Paper

JFA Platform for Football Analysis

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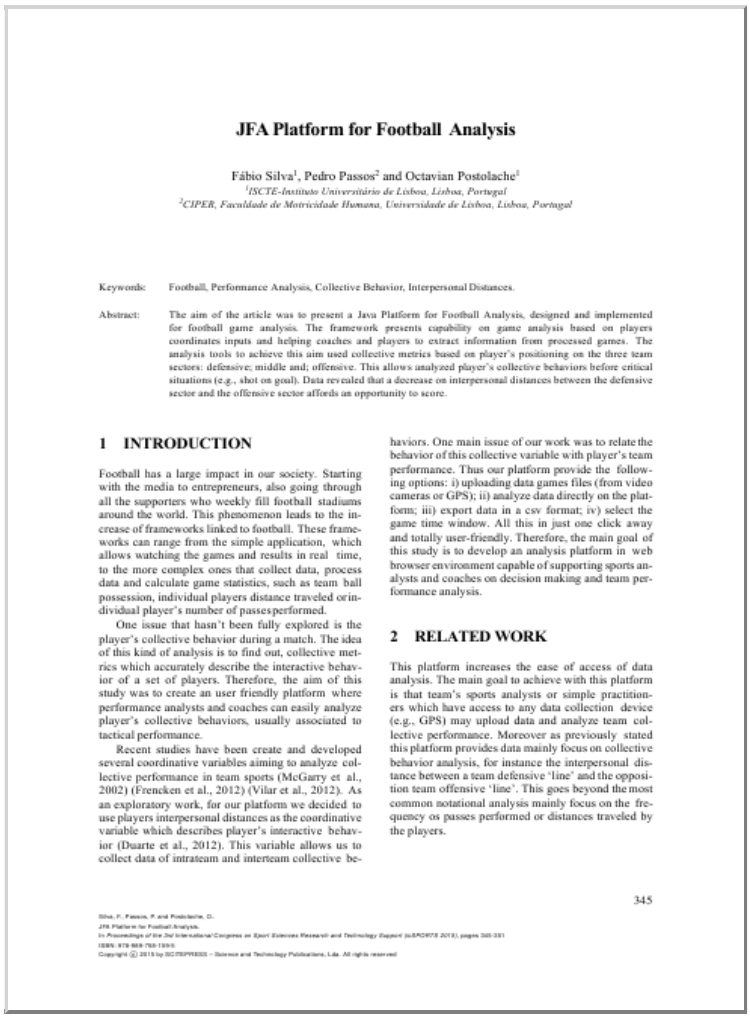

JFA Platform for Football Analysis

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Keywords: Football, Performance Analysis, Collective Behavior, Interpersonal Distances.

Abstract: The aim of the article was to present a Java Platform for Football Analysis, designed and implemented for football game analysis. The framework presents capability on game analysis based on players coordinates inputs and helping coaches and players to extract information from processed games. The analysis tools to achieve this aim used collective metrics based on player's positioning on the three team sectors: defensive; middle and; offensive. This allows analyzed player's collective behaviors before critical situations (e.g., shot on goal). Data revealed that a decrease on interpersonal distances between the defensive sector and the offensive sector affords an opportunity to score.

1 INTRODUCTION

Football has a large impact in our society. Starting with the media to entrepreneurs, also going through all the supporters who weekly fill football stadiums around the world. This phenomenon leads to the increase of frameworks linked to football. These frameworks can range from the simple application, which allows watching the games and results in real time, to the more complex ones that collect data, process data and calculate game statistics, such as team ball possession, individual players distance traveled or individual player's number of passes performed.

One issue that hasn't been fully explored is the player's collective behavior during a match. The idea of this kind of analysis is to find out, collective metrics which accurately describe the interactive behavior of a set of players. Therefore, the aim of this study was to create an user friendly platform where performance analysts and coaches can easily analyze player's collective behaviors, usually associated to tactical performance.

Recent studies have been create and developed several coordinative variables aiming to analyze collective performance in team sports (McGarry et al., 2002) (Frencken et al., 2012) (Vilar et al., 2012). As an exploratory work, for our platform we decided to use players interpersonal distances as the coordinative variable which describes player's interactive behavior (Duarte et al., 2012). This variable allows us to collect data of intrateam and interteam collective behaviors. One main issue of our work was to relate the behavior of this collective variable with player's team performance. Thus our platform provide the following options: i) uploading data games files (from video cameras or GPS); ii) analyze data directly on the platform; iii) export data in a csv format; iv) select the game time window. All this in just one click away and totally user-friendly. Therefore, the main goal of this study is to develop an analysis platform in web browser environment capable of supporting sports analysts and coaches on decision making and team performance analysis.

2 RELATED WORK

This platform increases the ease of access of data analysis. The main goal to achieve with this platform is that team's sports analysts or simple practitioners which have access to any data collection device (e.g., GPS) may upload data and analyze team collective performance. Moreover as previously stated this platform provides data mainly focus on collective behavior analysis, for instance the interpersonal distance between a team defensive 'line' and the opposition team offensive 'line'. This goes beyond the most common notational analysis mainly focus on the frequency os passes performed or distances traveled by the players.

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