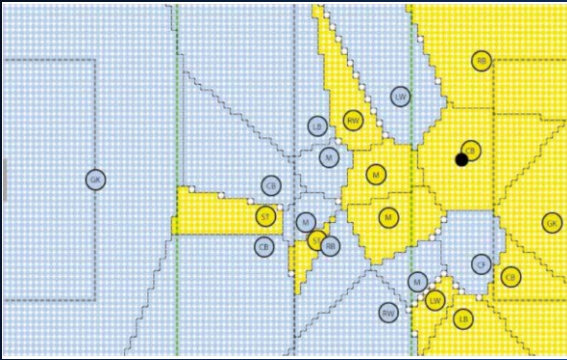




What makes a goal?

Inspection into the determinants of goal scoring in a soccer game season

Zimu Su



Graphic processing of the positional data in the soccer-WM 2006, Finale: Italy-France 6:4 . The first game with positional data available. (Jahrgang 2018)

Revolution:

- Trend of data-driven analysis to evaluate game performance;
- Metrics collection and computation based on advanced sensor technique;
- Tactics decision based on comprehensive investigation in elite soccer.





What aspect of team performance significantly contributes to the goal scoring in a league season?

FEATURES

Shots

Ball carrying &
passing

Defensive
actions

Percentage of shot on target



Shots per game
(shots on target + not on target)



Dribble success percentage



Pass percentage



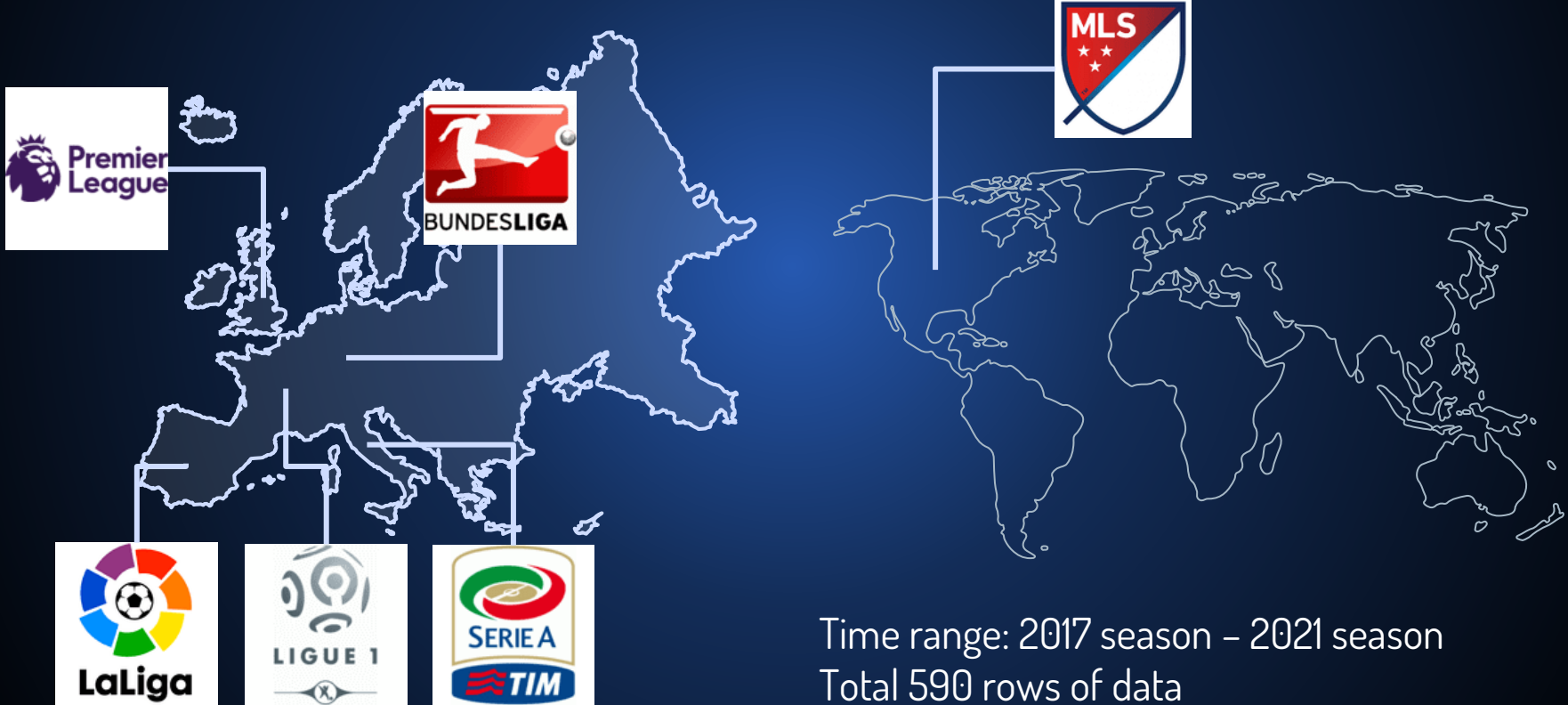
Pressure success percentage



Tackle per game




Source of Statistics




Web scraping from Fbref.com

[Sports Reference](#) [Baseball](#) [Football \(college\)](#) [Basketball \(college\)](#) [Hockey](#) [Soccer](#) [Blog](#) [Stathead](#) [Widgets](#) [Login](#) [Questions or Comments?](#)


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2021-2022 Premier League Stats

[« Previous Season](#)

Governing Country: [England](#) 
Level: 1st Tier ([See League Structure](#))
Gender: Male
Most Goals: [Mohamed Salah](#) - 17
Most Assists: [Trent Alexander-Arnold](#) - 10
Most Clean Sheets: [Ederson](#) - 14
Big 5: [View Big 5 European Leagues together](#)

