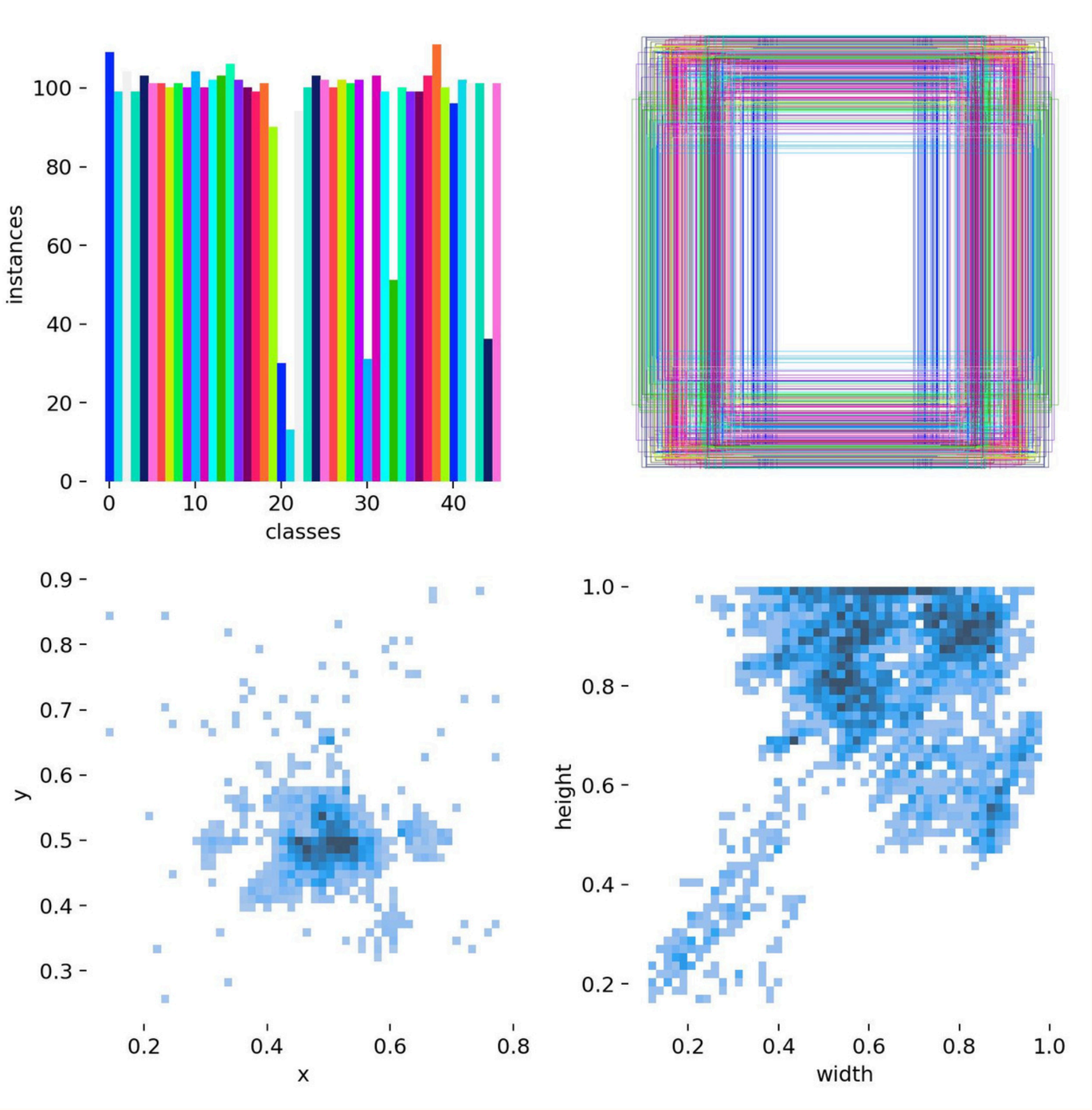
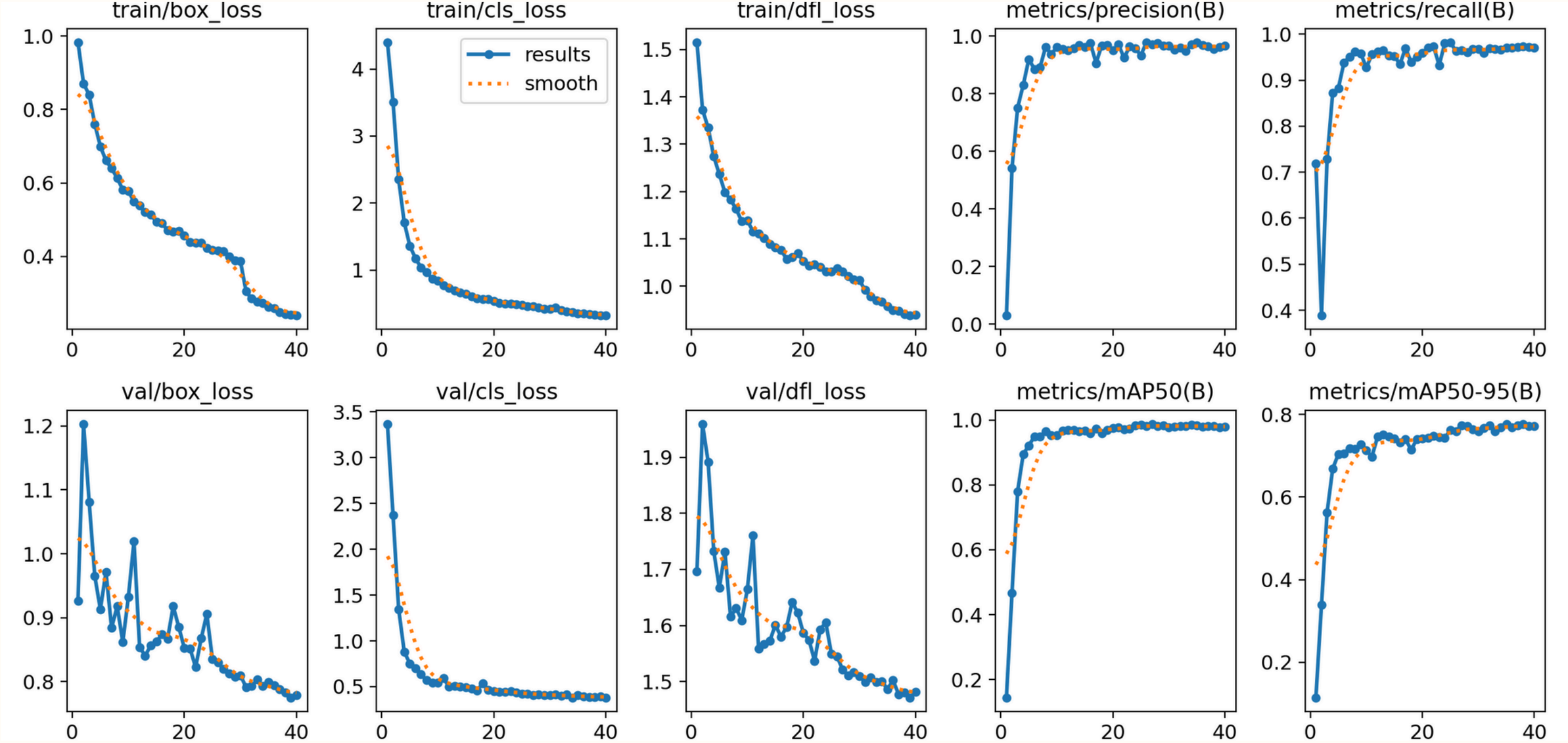
YOLO and CNN Model Comparison

