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FOOTBALL PLAYERS PERFORMANCE PREDICTION USING DEEP LEARNING ALGORITHMS

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Abstract

Nowadays, the margin of error for football is low, therefore the ultimate aim of the game is to win the match. The performance of the players in the match affects the results of the game. Due to this, it is very important to evaluate the player and know his weaknesses. Manual evaluation tends to generate many errors and take more time. In current research, a statistical model is proposed to predict the stats of the football player based on previous session data by considering various aspects of the game. Through literature reviews, it is observed that machine learning and deep learning algorithms can be used to predict the performance of football players. But which model would be more efficient considering the positions of the player is not considered in any article. The proposed model is designed a separate model as per the position of the player during the game. This can help to predict the player's performance as per their playing position. The current study has successfully implemented various machine learning and deep learning models and provided all comparative analysis of the same. Each position has considered different variables associated with that position. The performance of these models is compared for further clarification.

INTRODUCTION

In over 200 countries, football is played by 250 million players and the world's most common sport. The world's most successful domestic team in the English premier league is several studies and experiments prediction is going on football matches prediction. From analyzing player performance, player chemistry with teammates coaches and etc... And also analyzing team performance how the team perform in wet pitch, dry pitch and weather condition and many more. By many ways we can analyze and predict the football matches outcome by using twitter we can able to predict the football outcomes. By applying machine algorithms, by applying artificial neural networks data mining, statistical models, deep learning. For gambling, forecasting football matches is used. The annual football match wager is thought to be legally worth $10 billion and

unlawfully between $40-50 billion, powered by the global economy as a whole. Mostly, many models are useful for bookmakers. A lot of research is going on in the area of bookmakers

LITERATURE SURVEY

This paper reviews the literature on Sports Analytics and proposes a new approach for prediction. We conducted experiments using suitable algorithms mainly on football related data, in order to predict a player's position in the field. We also accumulated data from past years, to estimate a player's goal scoring performance in the next season, as well as the number of a player's shots during each match, known to be correlated with goal scoring probability. Results are very promising, showcasing high accuracy, particularly as the predicted number of goals was very close to the actual one.

The purpose of this paper is to benchmark existing performance analytics used in the literature for evaluating teams and players. Basketball is a sport that requires full set enumeration of parameters in order to understand the game in depth and analyse the strategy and decisions by minimizing unpredictability. This research provides valuable information for team and player performance basketball analytics to be used for better understanding of the game.

The problem of evaluating the performance of soccer players is attracting the interest of many companies and the scientific community, thanks to the availability of massive data capturing all the events generated during a match (e.g., tackles, passes, shots, etc.). Unfortunately, there is no consolidated and widely accepted metric for measuring performance quality in all of its facets. In this article, we design and implement PlayeRank, a data-driven framework that offers a principled multi-dimensional and role-aware evaluation of the performance of soccer players.

In this paper, we compare and contrast which attributes and skills best predict the success of individual players in their positions in five European top football leagues. Further, we evaluate different machine learning algorithms regarding prediction performance.

In order to optimize sports performance it is considered necessary to employ sound scientific principles of physical conditioning and coaching. One of the most critical of these scientific principles is the rule of specificity. To elicit a high degree of transfer from training into competitive scenarios in key performance attributes such as physical capabilities, skill acquisition and cognitive learning a high degree of specificity of competition is desired in practice situations.

