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## SHAoyu “LISA” LI

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### EDUCATION

- **Ph.D.** Statistics, Department of Statistics and Probability,  
Michigan State University, East Lansing, MI, July 2006-July 2011  
Advisor: Dr. Yuehua Cui  
Dissertation: Statistical Issues and Novel Strategies in eQTL Mapping
- **Ph.D.** Quantitative Biology, Quantitative Biology Initiative,  
Michigan State University, East Lansing, MI, 2008-July 2011  
Advisor: Drs. Yuehua Cui and Shin-Han Shiu
- **M.A.** Statistics, Department of Mathematics,  
Huazhong University of Science and Technology, Wuhan, China, 2006  
Advisor: Dr. Cihua Liu
- **B.S.** Applied Mathematics, Department of Mathematics,  
Huazhong University of Science and Technology, Wuhan, China, 2003

### RESEARCH INTERESTS

- Statistical genetics, Gene-gene interaction, Genome-wide association study, Genome-wide rare variants detection
- Statistical genomics, eQTL mapping, Microarray data analysis, Systems biology, Gene set enrichment analysis, Genetic network inference
- Bayesian statistical method and its application in gene expression data analysis

### RESEARCH EXPERIENCE

- Research Assistant, Spring 2008 (supported by NSF DMS award 0707031)
- Research Assistant, Fall 2008 (supported by MSU QBI Fellowship)
- Research Assistant, Spring 2009 (supported by MSU QBI Fellowship)
- Research Assistant, Summer 2009 (supported by Summer Research Fellowship)
- Research Assistant, Spring 2010 (supported by NIH/NICHD subcontract)

### TEACHING EXPERIENCE

- **Independent Instructor** (Summer 2010)
  - Course: Statistical Methods (STT 200)
  - Department of Statistics and Probability, Michigan State University

- **Recitation Instructor** (Spring & Fall 2007, Spring 2008, Fall 2010)
  - Courses: Introduction to Probability And Statistics for Business (STT315); Statistical Methods (STT 200); Statistical Methods (STT 201)
  - Department of Statistics and Probability, Michigan State University
- **Recitation Instructor** (Fall 2009)
  - Finite Math/Application of Algebra (MTH112)
  - Department of Mathematics, Michigan State University

## HONORS AND AWARDS

- Sigma Xi Graduate Award, Michigan State University Chapter (November, 2010)
- Sigma Xi Scientific Society Full Membership, Michigan State University Chapter (November, 2010)
- Summer Research Fellowship, The College of Natural Science, Michigan State University (May-August, 2010)
- Graduate Student Travel Award, Michigan State University, (March, 2010)
- Travel grant, Growth Factor and Signal Transduction Symposium (on Systems Biology: Integrative, Comparative, and Multi-scale Modeling), Iowa State University (June, 2009)
- Travel Award (Stapleton Fund), Michigan State University (March, 2009)
- Graduate Research Fellowship, Quantitative Biology Initiative, Michigan State University (2008-2009)
- QB Recruiting Cash Award, Quantitative Biology Initiative, Michigan State University (2008)
- Summer Research Fellowship, The College of Natural Science, Michigan State University (May-August, 2008)
- Outstanding Graduate Student Scholarships, Graduate School of Huazhong University of Science & Technology (2003-2006)
- Scholarships for Academic Excellence, Huazhong University of Science & Technology (2000-2003)

## PUBLICATIONS

### Invited book chapters

1. Cui, Y.H., G.X. Li, **S.Y. Li** and R.L. Wu. (2010) Designs for Linkage Analysis and Association Studies of Complex Diseases. In: *Statistical Methods in Molecular Biology* (Eds.: H. Bang, X.K. Zhou, H.L. Van Epps and M. Mazumdar) Humana Press.

### Peer-referred journal articles

2. **Li, S.Y.** and Y.H. Cui. (2011) A combined p-value approach to infer pathway

- regulations in eQTL mapping. *Statistics and Its Interface* (accepted)
3. **Li, S.Y.**, Q. Lu and Y.H. Cui. (2010) A systems biology approach for identifying novel pathway regulators in an eQTL mapping study. *Journal of Biopharmaceutical Statistics* 20(2): 373–400.
  4. **Li, S.Y.**, Q. Lu, W. Fu, R. Romero and Y.H. Cui. (2009) A regularized regression approach for dissecting genetic conflicts that increase disease risk in pregnancy. *Statistical Applications in Genetics and Molecular Biology*. Vol. 8: Iss. 1, Article 45.
  5. Cui, Y.H., **S.Y. Li**, and G.X. Li. (2008) Functional Mapping Imprinted Quantitative Trait Loci Underlying Developmental Characteristics. *Theoretical Biology and Medical Modeling* 5:6.
  6. **Li, S.Y.** and C.H. Liu. (2006) Empirical Bayesian Estimator for the parameter of the linear exponential model. *Journal of Huazhong University of Science and Technology* 34: 3 (English Abstract).

