

VEHICLE DETECTION

using YOLO



OUTLINE



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INTRODUCTION

We maintain high ethical standards.

- Vehicle detection is an important technology in smart cities. It helps to monitor traffic flow, improve road safety, and reduce congestion.
- It can handle large amounts of data quickly, which is useful for avoiding accidents and giving priority to emergency vehicles in urgent situations.
- Our goal is to enhance traffic monitoring and safety by accurate vehicle detection using the YOLO model.



DATASET

The dataset from kaggle contains multiple images of vehicles.

- **Training images: 878**
- **Validation images: 250**
- **Test images: 126**

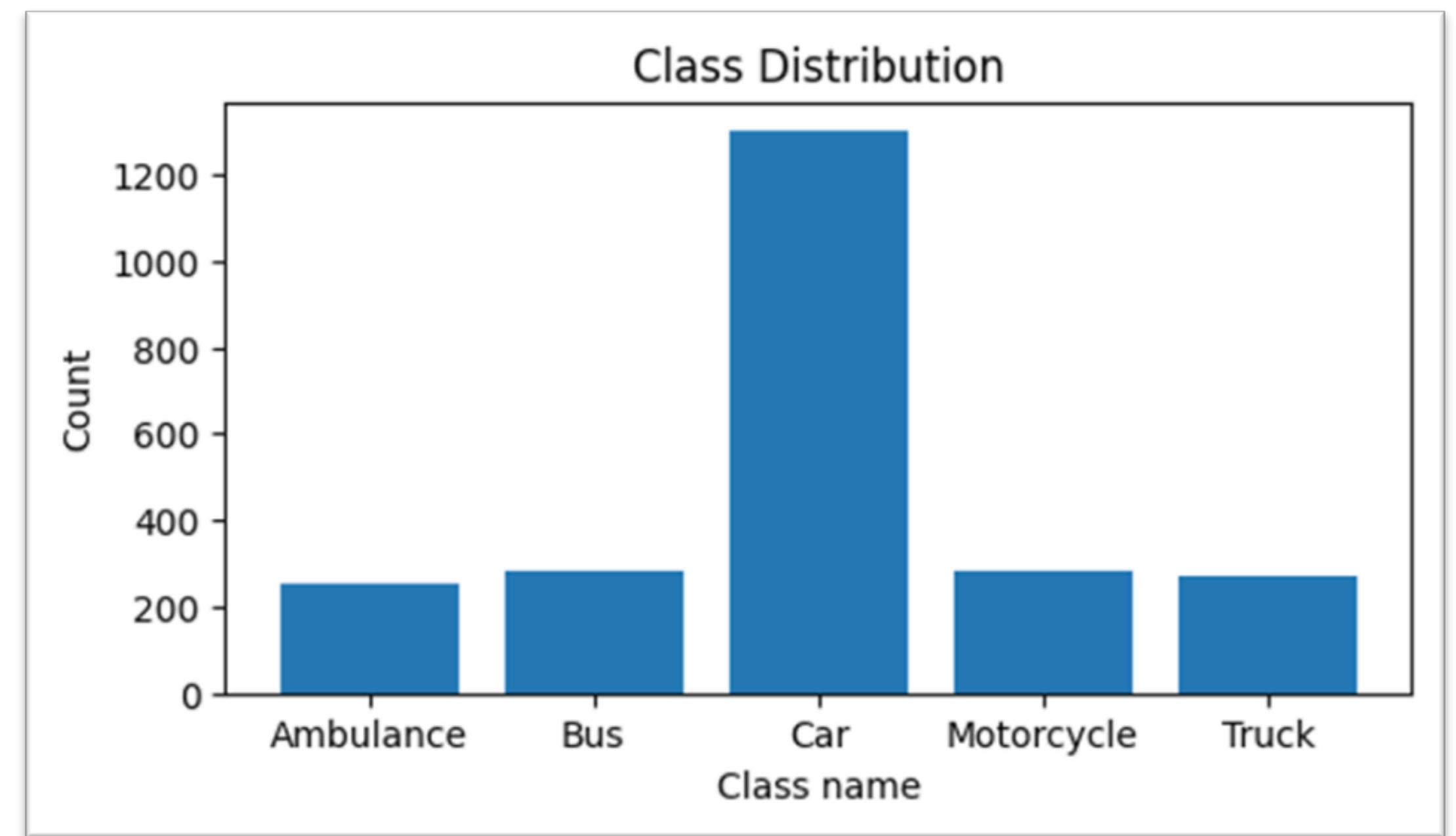
Classes:
**['Ambulance', 'Bus', 'Car', 'Motorcycle',
'Truck']**



