NBA PLAYER CLASSIFICATION

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INTRODUCTION

GOAL:
Create a model that classifies NBA players beyond the traditional 5 positions (PG, SG, SF, PF, C)

Provide insight on team makeup of the top and bottom teams to see what good teams have that bad teams lack

PROBLEMS TO ADDRESS

Player A

0/0.2 3P per game
14.3 3P%
Position: Center

2015 Brook Lopez

Player B

1.8/5.2 3P per game
34.6 3P %
Position: Center

2016 Brook Lopez

PROBLEMS TO ADDRESS

Differences Within Positions

A player’s position is not always a good indicator of that player’s playstyle

Manually (or automatically) generate types of playstyles to classify players better

Player Development

Players are always evolving, which can result in different playstyles between seasons

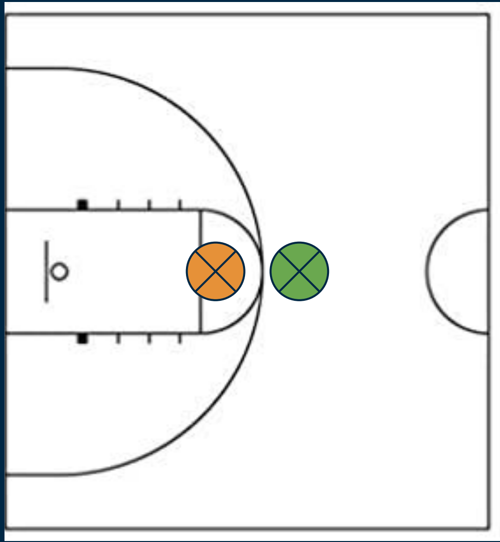
Count each season of a player as a different player
Eg. 2015 Brook Lopez and 2016 Brook Lopez would be different players

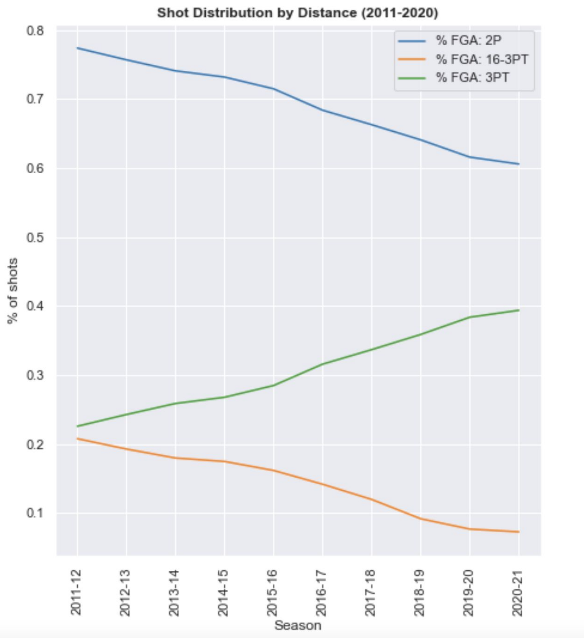
UNDERSTANDING THE PROBLEM

3 Point Era

Teams have started to trade the "long 2" (midrange) for the 3 pointer

2015
Stephen Curry's 1st MVP
Warriors best record in NBA
Led NBA in 3P% (.398)





3PT per game had been increasing but seeing the Warriors' success as a mainly 3PT shooting team in 2015 was what triggered a spike

This project only uses player data from 2015-2021

THE DATA

Gathered/Scraped from:

- NBA.com
- Basketball-reference

Contains:

- Traditional player stats (points, rebounds, FG %, etc.)
- Shot location/tendencies (midrange shooting, drives, postups, etc.)

MODELING: SEMI-SUPERVISED LEARNING

Unsupervised learning

Clustering algorithm separates players into groups, after which, give each group a playstyle

Supervised Learning

Classification model is trained using the groups from the unsupervised learning results as the labels

MODEL RESULTS

Best Model: Neural Network

Training Accuracy: 97.3%

Test Accuracy: 94.2%

Loss: 0.0926

Playstyles:

