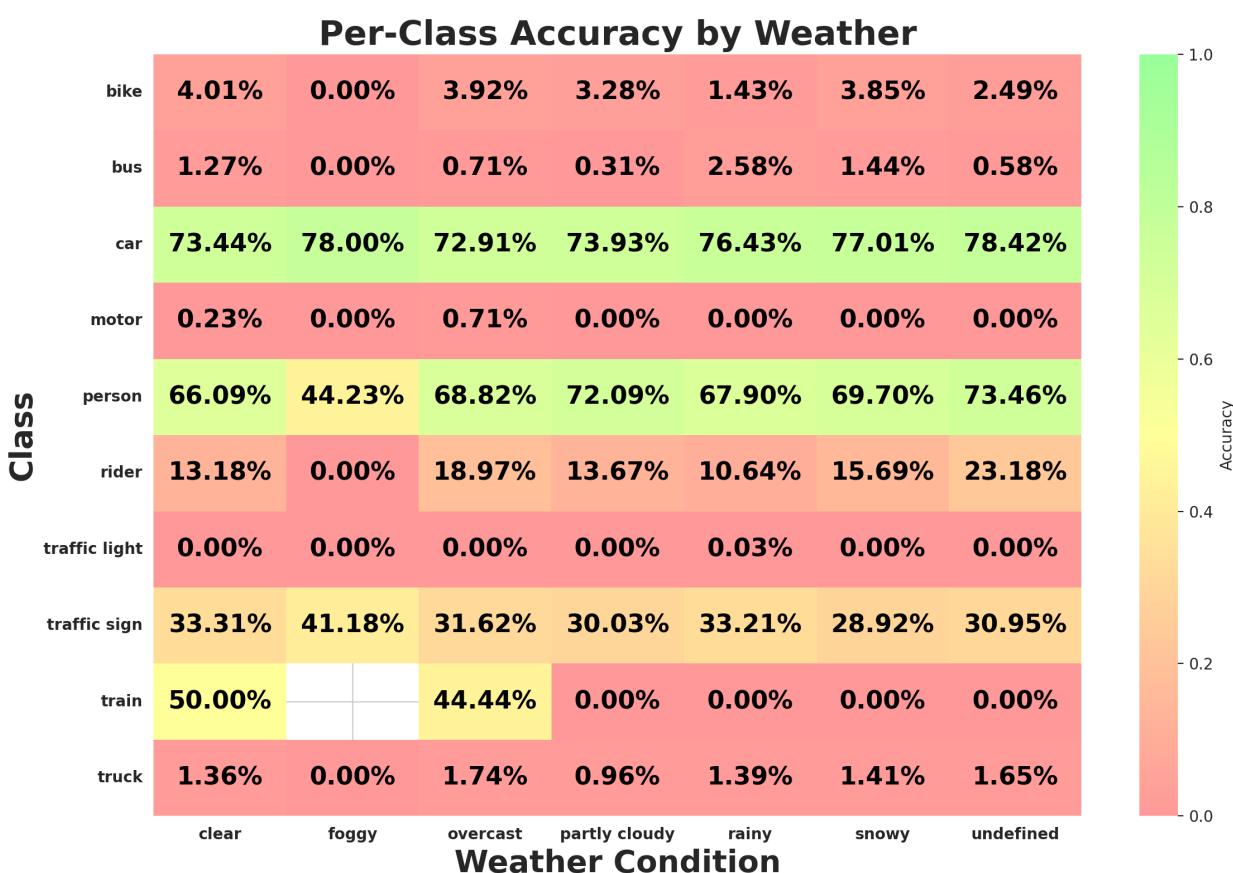