#### **Working papers**

7. **Li, S.Y.** and Y.H. Cui. Gene-centric gene-gene interactions: a model-based kernel machine method. (submitted)
8. **Li, S.Y.** and Y.H. Cui. A gene-centric approach for detecting gene-gene interactions in case-control studies. (in progress)
9. **Li, S.Y.** and Y.H. Cui. A gene-centric epistasis analysis identified novel gene-gene interactions associated with responses to small-molecule drugs in yeast. (in progress)
10. **Li, S.Y.** and Y.H. Cui. Comparison of statistical methods for genome-wide rare variants detection.(in progress)

#### **JOURNAL REFEREE SERVICE**

- Genetica (2010)
- Clinical Epidemiology (2010)
- The Open Genomics Journal (2010)
- Communications in Information and Systems (2009)
- BMC genetics (2008)

#### **SEMINAR AND CONFERENCE PRESENTATIONS**

1. **Invited department colloquium talk** --“Gene-centric gene-gene interactions: a model-based kernel machine method”, Department of Statistics and Probability, Michigan State University, East Lansing, MI, January 2011
2. **Poster** – Systems Biology Symposium, Michigan State University, East Lansing, MI, October 2010

3. **Poster** -- “A kernel machine method for gene-centric gene-gene interaction”, *Quantitative Biology Initiative graduate student poster session*, East Lansing, MI, August 2010
4. **Invited speaker** -- “Kernel machine methods in eQTL mapping”, *ICSA Applied Statistics Symposium*, Indianapolis, IN, June 2010
5. **Contributed speaker** -- “Enriching our knowledge in gene regulation via eQTL mapping: a combined p-value approach”, *ENAR Spring Meeting*, New Orleans, LA, March 2010
6. **Poster** -- “A systems biology approach for identifying novel pathway regulators in eQTL mapping”, *Quantitative Biology Initiative graduate student poster session*, East Lansing, MI, August 2009
7. **Committee selected student talk** -- “A systems biology approach for identifying novel pathway regulators in eQTL mapping”, *Growth Factor and Signal Transduction Symposium* (on Systems Biology: Integrative, Comparative, and Multi-scale Modeling), Iowa State University, June 2009
8. **Contributed speaker** -- “A regularized regression approach for dissecting genetic conflicts that increase disease risk in pregnancy”, *ENAR Spring Meeting*, San Antonio, TX, March 2009

### **OTHER CONFERENCES I ATTENDED**

- 3<sup>rd</sup> Midwest Statistics Research Colloquium, The University of Chicago, Chicago, IL, March 26-27, 2010
- Midwest Conference on Mathematical Methods for Images and Surfaces, East Lansing, MI, April 18-19, 2009
- Midwest Conference on System Biology, East Lansing, MI, Oct. 27-28, 2007

### **WORKSHOPS I ATTENDED**

- Statistical and genomic challenges for clinical studies and practice, Center for statistical genetics and GlacoSmithKline, University of Michigan, Ann Arbor, MI, Oct. 1, 2009
- The latest developments in design and analysis of genetic and genomic data (SNP, high-dimensional data), Statistical Genetics and Genomics Workshop, East Lansing, MI, May 13-14, 2008

### **MEMBERSHIP**

- Institute of Mathematical Statistics (2008-)
- East Northern American Region/International Biometric Society (2010-)
- American Statistical Association (2010-)

- International Chinese Statistical Association (2010-)

## **COMPUTER SKILLS**

- Statistical Software: S-plus/R, Matlab, SAS, SPSS and Minitab
- Data and processing: Excel, Perl and Latex
- Language: C, Fortran
- Operating system: Unix and Windows

## **SELECTED COURSES I'VE TAKEN**

Theory of Probability I & II	Real Analysis
Theory of Statistics I & II	Algebra
Applied Statistics Methods I-Linear models	Functional Analysis
Applied Statistics Methods II-Generalized Linear Models	Statistical Genetics
Statistical Decision Theory and Bayesian Analysis	Introduction to Quantitative Biology Technology
Statistical Computation	A Course for Biology Interdisciplinary Scientists
Multivariate Analysis	Cell & Molecular Biology Seminar
Stochastic Processes and Application	Problems in Quantitative Biology
Time Series Analysis	Micro-Economics
Advanced Topics in Statistics	Mathematical Finance