

Machine learning based football outcome prediction and visualization

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Abstract—Football is a worldwide game, with 100s of major and minor leagues. This paper aims for the visualization of football teams considering different aspects and comparing different teams and players through successive seasons, thereby showing their evolution throughout the years and to showcase the consistency of a player, fixtures in a league, along with the win/loss percentage of different teams using various machine learning techniques like Logistic Regression, Naive Bayes and Support Vector Machine algorithms.

Index Terms—Football prediction, visualization

I. INTRODUCTION

FOOTBALL is the most popular sport in the world. According to a FIFA survey, about 256 million people i.e. 4% of the world population are actively involved in playing or just the following soccer. With about 20,000 professional players. Every year, hundreds of leagues are played, each consisting of hundreds of games. Some of these leagues are watched by millions of fans around the world. This vast amount of games played results in a huge amount of data. As a consequence, it is often hard to remember how a team performed last year, let alone five years ago and it can sometimes be difficult to keep track of all the football leagues and player statistics.

This information is often openly available, but hard to find. Furthermore, different seasons are rarely compared to each other or visualized together. This could be useful though, to see the evolution of a certain team, an individual player or a set of teams throughout the years.

Apart from that analysts and coaches in soccer sports need to investigate large sets of past matches of opposing teams in a short time to prepare their teams for upcoming matches. Thus, they need appropriate methods and systems supporting them in searching for soccer moves for comparison and explanation.

A. Tools used

Using the API-football API to get the most recent data, fixtures, and player statistics To train the models, using the Kaggle data set which consists of the data from 1872-2019 for better accuracy of the models.

To implement this project, we'll be using a web interface which will comprise of the following components:

- **Backend:** (For analysis and to fetch data)
Using **node.js**
- **Machine Learning:** (To predict the player performance or win percentage)
Using

- Tensor flow
- Naive Bayes
- Random Forest
- Support Vectors Machine

And then concluding the best algorithm possible for football outcome prediction

- **Frontend:** (For visualization and better user experience)
Using **react.js** with various visualization libraries like recharts or victory or any other similar library

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II. CONCLUSION

The conclusion goes here.

APPENDIX A PROOF OF THE FIRST ZONKLAR EQUATION

Appendix one text goes here.

APPENDIX B Appendix two text goes here.

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