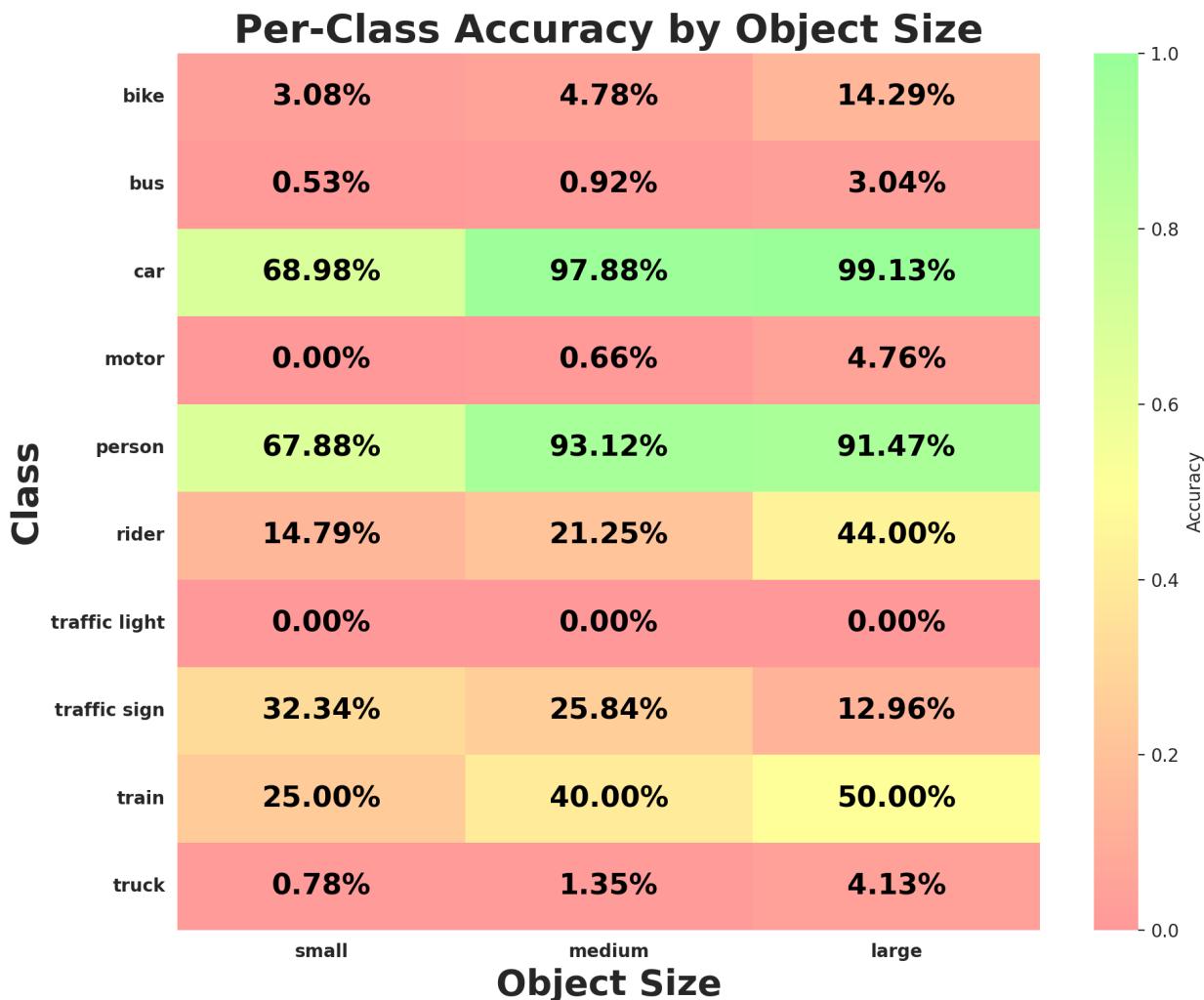


