Human Pose Estimation in the Biomechanics Lab

Follow your custom instructions.

I have forked the HPE\_volleyball project into a new repo called “lab\_mocap”. We are in a conda environment of the same name (lab\_mocap).

We are setting up human pose estimation using rtmlib (rtmdet / rtmpose) similar to the volleyball project.

However, we are not working on the volleyball data anymore. Instead, we are using 4 video cameras through an RTSP stream in our indoor biomechanics laboratory.

Please look at the scripts in the current directory for reference.

The script MAIN.py is the “old” volleyball HPE script, using a modified RTMpose (for faster inference through batch processing) and ByteTrack for tracking.

The script “test\_unifi\_stream\_read.py” is only the video capture part (no rtmlib / HPE). There are latency issues with camera streams but let’s not worry about that for now.

I want to add detection and pose estimation to this second script. The goal is:

* Read video stream(s) like test\_unifi\_stream\_read.py
* Perform detection and pose estimation like in MAIN.py

Basically combine the two scripts.

Some notes:

* We are using a modified version of rtmlib, refer to your memory bank for further info.
* Once objective is complete, you will have to **heavily clear and rewrite your memory bank** to remove info about volleyball and only keep relevant into (for the biomechanics laab setup).
* We also want to streamline camera selection. At the moment, I comment / uncomment lines to process specific camera streams (e.g. only 1 camera or all 4), including stiching the 4 streams into 1 frame when we process all 4 cameras. I want to change this to be a cleaner option in the script (e.g. configuration variables).
* Once all this is done we will try to use keypoints positions from RTMpose to estimate lower limb joint angles (don’t focus on that for now, just for information in the future).