

# SHAORYU LI

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Department of Mathematics and Statistics  
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## EDUCATION

- **Ph.D. Dual major-degree in Statistics and Quantitative Biology,**  
Department of Statistics and Probability  
& Quantitative Biology Initiative  
Michigan State University, East Lansing, MI, 2011  
*Dissertation: Statistical Issues and Novel Strategies in eQTL Mapping*
- **M.A. Statistics,**  
Department of Mathematics,  
Huazhong University of Science and Technology, Wuhan, China, 2006
- **B.S. Applied Mathematics,**  
Department of Mathematics,  
Huazhong University of Science and Technology, Wuhan, China, 2003

## RESEARCH /PROFESSIONAL EXPERIENCE

- **Assistant Professor** August 2014-Present,  
Department of Mathematics and Statistics, University of North Carolina  
Charlotte, Charlotte, NC
- **Assistant Faculty Member** August 2011-August 2014,  
Department of Biostatistics, St. Jude Children's Research Hospital, Memphis,  
TN
- **Biostatistician** December 2011-August 2014,  
Operations and Biostatistics Center, the Pediatric Brain Tumor Consortium  
(PBTC), Memphis, TN
- **Biostatistician** October 2013-August 2014,  
Children's Oncology Group (COG)
- **Research/Teaching Assistant** July 2006-July 2011,  
Department of Statistics and Probability, Michigan State University, East  
Lansing, MI

## RESEARCH INTERESTS

- Statistical and computational methods for the analysis of genetics/genomics data, including investigations of gene-gene/gene-environment interaction, genome-wide association study, systems biology, and epigenome-wide association studies.
- Clinical trial design
- Quantile regression

## TEACHING EXPERIENCE

- **Michigan State University**
  - Fall 2014 Applied Statistics I (Linear Regression Analysis)
  - Summer 2010 Statistical Methods (STT 200)
  - Summer 2011 Introduction to Probability and Statistics for Business (STT315)
- **University of North Carolina at Charlotte**
  - Applied Statistics I (STAT4123/5123)
  - Probability and Statistics for Engineers (STAT 3128)
  - Applied Regression (STAT 3110)
  - Applied Statistics II (STAT 4124/5124)

## RESEARCH GRANTS

- **PI:** UNCC Faculty Research Grant, 2016-2017
- **Co-I:** mHealth Delivery of a Motivational Intervention to Address Heavy Drinking Among College Freshmen (PI: Dr. Kazimi in CHHS), NIH, (funded).

## HONORS AND AWARDS

- MSU Chapter of Sigma Xi Graduate Award, (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 (\*: corresponding author)

1. **Shaoyu Li** \*, Tao He, Iwona Pawlikowska, and Tong Lin, Correcting length-bias in gene set enrichment analysis for DNA methylation data (Accepted by *Statistics and Its Interface*, 2016+).
2. Salloum R, Hummel TR, Kumar SS, Dorris K, **Li S**, Lin T, Daryani VM, Stewart CF, Miles L, Poussaint TY, Stevenson C, Goldman S, Dhall G, Packer R, Fisher P, Pollack IF, Fouladi M, Boyett J, Drissi R, *J Neurooncol* (2016) doi:10.1007/s11060-016-2189-7.
3. Haitao Yang, **Shaoyu Li**, Hongyan Cao, Chichen Zhang, and Yuehua Cui, Predicting disease trait with genomic data: A composite kernel approach. *Brief Bioinform* (2016), doi: 10.1093/bib/bbw043.
4. Wetmore C, Boyett J, **Li S**, Lin T, Bendel A, Gajjar A, Orr BA., Alisertib is active as single agent in recurrent atypical teratoid rhabdoid tumors in children. *Neuro Oncol* (2015), 17(6):882-8.
5. **Li S\***, Cui Y and Romero R., Entropy-based selection for maternal-fetal genotype incompatibility with application to preterm prelabor rupture of membranes. *BMC Genetics* (2014), 15:66.
6. Pounds S, Cheng C, **Li S**, Liu Z, Zhang J and Mullighan C., A Genomic Random Interval Models for Statistical Analysis of Genomic Lesion Data. *Bioinformatics* (2013), 29(17): 2088-95.
7. Wu C, **Li S** and Cui Y., Genetic association studies: an information content perspective. *Current Genomics* (2012), 13(7): 566-573.
8. Robinson G, Parker M, Kranenburg TA, Lu C, Chen X, Ding L, Phoenix TN, Hedlund E, Wei L, Zhu X, Chalhoub N, Baker SJ, Huether R, Kriwacki R, Curley N, Thiruvengatam R, Wang J, Wu G, Rusch M, Hong X, Becksfort J, Gupta P, Ma J, Easton J, Vadodaria B, Onar-Thomas A, Lin T, **Li S**, Pounds S, Paugh S, Zhao

