

# Xinge Jessie Jeng

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CONTACT INFORMATION	Department of Statistics North Carolina State University 5126 SAS Hall, 2311 Stinson Drive Raleigh, NC 27695-8203	Email: xjjeng@ncsu.edu Tel: 919-515-0612
RESEARCH INTERESTS	High-Dimensional Inference, Weak Signal Detection, Bioinformatics, Statistical Genomics, Precision Medicine	
EMPLOYMENT	Associate Professor Department of Statistics North Carolina State University	2018 - present
	Assistant Professor Department of Statistics North Carolina State University	2012 - 2018
	Postdoctoral Fellow Department of Statistics Department of Biostatistics and Epidemiology University of Pennsylvania	2009 - 2012
EDUCATION	Ph.D. in Statistics Department of Statistics, Purdue University	2009
	M.S. in Statistics Department of Statistics, University of Chicago	2004
	M.A. in Mathematics of Finance Department of Mathematics, Columbia University	2002
	B.A. in Accounting Department of Accounting, Management School of Fudan University	2001
AWARDS AND HONORS	NSF DMS-1811360 New Techniques for High-Dimensional Regression and Applications to Precision Medicine Role: PI	2018 - 2021
	NIH R03HG008642 Powerful and adaptive statistical methods for sequencing studies Role: PI	2016-18
	NSA-AMS 140925, Young Investigator Award Detecting Weak Signals in High-Dimensional Data Analysis Role: PI	2015-16

Featured researcher in Research Features Magazine	2018
Recognition in the Thank A Teacher Program, North Carolina State University, Raleigh, NC	2014
Travel award to the 14th IMS New Researchers Meeting, University of California, San Diego.	2012
David P. Byar Young Investigator Award, Biometrics Section, American Statistical Association.	2010

## PUBLICATIONS

(\*corresponding author; §authors ordered alphabetically.)

- X. J. Jeng\***, T. Zhang, and J-Y Tzeng (2019)  
Efficient Signal Inclusion With Genomic Applications  
*J. American Statistical Association, T&M*. To appear.
- X. Jessie Jeng\*** and Xiongzhi Chen (2019)  
Variable Selection via Adaptive False Negative Control in Linear Regression  
*Electronic Journal of Statistics*. To appear.
- X. Jessie Jeng\***, Huimin Peng<sup>#</sup>, and Wenbin Lu (2019)  
Model Selection With Mixed Variables on the Lasso Path.  
*Sankhya B, the Special Issue in Honor of Jayanta K. Ghosh*. To appear.
- X. Jessie Jeng\*** and Xiongzhi Chen (2018)  
Predictor Ranking and False Discovery Proportion Control in  
High-Dimensional Regression.  
*J. of Multivariate Analysis*, 171, 163-175.
- X. J. Jeng\***, W. Lu, and H. Peng (2018)  
High-Dimensional Inference for Personalized Treatment Decision  
*Electronic Journal of Statistics*. 12(1), 2074-2089.
- X. J. Jeng**, Z. J. Daye, W. Lu, and J-Y Tzeng (2016).  
Rare Variants Association Analysis in Large-Scale Sequencing Studies at the  
Single Locus Level.  
*Plos Computational Biology*. <http://dx.doi.org/10.1371/journal.pcbi.1004993>.
- X. J. Jeng** (2016)  
Detecting Weak Signals in High Dimensions.  
*J. of Multivariate Analysis*. 147, 234-246.
- X. J. Jeng**, Q. Wu, and H. Li (2015)  
A Statistical Method for Identifying Trait-Associated Copy Number Variants.  
*Human Heredity*. 79, 147-156.

R. Song, W. Lu, S. Ma, and **X. J. Jeng** (2014)  
Censored Rank Independence Screening for High-Dimensional Survival Data.  
*Biometrika*. 101(4), 799-814.

S. Vardhanabhuti, **X. J. Jeng**, Y. Wu, and H. Li (2014).  
Parametric Modeling of Whole-Genome Sequencing Data for CNV Identification.  
*Biostatistics*. 15(3), 427-441.

**X. J. Jeng\***, T. Cai, and H. Li (2013).  
Simultaneous Discovery of Rare and Common Segment Variants.  
*Biometrika*. 100 (1), 157-172.

T. Cai<sup>§</sup>, **X. J. Jeng<sup>§\*</sup>**, and H. Li<sup>§</sup> (2012).  
Robust Detection and Identification of Sparse Segments in Ultra-High Dimensional Data  
Analysis.  
*J. Royal Statistical Society, Series B*. 74(5), 773-797.

T. Cai<sup>§</sup>, **X. J. Jeng<sup>§</sup>**, and H. Li<sup>§</sup> (2012)  
Analysis and Inference of Microarray Data.  
Invited book chapter. *Advanced Medical Statistics*. Ed: J.Q. Fang, H. Jin, L. Tian and  
Y. Lu. World Scientific Publishing Company. To appear.

