Sara A. Stoudt

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Research Interests applied and computational statistics in ecology and environmental science

Education

University of California, Berkeley, Berkeley, CA

Ph.D., Statistics, Fall 2015 - expected Spring 2020
Advisors: Will Fithian (Department of Statistics) and Perry de Valpine (Department of Environmental Science, Policy and Management)
Berkeley Institute for Data Science Fellow
National Physical Science Consortium Fellow
Data Sciences for the 21st Century: Environment and Society Graduate Trainee

Smith College, Northampton, MA

B.A., Mathematics and Statistics, 2015
Magna Cum Laude with Highest Honors 3.95/4.0
Major GPA: 4.0/4.0

Graduate Research

Dissertation Research

- Clarifying identifiability controversies in species distribution/abundance models
- Investigating robustness to model misspecification in these models
- Recommending data collection protocols that increase robustness
- Accounting for covariances in joint species distribution and abundance models

Statistics Communication

- Co-developing and co-teaching Communicating with Data: The Art of Writing for Data Science (with Deborah Nolan)
- Co-developing and co-teaching Blogging for Data Science (with Deborah Nolan)
- Writing a book on statistical writing (in progress with Deborah Nolan)

Collaborations in Ecology

- Fitting models with phylogenetic and measurement errors (with Soorim Song)
- Understanding variability in water quality with San Francisco Estuary Institute (SFEI) (with David Senn, Erica Spotswood, Perry de Valpine, Marcus Beck)

Job Experience

Data Science Intern Summer 2018

- Farmers Business Network
  - Supervisor: Matt Meisner, Ph.D
  - Predicting crop yield

Summer (Undergraduate/Graduate) Research Fellow Summers 2013-2017

- Statistical Engineering Division, National Institute of Standards and Technology
  - Supervisor: Antonio Possolo, Ph.D
  - Measuring optical apertures for solar irradiance monitoring
  - Homogenizating of surface temperature records
  - Errors-in-variables modeling for force calibrations
  - Interpolating atmospheric greenhouse gas fluxes
  - Evaluating the accuracy, consistency, and stability of measurements of the Planck constant

Awards

- Berkeley Institute for Data Science Fellow 2018-2020
- Outstanding Graduate Student Instructor award 2018
- National Physical Science Consortium Fellow 2015-2018
- Data Sciences for the 21st Century: Environment and Society Graduate Training Program 2015-2017
- Gertrude M. Cox Scholarship 2015
- Best Poster Award: Geocomputation Conference 2015
- Goldwater Scholar 2014
- First Place: Statistics in Sports Undergraduate Research Competition at Joint Statistical Meetings 2014
- Best in Show: Five College Data Fest 2014, 2015

Programming Languages

- Proficient: R (and Shiny), LaTeX
- Experience With: Python, SQL, HTML, CSS, D3, JavaScript, bash, Matlab, Java, GIS, AMPL, Mathematica, NIMBLE, WinBUGS

Publications

- Possolo, A., Schlamminger, S., **Stoudt, S.**, Pratt, J. R., and Williams, C. J. "Evaluation of the accuracy, consistency, and stability of measurements of the Planck constant used in the redefinition of the International System of Units" *Metrologia* Volume 55, Number 1, December 2017
- **Stoudt, S.** "Geostatistical Models for the Spatial Distribution of Uranium in the Continental United States" *Advances in Geocomputation: Geocomputation 2015 - The 13th International Conference* Springer Advances in Geographic Information Science, 2017, pp. 325-334.
- **Stoudt, S.**, Badian-Pessot, P., Mahop, B. N., Earley, E., Menter, J., Flores, Y., Williams, D., Zhang, W., Maharajan, L., Bao, Y., Rosenbauer, L., Nguyen, V., Mendiratta, V., Tania, N. "Modeling Internet Traffic Generations Based on Individual Users and Activities for Telecommunication Applications" *American Journal of Undergraduate Research* Volume 13, Issue 3, August 2016, pp. 53-65.
- Bartel, T., Possolo, A., and **Stoudt, S**. "Force Calibrations using Errors-in-Variables Regression and Monte Carlo Uncertainty Evaluations" *Metrologia* Volume 53, Number 3, June 2016, pp. 965-980(16).
- **Stoudt, S.**, Cao, Y., Udwin, D., and Horton, N. J. "What Percent of the Continental US is Within One Mile of a Road?" *Statistics Education Web,* 2014.
- **Stoudt, S.**, Santana, L., and Baumer, B. "In Pursuit of Perfection: An Ensemble Method for Predicting March Madness Match-Up Probabilities" *JSM 2014 Proceedings*

Teaching Experience

Graduate Student Instructor (GSI), Statistics, UC Berkeley Fall 2017

- Assist with course development and instruction of new writing in statistics course and blogging for data science course
- Outstanding GSI award

Relevant Activities

- Co-organizer of and writer for Statsbites 2017-ongoing
- Graduate Workshop on Environmental Data Analytics 2016
- SAMSI Summer Program: The International Temperature Initiative 2014

Departmental Service

- Active member of BIDS Diversity and Inclusion Working Group, Fall 2018-current
- Co-president of the Statistics Graduate Student Association, Fall 2017-Spring 2018
- Co-organizer of UC Berkeley DataFest, Springs 2016-2018
- Co-organizer of Statistics Graduate Student Association Gender Issues Roundtable Discussion, Fall 2016