

YOLO Model Testing Report

Model:	yolov9c
Model Size:	49.4 MB
Parameters:	25.6 M
FLOPs (640x640):	104.02 GFLOPs
Run Name:	yolov9c_testing_20251127_224956
Timestamp:	2025-11-27 23:04:02
Dataset:	bdd100k_yolo_limited - test split
Images Processed:	20000
Total Execution Time	129.61s
IoU Threshold:	0.5

Inference Performance

Metric	Value
Average Inference Time	3.15 ms per image
FPS (Frames Per Second)	317.15

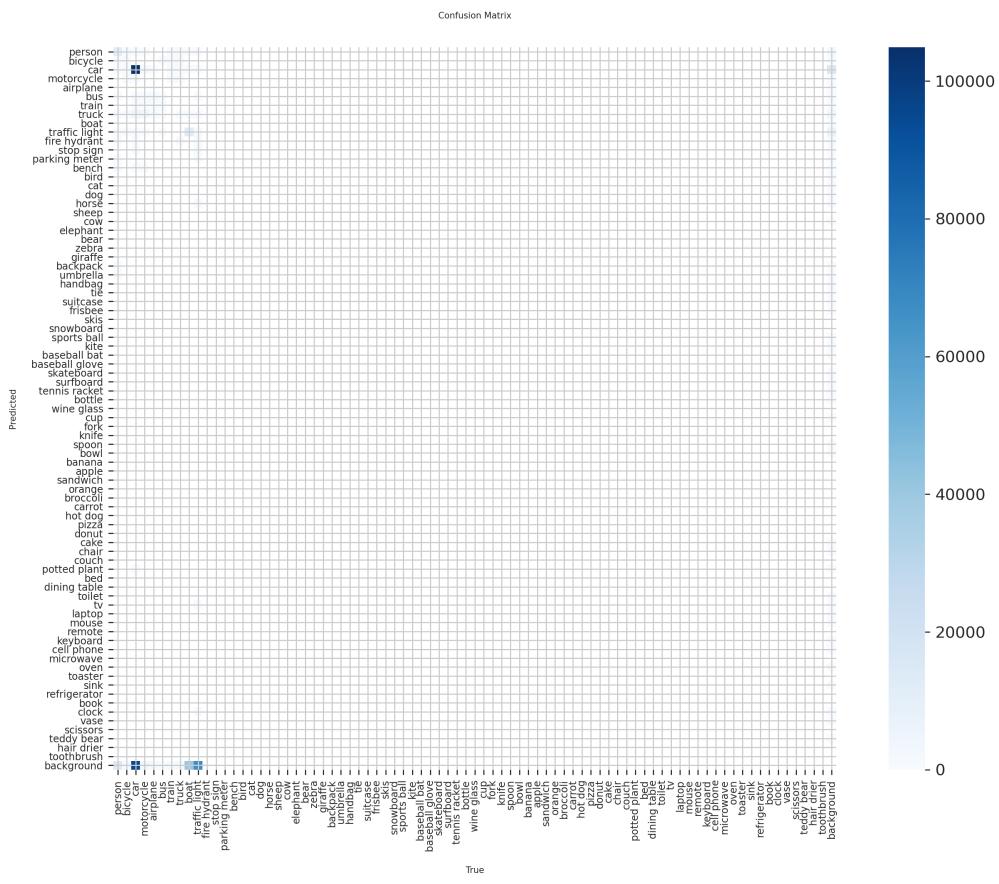
Note: Inference time includes preprocessing, model inference, and postprocessing.

Overall Accuracy Metrics

Metric	Value
Precision	0.3163
Recall	0.6841
F1-Score	0.4326
mAP@0.5	0.1237
mAP@0.5:0.95	0.0680
True Positives	116315
False Positives	251412
False Negatives	53717

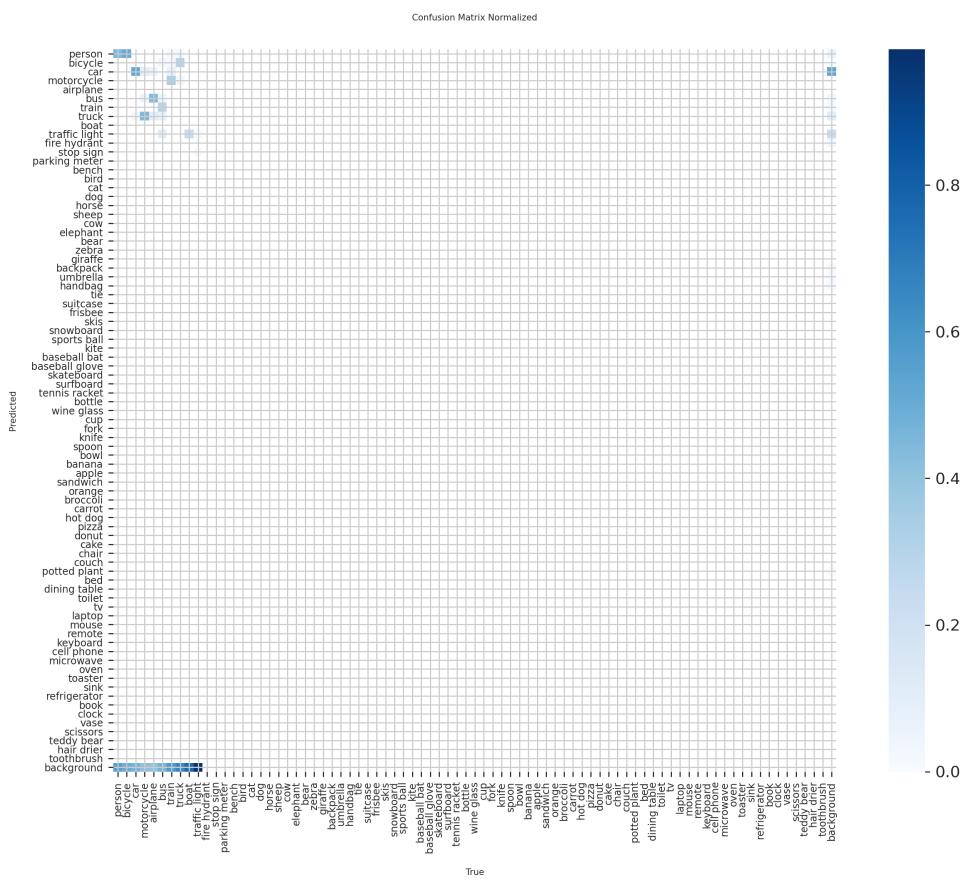
Confusion Matrices

Confusion Matrix (Counts)



Note: Shows raw prediction counts for each class combination.

