Player Tracking and Analysis of Basketball Plays

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Motivation

Automated player detection and tracking in team-sport games is of growing importance. As the profits from sports are increasing substantially, teams are heavily invested more in gathering statistics on their athletes. Certain statistics, such as distance run during a match, can provide information on player's health. Moreover, real-time detection of players can be valuable in identifying the opponent's formation and strategy, and might give some insight on the likelihood of a certain play be successful. This can lead to better strategies.

Methods and goals

In this project we will develop a MATLAB program to identify and track the players and the ball in a video of a professional basketball game. Our main objectives are summarized below:

1) Detect and track teams and players
2) Gather statistics regarding players movements
3) Detect and track ball
4) Gather statistics regarding ball possession

We believe that our project would be better suited for the computer and, thus, will not be using an Android platform.

In order to achieve our goals, we will identify the players of each team by the color of the jerseys; and we will also recognize the ball using a similar method [2]. We will then proceed to track the players movements as well as trajectory of the basketball [1][4]. Issues may arise if the ball is partially or fully concealed by one of the players. Finally, we will gather information of where the players stay most in the field (a heat map of the players movements). We believe that most of our challenges related to tracking are due to possible zooming in and out of the frames by the broadcasting cameras [3].

References

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