Baseball - Computer Vision Challenge

One of the biggest missing data points in modern baseball analytics involves tracking the movement of players around the diamond. Due to the nature of baseball, no sensor technology is allowed within the perimeters of the field itself. As such, we rely on cameras and pitch collection technology that exist outside the bounds of play. We want to utilize computer vision and our camera data to create statistics that currently don't get captured in D1 baseball.

In terms of data to be provided, luckily this project will only consist of video data. We will be providing the teams with a full game of video data taken from 6 camera angles. These angles include a high shot from behind the plate, footage from center field camera, and right and left side cameras for the batter and pitcher.

The goals of this project are broad. We would love for teams to focus their efforts in a few target areas (Feel free to choose multiple):

Fielder Positional Tracking
- Determine a starting position and ending position for each fielder
- Calculate the acceleration and reaction time of fielders around the diamond
- Track route efficiency of the fielder from point A to B
- Ultimately, these would be used for stats such as defensive runs saved and for analyzing when and how our players are being shifted

Pitcher's Motion Approach
- Track the major joints of a pitcher as he delivers a pitch (wrist, elbow, etc)
- Determine orientation and location of body segments
- Analyze the spin axis of the ball as it leaves the pitchers hand
- Possibly, determine force and acceleration data for hand speed and other metrics that lead to a pitch delivery.

Hitter's Motion Approach
- Track the batter's major joints and weight shifts as the begin and finish their swings
- Determine orientation and location of body segments as they swing
- Possibly, track the hitter's eyes as a pitch approaches the plate to determine batter's focus and thought process

Prize: Athletic Swag Bag, game day opportunities such as delivery of first pitch and exclusive on field events, possible project contracting, possible job opportunity with the Georgia Tech Baseball Team.