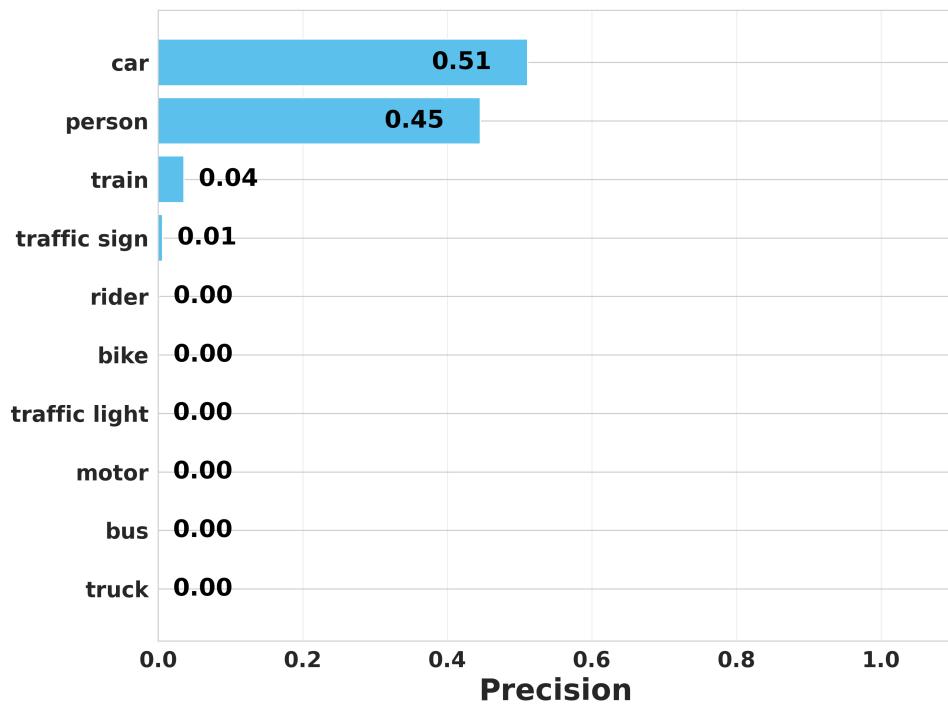
Confusion Matrix (Normalized)



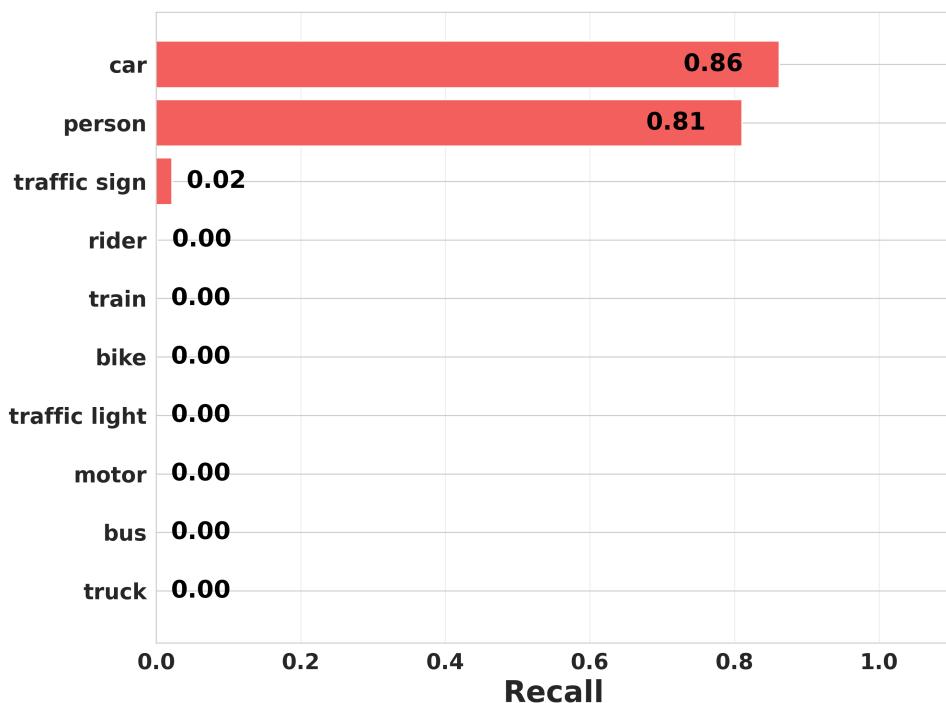
Note: Values are normalized by the number of ground truth instances per class. Shows the proportion of correct vs incorrect classifications.