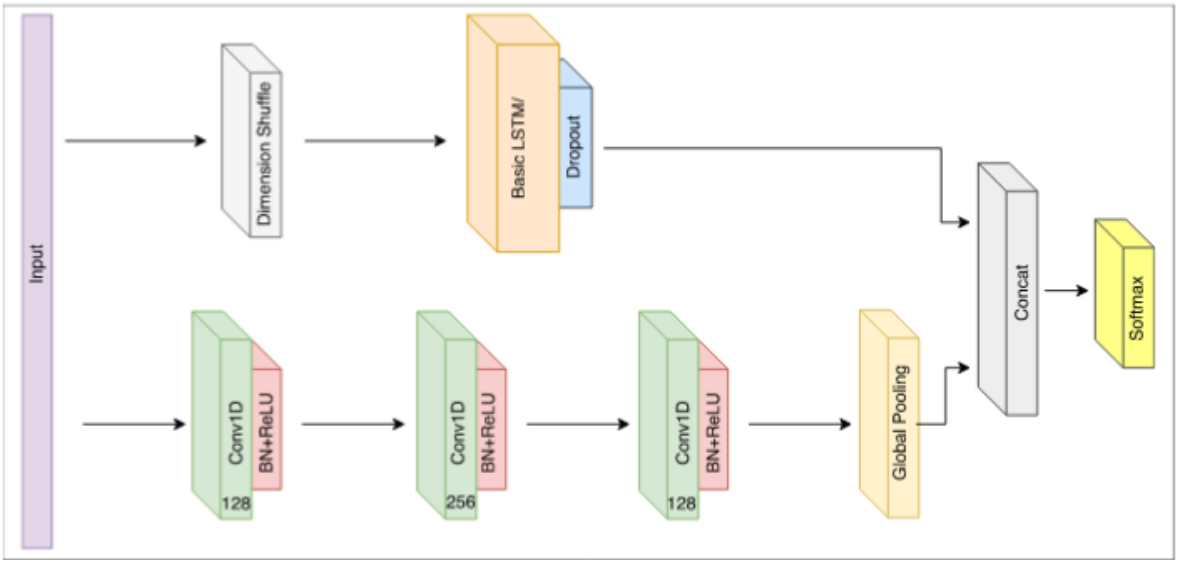
The striking proliferation of sensing technologies that provide high-fidelity data streams extracted from every game induced an amazing evolution of football statistics. Nowadays professional statistical analysis firms like ProZone and Opta provide data to football clubs, coaches and leagues, who are starting to analyze these data to

monitor their players and improve team strategies. Standard approaches in evaluating and predicting team performance are based on history-related factors such as past victories or defeats, record in qualification games and margin of victory in past games.

