



Introduction

Shohei Ohtani has captivated Major League Baseball (MLB) as one of the most versatile and talented athletes of his generation, redefining what is possible in modern baseball. Ohtani has consistently pushed the boundaries of excellence, achieving many feats that have reshaped the sport's history.

- 2024
 - NL All-Star
 - 50/50 season
 - World Series champion
 - NL MVP
- 2023
 - WBC champion
 - AL All-Star
 - AL MVP
- 2022
 - AL All-Star
 - Edgar Martinez Award
- 2021
 - AL All-Star
 - AL MVP
- 2018
 - AL Rookie of the Year

Throughout his career, Ohtani's leadership and dominance on the field cemented his legacy as one of baseball's all-time greats and a player every fan should admire.

Research Question

How does Shohei Ohtani's 2024 performance, measured by offensive key metrics, compare to the whole league and standout players?

Background

The research focused on key metrics pertaining to offense only. The following stats were selected for their importance in assessing the offensive quality of a player.

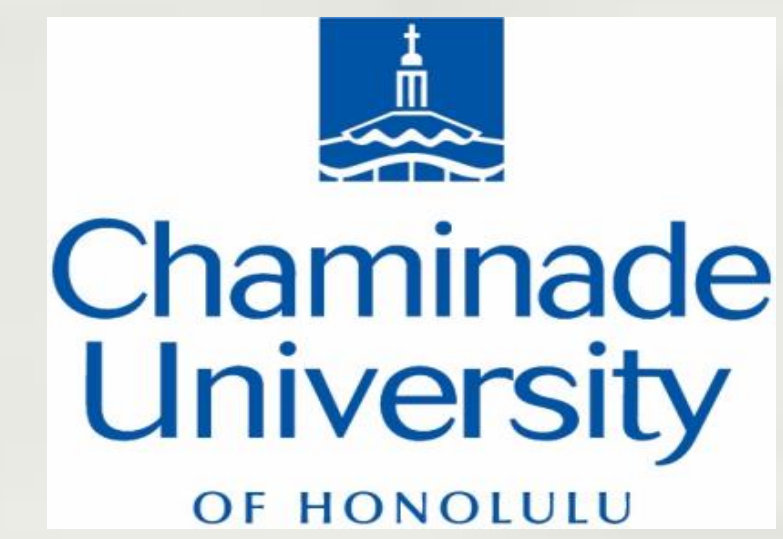
- Average Exit Velocity (aEV) by zone
- Batting Average (AVG)
- On-base Percentage (OBP)
- Slugging Percentage (SLG)
- On-base Plus Slugging (OPS)
- Home Run (HR)
- Stolen Base (SB)
- Runs Batted In (RBI)

Methods and Programs Used

- RStudio
- Baseball Savant's Statcast Search tool
 - aEV by zone
- Rotowire's 2024 MLB Player Stats
 - AVG, OBP, SLG, OPS, HR, SB, RBI

