

CURRICULUM VITAE

Min Zhang

Department of Statistics
Purdue University
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EDUCATION

- Ph.D. 2005 Biological Statistics and Computational Biology, Cornell University, Ithaca, NY
Advisor: Martin T. Wells
Dissertation: *Inference for Sparse and Asymmetric Signals in High Dimensional Data with Applications to Statistical Genomics*
- M.S. 2003 Biometry, Cornell University, Ithaca, NY
Advisors: Robert L. Strawderman and Martin T. Wells
Thesis: *Profiling Pharmacy Expenditure in Managed Health Care: a Two-Part Hierarchical Model and Bayesian Inference*
- Ph.D. 1998 Neurophysiology, Beijing Medical University (aka Peking University Health Science Center), Beijing, China
Advisor: Jisheng Han
Dissertation: *The Anti-Opioid Effect of OFQ at Calcium Channel Level and the Effects of Opioids on Intracellular Calcium Concentration*
- M.S. 1995 Physiology, Lanzhou Medical College (aka Lanzhou University School of Medicine) Lanzhou, China
Advisor: Jingji Zhang
Thesis: *Electro-Physiology Changes of Rats with Ulcerative Colitis and the Treatment Effects of Rheum Palmatum L. on Ulcerative Colitis*
- M.D. 1992 Hebei Medical University, Hebei, China

PROFESSIONAL EXPERIENCE

• Academic Positions

- 2016 - present Professor, Department of Statistics, Purdue University, West Lafayette, IN
- 2011 - 2016 Associate Professor, Department of Statistics, Purdue University, West Lafayette, IN
- 2005 - 2011 Assistant Professor, Department of Statistics, Purdue University, West Lafayette, IN
- 2006 - present Affiliated Member, Oncological Science Center, Purdue University, West Lafayette, IN
- 2006 - present Member, Interdisciplinary Program in Computational Life Sciences, Purdue University, West Lafayette, IN
- 2006 - present Faculty Associate, Center on Aging and Life Course, Purdue University, West Lafayette, IN

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- 2009 - present Member, Purdue Interdisciplinary Life Science Graduate Program,
Purdue University, West Lafayette, IN
- **Internships**
 - 2001 summer Statistician, R. W. Johnson Pharmaceutical Research Institute,
Raritan, NJ
 - 2000 summer Statistical Research Intern, Food and Drug Administration (FDA),
Rockville, MD
 - **Clinical Experience**
 - 1988 summer Acupuncturist, Hebei Institute of Traditional Chinese Medicine,
Shijiazhuang, Hebei
 - 1989 - 1992 Resident, Hebei Cancer Hospital, Shijiazhuang, Hebei

HONORS AND AWARDS

- 2011 Seed for Success Award, Purdue University, West Lafayette, IN
- 2010 Seed for Success Award, Purdue University, West Lafayette, IN
- 2009 Seed for Success Award, Purdue University, West Lafayette, IN
This award recognizes the accomplishments of single and teams of investigators for their efforts in obtaining \$1 million dollars or more in research grant funding within one year.
- 2009 Interdisciplinary Award, College of Science, Purdue University, West Lafayette, IN
This award recognizes an extraordinary and significant outcome as the result of a current or recent interdisciplinary collaboration with faculty and staff in the College of Science.
- 2005 Liu Memorial Award, Cornell University, Ithaca, NY
This award is for a doctoral student at Cornell who has made excellent progress in the graduate program and has high potential for a successful academic career.
- 2005 Summer Institute Scholarship, North Carolina State University, Raleigh, NC
- 2005 Graduate School Travel Award, Cornell University, Ithaca, NY
- 2005 Student Speaker Competition Winner, Gordon Conference on “Quantitative Genetics and Genomics”, Ventura, CA
This award recognizes the best student paper and the winner is the only student who gives a talk at the conference.
- 2004 Thesis Research Award, School of Industrial and Labor Relations,
Cornell University Ithaca, NY
- 2004 Travel Award, Statistical Analysis of Neuronal Data (II), Pittsburgh, PA
- 2003 Outstanding Teaching Assistant Award, College of Agriculture and Life Sciences,
Cornell University, Ithaca, NY
- 2003 Best Student Paper Award, Health Policy Statistics Section, American Statistical Association, JSM, San Francisco, CA
- 2003 Pathways to the Future Travel Award, JSM, San Francisco, CA
- 2003 Graduate School Travel Award, Cornell University, Ithaca, NY
- 2002-05 Summer Graduate School Fellowship, Cornell University, Ithaca, NY
- 2002 Travel Award, Statistical Analysis of Neuronal Data (I), Pittsburgh, PA