**X. J. Jeng\*** and Z. J. Daye (2011).  
Sparse Covariance Thresholding for High-Dimensional Variable Selection.  
*Statistical Sinica*. 21, 625-657.

T. Cai<sup>§</sup>, **X. J. Jeng<sup>§\*</sup>**, and J. Jin<sup>§</sup> (2011).  
Optimal Detection of Heterogeneous and Heteroscedastic Mixtures.  
*J. Royal Statistical Society, Series B* . 73(5), 629-662.

**X. J. Jeng\***, T. Cai, and H. Li (2010).  
Optimal Sparse Segment Identification with Application in Copy Number Variation  
Analysis.  
*J. American Statistical Association*. 105 (491), 1156-1166.

Z. J. Daye and **X. J. Jeng** (2009).  
Shrinkage and Model Selection with Correlated Variables via Weighted Fusion.  
*Comp. Statistics & Data Analysis*. 53, 1284-98.

MANUSCRIPTS (# student supervised)

**X. Jessie Jeng\***, Jacob Rhyne<sup>#</sup>, Teng Zhang<sup>#</sup>, and Jung-Ying Tzeng.  
Effective SNP Ranking Improves the Performance of eQTL Mapping  
Under review.

Jacob Rhyne<sup>#</sup>, Eric Chi, Jung-Ying Tzeng, and **X. Jessie Jeng\***.  
Fast-LORS: Joint Modeling for eQTL Mapping in R  
Under review.

PUBLICLY  
ACCESSIBLE  
SOFTWARE

(Available at <https://sites.google.com/site/xingejeng/research.>)

1. R package FastLORS: A new algorithm for eQTL mapping through effective SNP ranking and screening and sparse multivariate regression.
2. R package AFNC: It provides a tool for informative inference of rare variants association of large-scale studies at the single locus level by identifying a modest number of potentially causal variants while avoiding a deluge of noncausal ones.
3. R package optlrs: This is an efficient method for sparse segment identification. Can be applied to identify copy number variants in germline DNA samples.
4. R package robustseg: A two-stage approach for robust identification of sparse segments. Can be used to identify structural variants based on next-generation sequencing data.
5. R package pass: An efficient approach for simultaneous identification of rare and common Segment Variants. Can be applied to identify recurrent structural variants based on multiple germline DNA samples.

PRESENTATIONS Invited Talks

- 2019 ICSA China Conference, Tianjing, China, July 2019.
- ICSA 2019 Applied Statistics Symposium, Raleigh, NC, June 2019.
- Department of Statistics, North Carolina State University, March 2019.
- The 3rd Workshop on Higher-Order Asymptotics and Post-Selection Inference, St. Louis, MO, Sep 2018
- The 8th International Workshop on High-Dimensional Data Analysis, Marrakech, Morocco, April 2018.
- International Conference on Data Science, Shanghai, China, Dec 2017.
- The 10th ICSA International Conference, Shanghai, China, Dec 2016.
- The 2016 Joint Statistical Meetings, Chicago, IL, Aug 2016.
- Department of Statistics and Operations Research, UNC-Chapel Hill, Oct 2015.
- ASA Meeting on Statistical Learning and Data Mining, Durham, NC, Jun 2014.
- Department of Biostatistics, University of Washington, Oct 2013.
- Fred Hutchinson Cancer Research Center, Seattle, WA, Oct 2013.
- Department of Statistics, North Carolina State University, Sep 2013.
- 2013 WNAR Annual Meeting, UCLA, CA, Jun 2013.
- 2013 ICSA Applied Statistics Symposium, Bethesda, MD, Jun. 2013.
- Department of Mathematics, University of Arizona, Feb 2013.
- Biostatistics Working Group, North Carolina State University, Nov 2012.
- Department of Information and Operation Management, University of Southern California, Marshall School of Business, Feb 2012.
- Department of Biological Statistics and Computational Biology, Cornell University, Feb 2012
- Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, Jan 2012.
- Department of Statistics, North Carolina State University, Jan 2012.
- Department of Statistics, Florida State University, Jan 2012.
- Statistical Genomics Seminar Series, Department of Statistics, University of Pennsylvania, Oct. 2011.

- IMS China International Conference on Statistics and Probability, Xi-An, China, Jul 2011.
- ICOSA 2011 Applied Statistics Symposium, New York, NY, Jun 2011.
- Department of Biostatistics, Columbia University Mailman School of Public Health, Apr 2011.
- Department of Statistics, University of Wisconsin - Madison, Feb 2011.
- Department of Biostatistics, University of Michigan-Ann Arbor, Feb 2011.
- Department of Statistics, Ohio State University, Jan 2011.
- High-Dimensional Inference Seminar Series, Department of Statistics, University of Pennsylvania, Jan 2011.
- ICOSA 2010 Applied Statistics Symposium, Indianapolis, IN, June 2010.
- Jun Liu's Bioinformatics Lab, Harvard University, Mar 2009.
- 1st Midwest Statistics Research Colloquium, University of Chicago, Mar 2008.

