



# NBA Player Performance and Salary

Taeuk (Allen) Kim



## Current NBA

30  
Teams

20  
Players

115 M  
Salary Cap



# Overview

- **Goal:**
  - Provide model to evaluate NBA player salary based on performance / descriptive statistics
- **Use Case:**
  - Aid team and GMs when making player contract / trade decisions
  - Inform player/agents of potential to maximize contract

# Data



- Source: Sports-Reference
- 3001 rows of player's season statistics ranging from 1998 to 2019
- 38 unique per game player statistics (FG%, 3P%, AST, PF, etc)
- 6 descriptive statistics (Team, Position, All Star, etc)

# Model



- 2 Models
  - Linear Regression with selected features
  - Linear Regression with feature interaction term included

# Model Performance

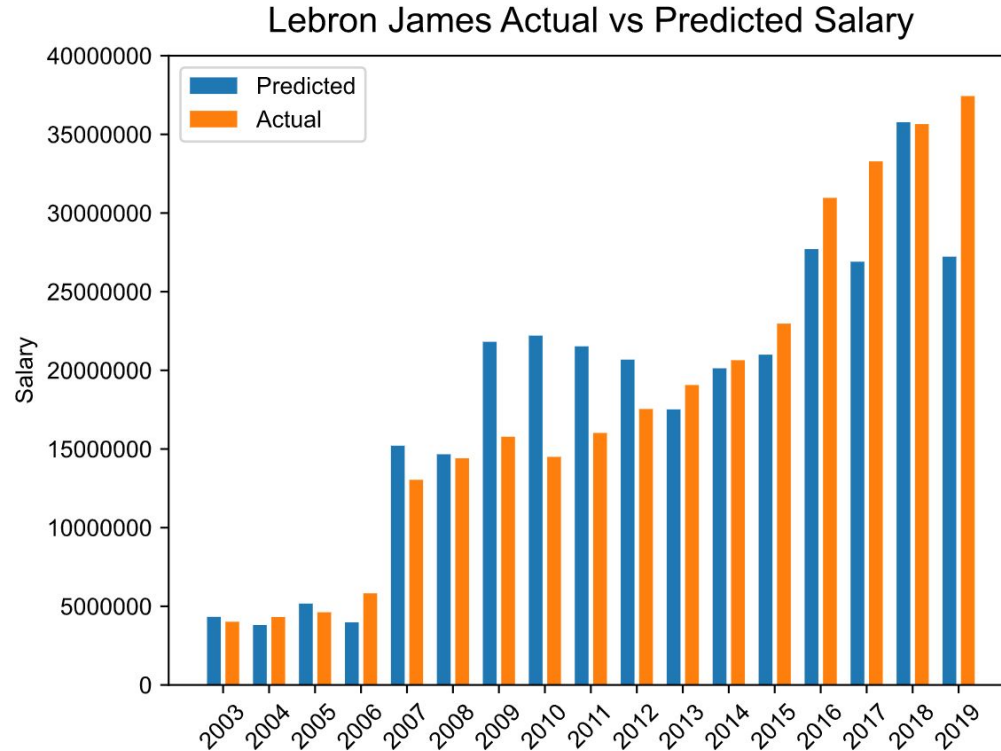
Model 1

	Linear Regression	Lasso	Ridge
R-Squared	0.635	0.6310	0.6350
Mean Absolute Error	\$413,449	\$406,597	\$414,375
Mean Squared Error	\$680,311	\$688,236	\$680,625

