

A Cost-Efficient Approach to Building an NBA Team

- Methodology:

- Important Features: Field Goal Percentage (FGP), Defense Rebound (DREB), Offense Rebound (OREB), Rebound (REB), Assist (AST), Turn Over (TOV), Block (BLK), and Field Goal Made (FGM)
- Pick out most relevant features for each of the positions (Table 1)
- Rank the selected Statistics within each position
- Calculate the weighted average of the ranks

- E.g. For Small Forward: The *Weighted Rank* =
$$\frac{FGP\ ranking \times \# FGP + DREB\ ranking \times \# DREB}{\# FGP + \# DREB}$$

Position	Statistics
Point Guard	FGP, AST, DREB, TOV
Shooting Guard	FGP, AST, DREB
Power Forward	FGP, BLK, REB
Small Forward	FGP, DREB
Center	FGP, BLK, REB

Table 1: Statistics chosen to rank players in each position

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- Methodology:

- Create a plot for each position:

- x axis: standardized weighted rank; y axis: standardized salary

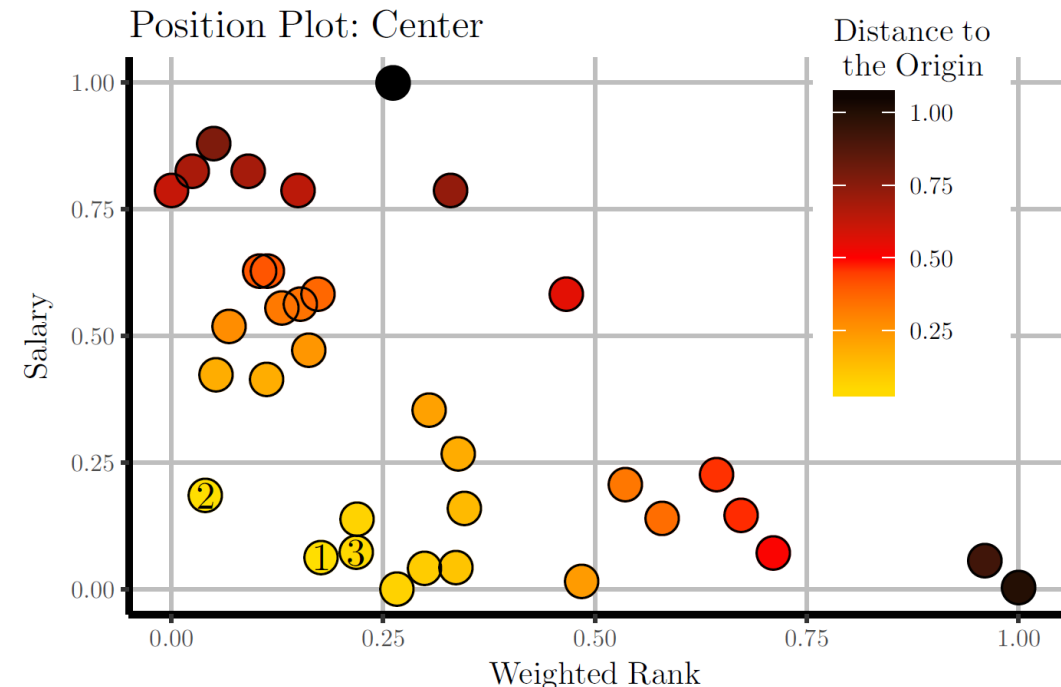
- Compare Euclidean Distances between each point and the origin

- Origin (Ideal player): free and has the smallest standardized weighted rank score (best performance)

- Select the top 3 players for each of the positions

- Results:

Position	Fantasy Team
Point Guard	Darren Collison
Shooting Guard	CJ McCollum
Power Forward	Nikola Jokic
Small Forward	Giannis Antetokounmpo
Center	Zaza Pachulia



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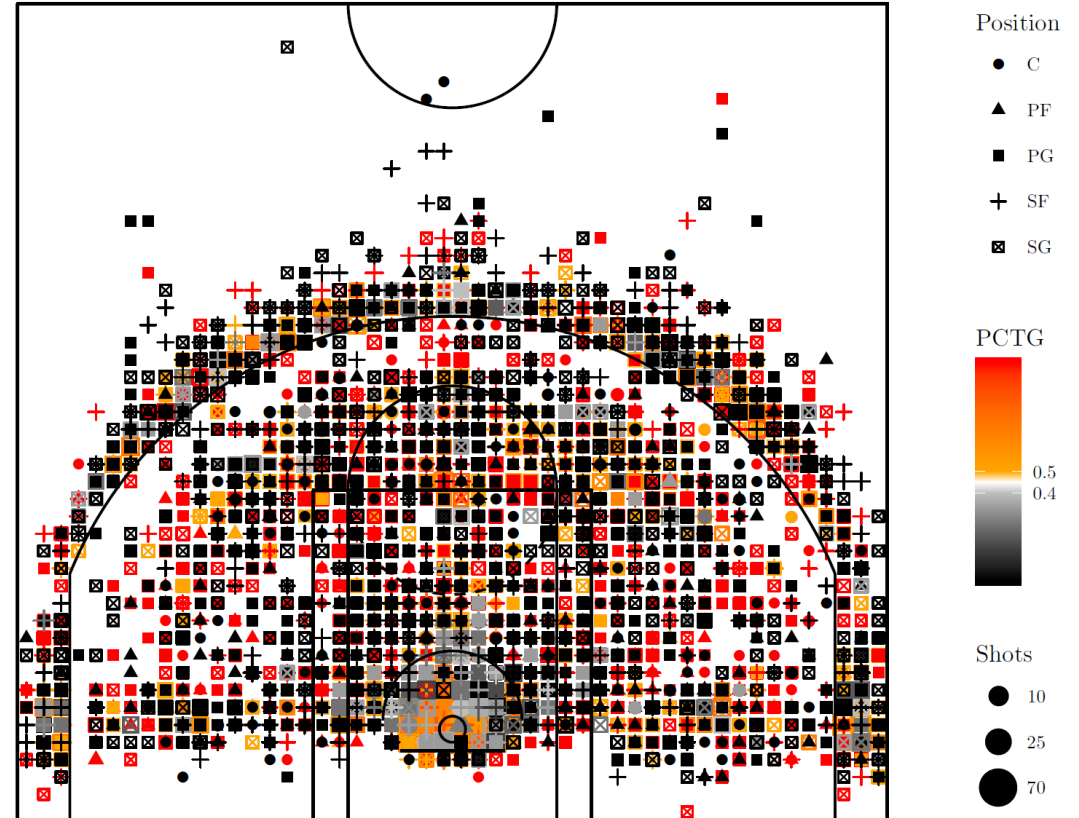
- Sweet spots & Unsweet spots:

Team	# Sweet Spots	# Unsweet Spots	# Total Spots	Sweet Spots (%)
Fantasy Team	864	960	1824	47.4
Golden State Warriors	894	945	1839	48.6
Cleveland Cavaliers	821	950	1771	46.4

- Conclusion:

- “Fantasy Team” has equivalent performance to the NBA finalists but significantly lower average salary

Team	Average Salary (\$)
Fantasy Team	3,571,462
Cleveland Cavaliers	10,586,797
Golden State Warriors	7,653,265



Sweet and Unsweet Spots for Fantasy Team (1 sqft)