Contributed Talks and Posters

- Joint Statistical Meetings 2013, Montral, Canada, Aug 2013.
- ENAR 2012 Spring Meeting, Washington, DC, Apr 2012.
- Joint Statistical Meeting 2010, Vancouver, Canada, Aug 2010.
- ENAR 2010 Spring Meeting, New Orleans, LA, Mar 2010.
- 2nd Annual Midwest Symposium on Computational Biology and Bioinformatics, University of Illinois at Urbana-Campaign, IL, Oct 2008.
- Joint Statistical Meetings 2008, Denver, CO, Aug 2008.
- SAMSI Program on Multiplicity and Reproducibility in Scientific Studies, Research Triangle Park, NC, Jul 2006.
- 8th Annual Winter Workshop on Frontiers of Theoretical Statistics, University of Florida, Gainesville, FL, Jan 2006.

SELECTED TEACHING EXPERIENCES	<p>Experimental Statistics For Biological Sciences I (ST511)      Fa 2017 2016 2013 2012          Instructor, Department of Statistics, NCSU      Sp 2016 2015 2014 2013          Non-major graduate course          Recognized by 2014 Thank A Teacher Program.</p> <p>Statistics for Management I (ST513)      Fa 2017 2018 2019          Instructor, Department of Statistics, NCSU      Sp 2019          Pre-requisit online course for the Analytic and Data Science program</p> <p>High-Dimensional Statistical Inference and Bioinformatics (ST790)      Sp 2019          Instructor, Department of Statistics, NCSU          PhD elective course.</p> <p>Introduction to Mathematical Statistics I (ST421)      Sp 2017          Instructor, Department of Statistics, NCSU          Undergraduate course for sophomore students in Statistics and related fields</p> <p>Introduction to Probability and Distribution Theory (ST371)      Fa 2015          Instructor, Department of Statistics, NCSU.          Non-major undergraduate course.</p>
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Topics in High-Dimensional Statistical Inference (ST810)  
Instructor, Department of Statistics, NCSU.  
PhD elective course.

Sp 2014

STUDENTS	Yifei Hu	(PhD Advisor)
SUPERVISION	Jacob Rhyne	(PhD Advisor)
	Huimin Peng	(PhD Co-Advisor)
	Teng Zhang	(PhD Co-Advisor)
	Xu Han	(PhD Committee Member)
	Zhe Wang	(PhD Committee Member)
	Wanying Ma	(PhD Committee Member)
	Yuan Feng	(PhD Committee Member)
	Hao Hu	(PhD Committee Member)
	Siddharth Roy	(PhD Committee Member)
	Mi Zhou	(PhD Committee Member)
	Hui Qian	(PhD Committee Member)
	Han Wang	(PhD Academic Advisor)
	Haoyu Wang	(PhD Academic Advisor)
	Caleb Weaver	(PhD Academic Advisor)
	Kristen Gullede	(MS Committee Member)
	Zhongkai Liu	(MS Committee Member)
	Yunbo Cai	(MS Committee Member)
	Chunho Yeom	(PhD Committee Member, Graduate School Representative)

PROFESSIONAL  
SERVICE

Within the University

- 2018 PhD Qualify Exam Committee
- 2017 Department Head Search Committee
- 2016 PhD Qualifying Exam Committee
- 2016 Department Beach Trip Committee
- 2015 Department Beach Trip Committee
- 2014 PhD Written Preliminary Exam Committee
- 2014 Department Basic Exam Committee
- 2013 Department Beach Trip Committee

Outside the University

- 2019 ICSA Applied Statistics Symposium, program committee.
- 2019 ICSA Applied Statistics Symposium, invited session organizer.
- 2019 ASA SBSS Student Paper Competition, review committee.
- 2016 Diversity and Mentoring Program by ASA Committee on Minorities, session speaker.
- 2016 Higher-Order Asymptotics and Post-Selection Inference Workshop, poster session chair.
- 2014 Women in Statistics Inaugural Conference, Research Triangle Park, session panelist.
- 2013 Diversity and Mentoring Program by ASA Committee on Minorities, session speaker.
- 2013 Joint Statistical Meetings, topic-contributed session organizer.
- 2011 ICSA 2011 Applied Statistics Symposium, invited session organizer.

- Referee for *Annals of Applied Statistics*  
*Annals of Statistics*  
*Bernoulli*  
*Bioinformatics*  
*Biometrics*  
*Biometrika*  
*Biostatistics*  
*Computational Statistics and Data Analysis*  
*Genetic Epidemiology*  
*Frontiers in Genetics*  
*IEEE Signal Processing Letters*  
*IEEE Transactions on Signal Processing*  
*Journal of the American Statistical Association*  
*Journal of Computational and Graphical Statistics*  
*Journal of Machine Learning Research*  
*Journal of Multivariate Analysis*  
*Journal of the Royal Statistical Society Series B*  
*Statistical Analysis and Data Mining*  
*Statistics and Probability Letters*  
*Statistical Sinica*  
*Technometrics*

MEMBERSHIP      American Statistical Association  
                         Institute of Mathematical Statistics