Predicting NBA Usage Rate

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Player Value on an NBA Team

In the NBA, teams seek out players who can make a tangible impact on performance.

Teams utilize players in their offensive and defensive systems based on past statistics and tendencies of the players.

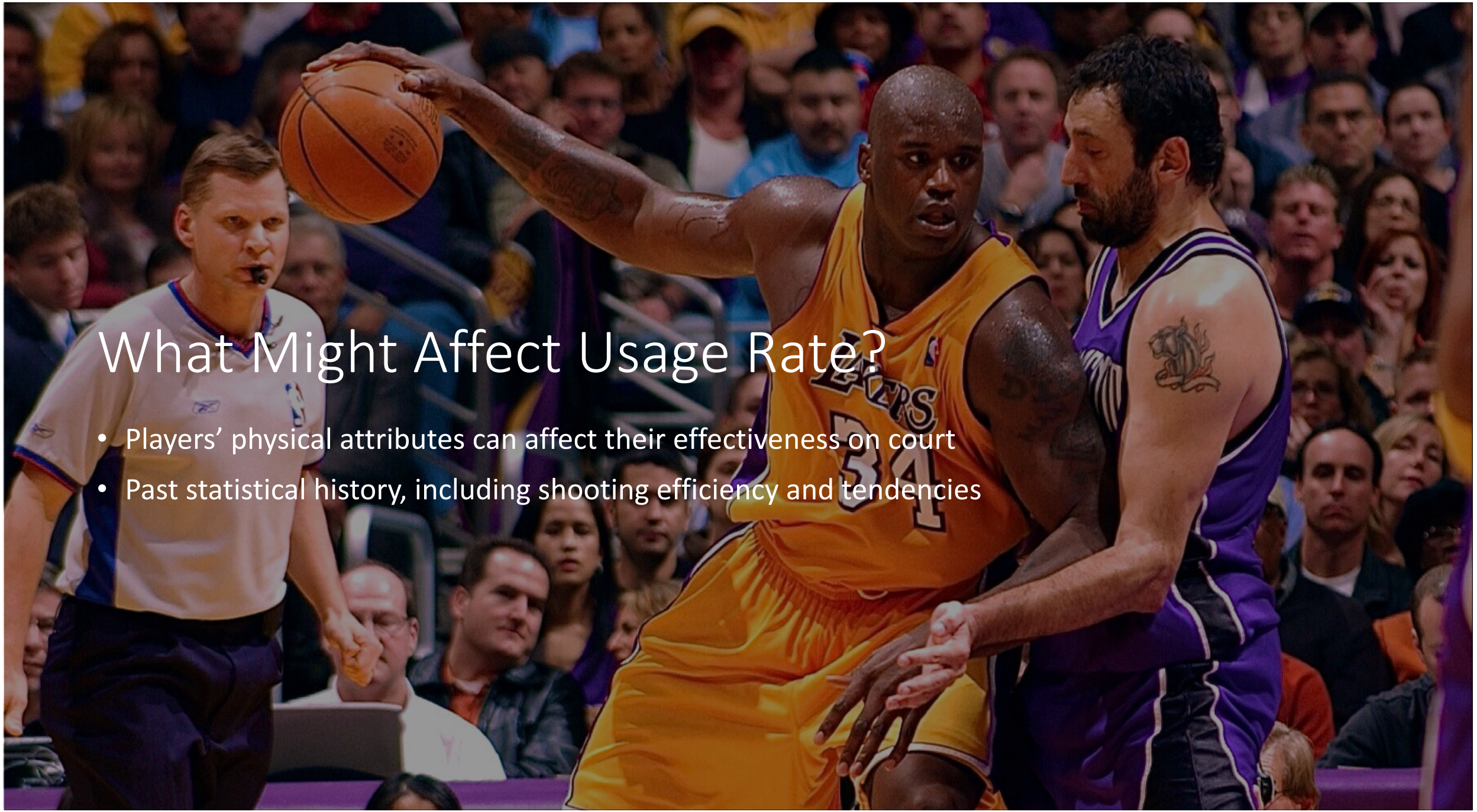
Metrics

- One of the metrics utilized to measure player involvement is Usage Rate:
  - Usg% is an estimate of the percentage of team plays that a player is involved in
- Predicting this metric would provide NBA teams a better idea of how much they can integrate a player into their gameplan.