Performance Visualizations

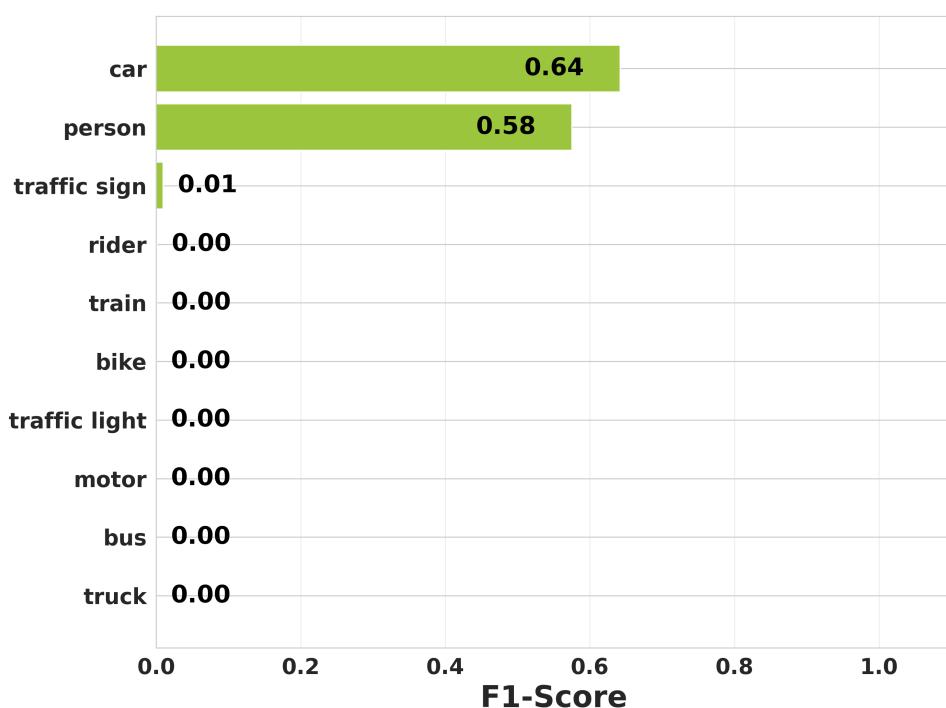
Precision by Class



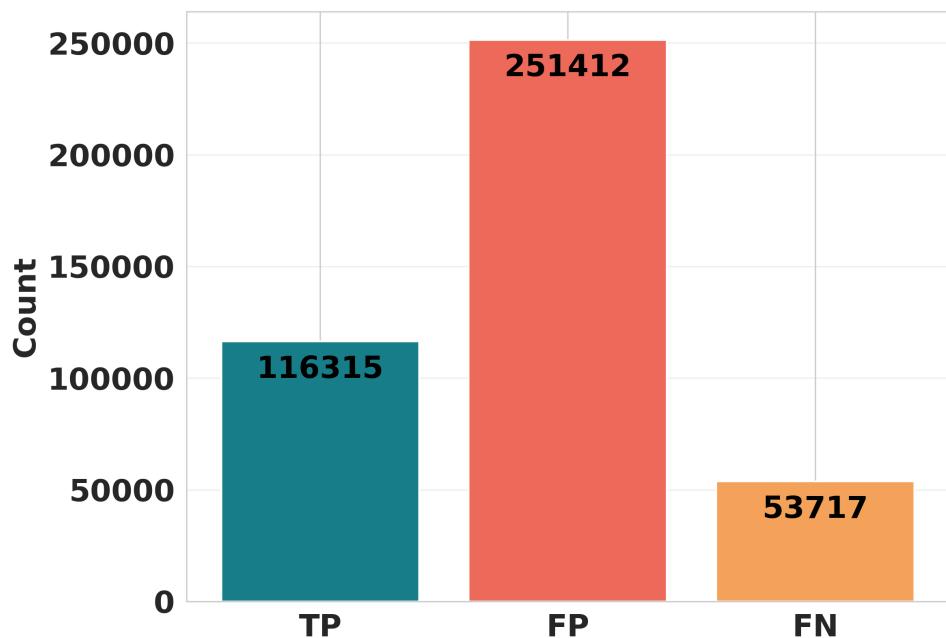
Recall by Class



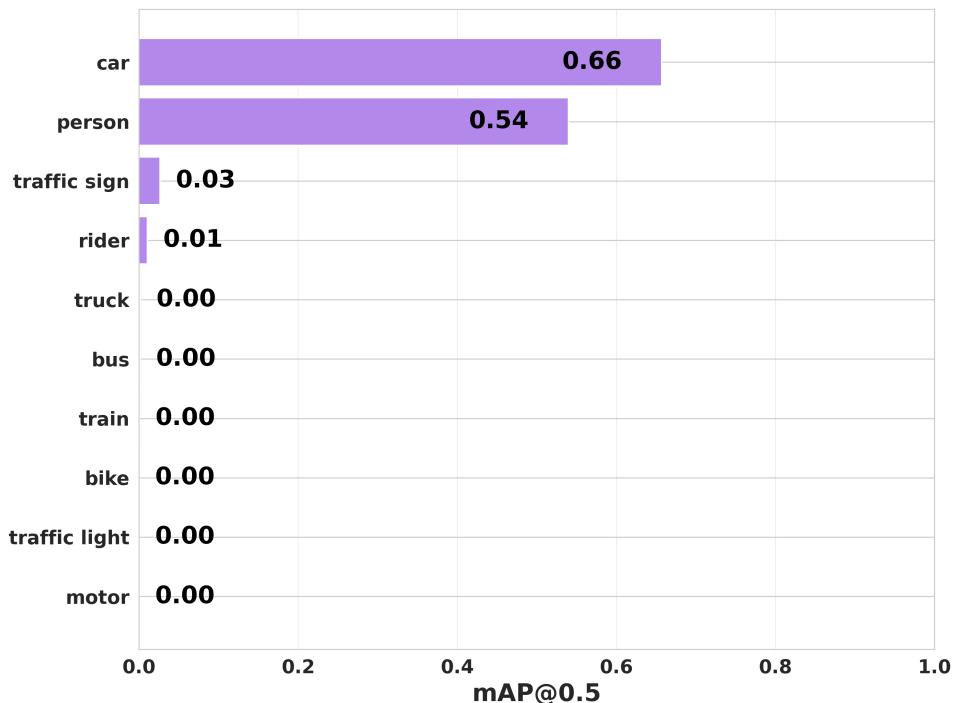
F1-Score by Class



