Andy Shen

Email: aashen@berkeley.edu

Relevant Links: GitHub / Google Scholar / Personal Website

EDUCATION

University of California, Berkeley *August 2021 - Present*
Doctor of Philosophy (PhD), Statistics
Advisors: Haiyan Huang, Sam Pimentel
Anticipated Graduation: 05/2026

University of California, Los Angeles (UCLA) *September 2017 - June 2021*
Bachelor of Science (BS), Statistics
GPA: 3.90
Magna Cum Laude

TECHNICAL SKILLS AND RESEARCH INTERESTS

Advanced: R (including `tidyverse`, RMarkdown/Quarto, and Shiny), GitHub, LaTeX, Microsoft Office

Proficient: Python

Research Interests: Causal Inference, Sensitivity Analysis, Experimental Design, Applied Statistics and Machine Learning

SELECTED PUBLICATIONS

Shen, A., Visoki, E., Barzilay, R., and Pimentel, S.D. (2025+). A Calibrated Sensitivity Analysis for Weighted Causal Decompositions. *Statistics in Medicine*. **Accepted**. `https://arxiv.org/abs/2407.00139`.

Shen, A., McLoughlin, A., Vernon, Z., Lin, J., Carano, R., Bickel, P.J., Song, Z., & Huang, H. (2024+). Assessing the role of volumetric brain information in multiple sclerosis progression. Submitted. *arXiv preprint* `https://arxiv.org/abs/2412.09497`.

Rumsey, K., Francom, D., & **Shen, A.** (2023). Generalized bayesian mars: Tools for emulating stochastic computer models. *SIAM/ASA Journal on Uncertainty Quantification*, 12 (2), 646-666.

Lee, S., **Shen, A.**, Park, J., Harrigan, R., Hoff, N., Rimoin, A., & Paik Schoenberg, F. (2021). Comparison of prospective Hawkes and recursive point process models for Ebola in DRC. *Journal of Forecasting*. 41(1): 201-210.

TALKS AND PRESENTATIONS

A calibrated sensitivity analysis for weighted causal decompositions

- Joint Statistical Meetings, August 2024
- American Causal Inference Conference, June 2024
- Michigan State University College of Education, October 2024

Assessing the role of volumetric brain information in multiple sclerosis progression

- Berkeley Statistics Annual Research Symposium, April 2024

AWARDS AND HONORS

- **Student Paper Award, American Statistical Association Mental Health Statistics Section:** January 2025
- **Student Paper Award, International Conference on Health Policy Statistics:** November 2024
- **NSF Graduate Research Fellowship:** September 2022 - present
- **Genentech Fellowship:** January 2022 - September 2022

EXPERIENCE

Biostatistics Intern Jun 2023 - Aug 2023
Denali Therapeutics

· Used machine learning models to identify biomarkers as surrogate endpoints in clinical trials.
· Utilized covariate adjustment techniques to perform sample size estimation for Phase I clinical trial enrollment.
· Developed end-to-end machine learning and estimation pipeline (R package) for clinicians to utilize our method for sample size estimation.

Graduate Student Researcher Jan 2022 - Present
UC Berkeley Department of Statistics

· Developed statistical and machine learning methods to identify brain biomarkers of multiple sclerosis progression (collaboration with Genentech PHC).
· Developed sensitivity analysis framework for causal disparity estimation (collaboration with Children's Hospital of Philadelphia).
· Performed matched cohort analysis for analyzing adverse outcomes of babies with neonatal opioid withdrawal syndrome (collaboration with Kaiser Permanente).

Teaching Assistant Aug 2022 - Present
UC Berkeley Department of Statistics

· Lead weekly recitation sections for a course of 150 students.
· Create course content such as lecture slides and exam problems.
· Hold weekly office hours and grade assignments and exams.
· Received outstanding teaching assistant award for exceptional teaching.

Statistical Sciences Intern Jun 2016 - Aug 2021
Los Alamos National Laboratory - Statistical Sciences Group (CCS-6)

· Utilized Bayesian Multivariate Adaptive Regression Splines (BMARS) and Reversible-Jump MCMC to develop robust model with t-distributed likelihood.
· Developed R package (TBASS) that uses Robust BMARS to fit nonlinear data with outliers.
· Analyzed data on water use in cooling towers and created statistical models to determine relationships between season and availability of water.
· Surveyed and interviewed laboratory workforce to determine future hiring needs for more than 40 divisions.
· Developed and implemented a Microsoft Outlook add-on that warns users when an email is being sent to an external address.

Lead Resident Assistant (RA) March 2019 - June 2021
UCLA Residential Life

· Rated as exceeding expectations in every job category by both peers and supervisors in performance review.

- Promoted to Lead RA for University Apartments within 3 months of employment.
- Collaborated with Resident Directors, Assistant Directors, and other professional staff to create methods to improve RA duty protocols, resulting in organization-wide protocol improvements affecting over 300 staff members and 13,000 residents.
- Fostered the development of relationships and community among undergraduate students of various years and backgrounds in a residential community, resulting in 95% of residents agreeing that I maintained a strong sense of community.
- Counseled and advised residents with personal and academic-related matters, including roommate conflicts, academic difficulties, and crisis intervention, resulting in the highest total response rate for residential experience survey.
- Implemented programs and events to assist residents in academic success, personal/career development, and social justice awareness. Consistently hosted events with 100-150% higher attendance rates than typical event averages.
- Engaged in active, on-call duty coverage of residential community, consisting of enforcing housing conduct policies, documenting policy violations, writing incident reports, and emergency response.