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Results

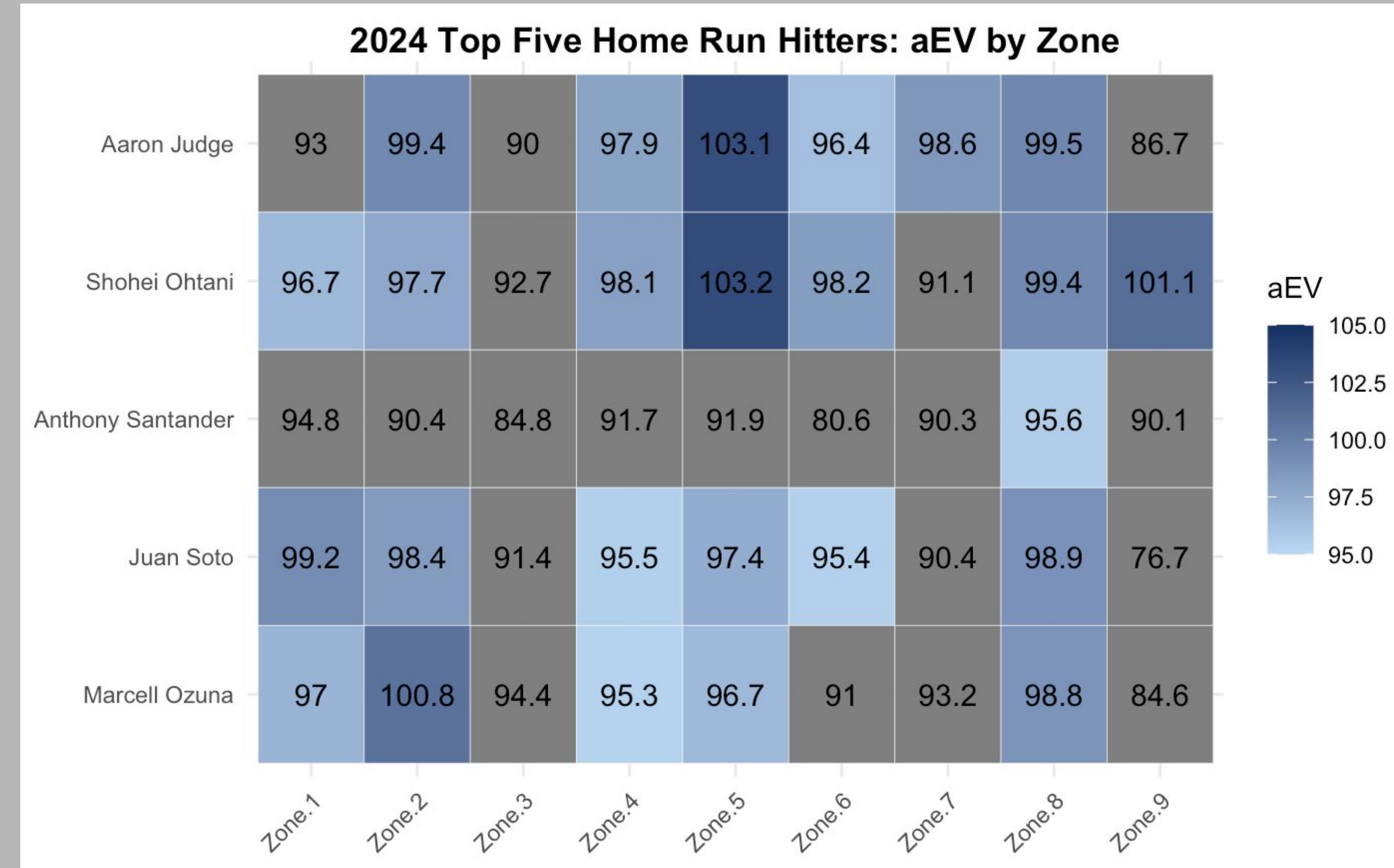


Figure 1 illustrates the aEV across the nine primary zones for the top five home run hitters of the 2024 season.