YOLO Model

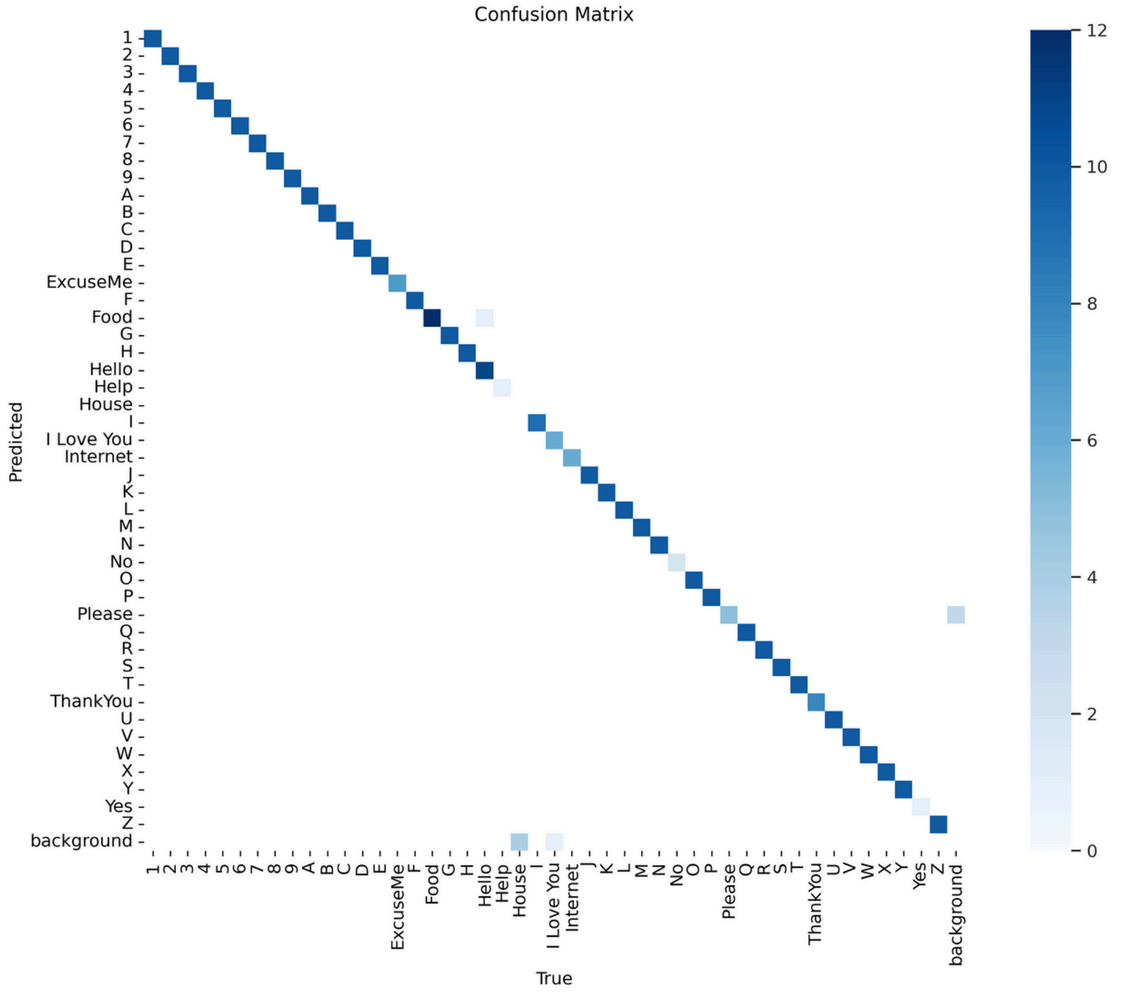


Dataset Details

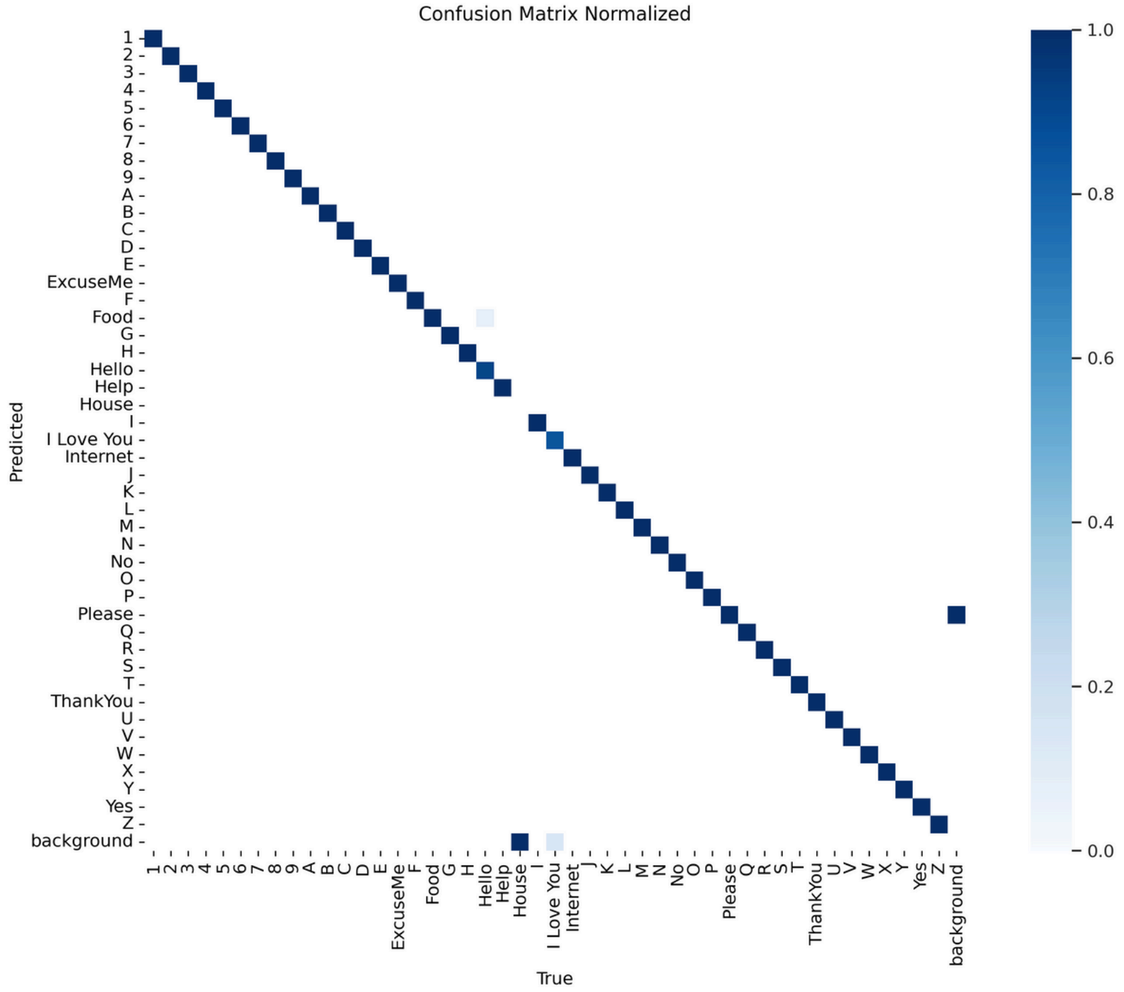
Overall Performance



