James Johndrow

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Current position

Stein Fellow/Lecturer, Department of Statistics, Stanford University

Areas of specialization

Statistics Theory • Applied Probability • Applied Statistics

Education

2003 BA in Chemistry, Amherst College
2012 MS in Statistical Science, Duke University
2015 PhD in Statistical Science, Duke University

Grants, honors & awards

Grants

2017 Scientific PI, "Methods for achieving demographic fairness in risk assessment." Funding organization: Laura and John Arnold Foundation. With David Dunson (Administrative PI) and Kristian Lum (Application PI). Amount: 300,000 USD. Duration: 2 years.

Awards & Honors

2014 American Statistical Association Section for Bayesian Statistical Science (SBSS) student paper award.
2013 AISTATS Notable Paper Award
2010 University Scholars Graduate Fellow, Duke University
2010 James B. Duke Graduate Fellow, Duke University
2003 Rhodes Scholarship Finalist
2003 Marshall Scholarship Finalist
2003 Phi Beta Kappa, Amherst College

Publications

Accepted & in Revision

2017a Johndrow, J.E. and Lum, K., 2017. An algorithm for removing sensitive information: application to race-independent recidivism prediction. Annals of Applied Statistics (major revision). arXiv:1703.04957

2017b Johndrow, J.E., and Bhattacharya, A., 2017. Optimal Gaussian Approximations to the Posterior for Log-Linear Models with Diaconis–Ylvisaker Priors. Bayesian Analysis. ProjectEuclid:1487646097

2017c Johndrow, J. E., Bhattacharya, A., and Dunson, D.B., 2017. Tensor decompositions and sparse log-linear models. The Annals of Statistics 45.1: 1-38. ProjectEuclid:1487667616

2017d Johndrow, J.E., Lum, K. and Dunson, D.B., 2017. Theoretical Limits of Record Linkage and Microclustering. Biometrika (minor revision). arXiv:1703.04955

2017e Johndrow, J.E., Smith, A., Pillai, N. and Dunson, D.B., 2017. MCMC for Imbalanced Categorical Data. Journal of the American Statistical Association (major revision). arXiv:1605.05798

2016 Lum, K. and Johndrow, J., 2016. A statistical framework for fair predictive algorithms. Fairness and Transparency in Machine Learning (FAT-ML) conference. arXiv:1610.08077

2015 Johndrow, J.E., Mattingly, J.C., Mukherjee, S. and Dunson, D., 2015. Optimal Approximating Markov Chains for Bayesian Inference. Annals of Statistics (reject and resubmit). arXiv:1508.03387

2015 Liu, I. A., Johndrow, J. E., Abe, J., Lüpold, S., Yasukawa, K., Westneat, D. F., and Nowicki, S. (2015). Genetic diversity does not explain variation in extra-pair paternity in multiple populations of a songbird. Journal of evolutionary biology, 28(5), 1156-1169. Wiley-JEB:12644

Manuscripts & Preprints

2017a Duan, L.L., Johndrow, J.E. and Dunson, D.B., 2017. Scaling Up Data Augmentation MCMC via Calibration. arXiv:1703.03123

2017b Johndrow, J.E. and Orenstein, P., 2017. Scalable MCMC for Bayes Shrinkage Priors. arXiv:1705.00841

2017c Goldberg, D. and Johndrow, J.E., 2017. A Decision Theoretic Approach to A/B Testing. arXiv:1710.03410

2017d Johndrow, J.E. and Mattingly, J.C., 2017. Coupling and Decoupling to bound an approximating Markov Chain. arXiv:1706.02040

2017e Johndrow, J.E. and Mattingly, J.C., 2017. Error bounds for approximations of Markov chains. arXiv:

2016 Johndrow, J.E., Lum, K. and Manrique-Vallier, D., 2016. Estimating the observable population size from biased samples: a new approach to population estimation with capture heterogeneity. arXiv:1606.02235

2015 Johndrow, J.E. and Wolpert, R.L., 2015. Tail waiting times and the extremes of stochastic processes. arXiv:1512.07848

Biology Publications

2008 Liu R, Woolner S, Johndrow JE, Metzger D, Flores A, Parkhurst SM. Sisyphus, the Drosophila myosin XV homolog, traffics within filopodia transporting key sensory and adhesion cargos. Development. 135(1):53–63. 2008.

