Scott Powers

saberpowers.github.io

Academic Experience

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

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

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

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

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 with an application to NFL quarterback draft prospect projection"

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" Vancover 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 Sepúvelda: "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

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

* 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

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

Service

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

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

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

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