SC549: Neural Networks (2024/25)
Programming Assignment 03: Player Tracking in Sports Videos
Due Date: 10/11/2025|11.59 pm

[This assignment carries 10% of the total grade.]

In this assignment, your task is to develop a computer vision model to track players in sports videos.

Dataset:

- Collect 5-10 sports video clips (e.g., cricket, rugby, football).
- Each video should have a minimum length of 5 seconds and a maximum length of 10 seconds.
- You may download videos from YouTube or other publicly available sources.

Model Requirements:

1. **Player Detection:**
   Build a vision model using a YOLO-like object detection framework to detect players in the videos.
2. **Keypoint Detection:**
   Implement a model similar to OpenPose to identify player keypoints (e.g., hands, legs, body joints).

Languages and Frameworks:

You may use PyTorch (recommended or TensorFlow Keras libraries.

Deliverables:

Submit a GitHub repository containing the following:

1. Dataset (a link is sufficient).
2. Python scripts (.ipynb notebooks or .py files).
3. Screenshots of outputs (e.g., detection and tracking results).
4. Report document including:
   a. Performance comparison of your models (e.g., accuracy, precision, recall, loss curves).
   b. Discussion on model performance, limitations, and possible improvements.