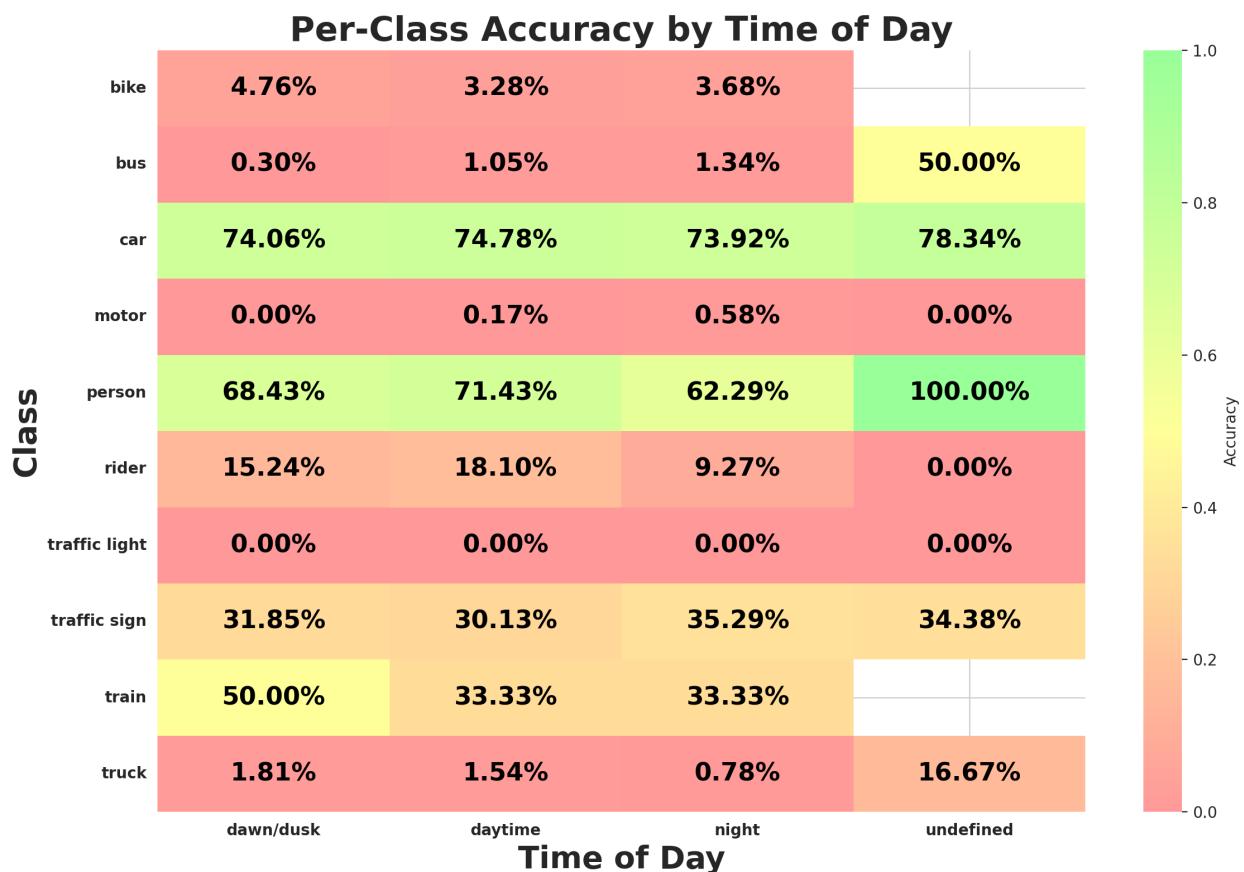
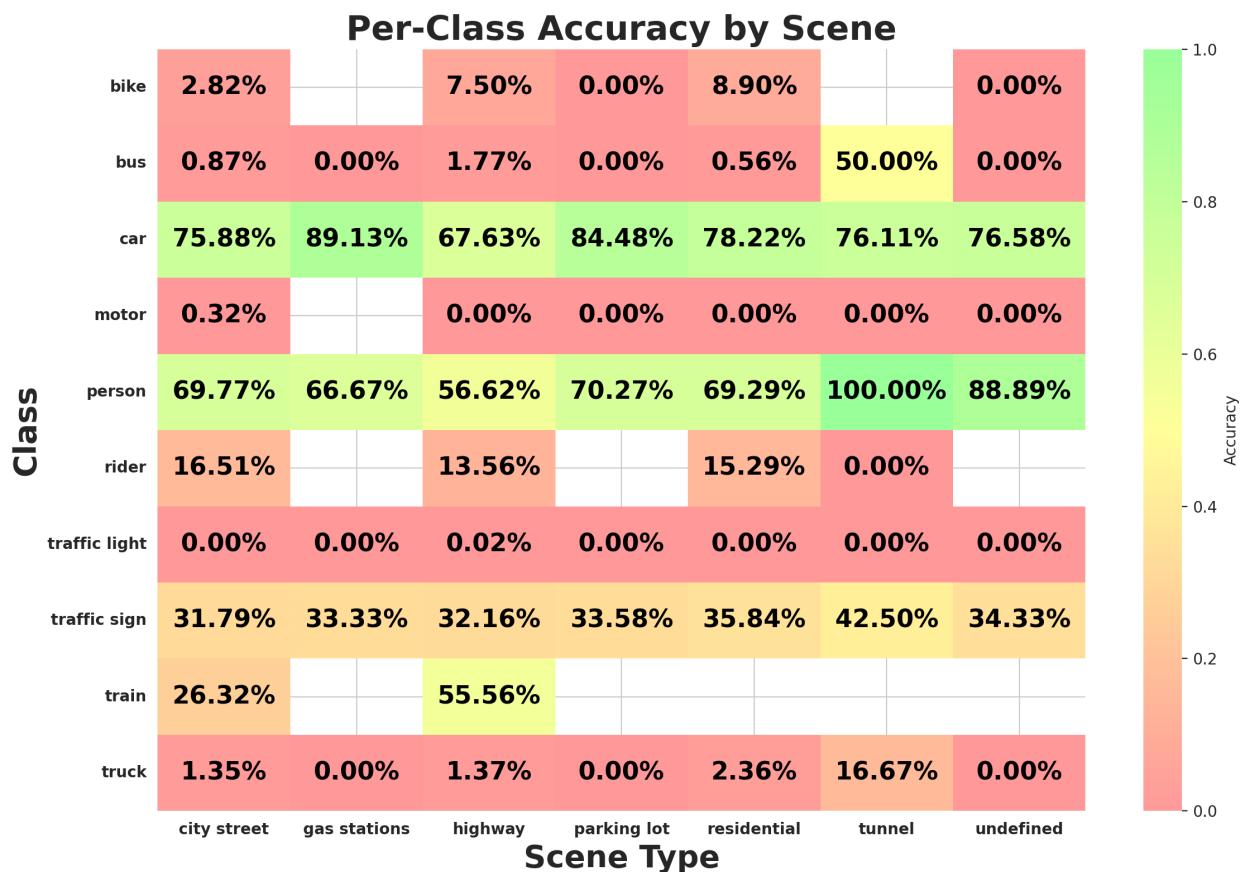
Prediction Accuracy by Object Size