- D, Kawauchi D, Roussel MF, Finkelstein D, Ellison DW, Lau CC, Bouffet E, Hassall T, Gururangan S, Cohn R, Fulton RS, Fulton LL, Dooling DJ, Ochoa K, Gajjar A, Mardis ER, Wilson RK, Downing JR, Zhang J, Gilbertson RJ., Novel mutations target distinct subgroups of medulloblastoma. *Nature* (2012), 488(7409):43-8.
9. **Li S** and Cui Y., Gene-centric gene-gene interaction: a model-based kernel machine method. *Annals of Applied Statistics* (2012), 6(3): 1134-1161.
  10. Qaddoumi I, Sane M, **Li S**, Kocak M, Pai-Panandiker A, Harreld J, Klimo P, Wright K, Broniscer A, Gajjar A. Diagnostic utility and correlation of tumor markers in the serum and cerebrospinal fluid of children with intracranial germ cell tumors. *Childs Nery Syst.* (2012), 28(7): 1017-24.
  11. **Li S**, Williams B and Cui Y., A combined p-value approach to infer pathway regulations in eQTL mapping. *Statistics and Its Interface* (2011), 4(3): 389-402.
  12. **Li S**, Lu Q and Cui Y., A systems biology approach for identifying novel pathway regulators in an eQTL mapping study. *Journal of Biopharmaceutical Statistics* (2010), 20(2): 373-400.
  13. **Li S**, Lu Q, Fu W, Romero R and Cui Y., A regularized regression approach for dissecting genetic conflicts that increase disease risk in pregnancy. *Statistical Applications in Genetics and Molecular Biology.* (2009), Vol. 8: Iss. 1, Article 45.
  14. Cui Y, **Li S**, and Li G., Functional mapping imprinted quantitative trait loci underlying developmental characteristics. *Theoretical Biology and Medical Modeling* (2008), 5:6.
  15. **Li S** and Liu C., Empirical Bayesian estimator for the parameter of the linear exponential model. *Journal of Huazhong University of Science and Technology* (2006) 34: 3 (English Abstract).

### **Abstracts**

16. Amar J, Gajjar, Sridharan Gururangan, Ibrahim A Qaddoumi, Roger Packer, Stewart Goldman, Michael Prados, Annick Desjardins, Maryam Fouladi, Naoko Takebe, **Shaoyu Li**, David W. Ellison, Tom Curran, Richard J. Gilbertson, James M. Boyett. A prospective phase II study to determine the efficacy of GDC0449 (vismodegib) in adults with recurrent medulloblastoma (MB): A pediatric Brain Tumor Consortium study (PBTC-025B), ASCO

### **INVITED TALKS**

1. “A gene network based approach for the correction of cell type heterogeneity. Hope it fits the theme of the session”, International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Greensboro, NC, Sep. 30-Oct. 2, 2016

2. “The correction of length-bias in gene set enrichment analysis for DNA methylation data”, Proteomics Core Facility Seminar Series, Cannon Research Center, Carolina HealthCare System, May 28<sup>th</sup>, 2015
3. “The correction of length-bias in gene set enrichment analysis for DNA methylation data”, Shanxi Medical University, Taiyuan, China, June, 24<sup>th</sup>, 2015
4. Short course “Analysis of DNA methylation data: Epigenomewide Association Studies (EWAS)”, Shanxi Medical University, Taiyuan, China, June 23<sup>rd</sup>, 2015
5. “*All about gene-gene interaction*”, Central Arkansas Chapter of ASA, AR, November 22<sup>nd</sup>, 2013
6. “*Gene-Centric Gene-Gene Interaction: A Model-Based Kernel Machine Method*”, Department of Statistics, Oklahoma State University, OK, February 2011
7. “*Gene-Centric Gene-Gene Interaction: A Model-Based Kernel Machine Method*”, Department of Mathematics and Statistics, Missouri University of Science and Technology, MO, February 2011
8. “*Gene-Centric Gene-Gene Interaction: A Model-Based Kernel Machine Method*”, Department of Mathematics and Statistics, California State University, Fullerton, CA, February 2011
9. “*Gene-Centric Gene-Gene Interaction: A Model-Based Kernel Machine Method*”, Department of Mathematics, West Chester University, PA, February 2011
10. “*Gene-Centric Gene-Gene Interaction: A Model-Based Kernel Machine Method*”, Department of Statistics and Probability, Michigan State University, East Lansing, MI, January 2011
11. “*Identifying novel pathway regulation in eQTL mapping*”, ICSA Applied Statistics Symposium, Indianapolis, IN, June 2010.