- 1999 Excellent Dissertation Award, International Exchange Foundation, Beijing Medical University, Beijing, China
- 1998 Graduate School Fellowship, Duke University, Durham, NC
- 1997 Guang-Hua Scholarship, Beijing Medical University, Beijing, China
- 1989 Excellent Student Scholarship, Hebei Medical University, Hebei, China

RESEARCH INTEREST

- **Statistical Theory and Methodology**

Bayesian Statistics; High Dimensional Data; Incomplete Data; Multivariate Statistics; Variable Selection

- **Statistical Genetics and Bioinformatics**

Statistical Inference for Omics Data including Genomic, Proteomic, and Metabolomic Data (*e.g.*, Microarray, Nuclear Magnetic Resonance Spectra data, and Mass Spectrometry Data); Genome-Wide Sequence-Based Association Analysis; Genomic Selection; Quantitative Trait Loci Mapping; Molecular Marker Profiling; Statistical and Computational Methods for Biomarker Identification; Gene Regulatory Network

- **Statistics in Health Care**

Profiling Physicians in Managed Health Care; Construction of Incentive Scheme for Physicians

RESEARCH FUNDING

1. *New statistical Methods to Model Metabolite Profiles for Disease Detection* (PI: Min Zhang), from NIH/NCI. 09/16 - 08/17. Total award: \$171,467.
2. *Big Data Training for Translational Omics Research* (PI: Min Zhang), from NIH/BD2K. 12/15 - 11/18. Total award: \$479,465.
3. *Administrative Supplement to: Big Data Training for Translational Omics Research* (PI: Min Zhang), from NIH/BD2K. 07/16 - 06/17. Total award: \$144,153.
4. *FADS1 genetic variation and pediatric NAFLD* (PI: Wanqing Liu), from NIH/NICHD. 04/17 - 03/22. Role: co-investigator. Total award: \$1,253,135.
5. *Novel Statistical Approaches to Uncover the Genetic Architecture of Alzheimer's Disease* (PI: Min Zhang) from Women's Global Health Institute and Indiana Clinical and Translational Sciences Institute. 03/16 - 02/17. Total award: \$15,000
6. *Cancer Care Engineering Genomics Analysis* (PI: Marietta Harrison) from Walther Cancer Foundation. Role: Co-PI. 06/10 - 05/16. Total award: \$325,581.
7. *Statistical Analysis for ITMIG Data* (PI: Robert Korst) from International Thymic Malignancy Interest Group. 09/15 - 11/15. Total award: \$1,800.
8. *Ionome to Genome: Mapping the Gene Networks Controlling Nutrient Content in Rice Grain* (PI: David Salt) from NSF Plant Genome Research Program. Role: Senior personnel, 09/07 - 07/15. Total award: \$6,873,734.
9. *A Genome-wide Integrated Analysis of microRNAs in Human Hepatic Fat Accumulation* (PI: Wanqing Liu), from Showalter Trustee. Role: co-PI. 07/12 - 06/13. Total award: \$75,000.