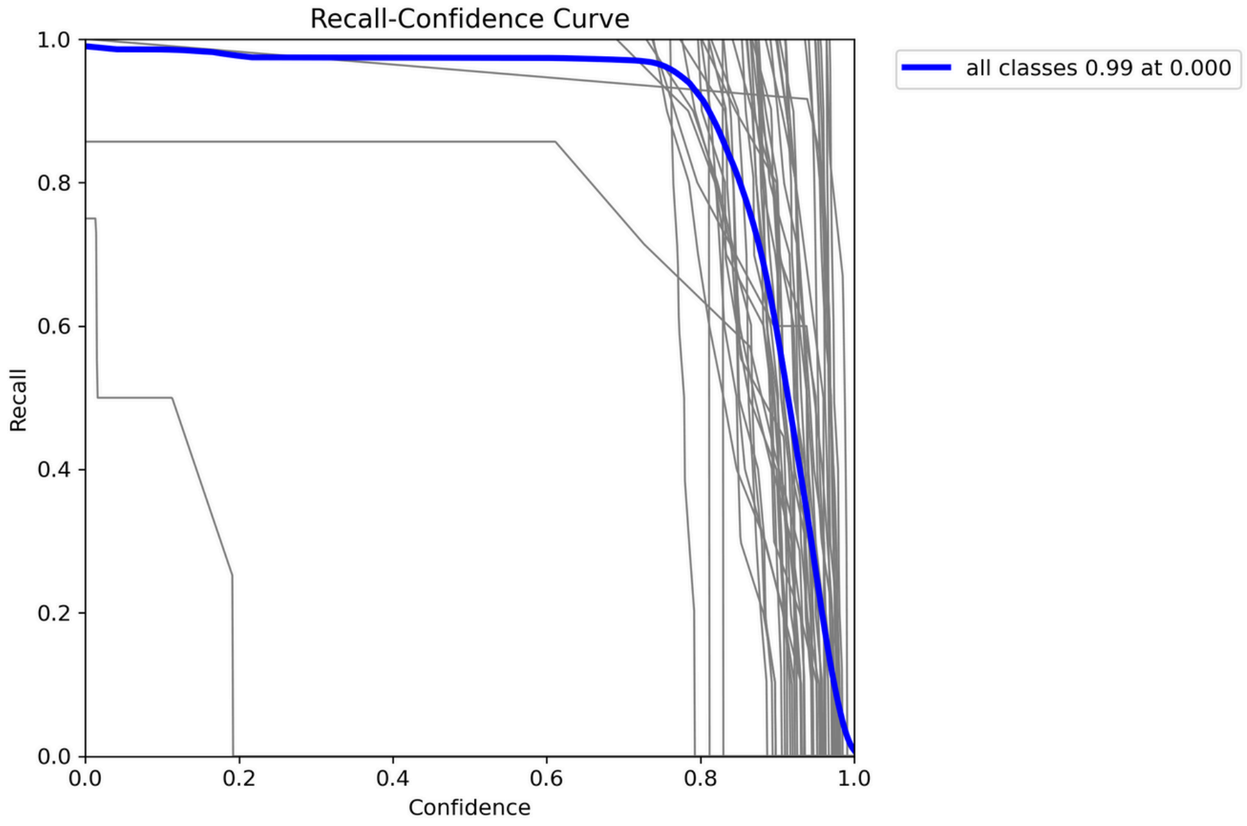
Confusion Matrix



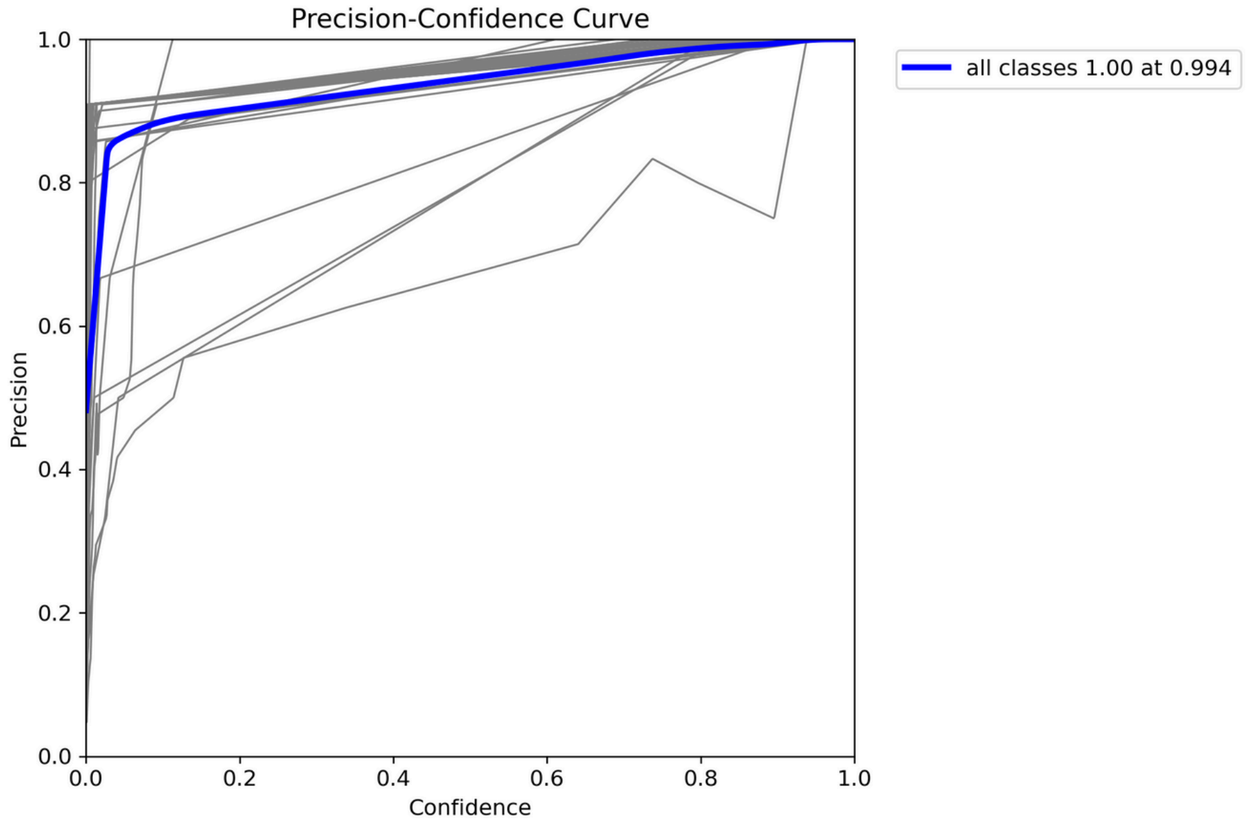
Confusion Matrix (Normalized)



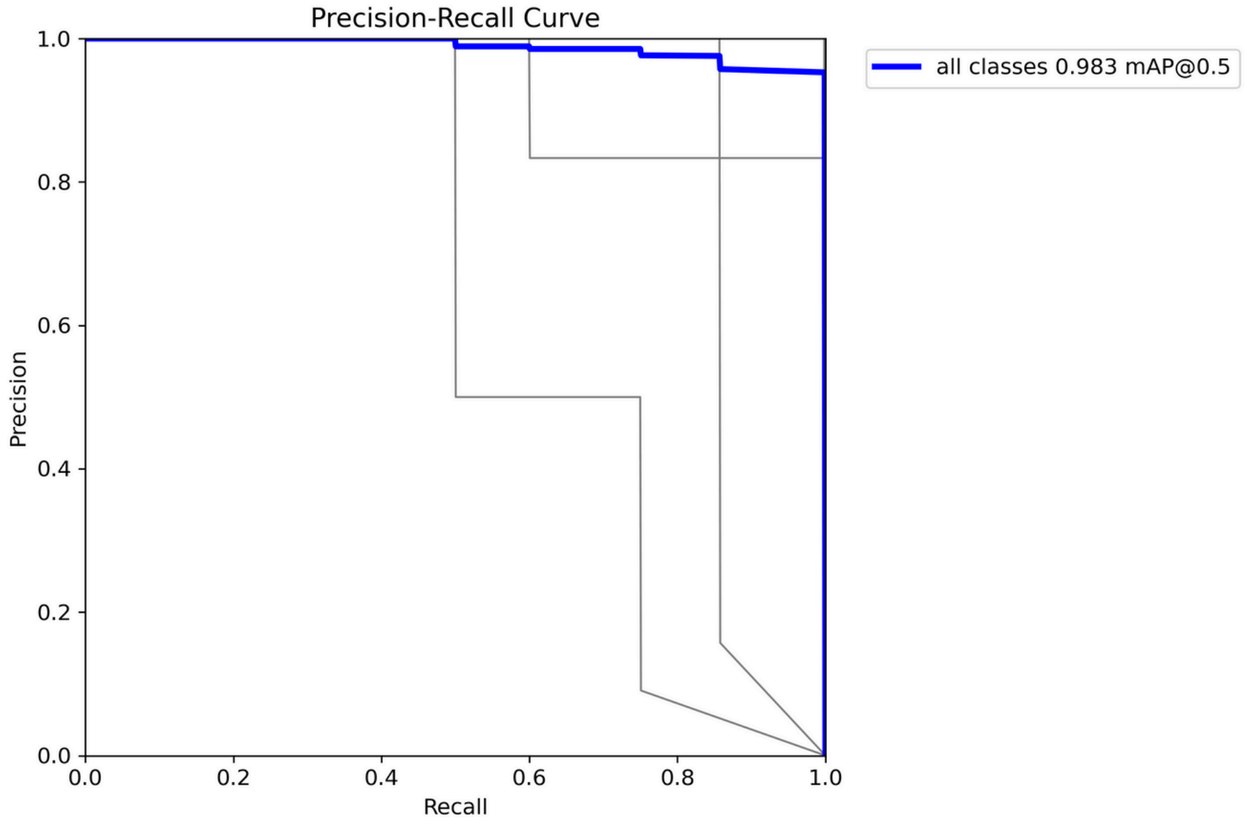
Recall-Confidence Curve



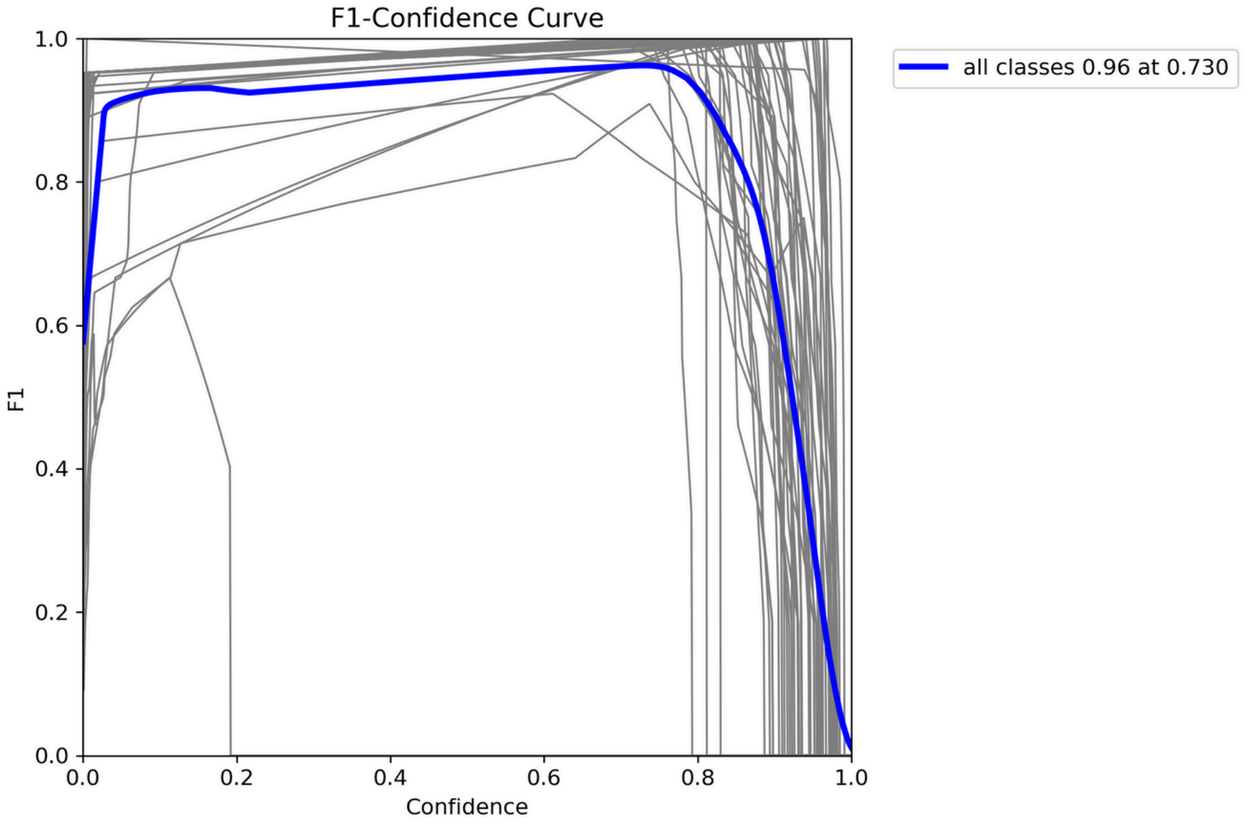
Precision-Confidence Curve



Precision-Recall Curve



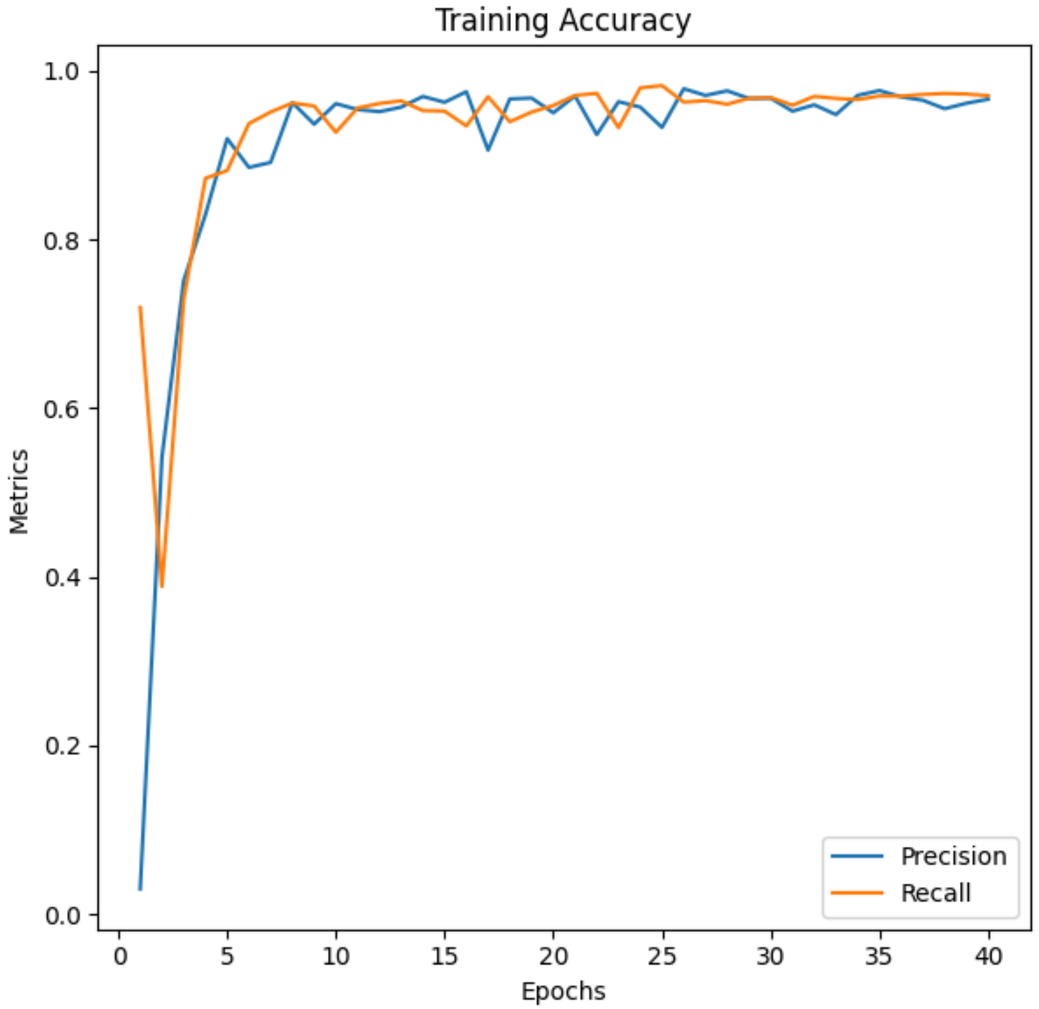
F1-Confidence Curve

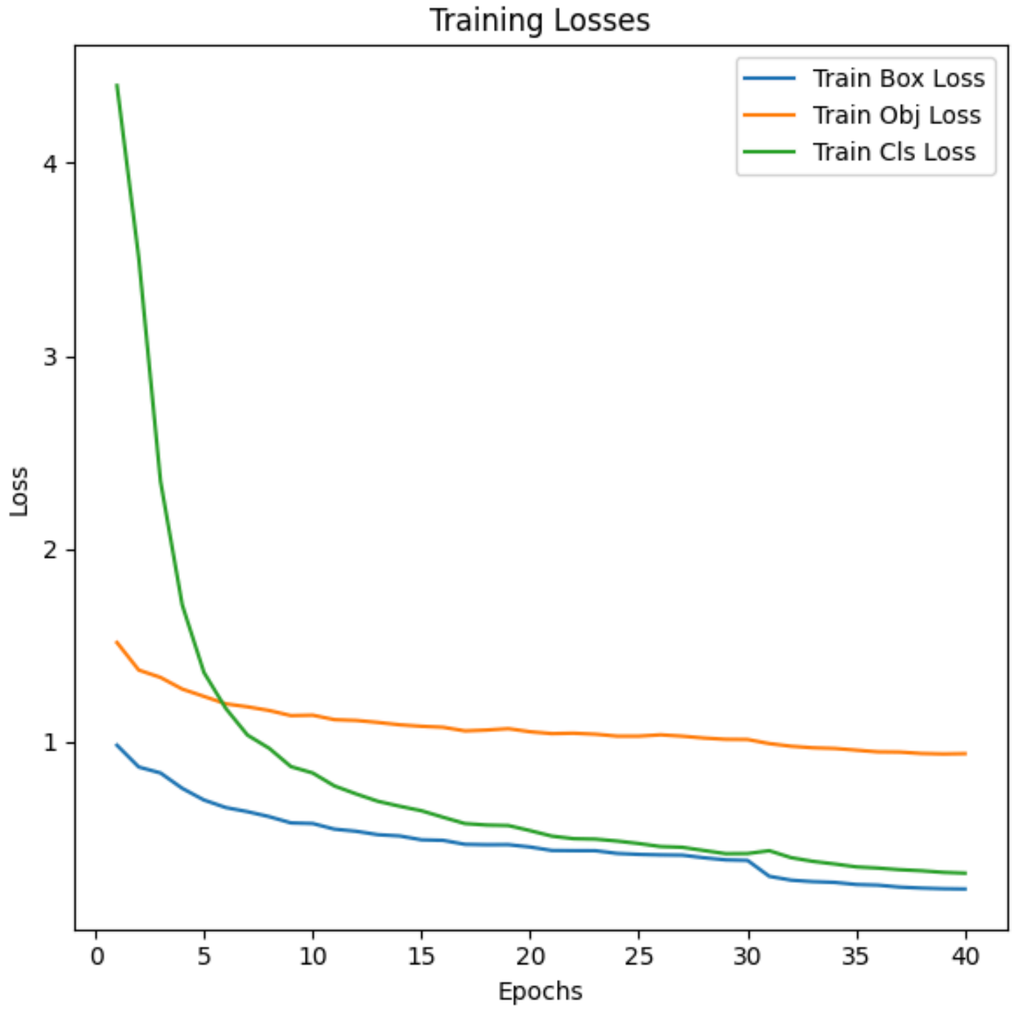