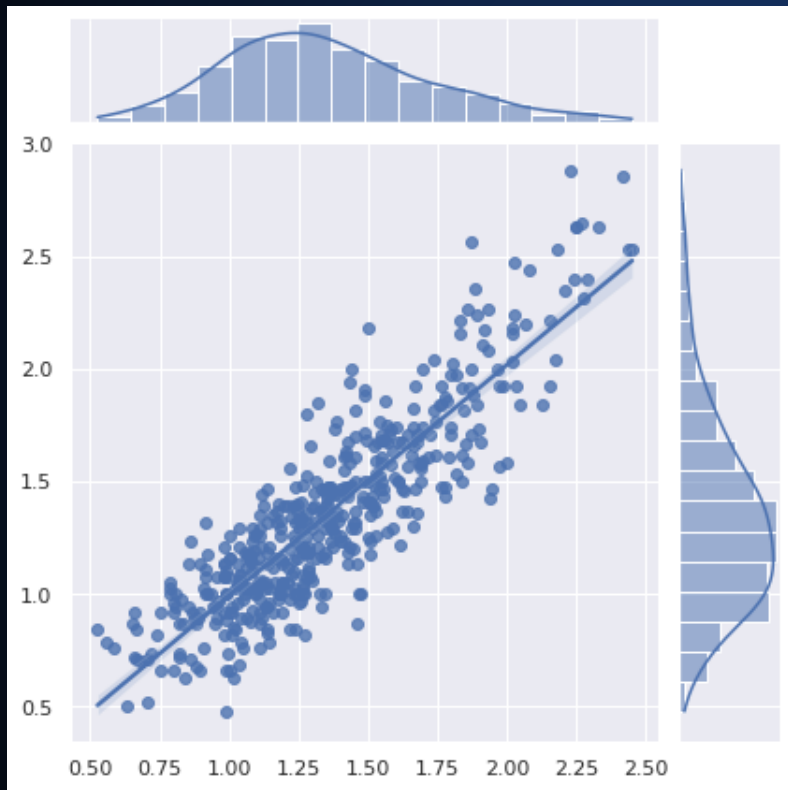
[Premier League History](#) [2021-2022 Premier League Overview](#) [Scores & Fixtures](#) [Squad & Player Stats](#) [Nationalities](#) [Other 2021-2022 Leagues](#)

On this page:

League Table	Squad Standard Stats	Squad Goalkeeping	Squad Advanced Goalkeeping	Squad Shooting	Squad Passing
Squad Pass Types	Squad Goal and Shot Creation	Squad Defensive Actions	Squad Possession	Squad Playing Time	Squad Miscellaneous Stats
Leaders	Nationalities	League Notes	Full Site Menu		

<https://fbref.com/en/>

Actual Goal per game in season



Predicted goal per game in season

Model details

Data standardization

LASSO regularization

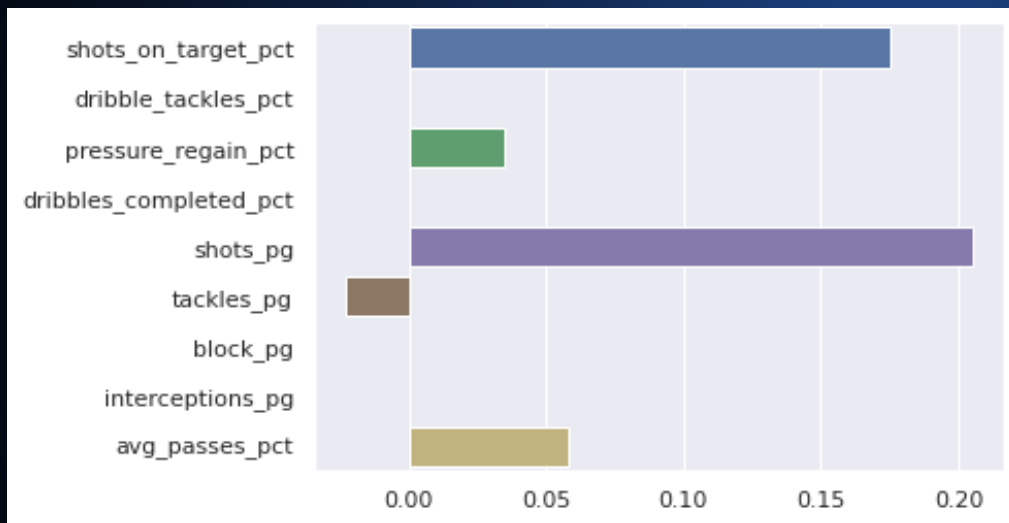
No multicollinearity

MAE: 0.165 goals per game

R2 score: 0.798

Adjust R2 score: 0.793

Coefficients analysis



- Shots on target percentage and shots per game are most influential factors.
- Success of pressure and passing balls also benefits goals per game.
- Tackles is negatively related to goals.
- Dribbles, blocks, interception, dribble tackles have no contributions to goals.

Conclusions & Suggestions

- Shots matter, whatever they are on target or not.



- Capabilities of passing ball and putting pressure are important.

Passing



Pressure



- Dribbles



have no contributions to score goals.

- Defensive actions like blocks, interception, dribble tackles have no contributions to goals.

- More tackles, less goals.



- Tackles to force the opponents to stop the ball when approaching own penalty area.
- More tackles indicates less ability to approach opponent penalty area to make the shots.

FUTURE WORK

- Find significant factors to goal against (goals scored by opponents).
- Make similar analysis at player level.