



Super Team or Super Dream?

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Overview

Problem

- Predict team wins using player data from updated rosters
- Assess the likely impact a given traded player will have on a game's and season's outcome

Solution

- Create bagging model based on game outcome and XGBoost on point differential
- Create model that allows for individual-level statistics of traded players to be factored into team success predictions

Insights

- The Lakers are a super team and Westbrook is going to be a difference maker
- Average points, opponent team blocks, and team defensive stats have biggest impact on point differential in XGBoost model
- Team blocks, points scored, and defensive stats such as points allowed are best predictors for game outcome

Data Description/ Pre-processing

Source: nbastatR package

Pulled game data from the 2019-2020 and 2020-2021 seasons

Extracted and calculated offensive and defensive averages based on previous games played

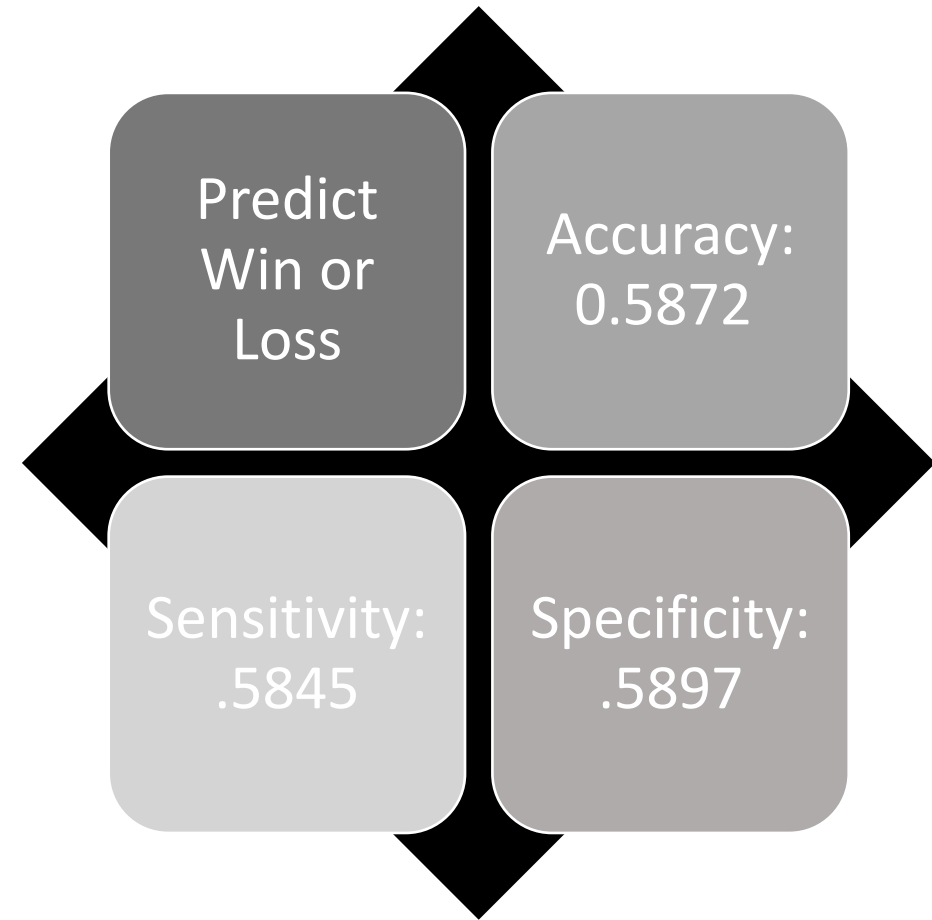
Removed each team's first game of the year to omit NA's for modeling

Built a model to predict a game's point differential

Built a model to replace individual players

Models

Random Forest



Team blocks, average points scored for both teams, and team defensive stats such as field goal percentage against and points allowed have the biggest impact on whether a team wins or loses the game



Player Evaluation

Replaced an average player (KCP) with Westbrook

Created predictions for Lakers games with original roster and then Westbrook replacing KCP against final XGboost model

Compared predictions on point difference and outcome on a per game basis

Lakers with KCP



Win Percentage in
2020: .6596



Predicted wins in 2021:
41



Win Percentage in
2021: .5775

Lakers with Westbrook



Win Percentage in 2020:
.7234



Predicted wins in 2021:
47



Win Percentage in
2021: .6620

Conclusions

In random forest, team blocks, average points, and team defensive stats such as points allowed and field goal percentage against are most important predictors

XGBoost model shows that average points scored, opponent team blocks, and team defensive stats are most important predictors for point differential

Russell Westbrook likely will have the largest positive impact of traded players on the Lakers this upcoming season

Model that predicts impact a specific player will have on team seems to be more accurate than XGBoost model

Future Work



Our Model updates automatically and can be easily adapted and applied to future seasons

Apply player evaluation model to all traded players to predict ones that will have the most impact on their teams

Manipulate model to factor in that players may get significantly less time and would need their stats lowered to match new expected minutes played