Note: Object size categories are defined based on bounding box area as a percentage of total image area: **Small** objects occupy less than 1% of the image (typically distant or small objects), **Medium** objects occupy between 1% and 5% of the image (moderate-sized objects at medium distances), and **Large** objects occupy more than 5% of the image (close or large objects). These thresholds help identify how object scale affects detection accuracy.

Per-Class Performance Analysis





Sample Predictions: Ground Truth vs Model

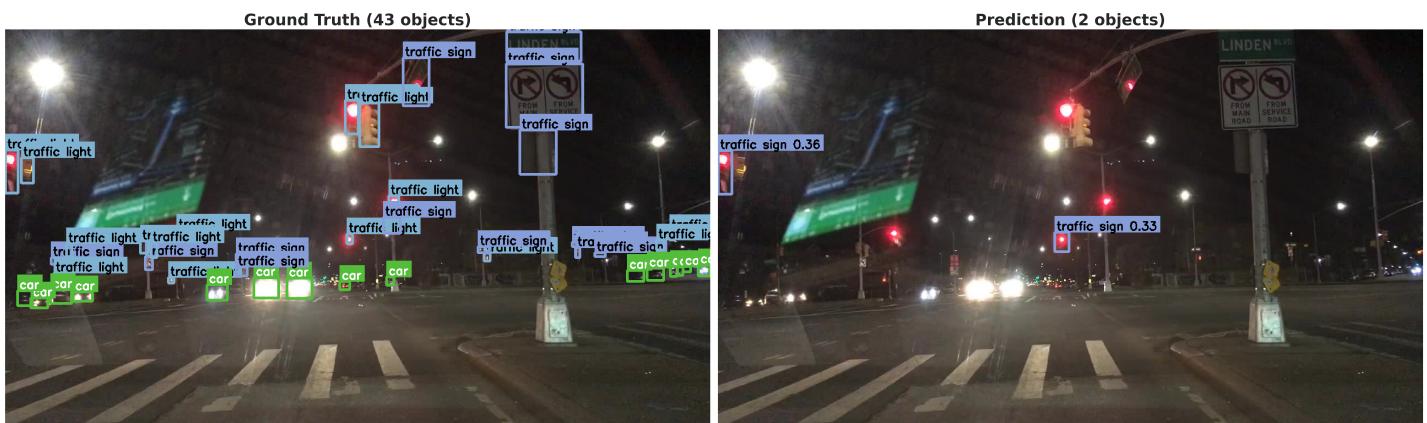
Sample #1: e5fe1bf0-ed3a325b.jpg

Ground Truth Objects: 21 | Predicted Objects: 10
Weather: clear | Scene: highway | Time of Day: daytime



