Andy Shen

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EDUCATION

University of California, Berkeley *August 2021 - Present*
Doctor of Philosophy (PhD), Statistics

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

RELEVANT COURSEWORK

Undergraduate Statistics Courses: Mathematical Statistics, Linear Models, Data Analysis & Regression, Experimental Design, Computational Statistics with R, Computation and Optimization for Statistics, Monte Carlo Methods, Data Mining, Statistical Consulting, Statistical Models in Finance

Undergraduate Mathematics Courses: Theoretical Linear Algebra, Real Analysis, Stochastic Processes

TECHNICAL SKILLS

Computer Languages	R (including tidyverse), learning Python and MATLAB
Software & Tools	LaTeX, RMarkdown, Microsoft Office, Git and GitHub

SOFTWARE

Shen, A., Francom, D. (2020). **TBASS**: t-distributed Bayesian Adaptive Spline Surfaces (R Package).

PUBLICATIONS

Lee, S., **Shen, A.**, Park, J., Harrigan, R., Hoff, N., Rimoin, A., and Paik Schoenberg, F. (2021). Comparison of prospective Hawkes and recursive point process models for Ebola in DRC. *Journal of Forecasting*. DOI: 10.1002/for.2803.

Shen, A., Hekmatjah, N., Freeman, S., and Katona, P. (2020). Hot Water: Are U.S. Water Supplies Susceptible to Attack? *The Pacific Council Magazine*, https://www.pacificcouncil.online/commentary/hot-water.

EXPERIENCE

Statistical Sciences Intern June 2016 - Present
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.
- Designed 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.
- Work in a team setting to survey and interview laboratory workforce to determine future hiring needs.
- Developed and implemented a Microsoft Outlook add-on that warns users when an email is being sent to an external address, protecting laboratory security and sensitive information from being shared.

· Created nuclear criticality safety flowcharts and procedures for laboratory-wide use.

Undergraduate Researcher August 2020 - June 2021
UCLA Department of Statistics
Advisor: Dr. Frederic Schoenberg

· Learned techniques for modeling disease spread, such as Hawkes and Recursive Hawkes point process models, as well as SEIR models.
· Utilized Hawkes point process models to make outbreak forecasts for the 2018-2020 Ebola outbreak in the Democratic Republic of the Congo (DRC) for 450+ days of time-stamped datasets produced throughout the outbreak.
· Compared model forecasts by performing RMSE calculations at specific times during the outbreak, providing insight to model accuracy at different phases of an outbreak.
· Wrote 300+ lines of R code to visualize the differences between two models' forecasts and evaluate the accuracy of the outbreak forecasts for an in-progress manuscript.
· Assisted with data management for publicly-available website updated throughout the outbreak with current outbreak data, techniques used, and outbreak forecasts.

Undergraduate Learning Assistant (LA) September 2018 - June 2021
UCLA Departments of Mathematics and Statistics

· Utilized evidence-based learning strategies to foster active student participation and learning in discussion/recitation sections.
· Assisted instructors and teaching assistants with creating course content, learning material, and practice exams.
· Facilitated student learning and answering questions during weekly office hours and on course discussion forum.
· Frequently met with course instructors to solicit feedback and improve teaching skills.

Courses served:
Mathematics 32A: Calculus of Several Variables (Fall 2018)
Statistics 13: Statistical Methods for Life and Health Sciences (Winter 2021)
Statistics 20: Statistical Programming with R (Fall 2020, Winter 2021, **Head LA** in Spring 2021)
Statistics 100C: Linear Models (Spring 2021)

Research Projects Team Leader May 2019 - June 2021
The EPICenter LA: UCLA School of Public Health
Advisor: Dr. Peter Katona

· Led 12 students through original research projects on public health preparedness and emergency response capabilities by providing guidance on performing literature reviews, writing articles, and communicating information to the public through infographics and other visualization tools.
· Primary author of a published article in *The Pacific Council Magazine* on the contamination of radioisotopes in drinking water and its connection to water-based terrorism, providing novel information about the real danger that water contamination poses to the public if used in a terrorist attack.

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

· Fostered the development of relationships and community among undergraduate students of various years and backgrounds in a residential community.
· Counseled and advised residents with personal and academic-related matters, including roommate conflicts, academic difficulties, and crisis intervention.

- Implemented programs and events to assist residents in academic success, personal/career development, and social justice awareness.
- Provided active, on-call duty coverage of residential community, consisting of enforcing housing conduct policies, documenting policy violations, writing incident reports, and emergency response.
- Collaborated with Resident Directors, Assistant Directors, and other professional staff to create methods to improve RA duty protocols and streamline information to RA colleagues.