0. Ball-Dominant Scorer

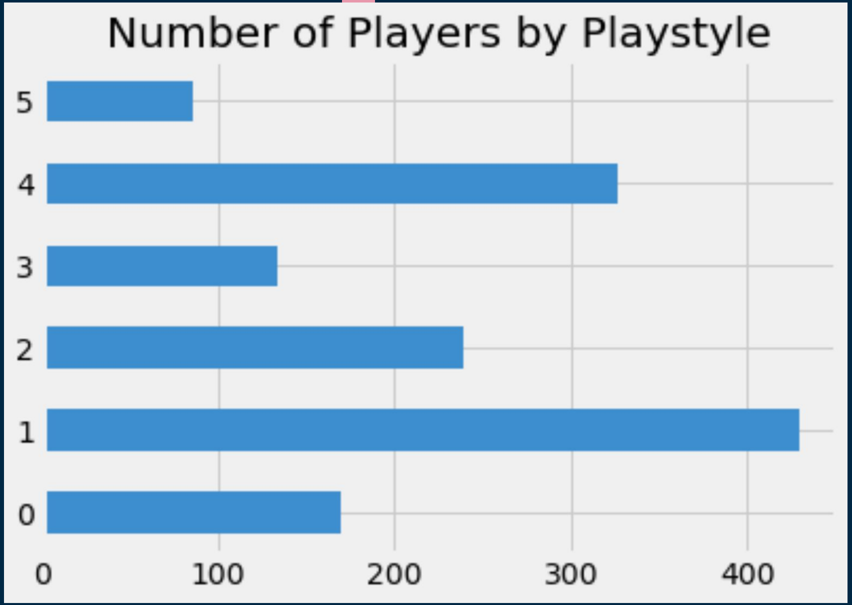
1. Role Player

2. Stretch Big

3. Traditional Big

4. Secondary Guard

5. High-Usage Big

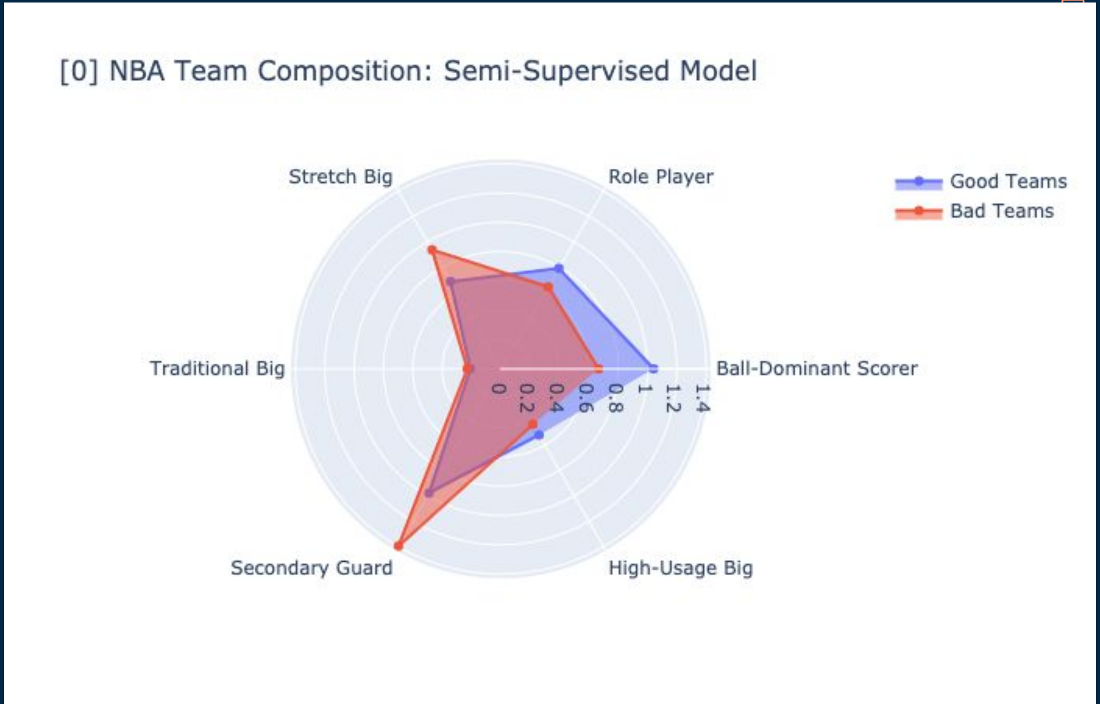


MODEL RESULTS: SEMI-SUPERVISED

Comments:

- Good teams have more
  - Ball-dominant scorers
  - Versatility in role players
- Bad teams have more
  - Stretch Bigs
  - Secondary Guards

Highlights importance of a Ball-Dominant Scorer and prioritizing a superstar on the roster over team depth. In today's NBA, it may be better to have a superstar surrounded by decent players, rather than a deep team of good players.



FUTURE WORK

DASHBOARD: CLASSIFIER

Used to generate predicted playstyle based on user-inputted stats

DASHBOARD: PLOTTING

Create interactive tool that allows users access radar plots by toggling years and team-type (good, bad, average)

DEFENSIVE CLASSIFICATION

Most of these classifications mainly concern offense. More defensive stats could show which positions need the best defense.

Do you have any questions?

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THANK YOU!