Player Re-identification in Sports Footage

Liat.ai
Artificial Intelligence Intern Assignment

Deadline: 1 week from issuance

Submission Details

Format:	GitHub Repository or Google Drive Folder
Recipients:	arshdeep@liat.ai and rishit@liat.ai
Materials:	Assignment Materials

Overview

This assignment assesses your ability to solve real-world computer vision challenges in sports analytics. Your task is to implement a solution for **player re-identification**—ensuring that the same player retains the same ID, even across different camera feeds or after going out of view.

Task Options

Option 1: Cross-Camera Player Mapping

Objective:
Given two clips (`broadcast.mp4` and `tacticam.mp4`) of the same gameplay from different camera angles, map the players such that each player retains a consistent ID across both feeds.

Instructions:

- Use the provided object detection model to detect players in both videos
- Match players from tacticam video to broadcast video using consistent `player_id` values
- Use any combination of visual, spatial, or temporal features

Model Download:
Object detection model: Player and Ball Detection Model
(Basic fine-tuned Ultralytics YOLOv11)

Option 2: Re-identification in Single Feed

Objective:
Given a 15-second video (`15sec_input_720p.mp4`), identify each player and ensure players who go out of frame and reappear are assigned the same identity.

Instructions:

- Use provided object detection model throughout the clip
- Assign player IDs based on initial frames

- Maintain same ID when players re-enter frame
- Simulate real-time re-identification

Model Download:
Same as Option 1: Detection Model

Submission Requirements

Submit via GitHub repository or Google Drive folder containing:

1. All source code
2. `README.md` or equivalent documentation explaining:
    - Setup and execution instructions
    - Dependencies/environment requirements
3. Brief report (PDF/Markdown) covering:
    - Approach and methodology
    - Techniques attempted and outcomes
    - Challenges encountered
    - Future steps if incomplete

Note: Submission must be self-contained and reproducible. We will not debug or modify code.

Evaluation Criteria

- Accuracy and reliability of re-identification
- Code simplicity, modularity, and clarity
- Documentation quality
- Runtime efficiency (bonus)
- Thoughtfulness and creativity

Additional Notes

- Assignment reflects real-world constraints and open-ended problem-solving
- Fully working solution not mandatory—we value your approach
- Free to use public resources and define subcomponents
- Reach out with questions anytime

Good luck! We're excited to see your solution.