

Cricket Video Object Detection and Tracking

➤ Brief Explanation of Approach

1. Assumptions & Simplifications:

- **Trained Model:** Assumed YOLOv8 was sufficiently trained for cricket-specific object detection.
- **Supported Videos:** Only processed videos that could be opened by OpenCV
- **Player Tracking Focus:** Primarily focused on player tracking, with limited attention to ball tracking due to its fast movement.

2. Successes:

- **Accurate Object Detection:** YOLOv8 performed well in detecting cricket-related objects.
- **Data Annotation:** Utilized Roboflow for data annotation and splitting for custom training.
- **Stable Tracking:** SORT maintained stable player IDs, even with partial occlusions.
- **Organized Workflow:** Folder-based output allowed easy handling of multiple videos.

3. Challenges:

- **Ball Tracking Issues:** Fast-moving ball sometimes missed between frames.
- **Occlusions & Overlap:** Partial occlusions or overlapping players led to detection errors.
- **Lighting/Resolution:** Poor lighting or low resolution affected model confidence.

4. Bonus Features:

- **Object Tracking:** Integrated SORT for consistent player tracking across frames.
- **Weak Detection Filtering:** Applied a 0.5 confidence threshold to filter weak detections.
- **Visual Statistics:** Displayed unique player counts per frame.