

Curriculum Vitae

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EDUCATION:

2004–2005	Postdoctoral	Bioinformatics	Department of Psychiatry, UT Health Science Center at San Antonio, San Antonio, TX
2002–2004	Postdoctoral	Statistical Genetics	Department of Statistics, University of Florida, Gainesville, FL
1994–1997	Ph.D.	Statistical Genetics	Zhejiang University, Hangzhou, China
1991–1994	M.Sc.	Quantitative Genetics	Zhejiang University, Hangzhou, China
1983–1985	Associate	Agronomy	Zhejiang University, Hangzhou, China

PROFESSIONAL EXPERIENCE:

2019–	Research Professor, Department of Biostatistics, University of Florida, Gainesville, FL
2021–	Member, UF Health Cancer Center/Cancer Control & Population Sciences, University of Florida, Gainesville, FL
2023–	Assistant Director, Division of Quantitative Sciences, Biostatistics and Computational Biology Shared Resource (BCB-SR), UF Health Cancer Center, University of Florida, Gainesville, FL
2018–	Adjunct Professor, Department of Mathematics and Statistics, University of Arkansas at Little Rock, Little Rock, AR
2018–2019	Professor of Biostatistics, Department of Pediatrics, University of Arkansas for Medical Sciences, Little Rock, AR
2018–2019	Associate Member, Winthrop P. Rockefeller Cancer Institute, University

	of Arkansas for Medical Sciences, Little Rock, AR
2016–2018	Associate Professor of Biostatistics, Department of Pediatrics, University of Arkansas for Medical Sciences, Little Rock, AR
2015–2016	Associate Professor, Department of Biostatistics and Bioinformatics, Tulane University, New Orleans, LA
2013–2015	Scientist, UAB Comprehensive Cancer Center, Cancer Control and Population Science Program
2009–2015	Associate Professor, Department of Biostatistics/Department of Medicine, University of Alabama at Birmingham, Birmingham, AL
2006–2009	Assistant Professor, Department of Psychiatry and Neurobehavioral Sciences, University of Virginia, Charlottesville, VA
2005–2006	Research Associate, Department of Psychiatry and Neurobehavioral Sciences, University of Virginia, Charlottesville, VA
1997–2002	Assistant Professor, Department of Agronomy, Zhejiang University, Hangzhou, China
1993–1996	Teaching Assistant, Department of Agronomy, Zhejiang University, Hangzhou, China
1988–1994	Research Assistant, Maize Research Institute, Zhejiang Agricultural Science Academy, Dongyang, China
1985–1988	Teacher, Shanglu High School, Dongyang, China

RESEARCH INTERESTS:

1. Statistical Genetics: Development of innovative statistical methodology for genetic and genomic studies of complex traits in humans, plants and animals (e.g., joint linkage and association mapping method, GMDR for detecting gene-gene and gene-environment interactions)
2. Bioinformatics: Development of novel computationally efficient bioinformatics tools scaled to large data sets for data mining that aim at hypothesis exploration and discovery (e.g., querying pathway and ontology databases and *in silico* mapping)
3. Genetic Epidemiology: Planning study design and performing data analysis of genetic epidemiological studies for complex human disorders using both linkage and association approaches (e.g., genome-wide association studies)
4. Biostatistics: Clinical trial design, longitudinal data analysis, survival analysis, latent variable analysis and mixture modeling
5. Computational Biology: Development and application of algorithms or models to process biological data for understanding living system and relationships among various biological systems
6. Population Genetics: Development and application of new statistical approaches to

genetic population inference, DNA structure analysis, genetic diversity evaluation, and paternity inference through mathematical and population genetic bridges such as coalescence model and phylogeny construction

7. Genetics and Epigenetics of Birth Defects, Drug Addictions, and other Psychiatric Disorders: Application of the specialized state-of-the-art methods to identification of genetic and environmental risk factors underlying birth defects, drug addictions, and other psychiatric disorders
8. Biological Mechanisms and Nature-Nurture Interactions underlying Child Health and Development: Applying high-throughput biotechnologies and bioinformatics tools to decipher the mechanisms by which maternal-child nutrition and physical activity optimize health and development
9. Plant Genetics and Breeding: Principles of plant genetics and breeding, theory of heterosis, selection theory, genetic analysis in plant breeding, genetic resource and germplasm preservation, molecular breeding, maize breeding

HONORS AND AWARDS:

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| 1993 | 1991–1993 excellent graduate student award (top ~5% of graduate students) |
| 1994 | Early admission to Ph.D. program through competition (top ~5% of graduate students) |
| 2007 | The 1 st prize of Zhejiang Province's Science and Technology Award in 2006 (Title: Genetic model and analysis methods for diallel designs and germplasm resource exploration; Authors: Jun Zhu, Jin Hu, Haiming Xu, Xiang-Yang Lou , Daofan Ji) |

PROFESSIONAL MEMBERSHIPS:

Member, American Society of Human Genetics
Member, International Genetic Epidemiology Society
Member, Association of Chinese Geneticists in America
Member, International Chinese Statistical Association
Member, Genetics Society of China
Member, Biomathematics Society of China
Member, Central Arkansas Chapter (CASA) of ASA

