

1. Implement YOLOv3 using OpenCV to detect objects in a given image.
2. Implement and compare YOLO object detection results with and without Non-Maximum Suppression (NMS). Explain why NMS is necessary in object detection.
3. Fine-Tuning YOLO on a Custom Dataset:
 - a. Train a YOLOv5 model on a custom dataset using Ultralytics YOLOv5.
 - b. Evaluate the trained model on test images and calculate mAP (Mean Average Precision).
4. YOLO on Video Streams:
 - a. Modify the YOLO script to process a live webcam feed or a recorded video.
 - b. Display the FPS (Frames Per Second) on the video to analyze YOLO's real-time performance.
5. Load a pre-trained Faster R-CNN model (e.g., from torchvision.models.detection) and run it on a sample image.
6. Fine-tuning Faster R-CNN on a Custom Dataset
 - a. Train Faster R-CNN on a small custom dataset (e.g., Pascal VOC or your own annotated dataset).
 - b. Analyse the impact of different learning rates and batch sizes on performance.