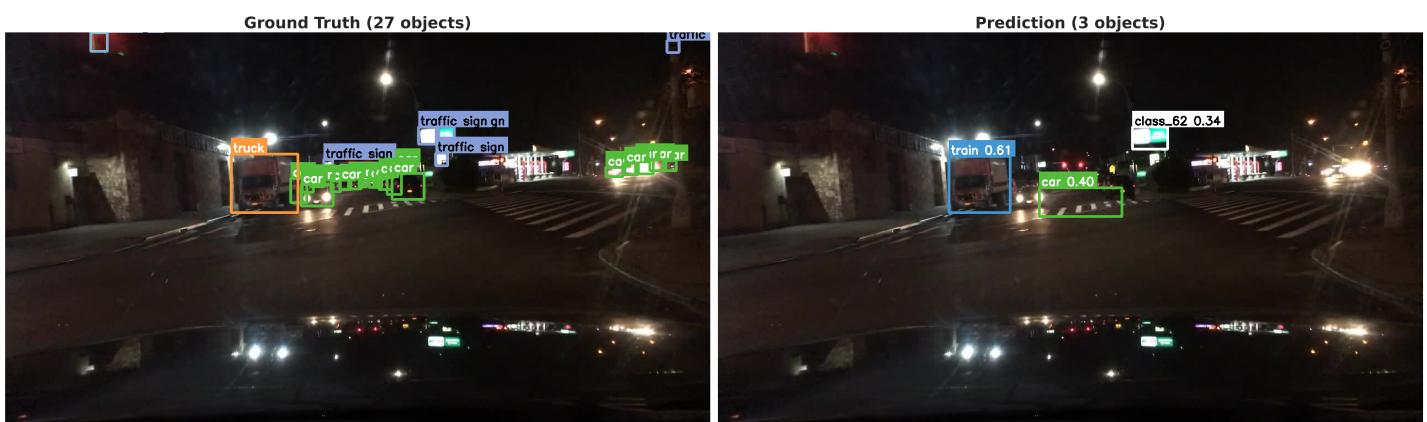
Sample #2: db76adbc-e50a08d7.jpg

Ground Truth Objects: 43 | Predicted Objects: 2
Weather: clear | Scene: city street | Time of Day: night



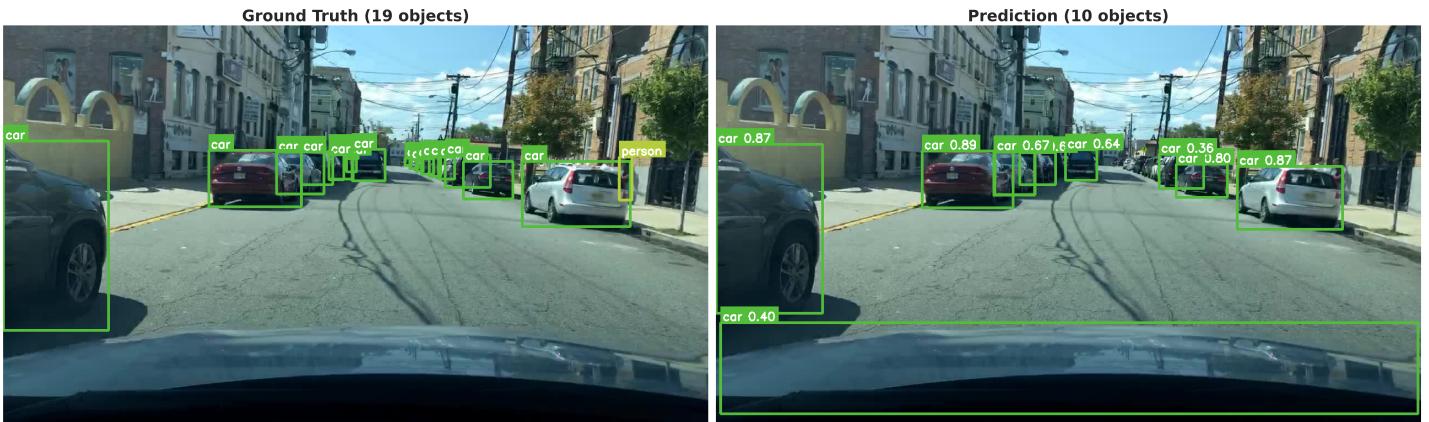
Sample #3: d0190bab-53c1367b.jpg

Ground Truth Objects: 27 | Predicted Objects: 3
Weather: rainy | Scene: city street | Time of Day: night