10. *Interactions between Omics and Statistics: Analyzing High Dimensional Data* (PI: Min Zhang), from NSF/PGRP. 05/12 - 04/13. Total award: \$16,000.
11. *Support for Session: Interactions between Omics and Statistics: Analyzing High Dimensional Data at the 8th Internal Purdue Symposium on Statistics* (PI: Min Zhang) from Dow AgroSciences. 2012. Total award: \$15,000.
12. *Early Cancer Detection and Prognosis Through Glycomics* (PI: Min Zhang subcontracted from Milos Novotny) from NIH/NCI. Role: PI. 08/07 - 07/12. Total award: \$2,112,303.
13. *Warfighter Cancer Care Engineering* (PI: Patrick Loehrer) from DOD/USAMRMC. Role: Co-PI. 09/10 - 10/13. Total award: \$2,152,805.
14. *Diet by Gene Interactions Affecting Calcium and Bone Metabolism* (PI: James Fleet) from NIH. Role: Collaborator. 09/09 - 07/12. Total award: \$754,899.
15. *Warfighter Cancer Care Engineering* (PI: Patrick Loehrer), from DOD/USAMRMC. Role: co-investigator. 07/08 - 08/11. Total award: \$2,400,000.
16. *New Statistical Approaches to Enhance Genome-Wide Single Nucleotide Polymorphism Association Mapping to Identify Genetic Markers for Common Complex Human Diseases* (PI: Min Zhang) from Purdue Discovery Park. 04/09 - 12/10. Total award: \$39,442.
17. *An Integrated Web-based System to Control Diabetes* (PI: Karen Chang) from Purdue University-Tsinghua University strategic partnership grant program. Role: Co-PI. 10/10 - 8/11. Total award: \$2,800.
18. *Student Support for Statistical Methods Related to QTL Analysis* (PI: Min Zhang), from Purdue Center for Gene-Environment Interactions. 05/08 - 05/10. Total award: \$53,204.
19. *Statistical Methods for Identifying Interactions Underlying Complex Diseases* (PI: Min Zhang) from Purdue Alumni Association. 05/08 - 04/09. Total award: \$3,000.
20. *Cancer Care Engineering* (PI: Joseph Pekny), from Regenstrief Institute For Health Care. Role: co-investigator. 08/07 - 06/08. Total award: \$1,350,000.
21. *Single Nucleotide Polymorphism Identification for Cardiovascular Disease Risk Factors via Genome-wide Linkage Analysis* (PI: Min Zhang) from Center on Aging and the Life Course, Purdue University. 2007. Total award: \$1,000.
22. *Estimators Flexible for Sparsity and Asymmetry* (PI: Min Zhang) from Purdue Research Foundation. 2006. Total award: \$7,000.

PAPERS

- **Refereed** († indicates graduate students)

1. L. Guan, Q. Wang†, L. Wang†, B. Wu, Y. Chen, F. Liu, F. Ye, T. Zhang, K. Li, B. Yan, C. Lu, L. Su, G. Jin, H. Wang, H. Tian, L. Wang, Z. Chen, Y. wang, J. Chen, Y. Yuan, W. Cong, J. Zheng, J. Wang, X. Xu, H. Liu, W. Xiao, C. Han, Y. Zhang, F. Jia, X. Qiao, Genetic REsearch on schizophreNiA neTwork-China and Netherland (GREAT-CN), D. Zhang, **M. Zhang***, H. Ma*. (* co-corresponding authors, 2016). Common variants on 17q25 and gene-gene interactions conferring

- risk of schizophrenia in Han Chinese population and regulating gene expression in human brain. *Molecular Psychiatry*. 21(9): 1244-1250.
2. **Zhang M**, Hua L, Zhai W, Zhao Y. (2016). Novel computational approaches and applications in cancer research. *BioMed Research International*. Editorial.
 3. C. Shi†, Z. Zheng, Q. Wang†, C. Wang, D. Zhang, **M. Zhang***, P. Chan*, and X. Wang*. (*co-corresponding authors, 2016). Exploring clinical profiles of Parkinson's disease: An association study. *PLoS ONE*. 11(6): e0155758. doi:10.1371/journal.pone.0155758.
 4. E. Neumann, H. Mehboob, J. Ramirez, S. Mirkov, **M Zhang**, W. Liu. (2016). Age-dependent hepatic UDP-glucuronosyltransferase gene expression and activity in children. *Frontiers in Pharmacology*, <http://dx.doi.org/10.3389/fphar.2016.00437>
 5. P. Reyes-Fernandez, R. A. Replogle, L. Wang†, **M. Zhang**, J. C. Fleet. (2016). Novel genetic loci control calcium absorption and femur bone mass as well as their response to low calcium intake in male BXD recombinant inbred mice. *Journal of Bone and Mineral Research*. 31(5): 994-1002.
 6. J. C. Fleet, R. A. Replogle, P. Reyes-Fernandez, L. Wang†, **M. Zhang**, E. L. Clinkenbeard, and K. E. White. (2016) Gene-by-diet interactions affect serum 1,25 dihydroxyvitamin D levels in male BXD recombinant inbred mice. *Endocrinology*. 157(2): 470-481.
 7. V. Pungpapong†, **M. Zhang**, D. Zhang (2015). An iterated conditional modes/medians algorithm for empirical Bayes selection of massive variables. *Electronic Journal of Statistics*. 9(1): 1243-1266.
 8. Y. Lin†, **M. Zhang**, D. Zhang (2015) Generalized orthogonal-components regression for high-dimensional generalized linear models. *Computational Statistics and Data Analysis*. 88: 119-127.
 9. C. Chen†, L. Deng, S. Wei, G. A. N. Gowda, H. Gu, G. Chiorean, M. Zaid, M. Harrison, J. Pekny, P. Loehrer, D. Zhang, **M. Zhang***, D. Raftery*. (2015). Exploring metabolic profile differences between colorectal polyp patients and controls using seemingly unrelated regression. *Journal of Proteome Research*. 14(6): 2492-2499.
 10. L. Wang†, S. Athinarayanan, G. Jiang, N. Chalasani, **M. Zhang**, W. Liu. (2015). Fatty acid desaturase (FADS1) gene polymorphisms control human hepatic lipid composition. *Hepatology*. 61: 119-128.
 11. T. Eisenberg, T. Eisenberg, M. T. Wells, **M. Zhang**. (2015). Addressing the zeros problem: regression models for outcomes with a large proportion of zeros, with an application to trial outcomes. *Journal of Empirical Legal Studies*. 12(1): 161-186.
 12. S. R. M. Pinson, L. Tarpley, W. Yan, K. Yeater, B. Lahner, E. Yakubova, X. Huang, **M. Zhang**, M. L. Guerinot, D. E. Salt. (2015). World-wide genetic diversity for mineral element concentrations in rice grain. *Crop Science*. 55: 294-311.
 13. X. Xue, Z. Shi, W. Wang, X. Yu, P. Feng, **M. Zhang**, X. Wang, J. Xu. (2015). Huqi San-evoked rat colonic anion secretion through increasing CFTR expression. *Evidence-Based Complementary and Alternative Medicine*. Article ID 301640.
 14. **M. Zhang**, R. M. P. Shannon, L. Tarpley, X.Y. Huang, B. Lahner, E. Yakubova, I. Baxter, M. L. Guerinot, D. E. Salt. (2014). Mapping and validation of quantitative trait loci associated with concentrations of 16 elements in unmilled rice grain. *Theoretical and Applied Genetics*. 127(1): 137-165.