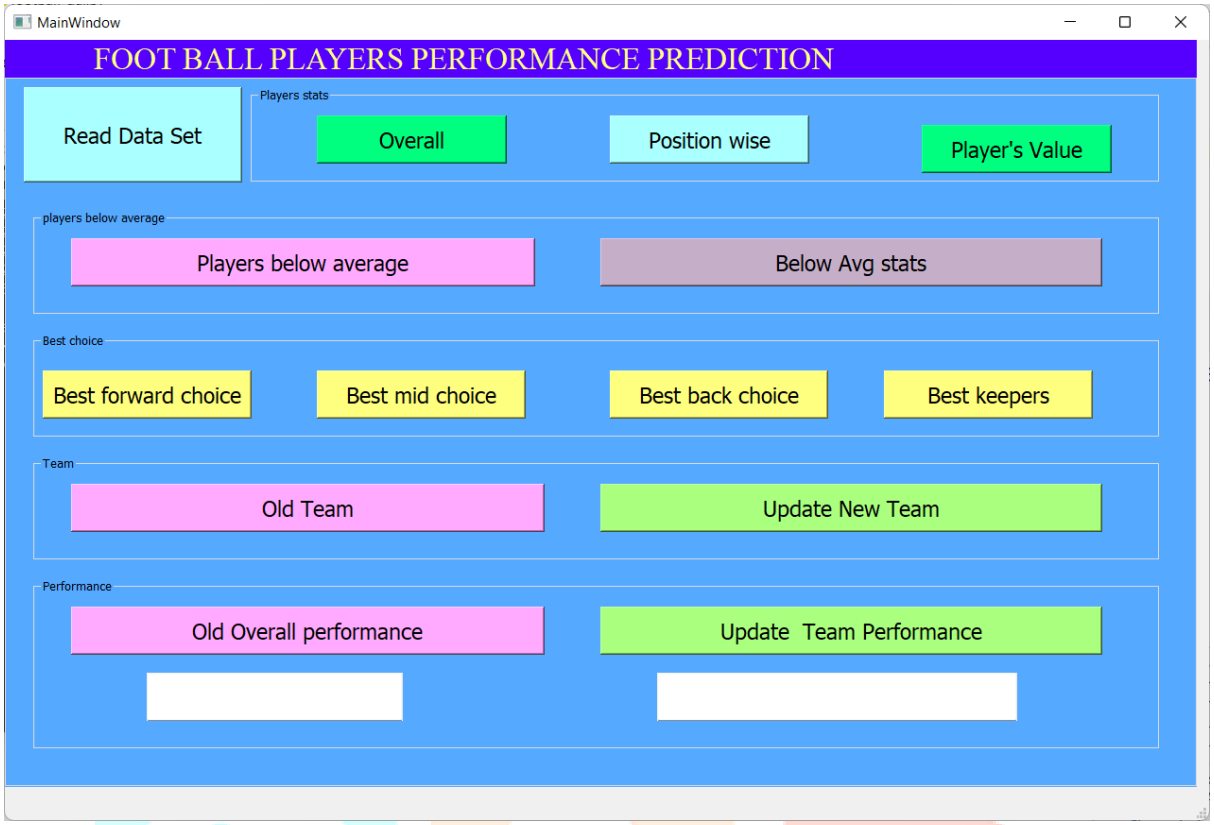
PROPOSED WORK

FCN

Fully Convolutional Networks, or FCNs, are an architecture used mainly for semantic segmentation. They employ solely locally connected layers, such as convolution, pooling and upsampling. Avoiding the use of dense layers means less parameters (making the networks faster to train).