Model 2

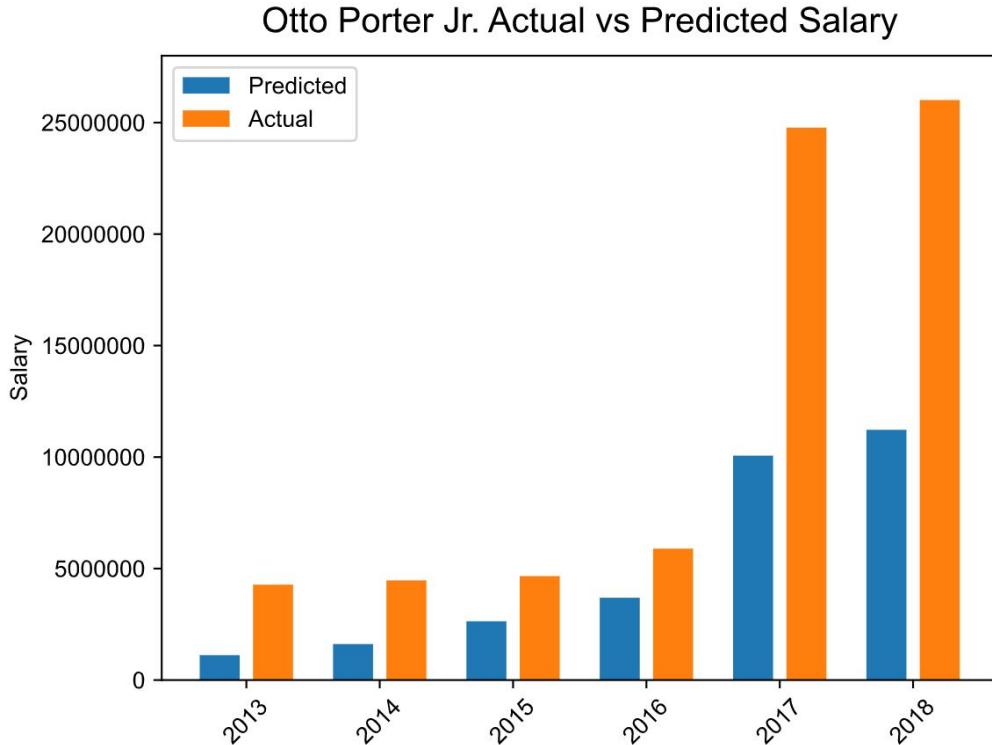
	Linear Regression	Lasso	Ridge
R-Squared	0.647	0.648	0.6674
Mean Absolute Error	\$381,281	\$389,525	\$357,006
Mean Squared Error	\$658,856	\$656,861	\$620,298

# Model Application: Resource Allocation



- PTS: 8th
- AST: 1st
- TRB: 22nd
- Salary: Top 0.1%

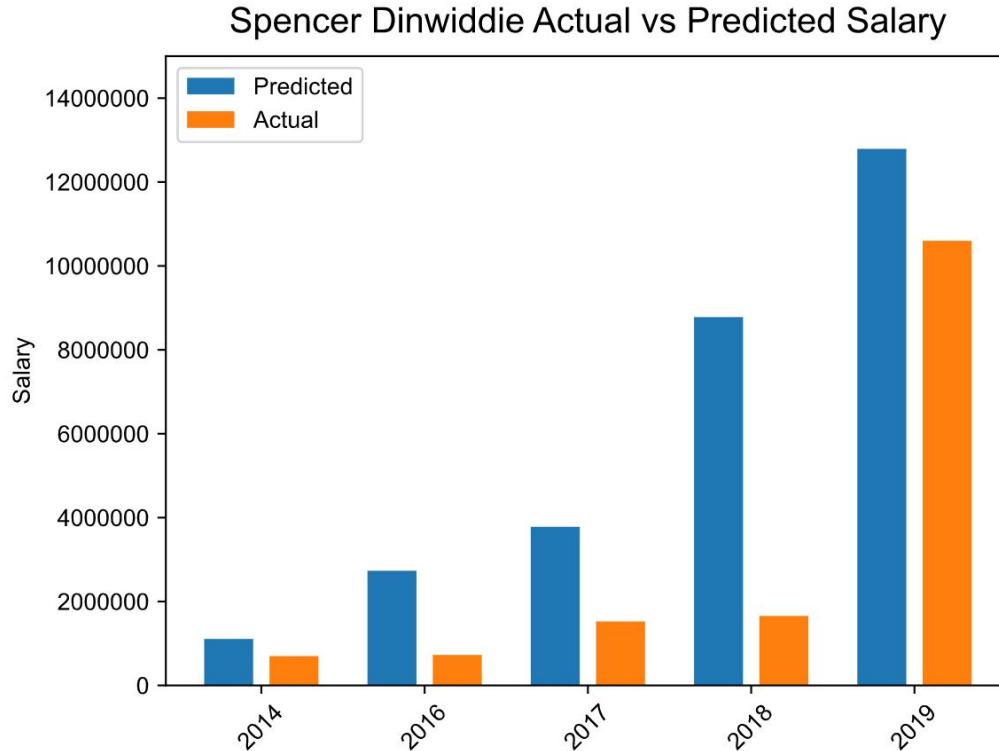
# Model Application: overpaid Player



- PTS: 128th
- AST: 178rd
- TRB: 123rd
- Salary: Top 3%



# Model Application: underpaid Player



- PTS: 25th
- AST: 15th
- TRB: 180th
- Salary: Top 20%

# Future Works



- Add non active players to add to database
- Take into account multi-year contract
  - Assess performance over the span of contract
- Simplify model so that it can be used to identify areas that best translate to higher salary
- Add social media followers to quantify popularity (Twitter api, Instagram api)