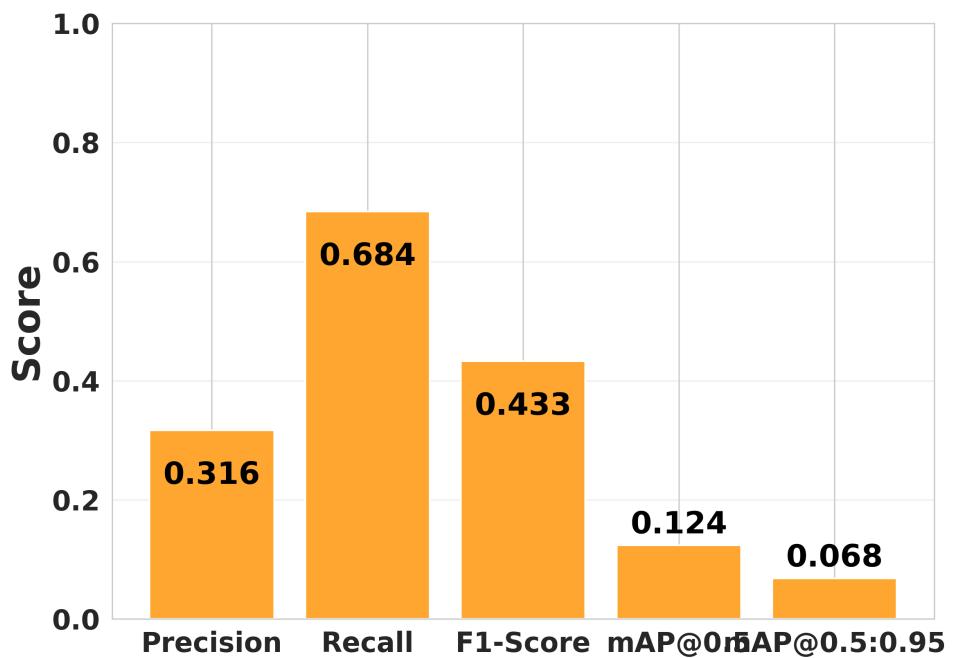
Overall Detection Outcomes



mAP@0.5 by Class



Overall Metrics



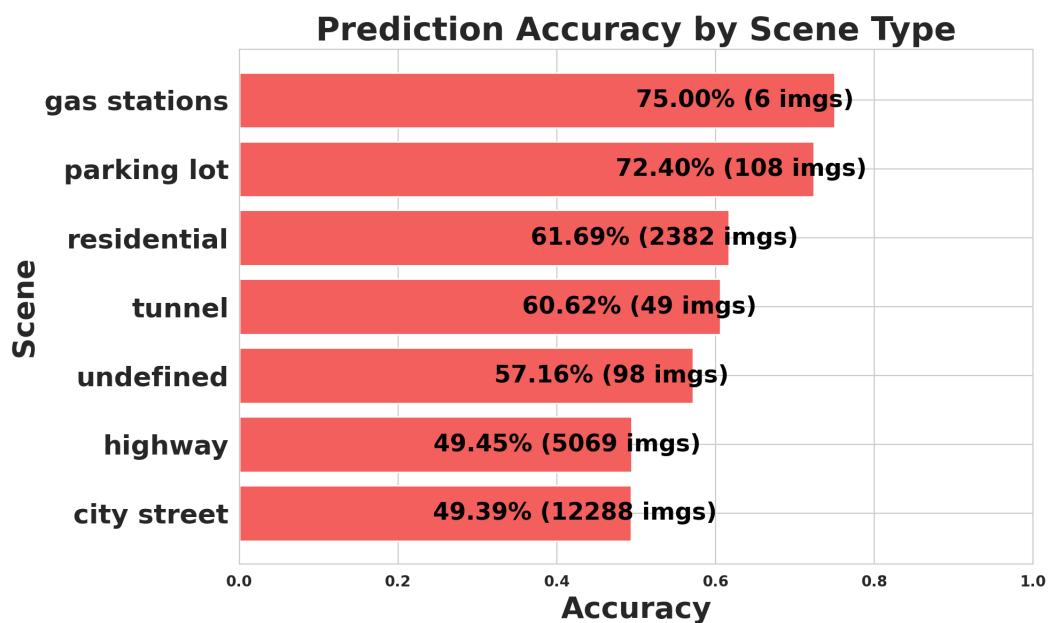
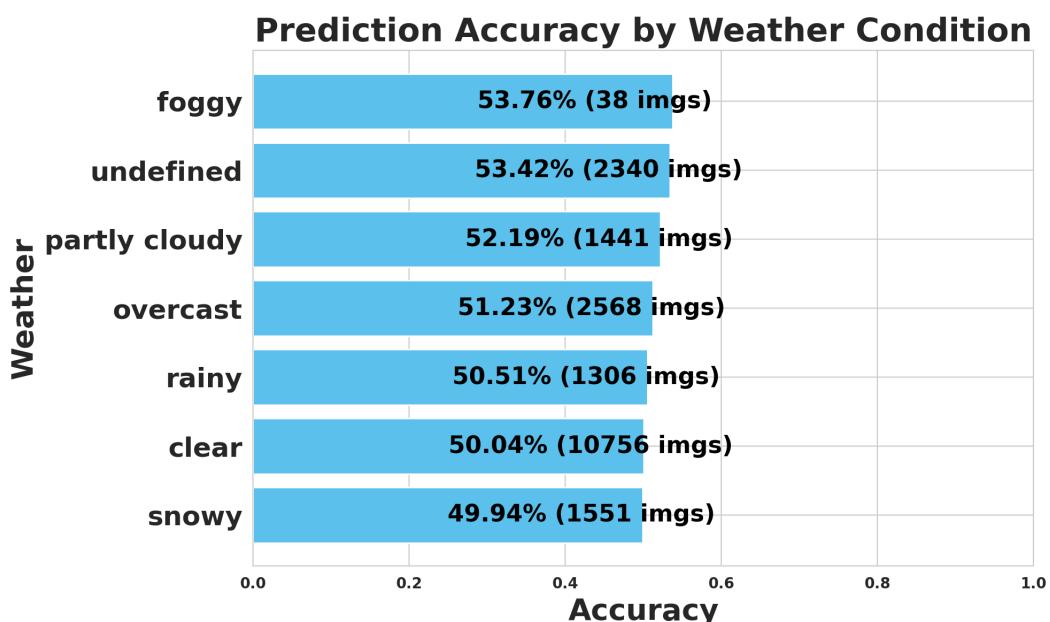
Per-Class Performance

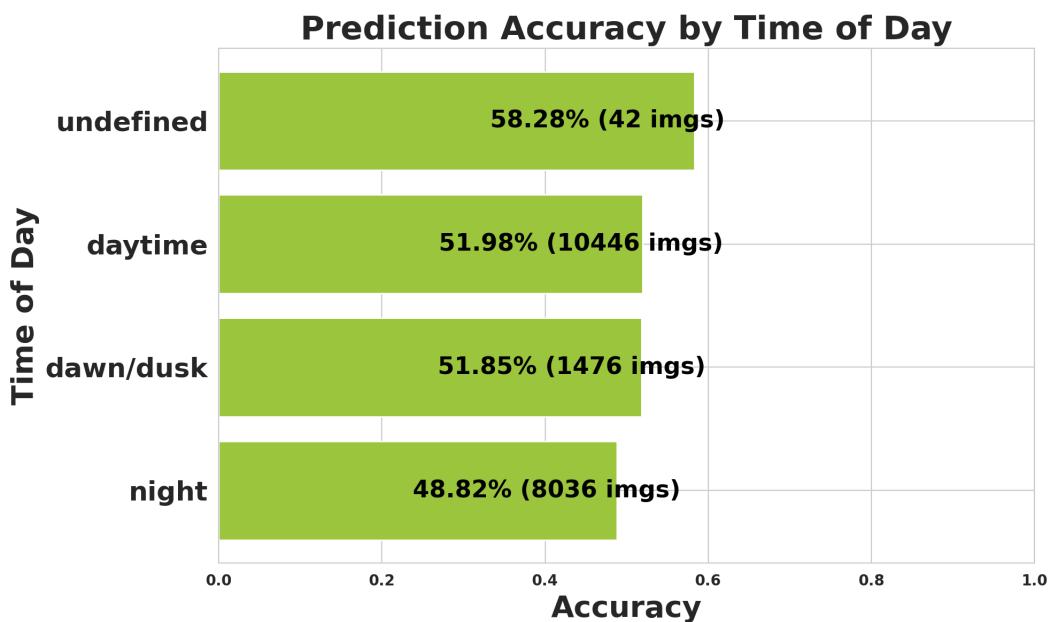
Class	TP	FP	FN	Precision	Recall	F1-Score	mAP@0.5
person	10990	13660	2567	0.4458	0.8107	0.5753	0.5398
rider	1	1293	694	0.0008	0.0014	0.0010	0.0104
car	104899	100250	16775	0.5113	0.8621	0.6419	0.6572
truck	0	8704	451	0.0000	0.0000	0.0000	0.0016
bus	0	3217	16	0.0000	0.0000	0.0000	0.0013
train	1	27	2903	0.0357	0.0003	0.0007	0.0003
motor	0	841	227	0.0000	0.0000	0.0000	0.0000
bike	1	1997	10883	0.0005	0.0001	0.0002	0.0001
traffic light	0	52840	10	0.0000	0.0000	0.0000	0.0000
traffic sign	423	68583	19191	0.0061	0.0216	0.0095	0.0262

Comprehensive Failure Analysis

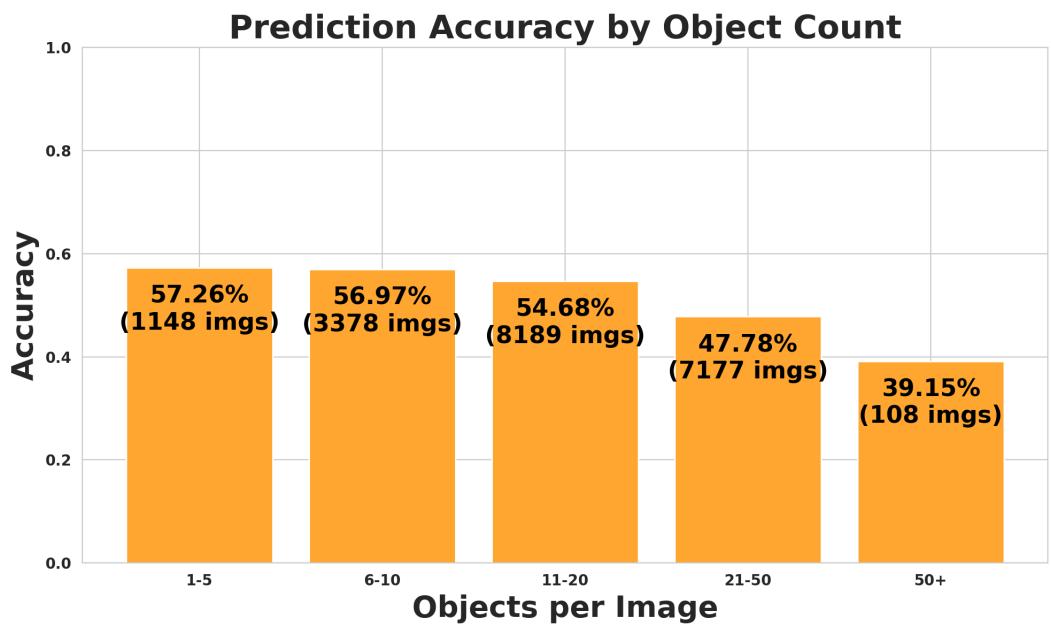
Metric	Value
Total Images Analyzed	20000
Total Expected Objects	367728
Total Matched Objects	186954
Overall Accuracy	50.84%

