

Final Project Problem Statement: Implementing YOLO for Custom Object Detection

Objective

For the final project of this course, you will be implementing an object detection model based on the YOLO (You Only Look Once) architecture—preferably YOLOv8. You are welcome to use an older version of YOLO, including YOLOv5 or YOLOv7, if you choose to do so, depending on your preferences and/or hardware capabilities. The model you will be using will hopefully be trained on a custom dataset that you either collect on your own, or use from the Open Images Dataset.

Dataset Preparation

You are required to prepare your own dataset using one of the two approaches:

1. **Collecting Your Own Dataset:** Use your phone or camera to capture images relevant to your object detection task.
2. **Importing a Public Dataset:** Visit Open Images Dataset and download **Waste Container dataset**.

After collecting or importing the dataset, annotate the data using the open-source tool CVAT (Computer Vision Annotation Tool). Make sure the final annotation format is compatible with YOLO training pipelines (e.g., YOLO txt format or converted COCO-style JSON if using ultralytics).

Implementation Requirements

Your implementation must satisfy the following conditions:

- Implement and train YOLOv8 (or any other preferred YOLO version).
- Perform data annotation using `cvat.ai`.

- Use the Ultralytics YOLO Python package or any other open-source framework of your choice.
- Train the model on the data you have processed so far.

Submission Guidelines

Your final submission must include the following components:

- a) Complete project code in a structured folder (preferably in a GitHub repo or zipped folder).
- b) The entire dataset used, including raw images and annotations.
- c) Final test results over the training dataset and over a video that the model hasn't seen so far.

Bonus Part: One-paragraph takeaway OR one solid meme about your journey.

THANK YOU

For being a wonderful learner and completing this journey with us!