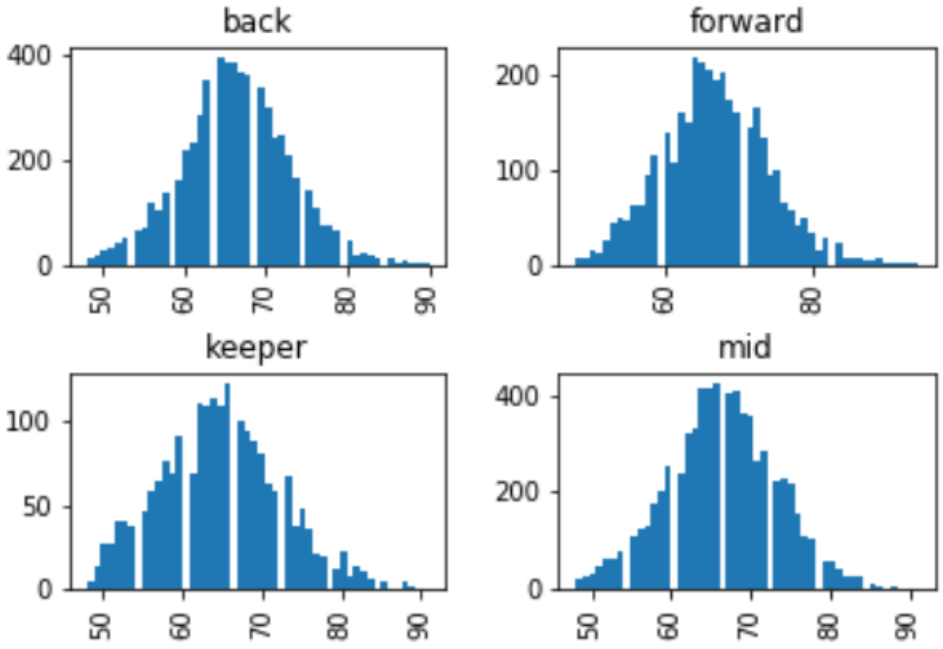


. FCN classifies the pixels, so as to achieve the level of image semantic segmentation. Different from the classical convolutional neural networks (CNN), FCN uses convolution layers instead of the fully connected layers. So it can accept image of arbitrary size. In this paper, we combine the convolutional neural network and scale invariant feature matching to solve the problem of visual positioning under different scenarios. All high-resolution images are captured with our calibrated binocular imaging system and several groups of test data are collected to verify this method.




```
fifa_data_20['overall'].describe()
```

```
count    18278.000000
mean        66.244994
std          6.949953
min         48.000000
25%         62.000000
50%         66.000000
75%         71.000000
max         94.000000
Name: overall, dtype: float64
```


back
forward
keeper
mid

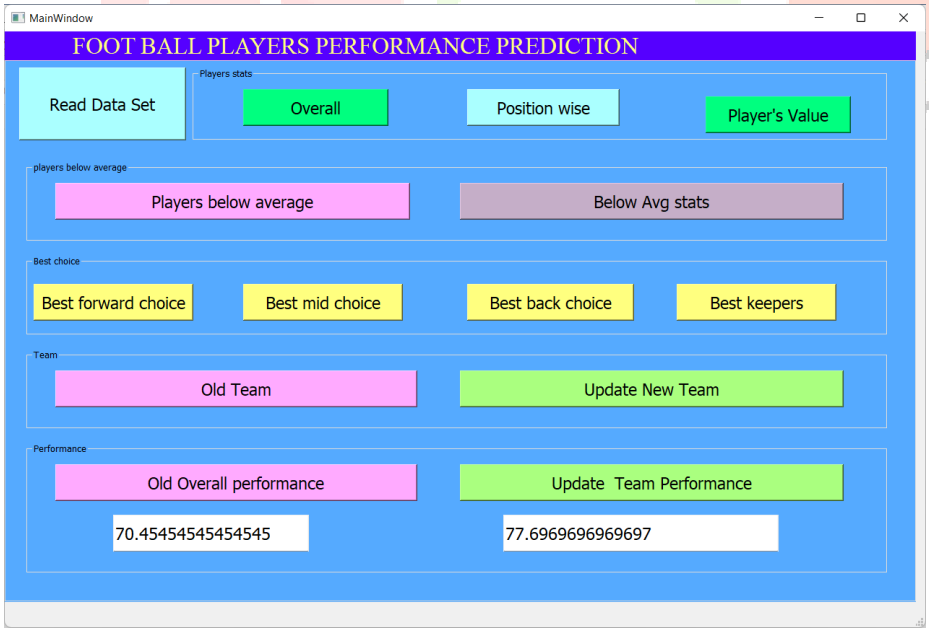
Player's value

```
count    1.745800e+04
mean     1.736324e+06
std      2.529636e+06
min      1.000000e+04
25%      3.250000e+05
50%      7.000000e+05
75%      1.800000e+06
max      1.350000e+07
Name: value_eur, dtype: float64
```

Updated Team

	sofifa_id	player_url	short_name	long_name	age	overall	overall_2021	position	player_positi
0	177003	https://sofifa.com/player/177003/luka-modric/2...	L. Modrić	Luka Modrić	33	90	89.0	mid	
1	162347	https://sofifa.com/player/162347/joao-filipe-m...	João Moutinho	João Filipe Iria Santos Moutinho	32	84	83.0	mid	
2	224293	https://sofifa.com/player/224293/ruben-diogo-d...	Rúben Neves	Rúben Diogo da Silva Neves	22	82	83.0	mid	
3	53302	https://sofifa.com/player/53302/daniele-de-ros...	D. De Rossi	Daniele De Rossi	35	82	81.0	mid	C
4	212501	https://sofifa.com/player/212501/leander-dendo...	L. Dendoncker	Leander Dendoncker	24	78	79.0	mid	CM,
5	184120	https://sofifa.com/player/184120/bruno-soriano...	Bruno	Bruno Soriano Llido	35	78	77.0	mid	CM, C

Performance



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