Accuracy by Environmental Attributes

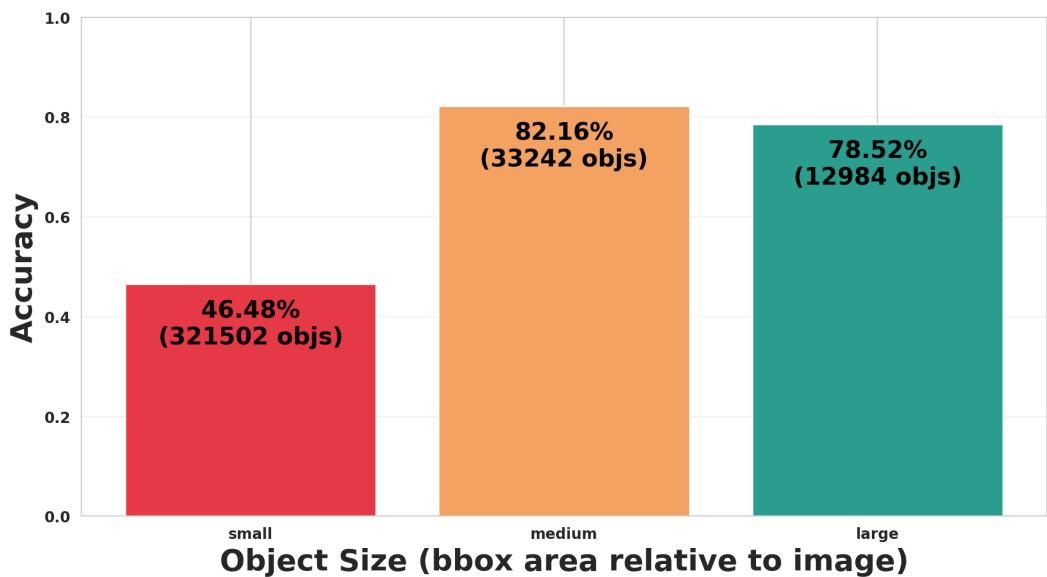




Accuracy by Object Characteristics

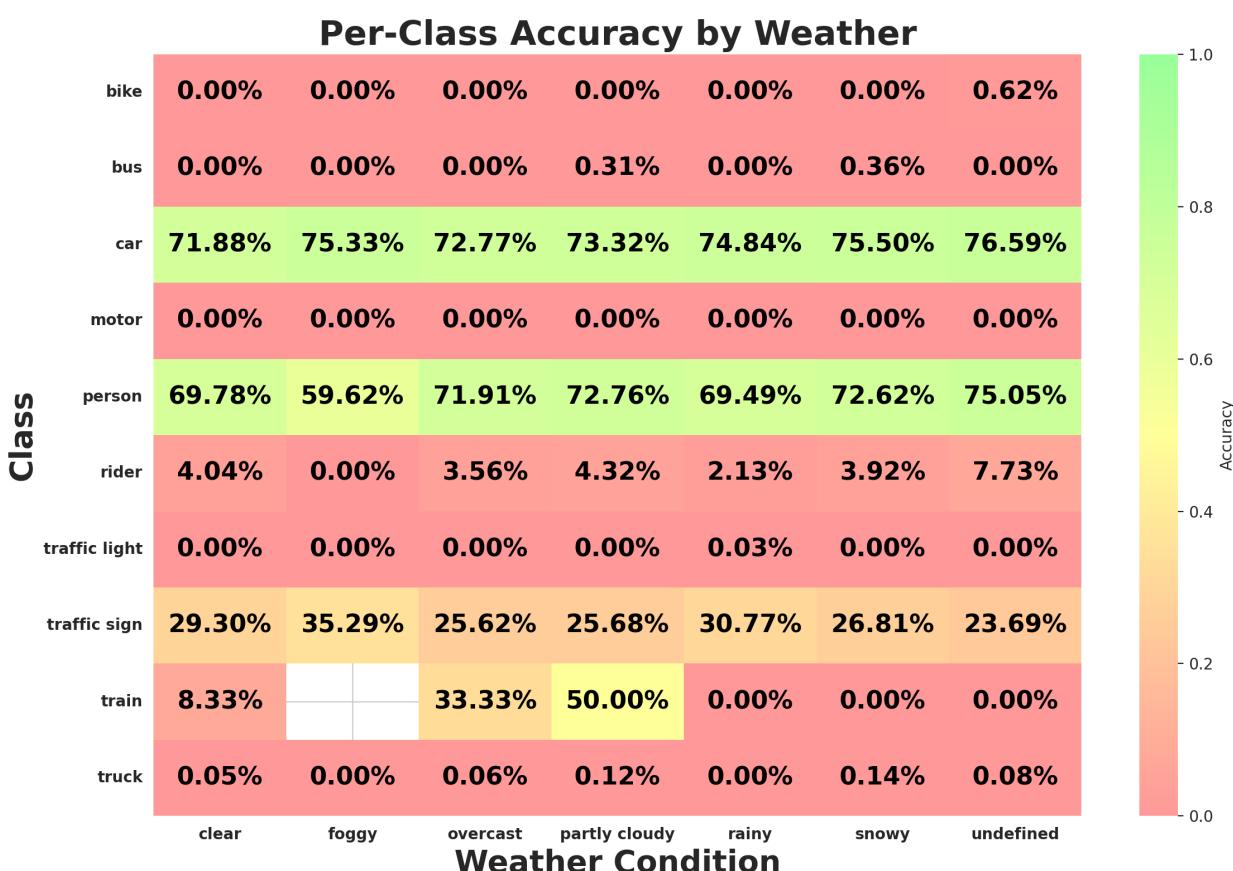
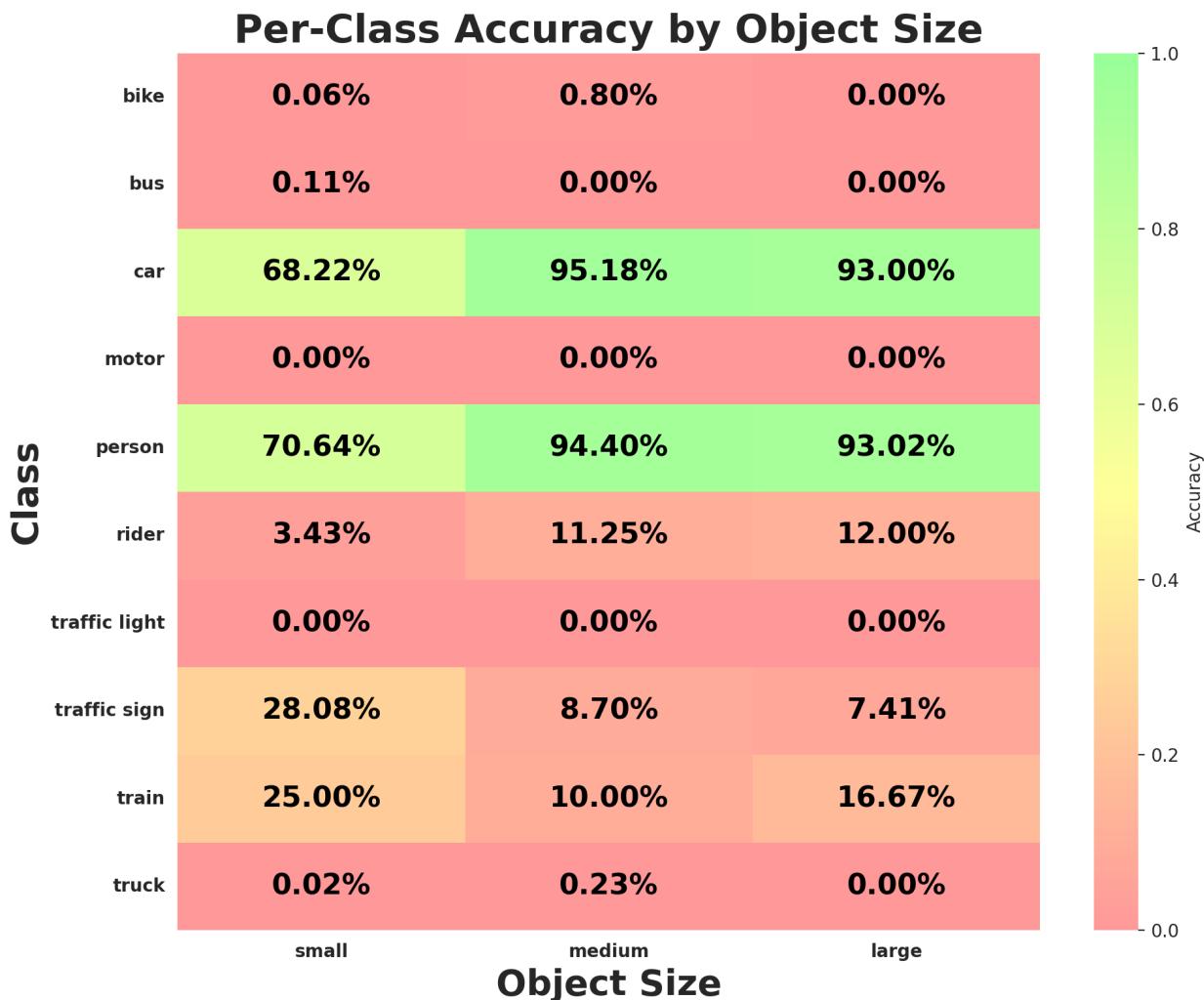


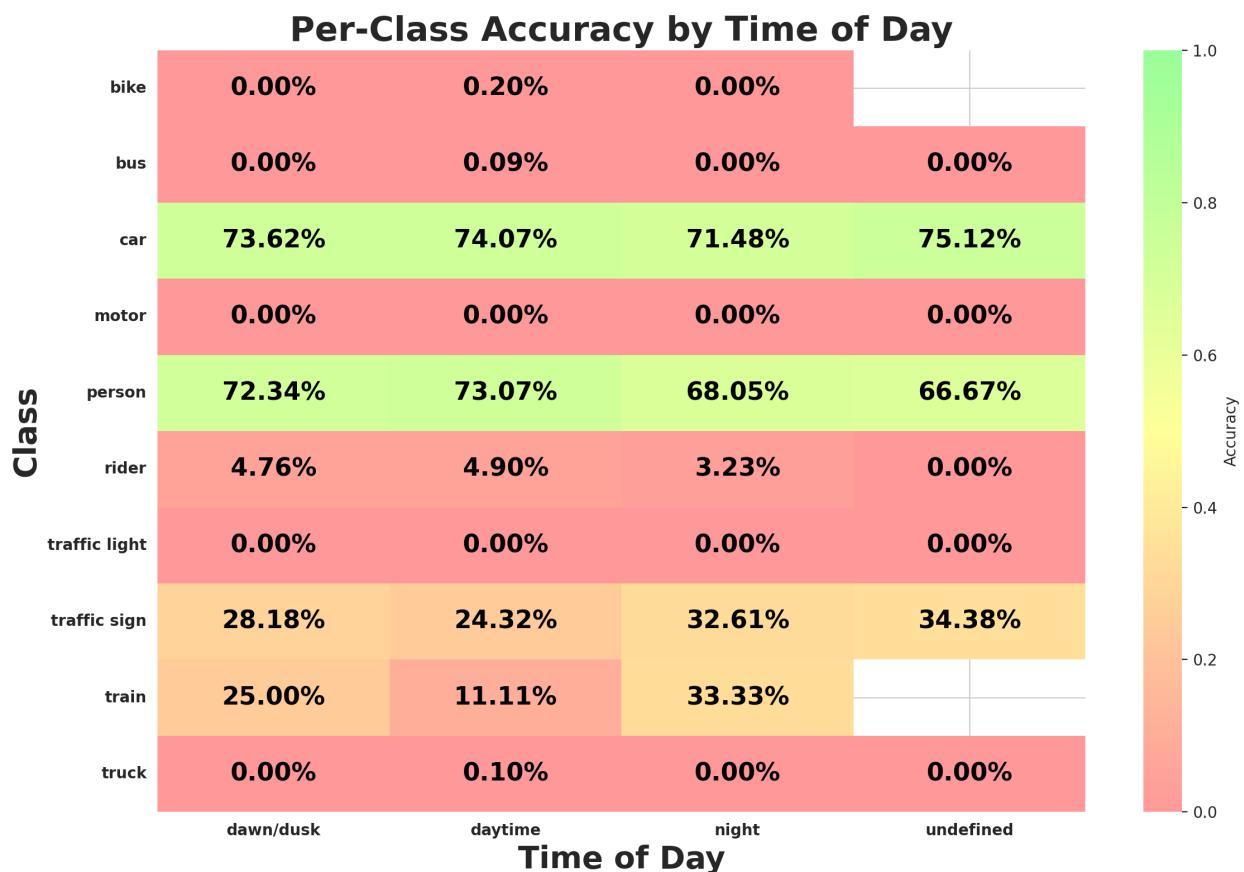
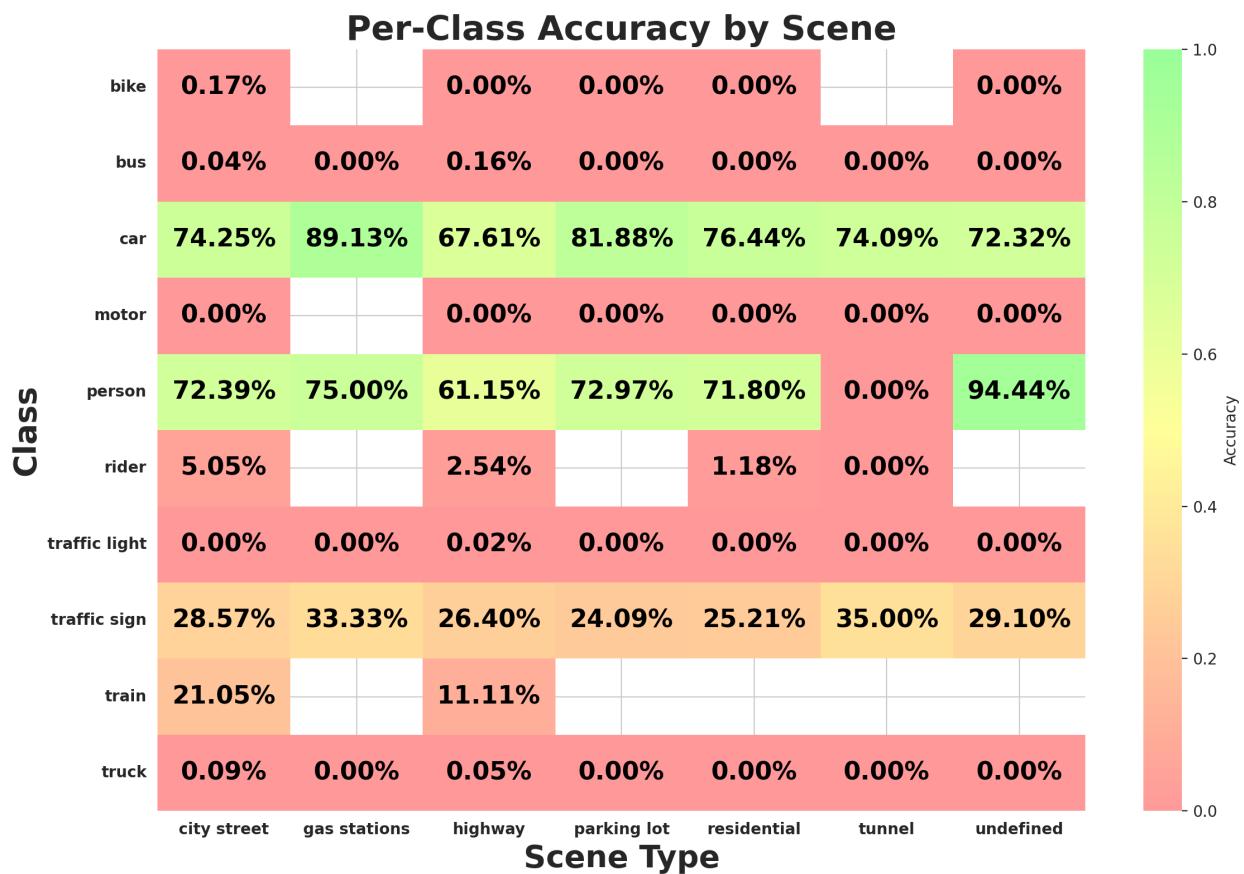
Prediction Accuracy by Object Size