DATASET SAMPLE



CLASS DISTRIBUTION

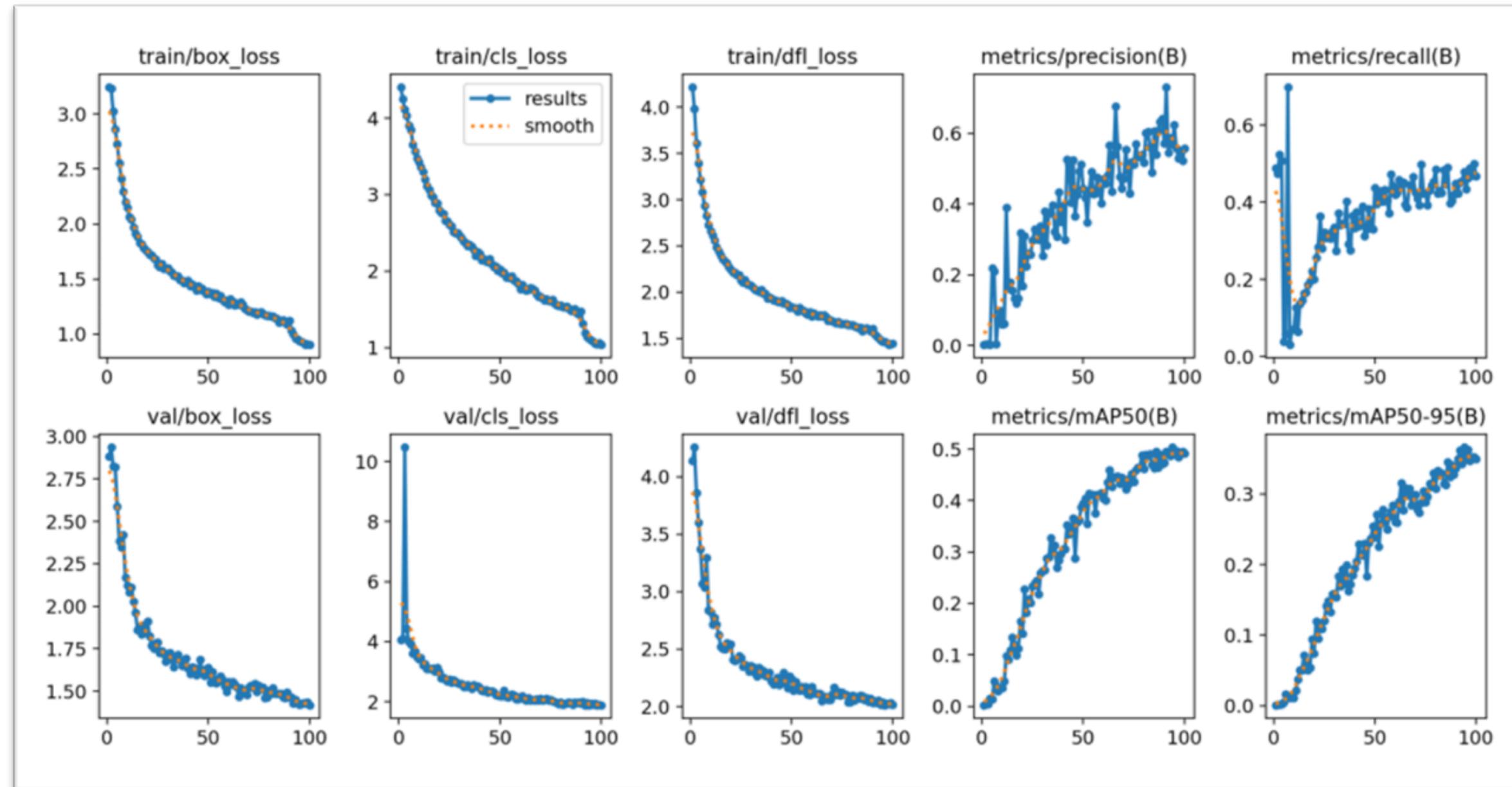


DATA PREPROCESSING

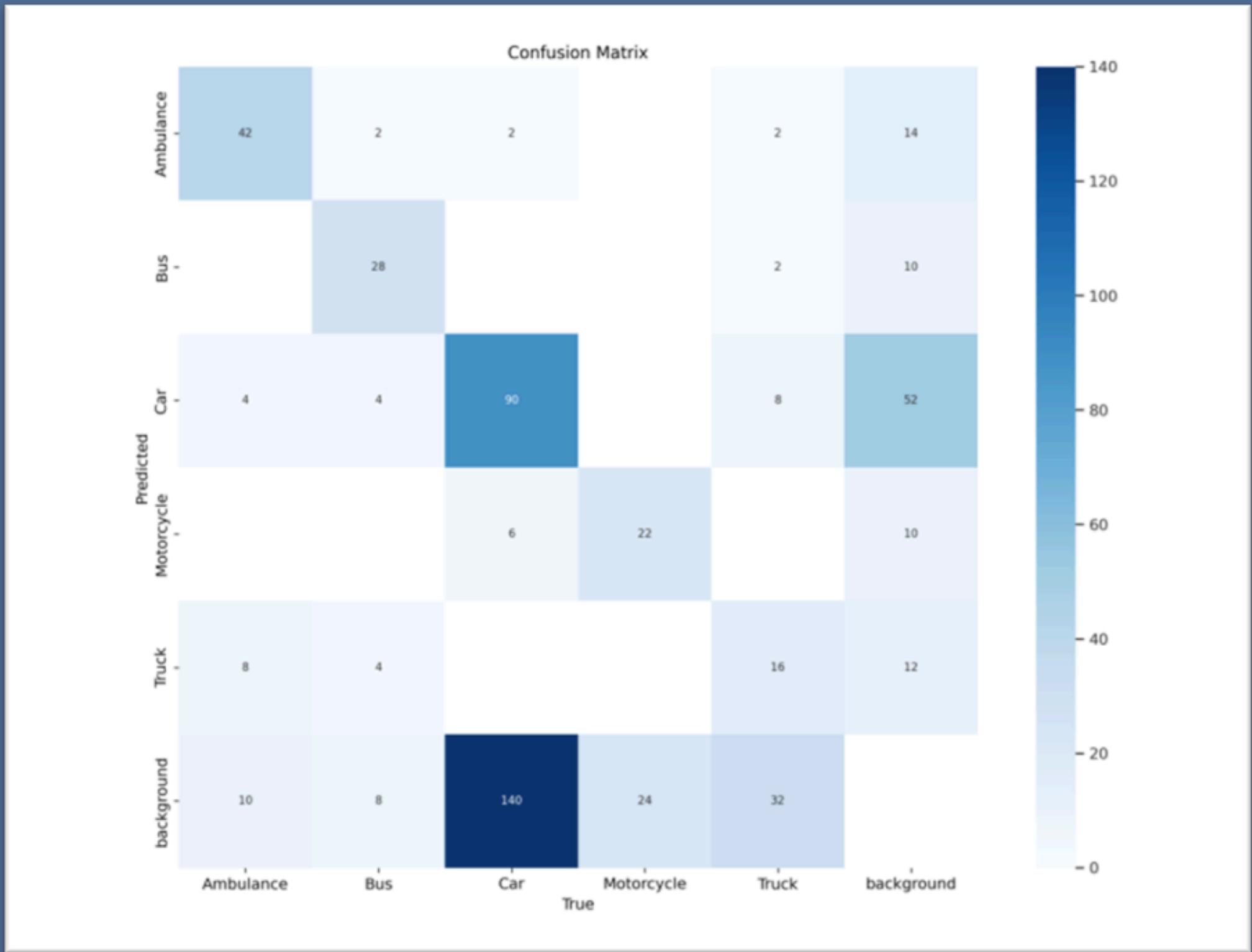


- Normalize images By dividing by 255.
- Resize the images to (320, 320).
- Flip the images horizontally.
- Rotate the image with 90 degree.