OTHER PROFESSIONAL ACTIVITIES:

Panelist, National Science Foundation (NSF) Review Panel
NIH-BGES (Behavioral Genetics and Epidemiology Study Section)
NIH Special Emphasis Panel/Scientific Review Group ZRG1 PSE-P 55
NIH Scientific Review Group ZCA1 RPRB-6 (A1) R

Member, Natural Science Foundation of China (NSFC) Review Panel

Ad hoc Grant Reviewer, National Science Foundation (NSF)

Ad hoc Grant Reviewer, Experimental and Translational Medicine Research Committee, Scottish Government

Ad hoc Grant Reviewer, Israel Science Foundation

Ad hoc Grant Reviewer, The Wellcome Trust/DBT India Alliance

Ad hoc Grant Reviewer, New Zealand Government Rutherford Discovery Fellowships

Ad hoc Grant Reviewer, UAB CCTS/COCD Translational Research Intramural (Pilot) Grant Program

Guest Associate Editor, *Statistics and Its Interface*

Guest Editor, *BioMed Research International*

Editor, *Biometrics & Biostatistics International Journal*

Editor, *Pediatrics & Neonatal Biology Open Access*

Associate Editor, *Frontiers in Genetics/Statistical Genetics and Methodology*

Review Editor, *Frontiers in Statistical Genetics and Methodology*

Editorial Board, *International Scholarly Research Network (ISRN) Applied Mathematics*

Editorial Board, *Dataset Papers in Science*

Editorial Board, *Journal of Medical Statistics and Informatics*

Editorial Board, *Austin Statistics*

Editorial Board, *Enliven: Biostatistics and Metrics*

Editorial Board, *International Journal of Clinical Biostatistics and Biometrics*

Editorial Board, *Ommega Journal of Pediatrics*

Editorial Board, *Genes*

Program Committee Member, *IEEE International Conference on Bioinformatics & Biomedicine (BIBM 2010)–Workshop on Data Mining for High Throughput Data from Genome-wide Association Studies*; *IEEE International Conference on Bioinformatics & Biomedicine (BIBM 2011)*; *Midsouth Computational Biology and Bioinformatics Society (MCBIOS) 2022 Scientific Committee*.

Chair, Book Program and Website Committee; Member, Student Paper Competition Committee, *International Chinese Statistical Association (ICSA) 2022 Applied Statistics Symposium*.

Journal Reviewer for *American Journal of Human Genetics*, *Nature Communications*, *PLoS Genetics*, *Bioinformatics*, *BioEssays*, *Genetic Epidemiology*, *Nucleic Acids Research*, *Journal of Theoretical Biology*, *Genetics*, *New Phytologist*, *Theoretical and Applied Genetics*, *Statistical Applications in Genetics and Molecular Biology*, *Briefings in Bioinformatics*, *BMC Bioinformatics*, *BMC Genomics*, *BMC Genetics*, *PLoS One*, *Scientific Reports*, *Statistics and Probability Letters*, *Journal of Multivariate Analysis*, *Computational Statistics and Data*

Analysis, Journal of Biomedical Informatics, Theoretical Biology and Medical Modelling, Journal of Clinical Oncology, Molecular Psychiatry, Biological Psychiatry, Cancer Research, Journal of Alzheimer's Disease, Obesity, Human Genetics, Psychological Medicine, Drug and Alcohol Dependence, Behavioral and Brain Functions, Neural Regeneration Research, International Journal of Obesity, Journal of Obesity, American Journal of Translational Research, Molecular Genetics and Genomics, International Journal of Cancer, Genetica, Human Heredity, Frontiers in Statistical Genetics and Methodology, Current Genomics, Behavior Genetics, Genetics Research, Gene, International Journal of Molecular Sciences, Genetic Testing, Euphytica, Journal of Genetics, Journal of Insect Science, Scientific World Journal, International Scholarly Research Network (ISRN) Biomathematics, Austin Statistics, Australian Journal of Crop Science, Journal of Medical Statistics and Informatics, Rice, Meta Gene, Journal of Genetics and Genomics, Chinese Journal of Rice Science, Acta Agriculturae Zhejiangensis, Journal of Zhejiang Agricultural Sciences, Journal of Fujian Agriculture and Forestry, African Journal of Agricultural Research, African Journal of Plant Science, Journal of Metabolomics and Systems Biology

PUBLICATIONS:

1. Yan X, Salloum RG, Leong MC, Khalil GE, Lee JH, **Lou XY** (2023). Racial and ethnic differences in initiation of menthol tobacco smoking and subsequent tobacco use in the Population Assessment of Tobacco and Health Study, Waves 1–4 (2013–2018). *Nicotine & Tobacco Research* 25 (8):1440–1446. (the senior author)
2. Gutman CK, Aronson PL, Singh NV, Pickett ML, Bouvay K, Green RS, Roach B, Kotler H, Chow JL, Hartford EA, Hincapie M, Pierre-Hetz RS, Kelly J, Sartori L, Hoffmann JA, Corboy JB, Bergmann KR, Akinsola B, Ford V, Tedford NJ, Tran TT, Gifford S, