

Abstract

Data statistic of football now has become necessary, especially for a team. Some data statistic that can be taken in a football match is the coverage area of the player and the movement patterns of a team. This data is needed as a reference for a team to determine the future strategy of the game. The use of video football game as a reference the analysis can be considered. With the help of computer vision technology, data analysis is obtained by detecting the object of a football player on the video. Detection of people using HOG features are suitable for use in the case of football, where football matches will possibly always a change of illumination in the image. In addition, beside doing detection using HOG, the classification of the team also needs to be done in order to distinguish between the players of a team with players from the other team. Team classification is done through the clustering method using color moment feature. To maintain the performance of detection in every frame on video, this research use Kalman Filter. With the process of prediction and correction on the Kalman Filter, this will certainly add to the performance of detection. The system can provide good results with the F1-score performance of the players with the highest detection reaches 0.87 (0-1 scale) with some video conditions. While the highest accuracy performance in the team classification reaches 0.98 and 0.96, team A and team B. However, the system generates the smallest F1-score performance level of 0.61 on the detection and accuracy performance level of 1.00 and 0.14, team A and team B, from the classification result of the team. These are affected by various conditions, such as the texture of the field, field uniformity, uniformity of illumination, and the level of color difference costume players.

Keywords : HOG, color moment, clustering, kalman filter