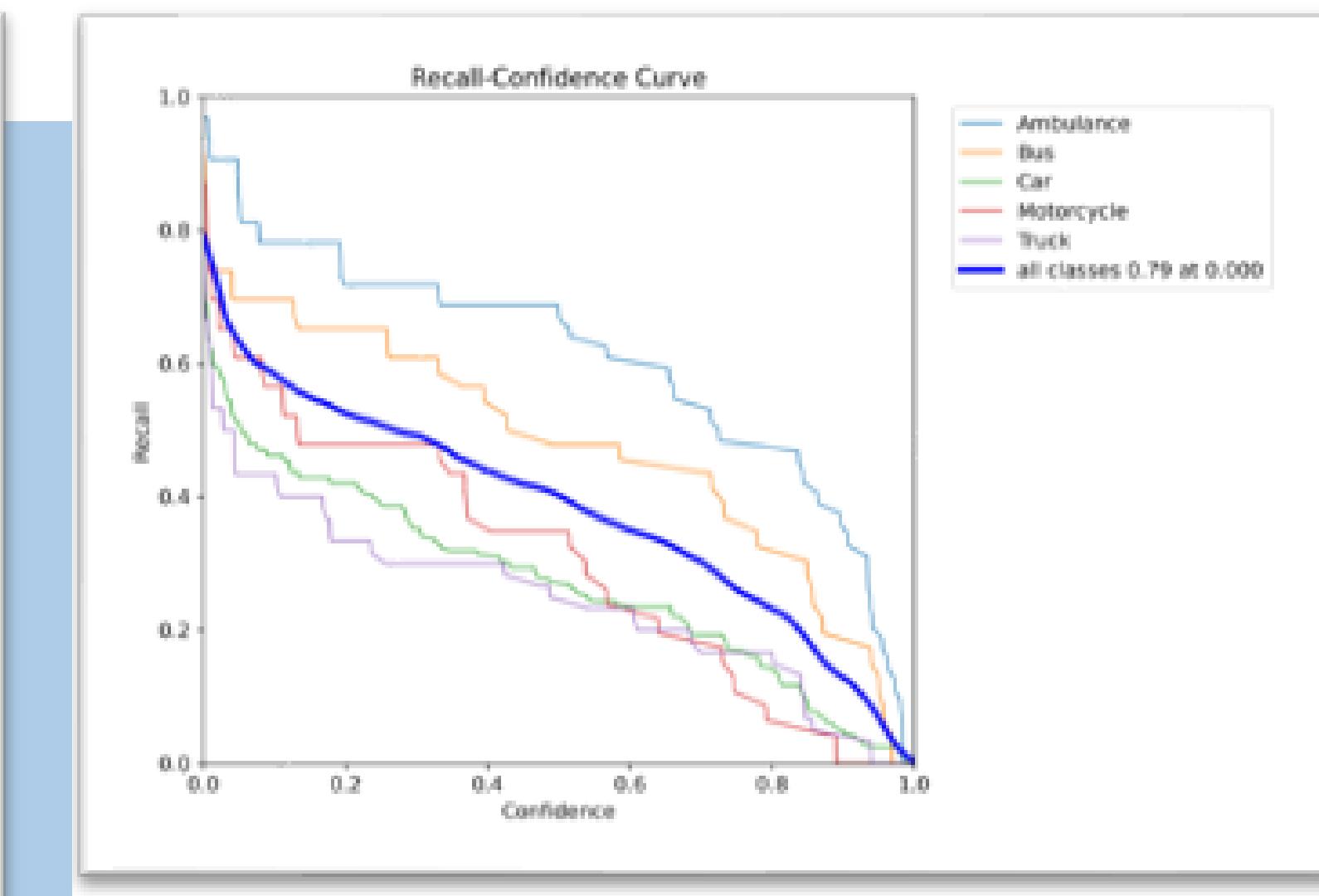
