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Analysis of Racial Bias in Football Player Match Ratings

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Introduction

Player ratings are crucial in football as they can determine the value of a player and their contribution to a team's success. Ratings are typically based on a variety of factors such as speed, power, technique, and game intelligence. These ratings can be used by coaches to determine which players should be included in a team's starting lineup, by scouts to identify potential talent for future recruitment, and by fans to assess the performance of players during matches.

However, recent research has raised concerns that racial bias may be influencing how these ratings are given. The subjective opinions of those who assign ratings, as well as the historical and cultural contexts in which the sport is played, can all impact the racial bias of football player ratings. For example, some studies have found that black players are often perceived as being physically strong but lacking in intelligence and technical skill, leading to lower ratings in those areas.

This racial bias in player ratings can have serious consequences for individual players and the wider sport. It can lead to the unfair treatment of some players based on their race, as well as perpetuate existing inequalities in the sport. For example, if black players are consistently given lower ratings than their white counterparts, they may be less likely to be selected for teams or offered contracts, leading to reduced opportunities for career advancement and earning potential.

To address this issue, it is essential to understand the potential effects of racial bias on player ratings and to develop effective strategies for reducing its influence. One potential solution is to use objective criteria to evaluate players,

such as performance statistics, rather than relying on subjective ratings. This can help to eliminate biases that may arise from personal opinions or cultural contexts. Additionally, increasing diversity and inclusivity among those who assign ratings and those who participate in the sport can also help to reduce racial bias in player evaluations.

In conclusion, addressing the potential issue of racial bias in football player ratings is essential for creating a fair and inclusive environment in the sport. By shedding light on this problem and proposing potential solutions, we can work towards a more equitable and diverse future for football.

Football player outcomes are frequently assessed and compared using player ratings across a variety of metrics, such as speed, power, technique, and game intelligence. Coaches, scouts, and fans frequently use these ratings to determine a player's respective contribution to a team and to forecast game and tournament results. Recent research, however, has raised the possibility that racial bias may be influencing how these ratings are given, possibly leading to the unfair treatment of some players based on their race.

The subjective opinions of those who assign ratings as well as the historical and cultural contexts in which the sport is played can all have an impact on the racial bias of football player ratings. This is a complicated problem. While some studies have hypothesized that there may be racial prejudice in player ratings, other studies have found no proof of this bias.

For the sport to be fair and equal, as well as to encourage more diversity and inclusivity among players and spectators, it is essential to comprehend the potential effects of racial bias on player ratings. In order to determine the scope

of the issue and suggest potential solutions, this research paper will investigate the possibility of racial bias in football player evaluations.This paper seeks to contribute to a more equitable and inclusive sport for all by shedding light on the problem of racial bias in football player ratings.

Literature Review

Authors and Year (Reference)	*Title (Study)*	*Concept / Theoretical model/ Framework*	*Methodology used/ Implementation*	*Dataset details/ Analysis*	*Relevant Finding*	*Limitations/ Future Research/ Gaps identified*
Bertrand, M, D Chugh and S Mullainathan (2005), "Implicit discrimina	Racial bias in newspaper ratings of professional football players	This article discusses a study that found racial bias in how Italian newspapers rated professional football players. The study	The data collected were then analyzed using statistical methods, including kernel densities and linear regressions with a dummy variable for being Black as the	Dataset is based on over 400 players from the italian first division SeriaA football league and their performance per game impact over	Results show that Black players on average receive 5.67, non-Black players receive 5.78 a difference of 0.09 in the wage	The study only focuses on one aspect of discrimination in football and does not examine other potential sources of bias,

tion", American Economic Review 95(2): 94-98.		discovered that black players ranked lower than non-black players based on pro league data, even after taking objective measures of performance into account. There is no evidence, however, that the salaries paid by Italian football clubs are racist. This article also discusses the	explanatory variable. The study sought to determine whether there is racial bias in the way Italian newspapers rate professional football players, conditional on objective performance indicators. The authors also investigated whether there is evidence of racial bias in the wages Italian football clubs pay their players.	the game and how it has been shaped by Italian sports newspapers and critics for their ratings Black players receive a lower rating than non-Black players, conditional on objective performance indicators.	log between them. The largest difference in average rating is for Corriere and TuttoSport; the smallest difference is for Gazzetta. .	such as differences in the treatment of players from different nationalities or backgrounds. The analysis is limited to Serie A in Italy and may not be generalizable to other leagues or sports contexts. Further analysis could explore the underlying

		various types of discrimination and how to analyse racial bias using sports data. This study emphasises the importance of removing racial bias from sports media coverage.	.	However, the authors find no evidence of a racial bias in the wages Italian football clubs pay their players. The study uses visual inspection of players' photographs to establish whether an individual is part of a minority group.		causes of the observed racial bias in player ratings, such as the possibility of conscious or unconscious discrimination among the journalists providing the ratings.

