

## INTRODUCTION

The International Cricket Council (ICC) commissioned a global market research study, which revealed a cricketing fanbase of over 1 billion viewers worldwide [1]. The increased viewership and popularity has seen a change in the game formats and innovations within the cricketing domain. Among various innovations, technology has been at the forefront, leading the way in making useful tools to assist various actors within the domain. There is a gap in research that determines which methods are an effective means to analyse poses in video footage of players of sports such as cricket, which may provide annotations for correction on poses. The primary focus of this study is on computer-based pattern recognition/machine learning aspects of developing and validating the conceptual model rather than the specifics of the selected sports problem domain.

### MODEL



#### Cricket Video

- Input Cricket Video
- The Data will be obtained from YouTube



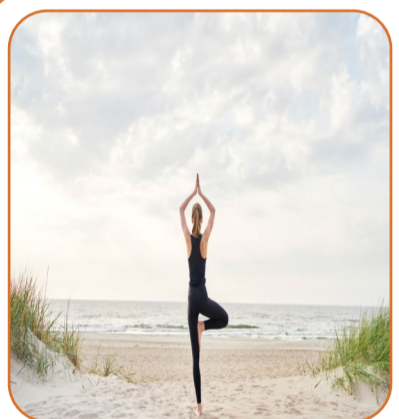
#### Event Detection OR Activity Recognition

Event Detection is the analysis of video footage to discover a set of matching patterns of events in an event context. Activity Recognition is recognizing the motion and relative positions of the user's body.



#### Pose Estimation

Using the detected scenes obtained from the above step, a pose estimation skeleton will be formed of the batsman, thus allowing pose similarity.



#### Pose Similarity

Using the skeleton, the batsmen poses will be compared against poses of batsmen that are proven to be successful within the game to determine the similarity between the poses.



#### Action Scoring

Pose estimation and similarity will yield specific scores along with other action scores, which will enable the architecture to award a score to the batsman based on the technique used to perform a stroke.



#### Basic Recommendation

Using the action score, the system developed will provide basic recommendations to the batsman to make potential improvements on their techniques.

### Background

There are various commercial, technological advancements within the game, such as hawk-eye, which is used to determine leg before wicket (LBW) that occurs when the ball strikes the batsman's leg in front of the wicket. Snicko is a tool that determines whether the batsman has made contact with the ball, and the Duckworth Lewis Stern (DLS) system, which used to calculate match totals in the event of rain interruptions [2]. These technological breakthroughs have been used to assist in off-field decision making to ensure the most correct and accurate outcome. Therefore, it would prove interesting to see how cricket batsman would benefit from the study, which may be realised by ensuring correct frame section, batting technique selection, action recognition, and pose correction.

### REFERENCES

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3. Zhe Cao, Gines Hidalgo, Tomas Simon, Shih-En Wei, and Yaser Sheikh. Openpose: realtime multi-person 2d pose estimation using part affinity fields. IEEE transactions on pattern analysis and machine intelligence, 43(1):172-186, 2019.
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### AIM

This thesis will establish action recognition to perform [3,4] pose correction later using deep learning methods, which will allow for the creation of a solution that will contribute to the body of knowledge on automated video footage analysis. This thesis will address the gaps identified, such as a comparison of the feature engineered versus the end-to-end deep learning approach, correct frames selection for specific poses, and achieving action recognition to later perform pose correction of players of sports such as cricket batsman.