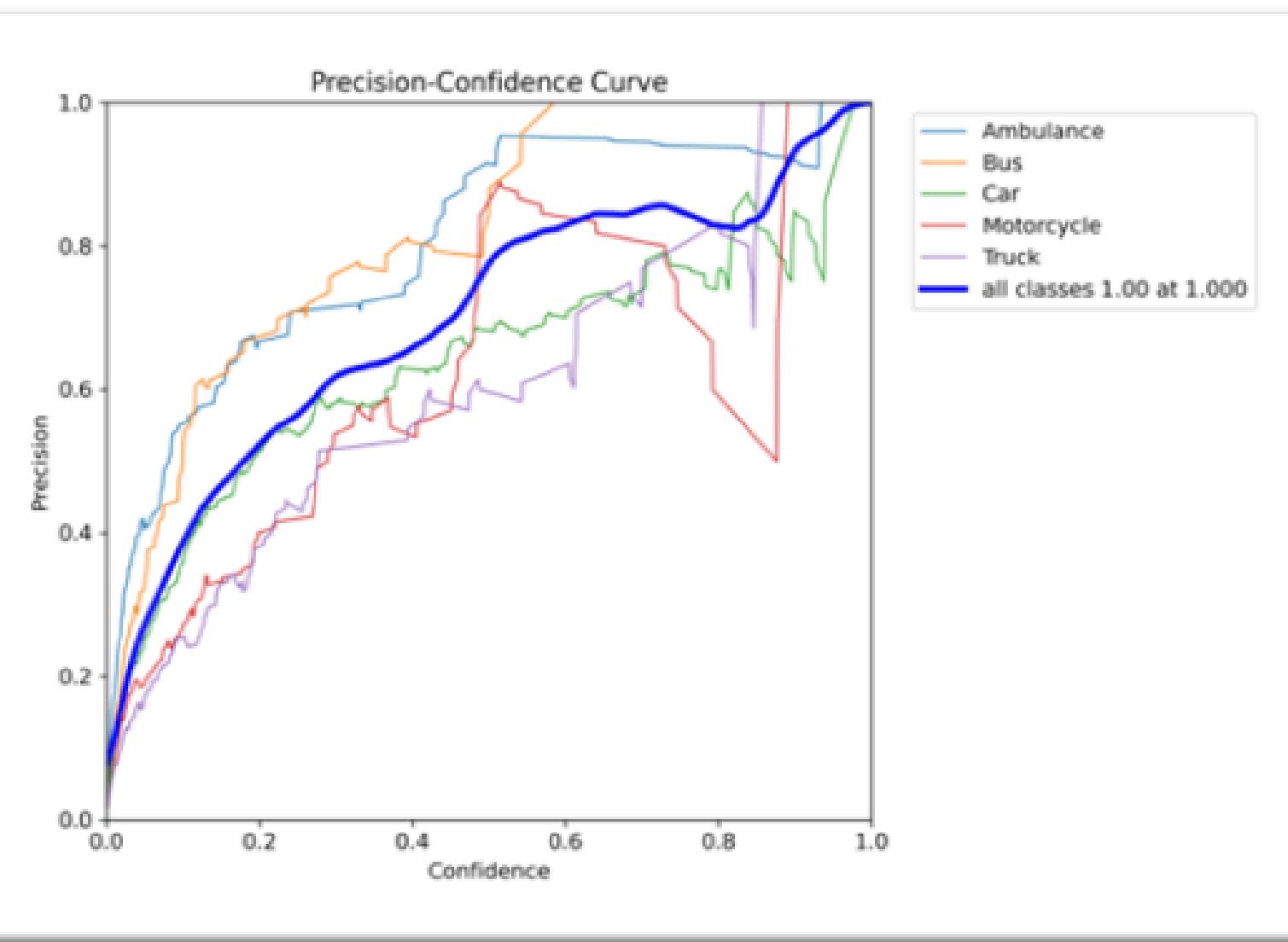
MODEL EVALUATION



