

# SCOTT POWERS

saberpowers.github.io

## ACADEMIC EXPERIENCE

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**Rice University** 2023-  
Assistant Professor of Sport Analytics and (by courtesy) of Statistics

## SPORTS EXPERIENCE

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### FULL-TIME

**Houston Astros** 2022  
Assistant General Manager

**Los Angeles Dodgers** 2017-2021  
Director, Quantitative Analysis 2019-2021  
Senior Analyst, Research & Development 2017-2018

### PART-TIME/CONSULTING

**Teamworks** (formerly Zelus Analytics) 2020, 2023-  
Staff Data Scientist 2023-  
Senior Data Scientist 2020

**AZ Alkmaar** 2015-2020  
Data Analyst

**Oakland Athletics** 2015-2016  
Analytics Consultant

## EDUCATION

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**Stanford University** 2017  
Ph.D. Statistics  
Advisor: Rob Tibshirani

**University of Chicago** 2013  
M.S. Statistics

**University of North Carolina at Chapel Hill** 2011  
B.S. Mathematical Decision Sciences and Mathematics  
*Highest Honors from the Department and Highest Distinction from the University*

## RESEARCH

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### WORKING PAPERS

**Powers S, Yurko R**  
“Swinging, Fast and Slow: Interpreting variation in baseball swing tracking metrics”

Zhu J, Love D, **Powers S**  
“Ball path curvature and in-game free throw shooting proficiency in the National Basketball Association”

Millington E, **Powers S**  
“A comps-based approach for interpreting tree-based predictions”

Hahn J, **Powers S**, Pai M, Schaefer A  
“The Two-Foot Rule: A game theoretic analysis of the pickoff limit in Major League Baseball”

**Powers S**, Iglesias V  
“Pitch trajectory density estimation for predicting future outcomes”

## PUBLICATIONS

**Powers S**, Stancil L, Consiglio N  
“Estimating individual contributions to team success in women’s college volleyball”  
*Journal of Quantitative Analysis in Sports* **21**(2) 117-135

Burton T, **Powers S**, Burns C, Conway G, Leach F, Senecal K (2023)  
“A data-driven greenhouse gas emission rate analysis for vehicle comparisons”  
*SAE International Journal of Electrified Vehicles* **12**(1)

**Powers S**, McGuire V, Bernstein L, Canchola AJ, Whittemore AS (2019)  
“Evaluating disease prediction models using a cohort whose covariate distribution differs from that of the target population”  
*Statistical Methods in Medical Research* **28**(1) 309-320

**Powers S**, Hastie T, Tibshirani R (2018)  
“Nuclear penalized multinomial regression with an application to predicting at bat outcomes in baseball”  
*Statistical Modelling* **18**(5-6) 388-410

**Powers S**, Qian J, Jung K, Schuler A, Shah NH, Hastie T, Tibshirani R (2018)  
“Some methods for heterogeneous treatment effect estimation in high dimensions”  
*Statistics in Medicine* **37**(11) 1767-1787

McGinnis L, **Powers S**, Bangs D, Cherry A, Tibshirani R, Natkunam Y (2016)  
“Double-hit diffuse large B-cell lymphomas with MYC gene rearrangements more commonly involve BCL2 than BCL6 gene rearrangements as the second hit: A large scale single institution study”  
*Laboratory Investigation* **96** 362A

Burton T, **Powers S** (2015)  
“A linear model for estimating optimal service fraction in volleyball”  
*Journal of Quantitative Analysis in Sports* **11** 117-129

**Powers S**, Hastie T, Tibshirani R (2015)  
“Customized training with an application to mass spectrometric imaging of cancer tissue”  
*The Annals of Applied Statistics* **9** 1709-1725

**Powers S**, DeJongh M, Best AA, Tintle NL (2015)  
“Cautions about the reliability of pairwise gene correlations based on expression data”  
*Frontiers in Microbiology* **6** 650

**Powers S**, Gopalakrishnan S, Tintle NL (2011)  
“Assessing the impact of non-differential genotyping errors on rare variant tests of association”

*Human Heredity* **72** 153-160

Luedtke A, **Powers S**, Petersen A, Sitarik A, Bekmetjev A, Tintle NL (2011)  
“Evaluating methods for the analysis of rare variants in sequence data”  
*BMC Proceedings* **5** S119

Petersen A, Sitarik A, Luedtke A, **Powers S**, Bekmetjev A, Tintle NL (2011)  
“Evaluating methods for combining rare variant data in pathway-based tests of genetic association”  
*BMC Proceedings* **5** S48

Saavedra S, **Powers S**, McCotter T, Porter MA, Mucha PJ (2010)  
“Mutually-antagonistic interactions in baseball networks”  
*Physica A: Statistical Mechanics and its Applications* **389** 1131-1141

## INVITED TALKS

### MIT Sloan Sports Analytics Conference

“Spotlighting under-the-radar performers in women’s college volleyball” Boston 2024

### New England Symposium on Statistics in Sports

“Estimating individual contributions to team success in women’s college volleyball” Boston 2023

## CONTRIBUTED TALKS

### Cascadia Symposium on Statistics in Sports

“Untangling intention and timing error from bat speed and swing length in MLB” Vancouver 2024

### Saberseminar

“Untangling intention and timing error from bat speed and swing length” Chicago 2024

“Pitch trajectory density estimation for predicting future outcomes” Chicago 2023

“Jointly predicting exit velocity and launch angle for batter-pitcher matchups” Boston 2016

