

Cricket Activity Detection

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Abstract

In this project we aim to classify different types of cricket shots played during a match. The agent learns the various shots by some clips of particular shots and then tries to identify a shot played in a similar clip.

1 Previous Work in the Area

For this we intend to use the algorithm [1] where they identify the human pose by using the human - object interaction in an action. Human pose identification usually requires creating a tree structure, thus inferring the pose easily ([2], [3], [4]).

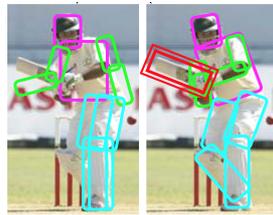


Figure 1: Tree Structure of Human pose.

2 Our Approach

We intend to use the work from [1] to our use in video analysis to identify and classify the cricket shot. We will analyze the different frames in a clip and find the correct human pose in a frame (batsman) and then by similarity analysis and movement of the object (bat) in the different frames classify the shot played in that clip. The correct human pose in the frame will (hopefully) help us in tracking the motion of the bat in the clip with better accuracy and thus greater precision in identifying the cricket shot. This work if proves to be accurate enough can be taken forward for automatic commentary for a whole match duration.

For the data, we don't have access to any standard datasets as of now but are trying to find some labeled video clips of cricket shots of 5 -10 seconds. If such

videos are not found then the we intend to create our own by parsing the ball-by-ball commentaries on some portal (with timings) and then , using the shots in the text commentary, separate out that portion of the match video.

References

- [1] Yao, Bangpeng, and Li Fei-Fei. "Modeling mutual context of object and human pose in human-object interaction activities." *Computer Vision and Pattern Recognition (CVPR), 2010 IEEE Conference on. IEEE, 2010.*
- [2] Andriluka, Mykhaylo, Stefan Roth, and Bernt Schiele. "Pictorial structures revisited: People detection and articulated pose estimation." *Computer Vision and Pattern Recognition, 2009. CVPR 2009. IEEE Conference on. IEEE, 2009.*
- [3] Felzenszwalb, Pedro F., and Daniel P. Huttenlocher. "Pictorial structures for object recognition." *International Journal of Computer Vision* 61.1 (2005): 55-79.
- [4] Ramanan, Deva. "Learning to parse images of articulated bodies." *NIPS. Vol. 1. No. 6. 2006.*