MODEL EVALUATION



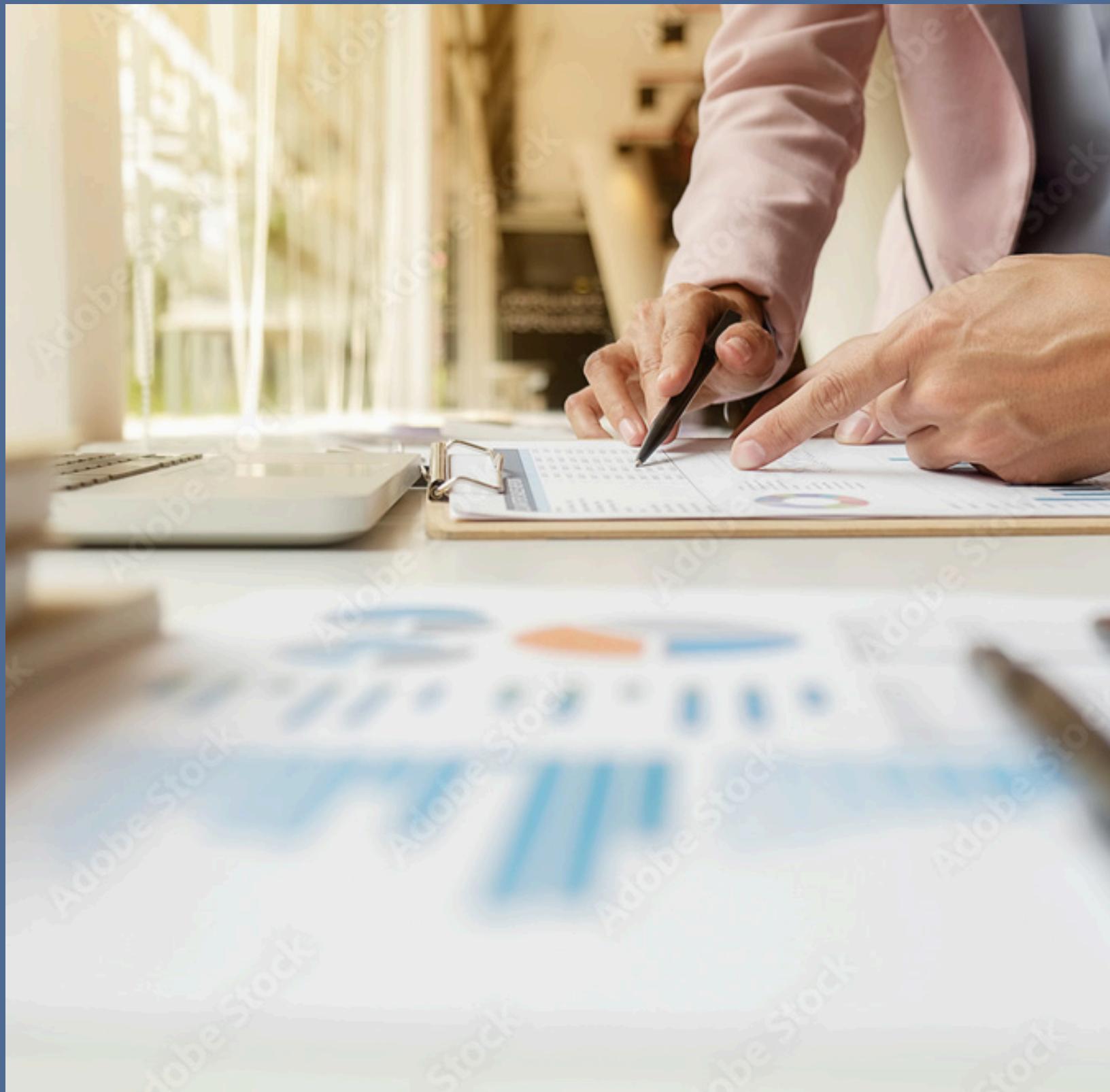
MODEL EVALUATION



VIDEO RESULT



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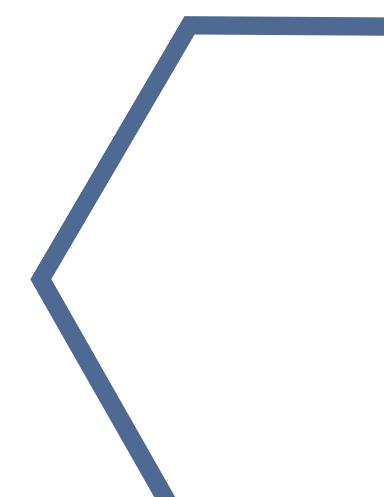
FUTURE WORK

- Improving the model evaluation.
- Add more features like the detection of vehicle speed.
- Train the model on a larger dataset.
- Deploying the model in a real-time environment.

TASK ASSIGNMENT:

Team Members		Tasks
	Haya Almalki	EDA, Training model, and presentation
	Hanan Mohammed	Create notebook, Data gathering and splitting
	Jehan Almutairi	Training model, Evaluation, and Testing





THANKYOU.