“Rewarding batters for baserunner advancement: A ridge-regressed Rasch model” Boston 2015

### Conference of Texas Statisticians

“Baseball pitch trajectory density estimation for predicting future pitcher outcomes” Houston 2024

### Joint Statistical Meetings

“Nuclear penalized multinomial regression for predicting at bat outcomes in baseball” Chicago 2016

### SABR Analytics Conference

“True wOBA: Estimation of true talent level for batters” Phoenix 2016

## INVITED PANELS

### Columbia Symposium on AI and Sports

“Data Science and Analytics in Sports Performance and Management” New York 2024

## STUDENT TALKS

### Cascadia Symposium on Statistics in Sports

Jacob Hahn: “A game theoretic analysis of the pickoff limit in Major League Baseball” Vancouver 2024

### Women in Sports Data Symposium

Naomi Consiglio: “Modifying k-means clustering to optimize positioning in volleyball” Philadelphia 2024

## Saberseminar

Jeff Brover: “Do we learn more about AAA batters when they face better pitches?”	Chicago 2024
Jacob Hahn: “A game theoretic analysis of the pickoff limit in Major League Baseball”	Chicago 2024
Drew Haugen: “Time warping for clustering pitcher deliveries”	Chicago 2024

## STUDENT POSTERS

### Cascadia Symposium on Statistics in Sports

Elizabeth Sepúlveda: “A statistical approach to sport climbing difficulty and progression” Vancouver 2024

### Opta Forum

Andrew Kang: “Not All Features Are Created Equal: Player clustering and evaluation” London 2024

## FUNDING

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### EXTERNAL

#### Major League Baseball Research Gift

“Identifying biomechanical risk factors for pitching injuries” PI: S Powers, \$50,000 2024-2025

### INTERNAL

#### Rice University Creative Ventures Conference and Workshop Development

“Rice Soccer Analytics Conference” PI: S Powers, \$10,000 2024-2025

## TEACHING

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\* indicates a course I designed

### Rice University

Instructor, *SMGT 430: Introduction to Sport Analytics	Spring 2024, Fall 2024
Instructor, *SMGT 432: Soccer Analytics	Fall 2023
Instructor, *SMGT 435: Baseball Analytics	Spring 2024, Fall 2024

### Stanford University

Instructor, *STATS 50: Mathematics of Sports	Spring 2016
TA, STATS 305A: Applied Statistics I	Fall 2016
TA, STATS 216: Introduction to Statistical Learning	Winter 2014, Summer 2015, Winter 2017
TA, STATS 202: Data Mining and Analysis	Fall 2013, Summer 2014
TA, STATS 50: Mathematics of Sports	Fall 2014

### University of Chicago

Instructor, STAT 23400: Statistical Models and Methods	Spring 2013
TA, STAT 22000: Statistical Methods and Applications	Fall 2011, Spring 2012, Fall 2012

## MENTORSHIP

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### Rice University

Principal Investigator, Sport Analytics Undergraduate Research Lab	2024-
<i>Students/Alumni: Jeff Brover, Naomi Consiglio, Lucca Ferraz, Jacob Hahn, Rahul Herrero, Elisabeth Millington, Zach Pool, Elizabeth Sepúlveda, Luke Stancil, Lou Zhou, Judy Zhu</i>	
Coordinator, Sport Analytics Graduate Reading Group	2023-2024
Coordinator, Big Data Bowl Support Group	2023

## SERVICE

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### To the Profession

Organizer, American Soccer Insights Summit	2024-
Associate Editor, SCORE Network	2024-
Faculty Advisor, Sports Analytics Club Program	2023-2024

### Rice University

Faculty Associate, Wiess College	2024-
Instructor, Statistical Training and Research Techniques at Rice University (School of Social Sciences)	2024
Instructor, Owl Days Classroom Sampler (Office of Admission)	2024
Speaker, Special Occasion Dinner (Friends of Fondren Library)	2024
Speaker, Brains in a Bar (Association of Rice Alumni)	2024
Member, University Committee for Faculty and Staff Benefits	2024

### Peer Review

*Journal of Quantitative Analysis in Sports, Experimental Physiology*

## PROFESSIONAL DEVELOPMENT

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### Rice Center for Teaching Excellence

INSTILL Mini-Grant Program	2023-2025
Reading Group	2023-2025
Symposium on Teaching and Learning	2024
Workshop on Inclusive Teaching Strategies	2023

### Conferences Attended

Women in Sports Data Symposium	Philadelphia 2023, 2024
Minority Trailblazers in Sports Conference	Houston 2023

## AWARDS

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Graduate Research Fellowship, National Science Foundation	2011
McCormick Fellowship, University of Chicago	2011
Mathematical Decision Sciences Award, UNC Department of Statistics & Operations Research	2011
Student Speaker Award, Pi Mu Epsilon National Meetings	2010
National Merit Scholarship, National Merit Scholarship Corporation	2007
Jack Kavanagh Memorial Youth Baseball Research Award, SABR	2005, 2006, 2007

## ACTIVITIES

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Sports Analytics Club, Stanford University	2014-2017
Co-President	2015-2016
Intercollegiate Club Baseball, Stanford University	2013-2015
Intercollegiate Club Volleyball, Stanford University	2013-2016
Intercollegiate Club Volleyball, University of Chicago	2011-2013
Intercollegiate Club Volleyball, University of North Carolina at Chapel Hill	2007-2011
President	2008-2010