15. R. Wei, C. Li, **M. Zhang**, Y. L. Jones, J.L. Myers, I. Noth, W. Liu. (2014). Association between MUC5B and TERT polymorphisms and different interstitial lung disease phenotypes. *Translational Research*. 163(5): 494-502.
16. C. Li, R. Wei, Y. L. Jones-Hall, **M. Zhang**, W. Liu. (2014). Association between genetic polymorphisms of epidermal growth factor receptor (EGFR) pathway genes and interstitial lung disease. *Scientific Reports*. 4, Article number:4893 |doi : 10.1038/srep04893.
17. R. A. Replogle, Q. Li, L. Wang†, **M. Zhang**, J.C. Fleet. (2014). Gene-by-diet interactions influence calcium absorption and bone density in mice. *Journal of Bone and Mineral Research*. 29(3): 657-665.
18. E. R. Gamazon, F. Innocenti, R. Wei, L. Wang†, **M. Zhang**, S. Mirkov, R. Ramirez, R.S. Huang, N.J. Ratain, W. Liu. (2013). A genome-wide integrative study of microRNAs in human liver. *BMC Genomics*, 14: 395.
19. H. Li, Y. Wang, L. Hua, Y. Yang, **M. Zhang**, D. Zhang, C. Wang, and Z. Xu. (2013). Lack of association between dendritic cell nuclear protein-1 gene and major depressive disorder in the Han Chinese population. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 45: 7-10.
20. V. Pungpapong†, W. M. Muir, X. Li, D. Zhang, and **M. Zhang**. (2012). A fast and efficient approach for genomic selection with high density markers. *G3: Genes, Genomes, Genetics*, 2(10): 1179-1184.
21. D. Isailovic, M. D. Plasencia, M. M. Gaye, S. T. Stokes, R. T. Kurulugama, V. Pungpapong†, **M. Zhang**, Z. Kyselova, R. Goldman, Y. Mechref, M. V. Novotny, and D. E. Clemmer. (2012). Delineating diseases by IMS-MS profiling of serum N-linked glycans. *Journal of Proteome Research*, 11(2): 576-585.
22. V. Pungpapong†, L. Wang, Y. Lin†, D. Zhang, and **M. Zhang**. (2011). Genome-wide association analysis of GAW17 data using an empirical Bayes variable selection. *BMC Proceedings*, 5 (Suppl 9): S4.
23. L. Wang†, V. Pungpapong†, Y. Lin†, **M. Zhang**, and D. Zhang. (2011). Genome-wide case-control study in GAW17 using coalesced rare variants. *BMC Proceedings*, 5 (Suppl 9): S110.
24. X. Li, C. Zhu, Z. Lin, Y. Wu, D. Zhang, G. Bai, W. Song, J. Ma, G.J. Muehlbauer, M.J. Scanlon, **M. Zhang***, and J. Yu* (2011). Chromosome size in diploid eukaryotic species centers on the average length with a conserved boundary. *Molecular Biology and Evolution*, 28: 1901-1911.
25. **M. Zhang**, D. Zhang, and M. T. Wells (2010). Generalized thresholding estimators for high-dimensional location parameters. *Statistica Sinica*, 20: 911-926.
26. Y. Sari, **M. Zhang**, and Y. Mechref (2010). Differential expression of proteins in fetal brains of alcohol-treated prenatally C57BL/6 mice: a proteomic investigation. *Electrophoresis*, 31: 483-496.
27. E. Buescher, T. Achberger, I. Amusan, A. Giannini, C. Ochsenfeld, A. Rus, B. Lahner, O. Hoekenga, E. Yakubova, J. F. Haper, M. L. Guerinot, **M. Zhang**, D. E. Salt, and I. R. Baxter (2010). Natural genetic variation in selected populations of *Arabidopsis thaliana* is associated with ionic differences. *PLoS ONE*, 5: e11081.
28. Z. T. Hammoud, Y. Mechref, A. Hussein, S. Bekesova, **M. Zhang**, K. A. Kesler, M. W. Novotny. Comparative glycomic profiling in esophageal adenocarcinoma. *The*

