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Research Interests

Smoothing and functional data analysis. Multivariate response models and high-dimensional matrix estimation. Covariance function/matrix estimation. Wearable computing. Children growth. Brain imaging.

Education

Postdoctoral Fellow, Johns Hopkins University, 2012-current

Advisor: Ciprian Crainiceanu

Ph.D. Statistics, Cornell University, 2012

Advisor: David Ruppert

Dissertation: Topics in Bivariate Spline Smoothing

M.A. Mathematics, University of Pennsylvania, 2007

B.S. Mathematics, University of Science and Technology of China, 2005

Awards

- Hsien Wu and Daisy Yen Wu scholarship award, 2012
- Cornell graduate school travel award, 2011
- Graduate fellowship at University of Pennsylvania, 2005

Academic Memberships/Service

- Membership:
 - American Statistical Association
 - International Biometric Society
- Referee:

- Bayesian Analysis
- Bernoulli
- Biometrika
- Journal of the American Statistical Association
- Journal of Multivariate Statistics
- Journal of the Royal Statistical Society Series B
- Journal of Statistical Theory and Practice
- PLOS ONE

Papers

Note: the sign # at the beginning of papers indicates alphabetical order of authorships; the sign * indicates co-first authorships.

Published/Accepted

1. **XIAO, L.**, HUANG, L., SCHRACK, J., FERRUCCI, L., ZIPUNNIKOV, V., and CRAINICEANU, C. (2014), *Quantifying the life-time circadian rhythm of physical activity: a covariate-dependent functional approach*, *Biostatistics*, to appear.
2. MA, X.*, **XIAO, L.*** and WONG, W.H. (2014), *Learning regulatory programs by threshold SVD regression*, *Proceedings of the National Academy of Sciences*, to appear.
3. **XIAO, L.**, HE, B., KOSTER, A., CASEROTTI, P., LANGE-MAIA, B., GLYNN, N., HARRIS, T. and CRAINICEANU, C. (2014), *Movement prediction using accelerometers in a human population*, tentatively accepted by *Biometrics*.
4. **XIAO, L.**, RUPPERT, D., ZIPUNNIKOV, V., and CRAINICEANU, C. (2014), *Fast covariance estimation for high dimensional functional data*, *Statistics and Computing*, to appear.
5. # BUNEA, F. and **XIAO, L.** (2014), *On the sample covariance matrix estimator of reduced effective rank population matrices, with applications to fPCA*, *Bernoulli*, to appear.
6. **XIAO, L.**, THURSTON, S., LOVE, T., RUPPERT, D., and DAVIDSON, P. (2014), *Bayesian models for multiple outcomes in domains with application to the Seychelles Child Development Study*, *Journal the American Statistical Association*, 109, 1 – 10.
7. **XIAO, L.**, LI, Y., and RUPPERT, D. (2013), *Fast bivariate P-splines: the sandwich smoother*, *Journal of the Royal Statistical Society, Series B*, 75, 577 – 599.

Submitted

1. **XIAO, L.** and BUNEA, F. (2014), *On the theoretic and practical merits of the banding estimator for large covariance matrices*, in revision for 2nd round of review.

2. #BIEN, J., BUNEA, F. and **XIAO, L.** (2014), *Convex banding of the covariance matrix*, submitted.
3. HOOKER, G., RAMSAY, J. and **XIAO, L.** (2014), *CollocInfer: collocation inference in differential equation models*, submitted.
4. HUANG, L., REISS, P.T., **XIAO, L.**, ZIPUNNIKOV, V., LINDQUIST, M.A. and CRAINICEANU, C. (2014), *Separable spatial-temporal principal component analysis*.

To Be Submitted

1. SCHRACK, J.A., **XIAO, L.**, ZIPUNNIKOV, V., SIMONSICK, E.M., FERRUCCI, L. and CRAINICEANU, C. *Quantification of sedentary behavior in older adults*.

In Preparation

1. Sparse reduced rank regression for multiple binary responses
2. Fast covariance estimation for irregularly spaced functional data

Software

Contributor: "refund: Regression with Functional Data", R package.

Coauthor: "CollocInfer: Collocation Inference in Nonlinear Stochastic Dynamics", R package.

Presentations

Invited

- 2014 *Quantifying the life-time circadian rhythm of physical activity: a covariate-dependent functional approach*, JSM, Boston, *topic contributed*.
- 2014 *Quantifying the life-time circadian rhythm of physical activity: a covariate-dependent functional approach*, North Carolina State University, functional data seminar.
- 2014 *Estimation of covariance matrices with particular structures*, SAMSI LDHD.

Contributed

- 2014 *Quantifying the life-time circadian rhythm of physical activity: a covariate-dependent functional approach*, ENAR, *poster*.
- 2014 *Quantifying the life-time circadian rhythm of physical activity: a covariate-dependent functional approach*, Johns Hopkins University, the SMART group seminar.
- 2012 *Fast covariance function estimation*, Cornell University, student seminar.
- 2012 *Fast bivariate P-splines*, Johns Hopkins University, the SMART group seminar.
- 2011 *Fast bivariate P-splines*, JSM, Miami.
- 2011 *Fast bivariate P-splines*, Cornell University, student seminar.

Professional Experience

- 2012 Summer Research Assistant at Cornell for Prof. Florentina Bunea on theory of covariance matrix estimation
- 2011 Spring Research Assistant at Cornell for Prof. Robert L. Strawderman and Weil Cornell Medical College on Bayesian bivariate meta-analysis
- 2010 Summer Research Assistant at Cornell for Prof. David Ruppert on establishing the asymptotic theory of P-splines near the boundary
- 2009 Summer Research Assistant at Cornell for Prof. Giles Hooker on building a R package “CollocInfer”

Teaching Experience

Teaching Assistant at Cornell:

- Teaching recitation classes, substitute teaching, grading homework assignments and exams, and holding office hours for
 - BTRY 408: Basic Probability
 - BTRY 409: Basic Statistics
 - STAT 511: Statistics in Social Science
- Grading homework assignments and exams and holding office hours for
 - STAT 310: Statistical Sampling
 - MATH 471: Theory of Probability
 - MATH 472: Theory of Statistics
 - STSCI 5030: Applied Linear Regressions
 - MATH 674: Introduction to Mathematical Statistics

Computing Skills

- Proficient: R, Matlab, LaTeX
- Some experience: C, C++, WinBUGS

Last updated: October 24, 2014