Kausel, E. E, Coello, S. V., & Rodríguez , A. (2018)	Outcome Bias in Subjective ratings of Performance: Evidence from the (Football) Field	The media has a tendency to make remarks based on the outcome rather than the event as a whole, a quote by coach Marcelo Bielsa perfectly portrays the phenomenon: For example, if Neymar recovers a ball and then the team scores, journalists say:	Linear Multilevel mixed-effects modeling with robust standard errors.	Goal.com to study subjective performance rating by reporters given to 1,157 players in 43 games from important football competitions		

		‘Ah, the coach tamed Neymar and made him play collectively.’ But if the team loses, they say: ‘Useless coach, how can he make Neymar chase the wing-back instead of making him play close to the penalty box!’ The media specializes in				

		corrupting human beings depending on a win or a loss. (Coach Marcelo “El Loco” Bielsa; El Dinamo, 2017)				
Martin Kjeøen Erikstad & Bjørn Tore Johansen (2020)	Referee Bias in Professional Football: Favoritism Toward Successful Teams in	The concept of this paper is to investigate whether referees in the Norwegian Premier League (NPL) show bias when awarding	The study was approved by the research ethics committee, and it was grounded in social impact theory. Two NPL teams were identified as	The chi square statistic was used to compare the EP ratings with the match referee decisions based on whether the team involved	It turns out that successful teams can influence the referees to make decisions in favor of their team, which can lead to an unfair	There are several limitations: First, The study was limited to one league and was not conducted in

	Potential Penalty Situations	penalties to successful teams. The study is grounded in the social impact theory framework, which examines how social forces can impact individuals' decisions and behavior. The researchers used video footage to evaluate potential penalty situations	potentially impactful based on their status and previous success: Rosenborg and Molde. The researchers examined two independent and objective match reports provided by Norwegian National Media for all matches played by Rosenborg or Molde against other NPL teams during a single season (N = 56) to identify potential penalty situations.	was successful or not. Situations left blank by the EP were treated as “no foul”. The results of the analysis showed that successful teams were more likely to receive an incorrect penalty compared with their opponents, and less likely to be denied a penalty they should have been awarded.	advantage throughout the season. Umpires who are better able to resist social pressure and manage stress and anxiety are less likely to be affected by these forces. This study highlights the need for referee federations to develop training methods to help	other leagues or countries. Referee bias can be influenced by league or culture-specific factors such as fan engagement levels or media coverage. Second, this study focused only on penalties and did not consider other types of refereeing decisions that

		involving successful teams and those without success. An expert panel of four NPL referees assessed these situations to determine if any penalties were missed or incorrectly awarded. The results indicated that successful teams were more likely to be awarded	All situations where one or both reports indicated that the match referee had decided whether to award a penalty were included. The study included a total of 98 potential penalty situations, including 43 involving Rosenborg or Molde and 55 from matches without these successful teams. The video clips of	These findings indicate that referees' decisions may be unintentionally biased by a team's success.	referees deal with social influence and resist its influence on decision-making. Additionally, the study suggests that VAR referees may be less susceptible to social influence than on-field referees. The study suggests further research on the subject,	could affect a team's success. Referees may show bias in other ways, such as awarding free kicks or making disciplinary decisions. Future research should investigate whether these types of decisions affect team success.

		incorrect penalties and less likely to be denied penalties they should have received. These findings suggest that a team's success can unintentionally bias a referee's decision-making and highlight the need for impartial officiating in sports.	each situation were gathered and edited using Camtasia Studio software to reduce potential bias. The videos were randomized and numbered 1–98, and a DVD with these video clips was sent to each of the four EP participants, along with an information letter with instructions to review each situation and mark their judgment on a		especially in countries with high social pressure, and proposes experimental studies to test the impact of different variables on arbitration decisions.	Third, the study did not consider the quality of the teams participating in the competition. Judges may favor successful teams because they are objectively better than their opponents rather than social influence. Therefore, future studies should monitor

			standardized questionnaire.			team quality when examining referee bias.