- Journal of Thoracic and Cardiovascular Surgery*, 139(5): 1216-1223.
29. **M. Zhang**, Y. Lin†, L. Wang†, V. Pungpapong†, J. C. Fleet, and D. Zhang (2009). Case-control genome-wide association study of rheumatoid arthritis from GAW16 using POCRE-LDA. *BMC Proceedings*, 3 (Suppl 7): S17.
 30. Y. Lin†, **M. Zhang**, L. Wang†, V. Pungpapong†, J. C. Fleet, and D. Zhang (2009). Simultaneous genome-wide association studies of anti-CCP in rheumatoid arthritis using penalized orthogonal-components regression. *BMC Proceedings*, 3 (Suppl 7): S20.
 31. D. Zhang, Y. Lin†, and **M. Zhang** (2009). Penalized orthogonal-components regression for large p small n data. *Electronic Journal of Statistics*, 3: 781-796.
 32. S. S. Jedlicka, M. Dadarlat, T. Hassell, Y. Lin†, **M. Zhang**, P. Irazoqui, and J. Rickus. (2009). Calibration of neurotransmitter release from neural cells for therapeutic implants. *International Journal of Neural Systems*, 19: 197-212.
 33. L. Zeng, G. Salvendy, and **M. Zhang** (2009). Factor structure of web site creativity. *Computers in Human Behavior*, 25: 568-577.
 34. Y. Mechref, A. Hussein, S. Bekesova, V. Pungpapong†, **M. Zhang**, L. E. Dobrolecki, R. J. Hickey, Z. T. Hammoud, and M. Novotny (2009). Quantitative serum glycomics of esophageal adenocarcinoma, and other esophageal disease onsets. *Journal of Proteome Research*, 8: 2656-2666.
 35. **M. Zhang**, D. Zhang, and M. T. Wells (2008). Variable selection with large p small n regression models: mapping QTL with epistasis. *BMC Bioinformatics*, 9: 251.
 36. D. Zhang, X. Huang, F. E. Regnier, and **M. Zhang*** (2008). Two-dimensional correlation optimized warping algorithm for aligning GC \times GC-MS data. *Analytical Chemistry*. 80: 2664-2671.
 37. D. Zhang, and **M. Zhang** (2007). Bayesian profiling of molecular signatures to predict event times. *Theoretical Biology and Medical Modelling*, 4: 3.
 38. **M. Zhang**, R. L. Strawderman, M. E. Cowen, and M. T. Wells (2006). Bayesian inference for a two-part hierarchical model: an application to profiling providers in managed health care. *Journal of the American Statistical Association*, 101: 934-945.
 39. D. Zhang, **M. Zhang**, and M. T. Wells (2006). Multiplicative background correction for spotted microarrays to improve reproducibility. *Genetical Research*, 87: 195-206.
 40. **M. Zhang**, K. L. Montooth, M. T. Wells, A. G. Clark, and D. Zhang (2005). Mapping multiple quantitative trait loci by Bayesian classification. *Genetics*, 169: 2305-2318.
 41. **M. Zhang**, X. Wang, D. Zhang, G. Xu, H. Dong, Y. Yu, and J. Han (2005). Orphanin FQ antagonizes the inhibition of Ca^{2+} currents induced by μ -opioid receptors. *Journal of Molecular Neuroscience*, 25: 21-28.
 42. H. Dong, L. Wang, **M. Zhang**, and J. Han (2005). Decreased dynorphin A (1-17) in the spinal cord of spastic rats after compressive injury. *Brain Research Bulletin*, 67: 189-195.
 43. Complex Trait Consortium (including G. Churchill, . . . , **M. Zhang**) (2004). The collaborative cross: a community resource for the genetic analysis of complex traits. *Nature Genetics*, 36: 1133-1137.

