

Brief Report - Player Re-Identification in a Single Feed

Methodology

- Used YOLOv11 (Ultralytics) fine-tuned on `player` and `ball` classes to detect objects in each frame.
- Integrated Deep SORT tracker for ID consistency, leveraging Kalman filtering and appearance matching.
- Filtered out all objects except "player" for ID tracking.

Techniques & Outcomes

- YOLOv11 + bbox parsing: Detected all players accurately.
- Deep SORT integration: IDs remain stable even after occlusion.
- Cosine similarity only (initial test): Unstable under occlusion and uniform similarity.

Challenges Encountered

- Cosine similarity-only matching was unstable and failed with occlusion or similar uniforms.
- Bounding box format from YOLO (`xywh` vs `xyxy`) caused size mismatch until corrected.
- Deep SORT occasionally assigned high ID numbers; addressed with parameter tuning.

What's Next

- Jersey color clustering to distinguish teams (optional enhancement).
- Track ball separately and associate it with player IDs.
- Export match events like passes, goals, or possession.