2007 Stanley SA, Johndrow JE, Manzanillo P, Cox JS. The Type I IFN response to infection with Mycobacterium tuberculosis requires ESX-1-mediated secretion and contributes to pathogenesis. Journal of Immunology, 178(5):3143–52. 2007.

2006 Verdier V, Johndrow JE, Betson M, Chen GC, Hughes DA, Parkhurst SM, Settleman J. Drosophila Rho-kinase (DRok) is required for tissue morphogenesis in diverse compartments of the egg chamber during oogenesis. Developmental Biology, 297(2):417– 32. 2006.

2006 Johndrow JE, Rosales-Nieves AE, Keller LC, Magie CR, Pinto-Santini DM, Parkhurst SM. Coordination of microtubule and microfilament dynamics by Drosophila Rho1, Spire and Cappuccino. Nature Cell Biology, 8(4):367–76, 2006.

2006 Machado FS, Johndrow JE, Esper L, Dias A, Bafica A, Serhan CN, Aliberti J. Anti- inflammatory actions of lipoxin A4 and aspirin-triggered lipoxin are SOCS-2 dependent. Nature Medicine, 12(3):330–4, 2006.

2005 Hoffman HE, Blair ER, Johndrow JE, Bishop AC. Allele-specific inhibitors of protein tyrosine phosphatases. Journal of the American Chemical Society, 127(9):2824–5, 2005.

2005 Johndrow JE, Magie CR, Parkhurst SM. Rho GTPase function in flies: insights from a developmental and organismal perspective. Biochemistry and Cell Biology, 82(6):643– 57, 2005.

Teaching

Primary instructor

2016 Statistics 206: Applied Multivariate Analysis. Stanford University.

2017a Statistics 203: Introduction to Regression and Analysis of Variance. Stanford University.

2017b Statistics 101: Data Science. Stanford University.

Teaching Assistant

2013 Statistics 711: Probability and measure. Duke University

2013 Statistics 732: Statistical Inference. Duke University

Professional Experience

2006-2010 Consultant, NERA Economic Consulting, Boston, MA.

2005-2006 Research technician, University of California, San Francisco, San Francisco, CA. PI: Jeff Cox

2003-2005 Research technician, Fred Hutchinson Cancer Research Center, Seattle, WA. PI: Susan Parkhurst

Invited Talks

2017 Biostatistics Department Seminar, University of California, Berkeley.

2017 Conference on Bayesian Nonparametrics, eleventh biennial meeting.

2017 Statistics Department Seminar, Texas A&M University.

2017 SAMSI QMC Program Monte Carlo workshop.

2015 Special session on frontiers in computational mathematics, AMS Central Sectional Meeting.

2014 International Society for Bayesian Analysis, Twelfth annual world meeting. Cancún, Mexico.

2014 International Society for Business and Industrial Statistics (ISBIS) annual meeting.

Consulting/Extramural Collaborations

2016 Neuro+. Assessment of ADHD clinical trial.

2015-2016 TreasureData. Creation of generative data model for demo of machine learning product.

2014- eBay. Various research projects on anomaly detection, A/B testing, prediction.

2014- Human Rights Data Analysis Group. Theory and methods of statistics for human rights.

Service to the profession

2015-2017 Referee for: Annals of Statistics, Annals of Applied Statistics, Annals of Applied Probability, Journal of the American Statistical Association, Journal of the Royal Statistical Society: Series B

(Statistical Methodology), Bayesian Analysis, Journal of Multivariate Analysis.

2017 Session organizer for BayesComp 2018 conference. "MCMC Asymptotics and Convergence rates."