44. M. Zhang, Q. Sun, Y. Wan, L. Yao, Y. Yu, and J. Han (1998). OFQ reverses the κ -opioid receptor-mediated depression of calcium current in rat dorsal root ganglion neurons. *NeuroReport*, 9: 2095-2098.

- **Submitted** (\dagger indicates graduate students)

1. C. Chen \dagger , M. Zhang, D. Zhang. (2016). A new method to construct large gene regulatory networks using genetical genomics data. In revision.
2. J. Park, M. L. salmi, A. Salim, A. Rademacher, B. Wickizer, A. Schooley, J. Benton, A. Cantero, P. Argote, M. Ren \dagger , M. Zhang, A. J. Ricco, D. M. Porterfield, S. J. Roux, and J. L. Rickus. (2016). An autonomous lab on a chip for space flight calibration of gravity-induced transcellular calcium polarization in single-cell fern spores. Submitted.

INVITED BOOK CHAPTERS

- M. Zhang (2010). Bayesian classification method for QTL mapping. In *Bayesian Modeling in Bioinformatics* (edited by Dey, Ghosh, and Mallick).
- M. Zhang, and M. Cowen (2010). Statistical based analysis and modeling. In *Handbook of Healthcare Delivery Systems* (edited by Y. Yin).

INVITED TALKS/PRESENTATIONS

1. *A Two-Stage Method for Genome-Wide Gene Regulatory Network Construction*. Joint Statistical Meeting, Chicago, IL, 2016.
2. *Multi-locus Association Analysis for Structured Populations*. Plant and Animal Genome XXIV Conference, San Diego, CA, 2016.
3. *Statistical Methods for Genome Wide Association Studies*. Department of Mathematics and Statistics, Georgia State University, Atlanta, GA. 2016.
4. *New Statistical Methods for Genome Wide Association Studies*. ASA Central Indiana Chapter. 2016.
5. *Simultaneous Statistical Methods for Omics Data*. Inova Translational Medicine Institute. Falls Church, VA. 2016.
6. *An Efficient Method for Variable Selection with Application to Genome Wide Association Studies*. Department of Biostatistics, Richard M. Fairbanks School of Public Health and School of Medicine, Indiana University. 2016.
7. *The Value of Statistics in Translational Medicine*. Indiana ASA Chapter. 2015.
8. *Statistical Analysis for Biomedical Big Data*. School of Public Health, Capital Medical University, China. 2015.
9. *Variable Selection for Integrative Analysis of Genome Wide Association Data*. School of Health Sciences, Purdue University. 2015.

10. *Statistical Methods for High Dimensional Data in Clinical Research*. China-Japan Friendship Hospital, Beijing, China. 2014.
11. *Integrative Analysis for Association Analysis*. Peking University, Beijing, China. 2013.
12. *Statistical Analysis for Omics Data*. Beijing University of Chemical Technology, Beijing, China. 2012.
13. *A New Approach for Genomic Selection with Dense Genetic Markers*. International Symposium on Mapping the Genetic Regulation of Forest Ecosystems. Beijing Forestry University, Beijing, China. 2012.
14. *Efficient Methods for Genomic Selection*. The 8th International Purdue Symposium. Purdue University, West Lafayette, IN, 2012.
15. *Clinical Medicine, Basic Medical Research, and Translational Research*. Capital Medical University, Beijing, China. 2012.
16. *Generalized Thresholding Estimators for High-Dimensional Location Parameters*. International Chinese Statistical Association Applied Statistics Symposium, New York City, NY, 2011.
17. *Empirical Bayes Thresholding Estimators with Application to Genome-Wide Association Mapping*. Department of Biostatistics, University of Wisconsin, Madison, WI, 2010.
18. *Empirical Bayes Methods for Variable Selection with Applications to Genome-Wide Association Studies*. Bioinformatics Seminar, Department of Statistics, Purdue University, West Lafayette, IN, 2010.
19. *Empirical Bayes Selection of Massive Data Using Iterated Conditional Modes/Medians*. Department of Statistics, Purdue University, West Lafayette, IN, 2010.
20. *An Efficient Approach for Genome-Wide SNP Selection*. International Chinese Statistical Association Applied Statistics Symposium, Indianapolis, IN, 2010.
21. *Empirical Bayes Selection of Sparse Variables in High-Dimensional Omics Data*. Department of Bioinformatics and Biostatistics, University of Louisville, Louisville, KY, 2010.
22. *An Efficient Approach to Simultaneous Genome-Wide Association Study*. Plant and Animal Genome XVIII Conference, San Diego, CA, 2010.
23. *Penalized Orthogonal-Components Regression for Simultaneous Genome-Wide Association Studies*. International Chinese Statistical Association Applied Statistics Symposium, San Francisco, CA, 2009.
24. *Statistical Methods for Large p Small n Data with Applications to Gene Mapping*. Kansas State University Symposium on Translation Genomics for Plant Breeding. Kansas State University, Manhattan, KS, 2009.

