

Note: Detection Results and Recommendations

The Boxing-punch detection model has been successfully implemented and tested on the given video using custom-trained YOLOv7 model. The outputs include:

- A **labeled video** with detected objects and their classifications.
- A **CSV file** with detailed detection information for each frame.
- A **JSON file** containing a structured representation of the detection data.

Access the Results

All the detection results can be accessed here:

Detection Results - [Video](#), [CSV](#), and [JSON](#)

Observations

While the model performs not well in detecting and classifying objects on unseen data, there are areas for improvement:

1. **Accuracy of Detections:** Some detections are not entirely accurate due to dataset limitations.
2. **Classifications:** Misclassifications occasionally occur, which is also due to insufficient or imbalanced data for certain classes.

Recommendations

1. **Refining Annotations:** Accurate and consistent annotations during training are essential for improving performance.
2. **Expanding the Dataset:** Adding more diverse images for each class will help the model generalize better.
3. **Parameter Tuning:** Adjusting confidence thresholds, and other hyperparameters can lead to more precise results.

With these steps, the model can be optimized further, ensuring better detection and classification in real-world scenarios.