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

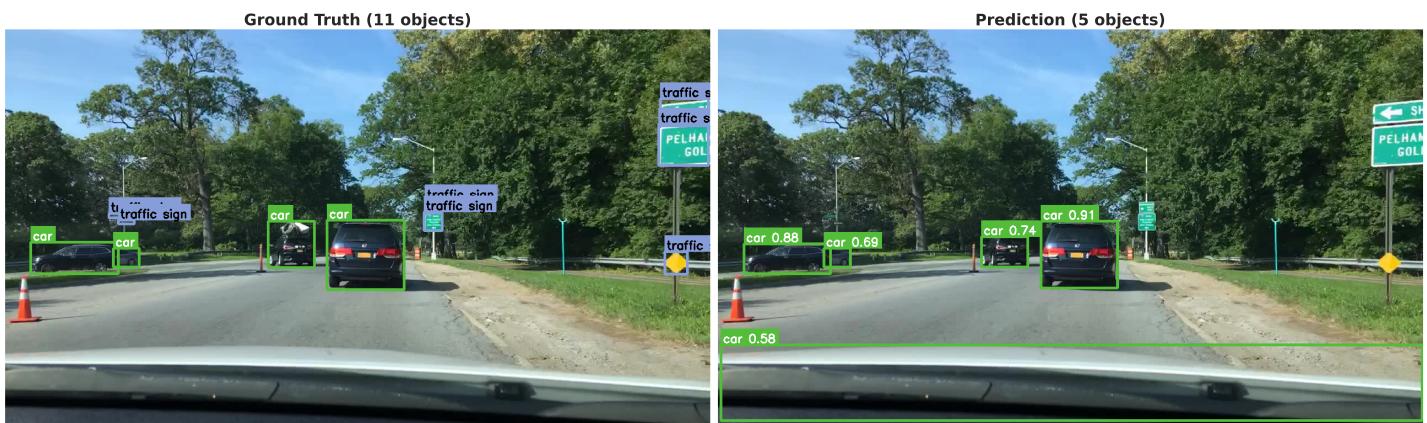
Sample #1: d2f7022b-7aa48250.jpg

Ground Truth Objects: 5 | Predicted Objects: 4
Weather: clear | Scene: city street | Time of Day: daytime



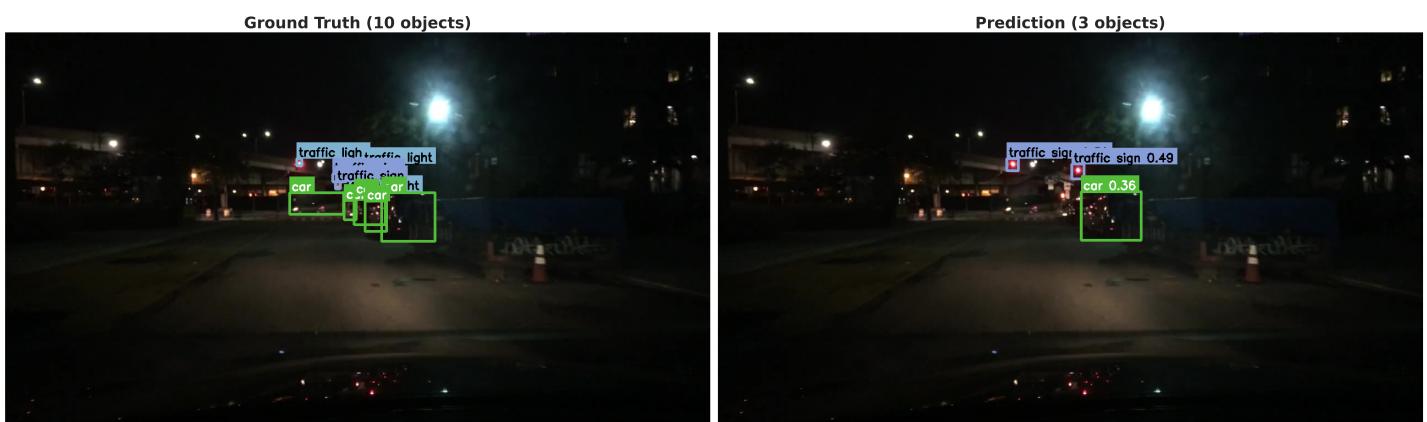
Sample #2: ef3d70eb-452aa3a9.jpg

Ground Truth Objects: 11 | Predicted Objects: 5
Weather: clear | Scene: highway | Time of Day: daytime



Sample #3: e032713f-8800c4a9.jpg

Ground Truth Objects: 10 | Predicted Objects: 3
Weather: clear | Scene: highway | Time of Day: night



Sample #4: dca4ac81-1d72697f.jpg

Ground Truth Objects: 23 | Predicted Objects: 6
Weather: clear | Scene: city street | Time of Day: night



Sample #5: f88c78db-f8e0a1d1.jpg

Ground Truth Objects: 11 | Predicted Objects: 4

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



Sample #6: de212ad8-c17936f9.jpg

Ground Truth Objects: 47 | Predicted Objects: 22

Weather: clear | Scene: city street | Time of Day: night



Generated by YOLO Testing Pipeline