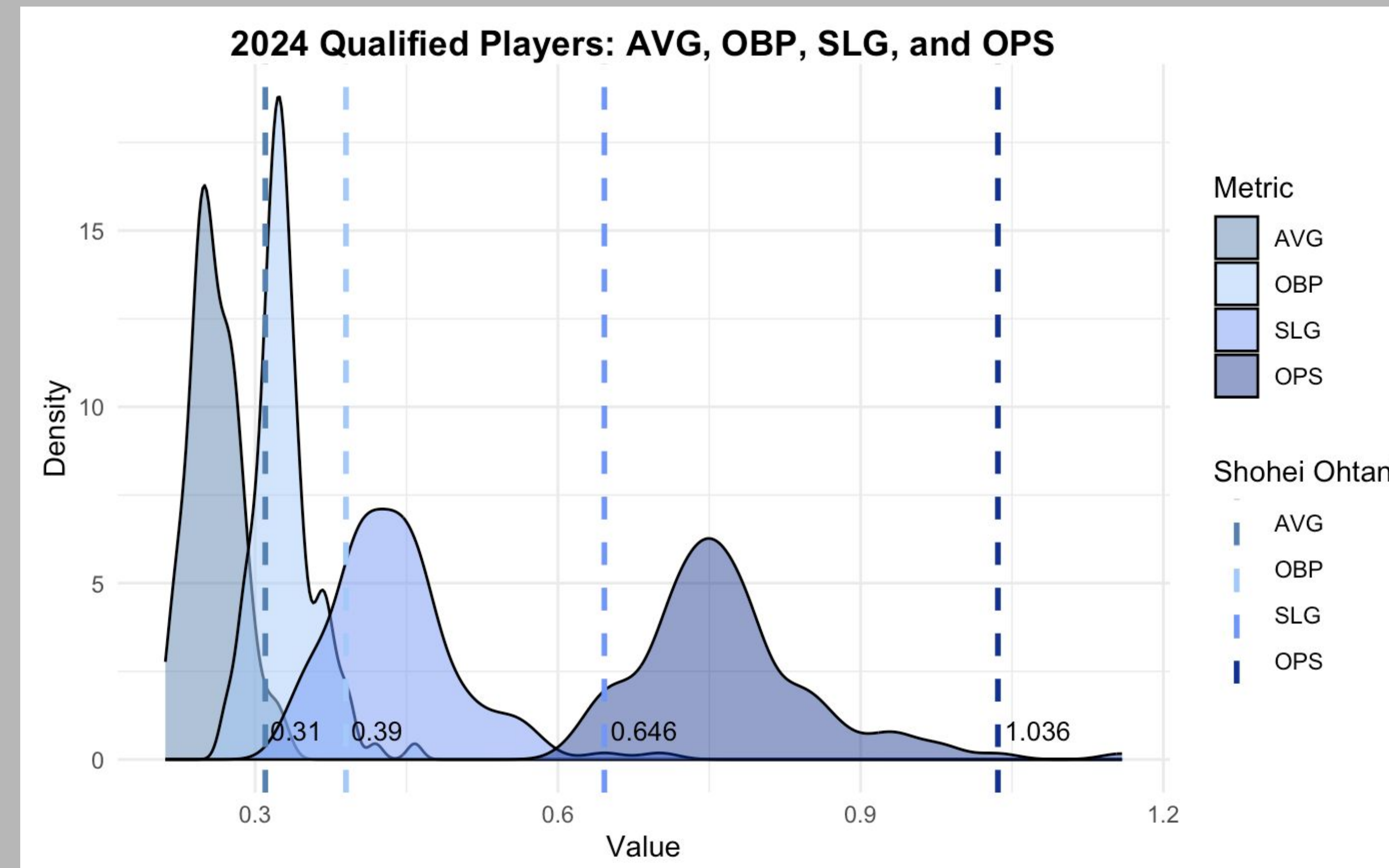


Figure 2 illustrates the distribution of all qualified player's AVG, OBP, SLG, and OPS for the 2024 season with Ohtani's stats (dashed lines) far exceeding the peak distributions.