Methodology

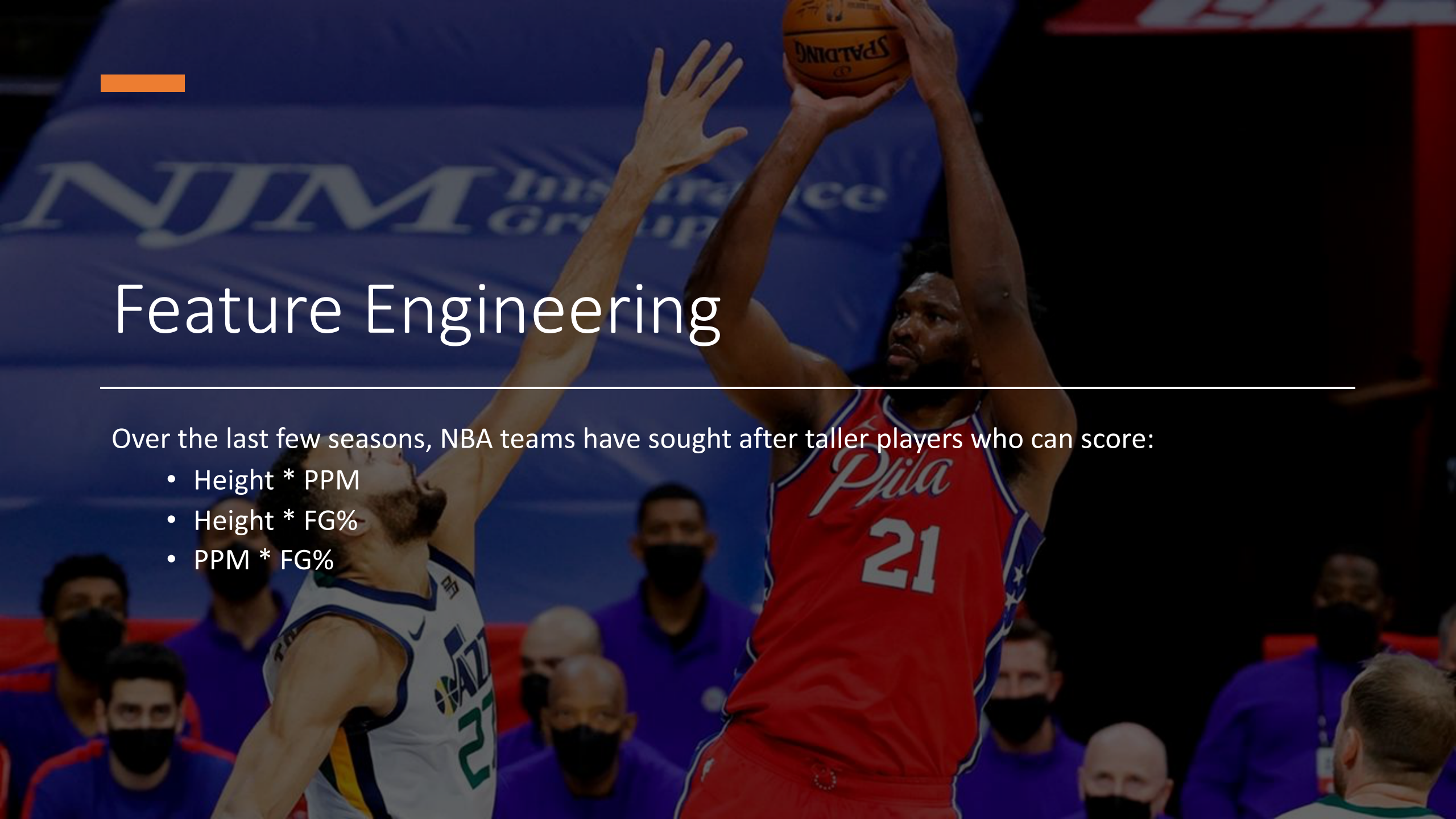
- Cross Validation with 5 K-Folds
- Ridge Regression
- Data obtained from Basketball-Reference.com

Primary Data Source



What Might Affect Usage Rate?

- Players' physical attributes can affect their effectiveness on court
- Past statistical history, including shooting efficiency and tendencies



Feature Engineering

Over the last few seasons, NBA teams have sought after taller players who can score:

- Height * PPM
- Height * FG%
- PPM * FG%

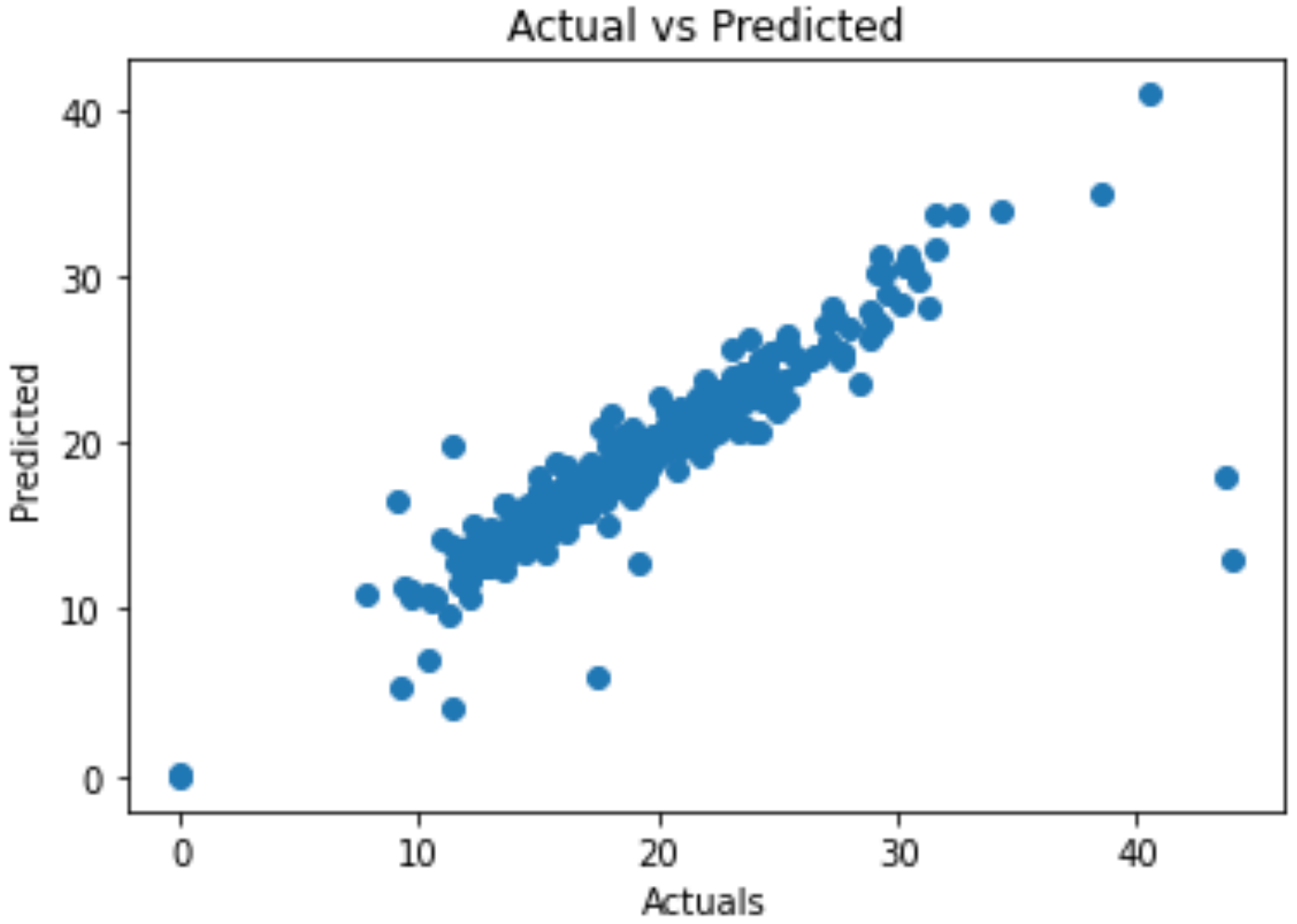
Results

Baseline mean R^2: 0.783

Training Data mean R^2: 0.819

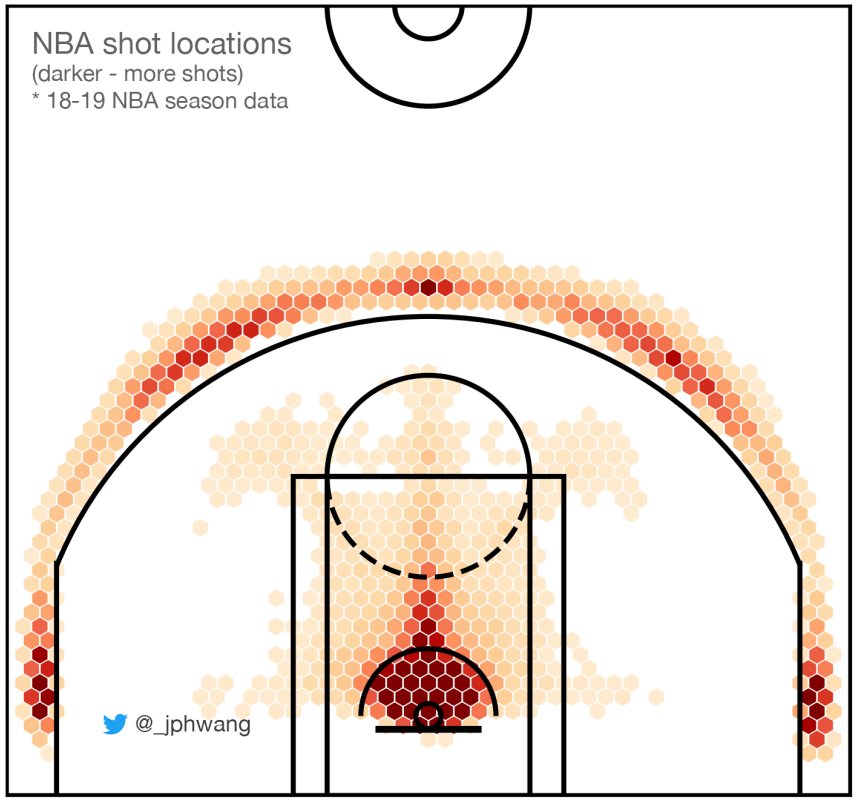
Test Data mean R^2: 0.773

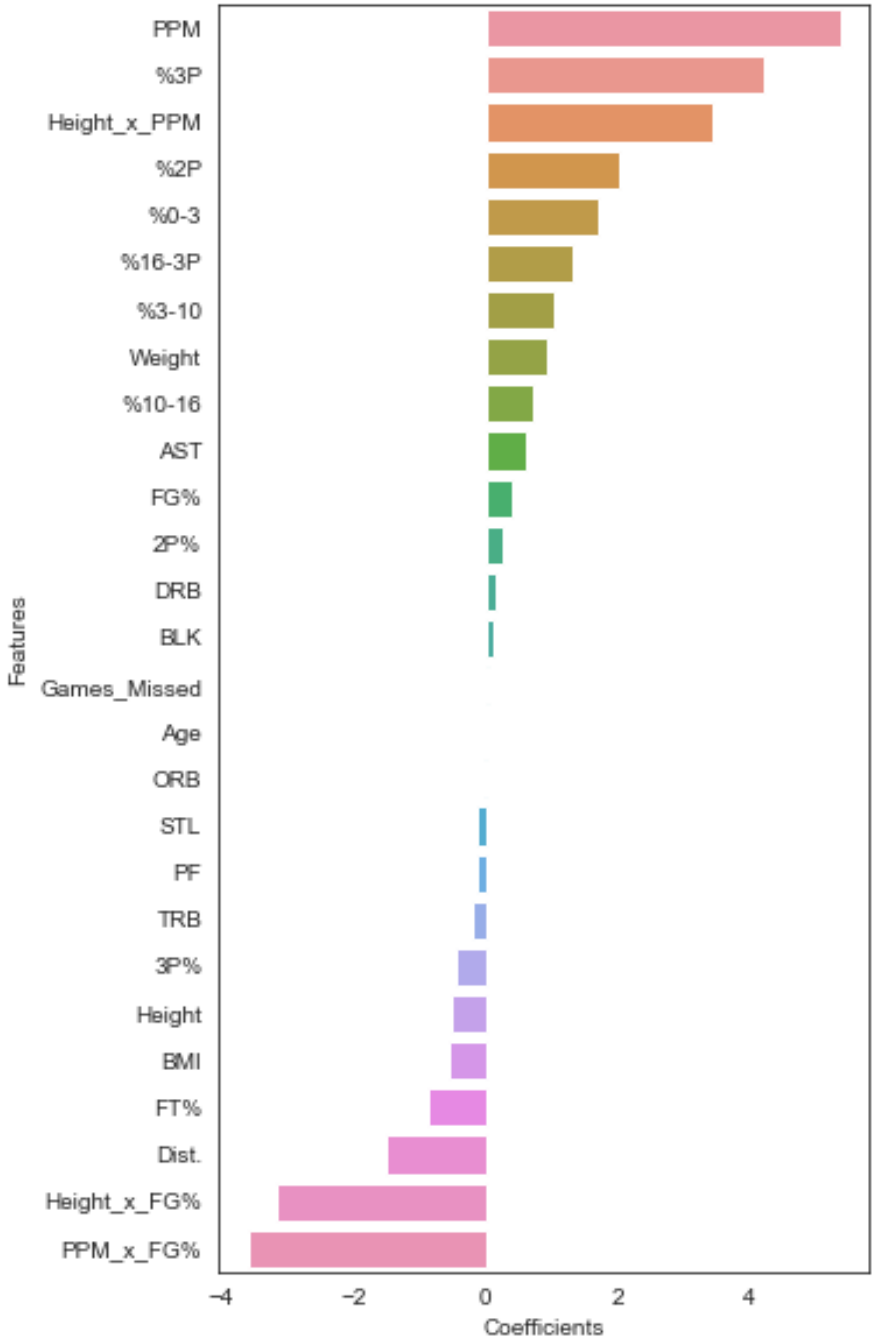
Performance



Results

- Most Significant Features





Recommendations & Insights

- NBA teams should incorporate players with:
  - High PPM, High Percentage of 3pt Shot Proportion, Tall Height with High PPM

Future Work

Separating data by Position using Dummy Variables