Sample #4: e5dd65d6-0a11f71e.jpg

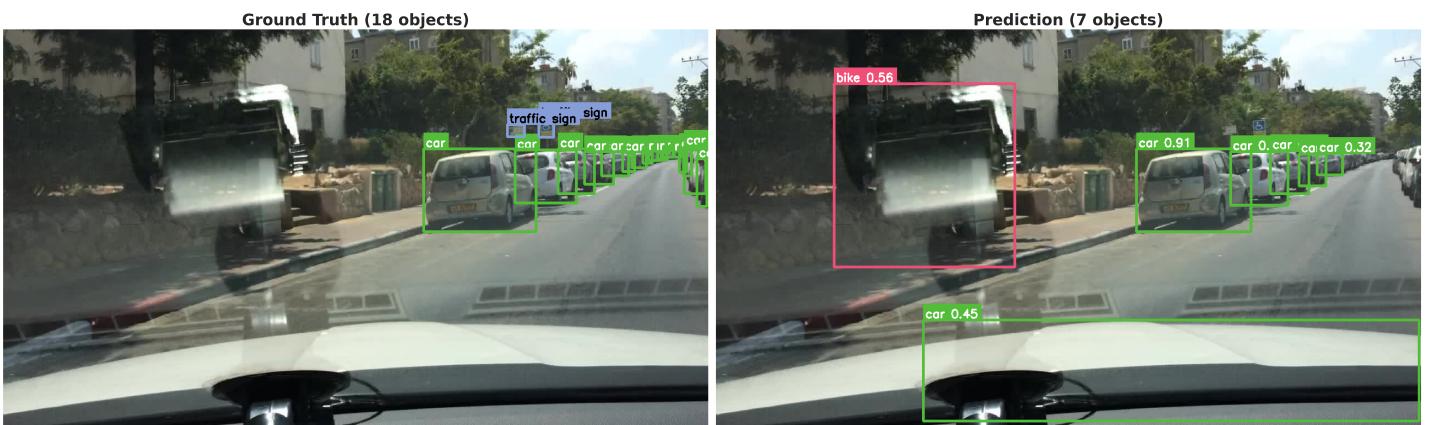
Ground Truth Objects: 19 | Predicted Objects: 10
Weather: partly cloudy | Scene: city street | Time of Day: daytime



Sample #5: ef5a4388-d7733616.jpg

Ground Truth Objects: 18 | Predicted Objects: 7

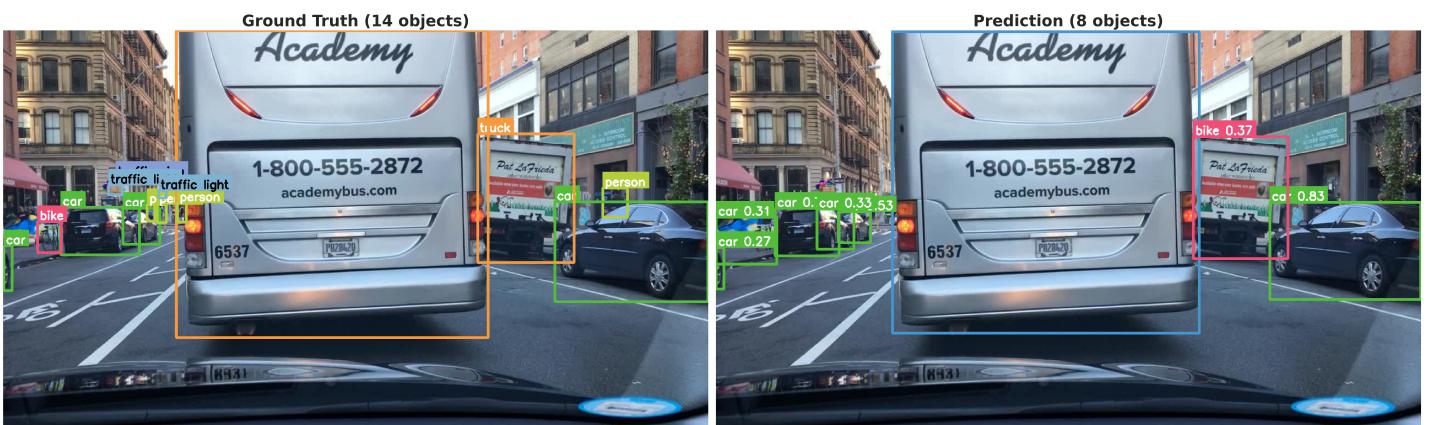
Weather: overcast | Scene: residential | Time of Day: daytime



Sample #6: f0cc86f1-38018e29.jpg

Ground Truth Objects: 14 | Predicted Objects: 8

Weather: undefined | Scene: city street | Time of Day: daytime



Generated by YOLO Testing Pipeline