25. *Generalized Thresholding Estimators for High Dimensional Location Parameters*. Innovation and Incentiveness in Statistics Methodologies, Statistics Workshop at Yale University, New Heaven, CT, 2009.
26. *Bayesian Variable Selection for High Dimensional Models with Applications in Genomics*. Department of Mathematics, Statistics, and Computer Science, University of Illinois at Chicago, Chicago, IL, 2009.
27. *New Statistical Methods for Simultaneous Genome-Wide Association Studies*. Bioinformatics Seminar, Department of Statistics, Purdue University, West Lafayette, IN, 2009.
28. *Simultaneous Identification of Genome-Wide Epistasis*. Plant and Animal Genome XVII Conference, San Diego, CA, 2009.
29. *A Two-stage Variable Selection Procedure for High Dimensional Data*. Department of Statistics, Oklahoma State University, Stillwater, OK, 2008.
30. *Bayesian Variable Selection for High Dimensional Data: with Applications to QTL Mapping and Molecular Signature Profiling*. Department of Statistics, University of Missouri, Columbia, MO, 2008.
31. *Bayesian Variable Selection for Large p Small n Regression Models*. School of Informatics, Indiana University, Bloomington, IN, 2007.
32. *Statistical Issues in Omics Data*. VIGRE Seminar, Department of Statistics, Purdue University, West Lafayette, IN, 2006.
33. *Flexible and Empirical Bayes Estimator for High Dimensional Data: Sparseness and Asymmetry*. Ninth Meeting of New Researchers in Statistics and Probability. University of Washington, Seattle, WA, 2006.
34. *Introduction to fMRI*. Math Stat Seminar. Department of Statistics, Purdue University, 2006.
35. *Bayesian Variable Selection for Large p Small n Data: Mapping QTL with Epistasis*. Eastern North American Region conference, Tampa, FL, 2006.
36. *Bayesian Variable Selection for High Dimensional Data: Application to Genetics/Genomics* (invited). Department of Medicine, Indiana University Purdue University Indianapolis, IN, 2005.
37. *Mapping Multiple Quantitative Trait Loci by Bayesian Classification*. Gordon Conference on “Quantitative Genetics and Genomics”, Ventura, CA, 2005.
38. *Inference for Sparse and Asymmetric Signals in High Dimensional Data: Applications to Statistical Genetics*. Department of Community Health, Brown University, 2005.
39. *Inference for Sparse and Asymmetric Signals in High Dimensional Data: Applications to Statistical Genetics*. Department of Statistics and Probability, Michigan state University, 2005.

