# Scott Powers

saberpowers.github.io

## Academic Experience

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

## Pro Sports Experience

### Full-Time

**Houston Astros** 2022
Assistant General Manager

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

### Consulting

**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

**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*

## Teaching

* indicates a course for which I designed the curriculum

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

**Stanford University**

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|---|---|
| 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**

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

# Research

## Conference Presentations

**New England Symposium on Statistics in Sports**

"Estimating individual contributions to team success in women's college volleyball" Boston 2023

**Saberseminar**

"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

**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

## Publications

### Sports

**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

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

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

**Powers S** (2016)
"Toward a Probability Distribution over Batted-Ball Trajectories"
*The Hardball Times* (not peer reviewed)

Smith RL, **Powers S**, Cisewski J (2014)
"Qualifying Times for the Boston Marathon"
*CHANCE* (not peer reviewed)

### Not Sports

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**, 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

**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

## Software

### Published R Packages (CRAN)

npmr: Nuclear Penalized Multinomial Regression
https://cran.r-project.org/web/packages/npmr/index.html

customizedTraining: Customized Training for Lasso and Elastic-Net Regularized Generalized Linear Models
https://cran.r-project.org/web/packages/customizedTraining/index.html

### Published RShiny Apps

mRchmadness: NCAA Basketball Tournament Bracket Pool Submission Optimization
https://saberpowers.shinyapps.io/mRchmadness

## 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 |