Methodology

Datasets

This project had multiple parts, and therefore for each part different datasets were used. The data required in this project are:

1. Match ratings of football players
2. Performance metrics of football players for each match
3. Racial data of each player

The match ratings of football players were publicly available in Kaggle. The match ratings consisted of football player match ratings for the Premier League 2017-2018, Bundesliga 2017-2018, Euro 2016 and World Cup 2018. This dataset consisted of 63 features and almost 51,000 rows.

The performance metrics of football players was obtained from scraping the website FBref. The performance ratings of around 16,000 unique matches were scraped, out of which around half the dataset was found to be rather inconsistent.

The racial data of each player was not available from direct sources, so it had to be approximated. The Validated Names for Experimental Studies on Race and Ethnicity dataset provided by Harvard University, was used to statistically tag the races for players using the players' first names.

Preprocessing

The data of match ratings of football players was found to be consistent, and required rather little amount of preprocessing. An interesting observation was that the models used in this project performed better when the match rating feature was converted to a categorical variable.

The name-race dataset was already pre-processed, saving us a lot of time. However, the match performance data scraped from the internet required a lot of pre-processing. A lot of complex logic was required to clean the match performance data - individual modules for cleaning the match lineups, different performance metrics, and the match summary were created.

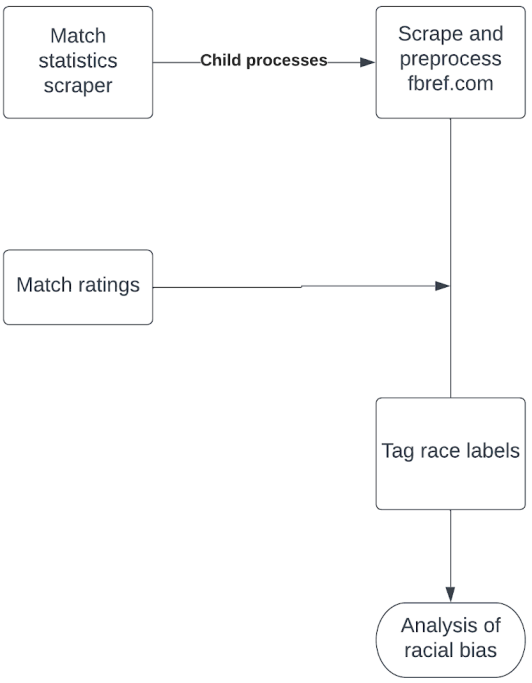
Models Used

There were two machine learning problems in this dataset, and for each a handful of approaches were used.

The first problem was tagging races based on names, for this a purely statistical approach was used first; after evaluating this, we used a second approach - we took BERT as a base and added layers for classification. However, BERT for this was found to be too heavy for a rather simple task. After making the aforementioned observation, we used DistilBERT, which showed promising results.

The second task for which machine learning was required was predicting match ratings using the match statistics along with or without racial information of the players. For this BERT with additional layers was used.

System Architecture



The flow of data in this project is described in the diagram above.

For detecting racial bias, the approach we have used is to develop two identical machine learning models for predicting the match ratings of football players. One of the models will be fed the human race labels, while the other will not. If the model that is given the race labels performs better than the one without race labels, then one of two things can be true: the fact that people from one race are better in the sport compared to others, or the fact that there is a positive or negative bias when judging people from a particular race.

Results and Discussion

Expected Results

The null hypothesis in place is that there is no racial bias in football player ratings. The alternative hypothesis is that the match ratings given by humans are biased based on the race of the player.

Existing literature has suggested the presence of bias of one form or the other when it comes to match ratings in not just football, but other sports as well. Based on the existing literature, the result that we expected was that there was a considerable chance that there may be bias in the ratings of football players given by humans.

Obtained Results

It was found that bias was indeed present in the football players match ratings. The accuracy of the model predicting match ratings without races was 79%, while the accuracy of the model predicting match ratings with races was 83%. The 4% difference can be considered significant in a topic as important as dealing with racism.

Conclusion

We can conclude that the presence of racial bias in football player match ratings assigned by humans, which was expected, is concerning, and is to be dealt with. Broadcasters and other media platforms which present opinionated human-given match ratings should scrutinize the reporters who generate the match ratings, so that this problem can be dealt with. An alternative approach the media platforms should take is to use algorithmic match ratings which generate match ratings strictly based on objective performance statistics.