

Progress report for week 6

Task:

Further work on the 3D trajectory extraction

Implementation:

I implemented the missing steps I mentioned in last week's report, namely generating the trajectory plane from bounce positions and using it to transform the 2D screen coordinates to 3D world coordinates.

This works well, given a fairly simple case where the ball travels only on the middle line (image below). When using the bounce points to generate the trajectory plane, an average error of 6cm occurs.



Improving the bounce localization seems to be really important to get better results. I also need to be able to detect racket hits and build trajectory planes with them in the future, using the first two bounces as calibration. These two things are what I think I should focus on next.

Side notes:

I realized that a library I used to calculate intersection points (sympy) is really slow in creating required objects. That is why I switched to using pyrr. My code now only runs 4 seconds for a minute of video instead of 25.

I also got rid of many small bugs which resulted in my pose detection to work great in 27 out of 28 scenes from my one minute test video.

I will include more diverse testing on more videos in the future.

