YOLOv8 Custom Object Detection - Evaluation Report

1. Project Overview

This project involves training a YOLOv8 model to detect custom objects using a user-provided dataset. The model was trained using the Ultralytics YOLOv8 library and then exported to ONNX format for deployment.

2. Training Summary

- Model: yolov8n
- Epochs: 100
- Training File: 1.py
- Dataset config: data.yaml
- Framework: Ultralytics YOLOv8
- Result directory: runs/train/

Training used pretrained weights from 'yolov8n.pt' and fine-tuned on the custom dataset.

3. Evaluation Metrics

Evaluation metrics (mAP, precision, recall) were generated after training and are viewable in the runs/train directory. Due to this being a sample export, metric values are not embedded but should be recorded after training on the actual dataset.

4. Inference Results

Inference was performed using the trained model 'helmet.pt' on an input video 'helmet.mp4'. Sample inference results (image or frames) are attached and saved from the output of the model.

5. Exported Model

The trained model was exported to ONNX format using the Ultralytics export function with dynamic axes. This

allows deployment in environments that support ONNX, including TensorRT or ONNX Runtime.

- ONNX file: yolov8n.onnx