40. *Inference for Sparse and Asymmetric Signals in High Dimensional Data: Applications to Statistical Genetics*. Department of Statistics, Purdue University, 2005.
41. *Inference for Sparse and Asymmetric Signals in High Dimensional Data: Applications to Statistical Genetics*. Department of Biostatistics, University of Alabama, 2005.
42. *Inference for Sparse and Asymmetric Signals in High Dimensional Data: Applications to Statistical Genetics*. Department of Public Health Sciences, University of California at Davis, 2005.
43. *Inference for Sparse and Asymmetric Signals in High Dimensional Data: Applications to Statistical Genetics*. Department of Health Studies, University of Chicago, 2005.
44. *Inference for Sparse and Asymmetric Signals in High Dimensional Data: Applications to Statistical Genetics*. Department of Statistics, University of Kentucky, 2005.
45. *Mapping Multiple Quantitative Trait Loci by Bayesian Classification*. Department of Plant Breeding & Genetics, Cornell University, 2005.
46. *Profiling Pharmacy Expenditures in Health Care: Bayesian Inference for a Two-Part Hierarchical Model*. JSM, San Francisco, CA, 2003.
47. *Dose Response Study and Statistical Analysis of a Phase III Clinical Trial*. R. W. Johnson Pharmaceutical Research Institute, Raritan, NJ, 2001.
48. *Comparison of Conditional Logistic Regression and the Binomial Test for Case-control Studies*. Food and Drug Administration, Rockville, MD, 2000.
49. *Orphanin FQ—An Endogenous Anti-Opioid Peptide*. Department of Neurobiology, Duke University Medical Center, Durham, NC, 1999.

SOFTWARE DEVELOPED AND TECHNICAL SKILLS

- Software Developed: 2DCOW – two dimensional correlation optimized warping algorithm for aligning GC×GC-MS data; QTLBayes – Bayesian mapping of multiple QTL.
- Computational Languages: BUGS, MatLab, R, SAS, S-Plus, C/C++, Mathematica.
- Biological Techniques: electrophysiology and molecular biology techniques.

PROFESSIONAL AFFILIATIONS

American Association for Cancer Research
American Society of Human Genetics
American Statistical Association
Eastern North American Region of the Biometric Society
Institute of Mathematical Statistics
International Chinese Statistical Association
International Genetic Epidemiology Society
Society for Neuroscience

PROFESSIONAL SERVICES

- **Review Editor**

Frontiers in Pharmacology

- **Statistical Expert**

The Plant Cell

- **Lead Guest Editor**

BioMed Research International

- **Grant Panelist**

U24, Clinical Proteomic Technologies for Cancer Initiative (CPTC), NIH (2010)

K25, National Heart, Lung, and Blood Institute (NHLBI), NIH (2013)

K23/K24/K25, National Heart, Lung, and Blood Institute (NHLBI), NIH (2014)

K01/K08/K22, AIDS Research Review Committee, National Institute of Allergy and Infectious Diseases (NIAID), NIH (2015)

K25, National Heart, Lung, and Blood Institute (NHLBI), NIH (2016)

R25, Big Data to Knowledge (BD2K), NIH (2016)

P01, National Institute on Aging (NIA), NIH (2016)

R25, Special Emphasis Panel, NIH (2016)

U19, National Institute on Aging (NIA), NIH (2017)

- **Reviewer of Grants**

Genome Canada Applied Genomics and Proteomics Research (2006)

NIH Challenge Grants in Health and Science Research (2009)

NSF Plant Genome Research Program (2015)

- **Invited Book Reviewer by Biometrics**

Design, Analysis, and Interpretation of Genome-Wide Association Scans (2016)

- **Chair of the invited session**

How Natural Selection Shapes the Modern Human Genome: Methods and Examples.

The American Society of Human Genetics 2016 Annual Meeting, Vancouver, Canada.

- **Reviewer of Scientific Manuscripts for Professional Journals**

Analytical Chemistry

Bioinformatics

Biometrics

BMC Complementary and Alternative Medicine

BMC Genetics

Briefings in Bioinformatics

Cancer Epidemiology

Cancer Informatics

Crop Science

Experimental Biology and Medicine
Genetics Research
Genetics
International Journal of Cancer
International Journal of Plant Genomics
Journal of Biopharmaceutical Statistics
Journal of Statistical Planning and Inference
Molecular Biology and Evolution
Molecular Biology Reports
PLoS Genetics
PLoS ONE
Scientific Reports
Statistical Applications in Genetics and Molecular Biology
Statistics in Medicine
The Plant Cell
Theoretical and Applied Genetics

TEACHING

- **Classroom Instruction**

- STAT 490B Introduction to Bioinformatics
- STAT 503 Statistical Methods for Biology
- STAT 512 Applied Regression Analysis
- STAT 514 Design and Analysis of Experiments
- STAT 525 Intermediate Statistical Methodology
- STAT 526 Advanced Statistical Methodology
- STAT 598B Bioinformatics Seminar
- STAT 598R Statistical Methods for Association Mapping (Course developer)
- STAT 692 Statistics General Colloquium

- **Summer Boot Camp**

- Big Data Training for Translational Omics Research (Developer and Organizer)