Max Precision - 0.96632

Max Recall - 0.97051

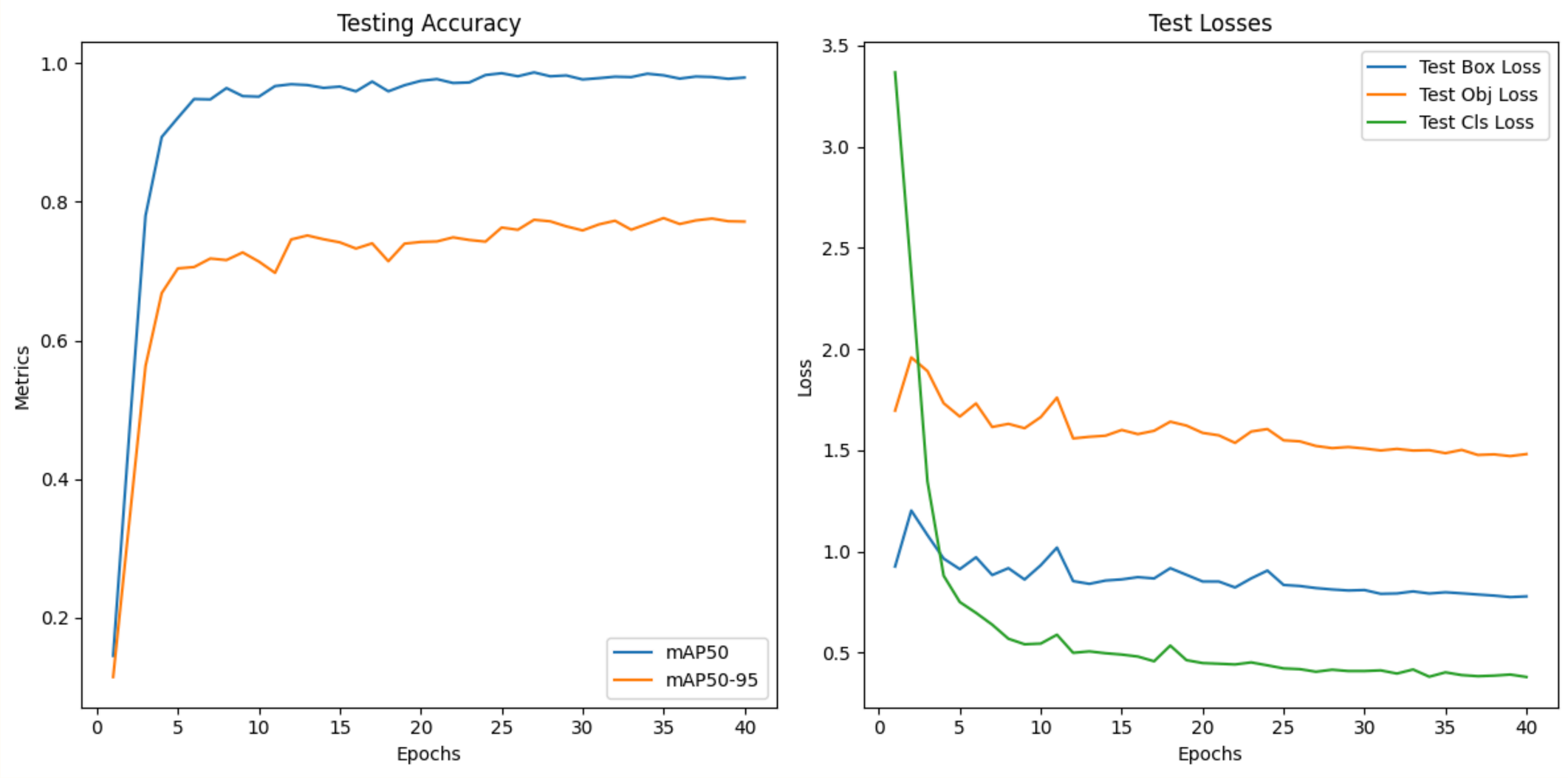
Min Training Loss- 0.23863 (Box loss)



