## Project Overview: NBA Salary vs. Performance Modeling

**Summary**This project analyzes how NBA player salaries relate to performance metrics, with a particular emphasis on the rise of the 3-point shot. As long-range shooting has grown in importance over the past decade, we examine whether it correlates with player earnings and how its value varies across positions, roles, and time.

**Purpose**This project continues a similar study completed during Maekala Turner’s undergraduate coursework for MATH 370: Writing in Mathematics at the University of Massachusetts Amherst. While the original paper used simple regression and narrative-style visuals, this updated version applies more rigorous data science tools and a broader dataset. The goal is to use statistical modeling and visualization to tell a compelling story about how the 3-point era has reshaped the economics of basketball.

**Tools Used**

* **Language**: R
* **Environment**: RStudio or Jupyter with IRKernel
* **Libraries**: tidyverse, readr, dplyr, ggplot2, plotly, lubridate, tidymodels, ranger, janitor
* **Google Drive** or local directory for storage

**Folder Structure**

| Salary vs. Performance Model/ ├── code & notebooks/ │ └── salary\_vs\_performance.Rmd ├── data files/ │ └── (Raw and cleaned salary + performance datasets) ├── visuals & reports/ │ └── \*.png, \*.html (graphs and summary visualizations) ├── README (setup + usage guide) └── Project Overview (this document) |
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**Dataset Outputs**

* combined\_salary\_stats.csv: merged dataset for modeling
* salary\_model\_summary.csv: regression or RF model coefficients/importances
* key\_visuals/\*.png: visual outputs illustrating model relationships, time trends, and outliers

**Future Additions**

* Integration of play-by-play or shot chart data for player role analysis
* Advanced feature engineering including per-possession stats
* Interactive dashboards using Shiny or Plotly
* Modeling expansion by season/year for time-based trends

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