Judith N. Law

Education

Ph.D. Applied Statistics
The University of Maryland, College Park, MD
Dissertation: Estimation of a Function of a Large Covariance Matrix Using Classical and Bayesian Methods
Advisor: Partha Lahiri, Professor, Joint Program in Survey Methodology and Department of Mathematics

M.B.A. Finance
The Wharton School, The University of Pennsylvania, Philadelphia, PA

B.B.A. Accounting
Texas A&M University, College Station, TX

Employment

Associate Director of Professional Master's Degree in Applied Mathematics
Instructor (July 2020 - present)
The University of Colorado at Boulder

Postdoctoral Research Scientist (2018 - 2020)
Harvard Medical School, Department of Health Care Policy, Boston, MA
Design hierarchical multivariate Bayesian models to uncover trends and patterns in survey data. Simulate realistically calibrated synthetic datasets and compare performance across models with measures of uncertainty.

Teaching Assistant as Sole Instructor (2017 - 2018)
The University of Maryland, College Park, MD
Introduction to Probability Theory, Elementary Statistics and Probability

Teaching Assistant (2011 - May 2017)
The University of Maryland, College Park, MD
Calculus I, II, III, Linear Algebra, Applied Probability and Statistics II

Director of Financial Planning and Analysis (2005 - 2009)
Clark Enterprises, Inc., Bethesda, MD
Formalize a process to streamline forecasting and efficiently monitor cash flows.
Analyze market data, develop concept plans and model financial returns under alternative programs for property redevelopment.

Papers and Presentations

Bayesian Inference of Separable Covariance Models for Health Care Quality Measures
Joint work with Alan M. Zaslavsky and Laura A. Hatfield,
Presentation, Joint Statistical Meetings, July 2019, Denver, CO

Estimation of a Function of a Large Covariance Matrix Using Classical and Bayesian Methods
Dissertation, 2018

The Effect of Rho Near One on the MSE of the Rao-Yu EBLUP
Poster Presentation, ISI Satellite Meeting on Small Area Estimation, August 2015, Santiago, Chile

Statistical Modeling and Estimation for Linked Data
Joint work with Partha Lahiri, Professor, Joint Program in Survey Methodology,
Keynote Speaker Presentation by Dr. Lahiri at 4th Baltic-Nordic Conference on Survey Statistics, August 2015, Helsinki, Finland

Testing for Nonstationarity in Autoregressive Time Series
Candidacy Presentation, April 2015

Record Linkage: Estimating the False-Match Rate Using Mixture Models
Adapting Belin and Rubin's false-match rate model, May 2014

An Overview of the Rubin Causal Model and the Use of Instrumental Variables
Exploring a causal effect between serving in the military and health status, April 2014

Poverty Rate Estimation and the Fay-Herriot Model
Comparing results of three submodels using data from the US Census Bureau, March 2014

Technical Expertise

R & Python:	calling Fortran from R, MCMC methods, WinBUGS, MCMC methods, Gibbs sampling, classification and regression trees, spatial data analysis, autoregressive models, model diagnostics, EM algorithms, graphics
Stan:	hierarchical modeling, model selection and comparison techniques, prior selection
SAS:	principal component analysis, factor analysis, multivariate analysis of variance
Matlab:	differential equations, present value analysis, optimal stopping strategy, option pricing under Black-Scholes model

Awards

Edward C. Bryant Scholarship presented by Westat, Joint Statistical Meetings, Chicago, IL, August 2016

NSF Travel Award, ISI Satellite Meeting on Small Area Estimation, Santiago, Chile, August 2015