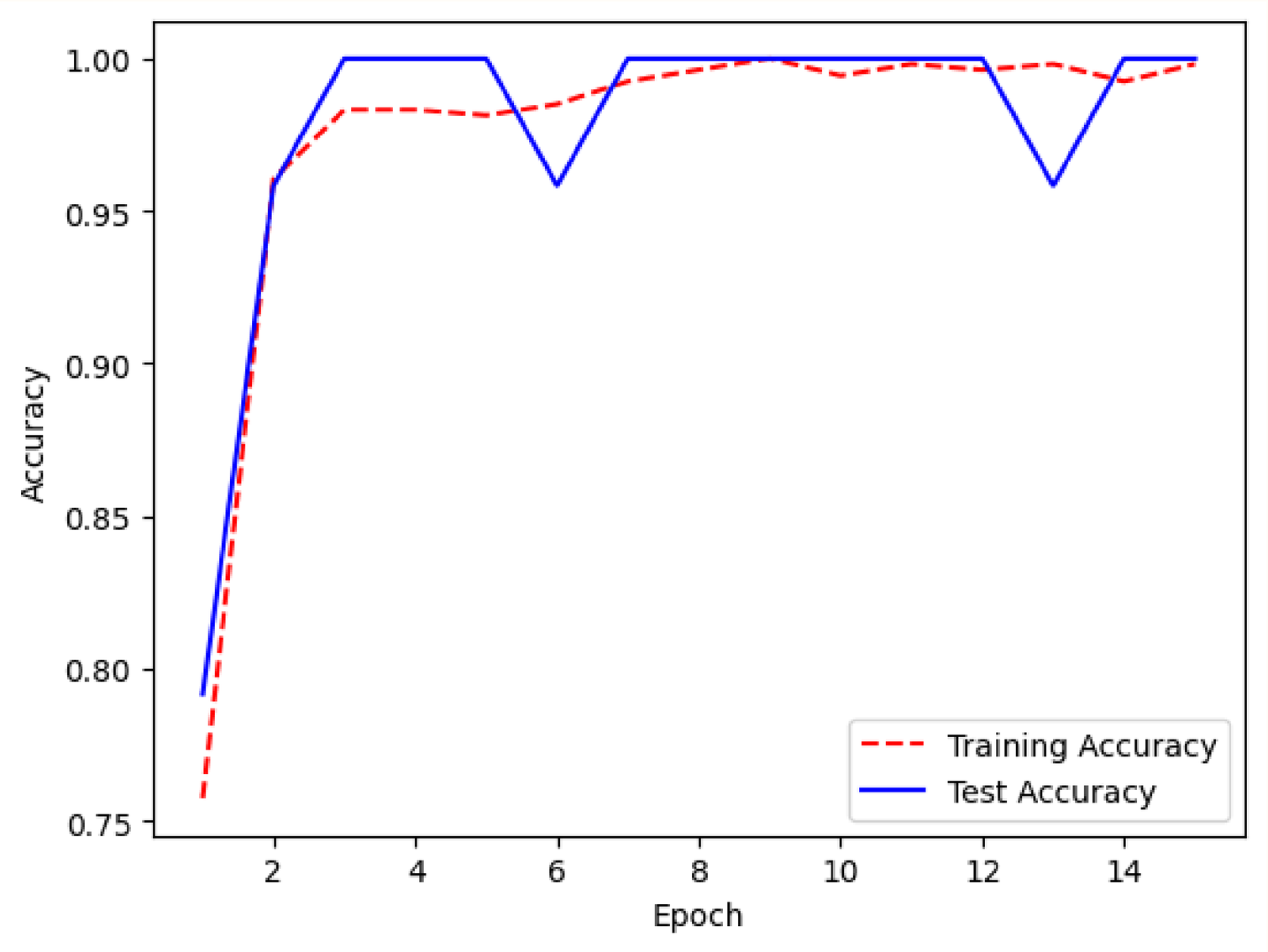


Max Test Accuracy - 0.97948

Min Test Loss - 0.38061

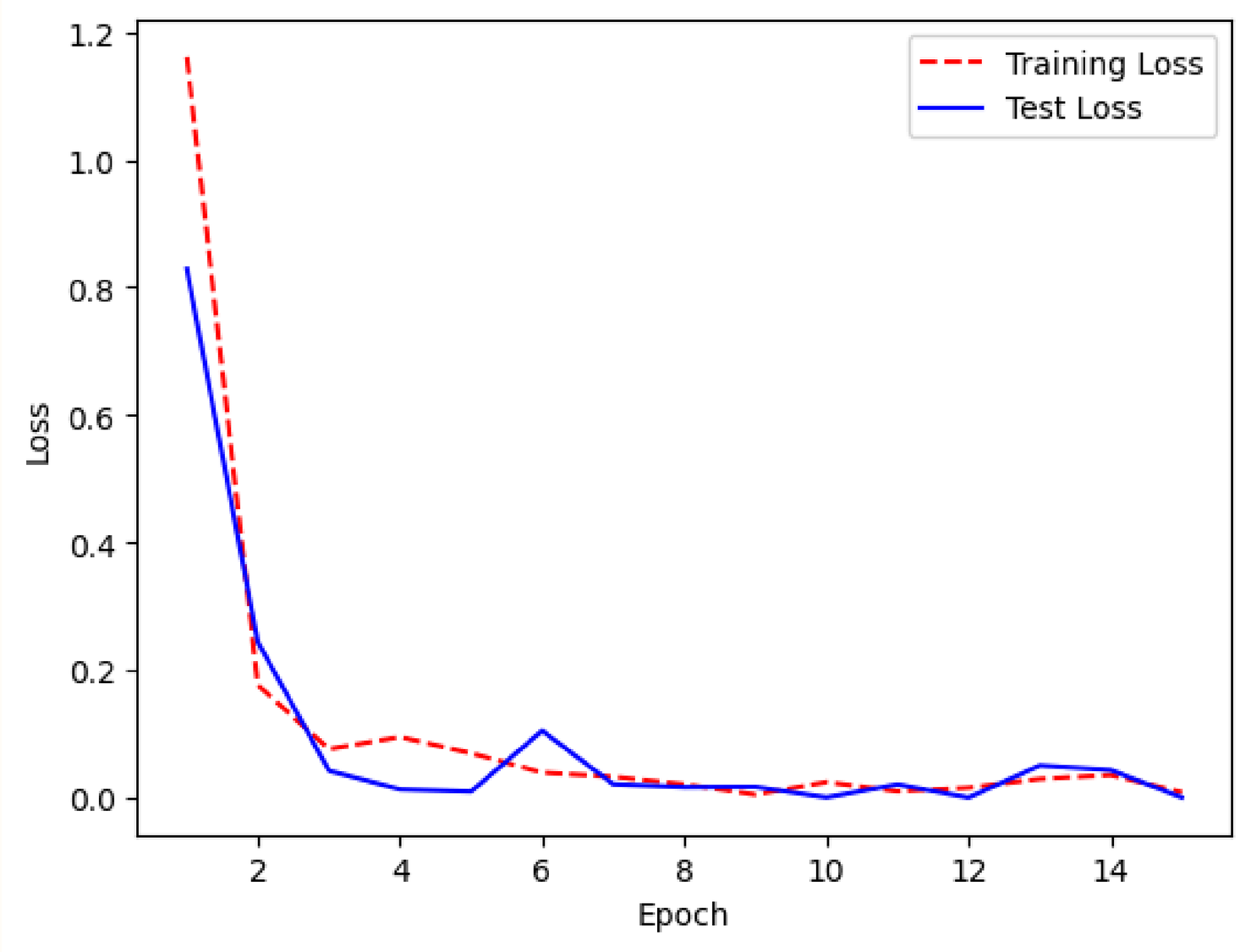


CNN Model



Training Accuracy- 0.9971

Test Accuracy- 1.0000



Training Loss- 0.0105

Test Loss- 3.6041e-04

Model Training Time

Model Name	Training Time	Total No of Layers
YOLO Model	40 epochs completed in 1 hour 2 min and 6 sec	319 Layers
CNN Model	15 epochs completed in 4 min 54 sec	316 Layers

YOLO Model Summary

Total Layers:

319 (Base YOLO11n layers) + 1 (Detection head layer) = 320 layers.

This model has a total of 320 layers, including all its components.
It operates with 2,598,810 parameters and requires 6.5 GFLOPs for computation.

CNN Model Summary

InceptionV3 base model layers:

The InceptionV3 model has 311 layers when using include_top=False.
This includes convolutional, pooling, and other layers.

Additional layers added in this model:

Flatten(): 1 layer.
Dense(1024, activation='relu'): 1 layer.
BatchNormalization(): 1 layer.
Dropout(0.5): 1 layer.
Dense(len(folders), activation='softmax'): 1 layer.

The total number of layers in this model is: 311 (InceptionV3 layers) + 5 (added layers) = 316 layers.

Thank you!