#### **CONFERENCE SESSION ORGANIZER/CHAIR**

- **Organizer and chair**, “STATISTICAL METHODS FOR GENOMICS AND EPIGENOMICS DATA ANALYSIS”, 2015 ICSA china Statistics Conference, Shanghai, China, July 6-7, 2015
- **Chair: “Genomics”**, ENAR 2016 meeting, Austin, TX, 2016
- **Organizer**: “Statistical Methods for the Analysis of High Dimensional “Omics” Data”, Qingdao, China, June 24-25, 2016

#### **OTHER PRESENTATIONS AND CONFERENCES/WORKSHOPS**

- **(Attendee)** ASA-NISS-IMS-ENAR-ICSA Technical Writing Workshop, Chicago, IL, July 30-August 03, 2016
- **(Contributed poster)** “The correction of length-bias in gene set enrichment analysis for DNA methylation data”, Joint Statistical Meeting, Seattle, WA, August 10<sup>th</sup>, 2015

- **(Attendee)** ENAR Junior Researchers Workshop (NSF supported), Miami, FL, March 13-14, 2015
- **(Contributed speaker)** The Ninth ICSA International Conference: Challenges of Statistical Methods for Interdisciplinary Research and Big Data. Hong Kong, December 20-23, 2013
- **(Contributed speaker)** The 8<sup>th</sup> International Purdue Symposium on Statistics, June 23<sup>rd</sup>, 2012
- **(Poster)** 2011 St. Jude Faculty/Postdoctoral Poster Session, November 17<sup>th</sup>, 2011
- **(Poster)** Systems Biology Symposium, Michigan State University, East Lansing, MI, October 2010
- **(Poster)** Quantitative Biology Initiative graduate student poster session, East Lansing, MI, August 2010
- **(Contributed speaker)** ENAR Spring Meeting, New Orleans, LA, March 2010
- **(Poster)** Quantitative Biology Initiative graduate student poster session, East Lansing, MI, August 2009
- **(Committee selected student talk)** *Growth Factor and Signal Transduction Symposium* (on Systems Biology: Integrative, Comparative and Multi-scale Modeling), Iowa State University, June 2009
- **(Contributed speaker)** ENAR Spring Meeting, San Antonio, TX, March 2009
- Pediatric Brain Tumor Consortium Semi-Annual Meeting, Chicago, IL, September 15-16, 2013
- Fall 2013 Children's Oncology Group (COG) Meeting, Dallas, TX, September 10-11, 2013
- Pediatric Brain Tumor Consortium Semi-Annual Meeting, Alexandria, VA, September 24-26, 2012
- Fall 2012 Children's Oncology Group (COG) Meeting, Atlanta, GA, September 11-14, 2012
- Pediatric Brain Tumor Consortium Semi-Annual Meeting, Dallas, TX, March 3-6, 2012
- Statistical Analysis for Next Generation Sequencing, Birmingham, AL, September 26-27, 2011
- 3<sup>rd</sup> Midwest Statistics Research Colloquium, The University of Chicago, Chicago, IL, March 26-27, 2010
- 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

## **PROFESSIONAL SERVICE AND MEMBERSHIPS**

### **Editorial Services**

Guest Associate Editor      Frontiers (2014-2015)

### **Journal referee services**

- Journal of the American Statistical Association (JASA)
- International Journal of Biostatistics
- Nature Communications
- Bioinformatics
- PLOS ONE
- Briefings in Bioinformatics
- BMC Bioinformatics
- BMC genetics
- Annals of human genetics
- Genetica
- Clinical Epidemiology
- The Open Genomics Journal
- Communications in Information and Systems

### **Committee services**

- Biostatistics Protocol Review Committee, St Jude Children's Research Hospital      2011-2014
- Quality Assurance Committee, PBTC      2012-2014
- Graduate Recruitment Committee, Department of Mathematics and Statistics, UNCC      2014-2015
- High Sch Math Contest Exam Committee, Department of Mathematics and Statistics, UNCC      2014-present
- Stat Subcommittee, Department of Mathematics and Statistics, UNCC      2015-2017
- Graduate Curriculum, Department of Mathematics and Statistics, UNCC      2015-2016

### **Professional memberships**

- Institute of Mathematical Statistics
- East Northern American Region/International Biometric Society
- American Statistical Association
- International Chinese Statistical Association