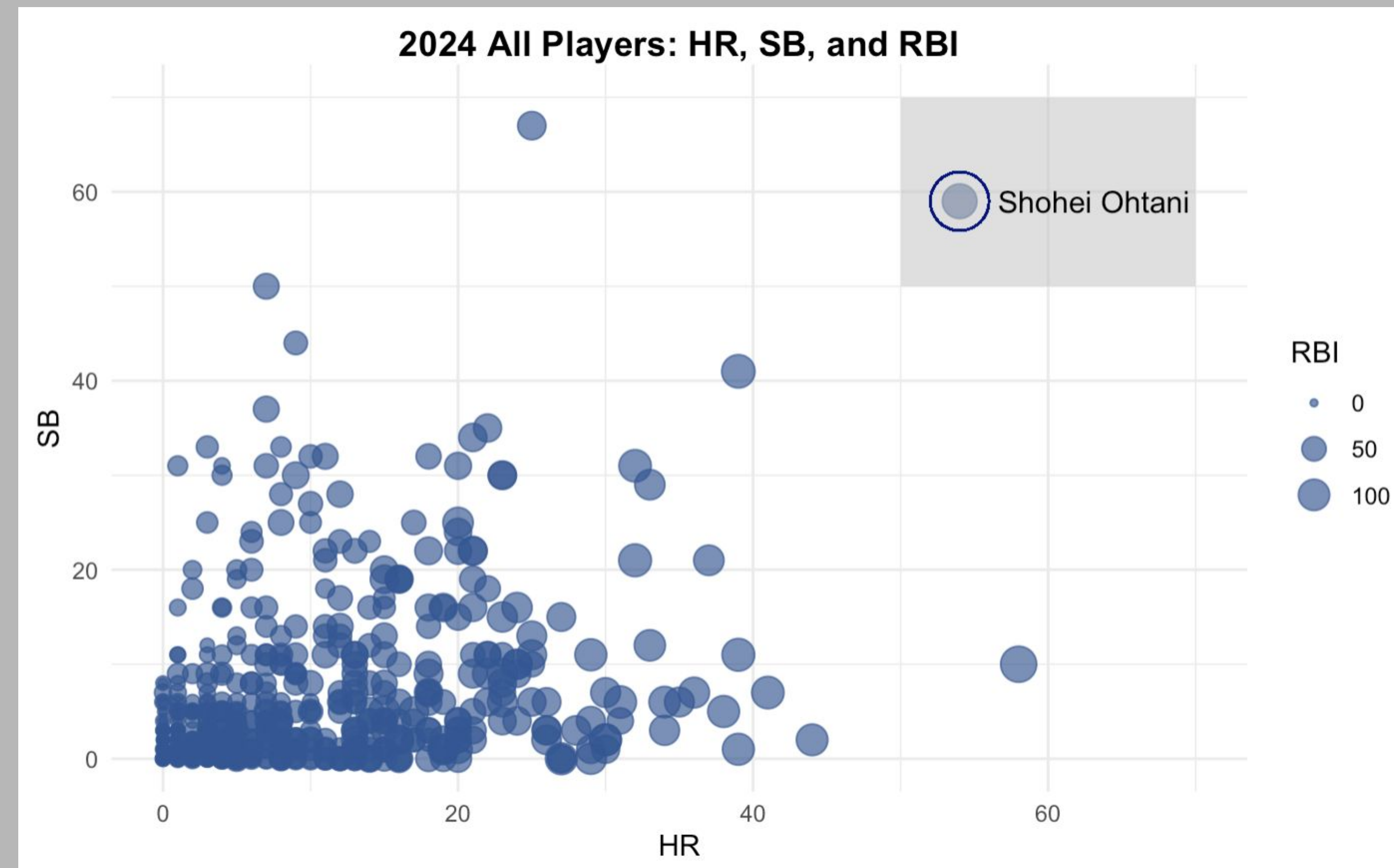


Figure 3 illustrates bubbles representing all players, with positions reflecting their HR and SB, while their RBI determines size. Ohtani is highlighted as the only player to reach and surpass the historic 50 HR/50 SB milestone.

Discussion

Ohtani's 2024 season showcased exceptional performance across key offensive metrics, standing out amongst the best in the league.

- Figure 1
 - Statcast defines a 'hard-hit ball' as one hit with an exit velocity of 95 mph or higher. Zones where aEV fell below 95 mph were grayed out for analysis
 - Ohtani had two zones under 95 mph (fewest among the five)
 - Ohtani recorded the highest aEV of 103.2 mph.
- Figure 2
 - Qualified players: recording at least 3.1 plate appearances per scheduled league game
 - Ohtani ranked on the high tail end among all qualified players in all metrics of AVG, OBP, SLG, and OPS.
- Figure 3
 - Ohtani was not only the first player to achieve a 50/50 season but he was the only player to do so
 - Notably, no other player even reached a 40/40 this season
 - To complement HR and SB, Ohtani also ranked among league leaders in RBI

In his first season with the Los Angeles Dodgers, Ohtani ranked significantly high across multiple key metrics. Ohtani displayed consistent power throughout the zones, exceptional on-base ability, excelled at delivering not just hits but extra-base hits, showcased the uncommon combination of power and speed, and the strength in driving in runs — all vital to the team's success. Overall, his extraordinary skills offensively resulted in historic achievements both in his career and the franchise.

Future Research

As Ohtani suffered from an Ulnar Collateral Ligament (UCL) tear last year and underwent surgery in September 2023, which limited him to serving solely as a designated hitter this season, hopefully he fully recovers soon and becomes physically healthy in his right elbow to have the ability to resume pitching. I could then further analyze his pitching data and compare his performance to other pitchers in the league. Potentially, this would provide an opportunity to highlight his remarkable skills as a two way player — a rare feat in the big leagues — and again, further highlight his unique impact on the sport of baseball.

Acknowledgements

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References

Baseball Savant. (2024). *Statcast search*. Retrieved November 15, 2024, from https://baseballsavant.mlb.com/statcast_search
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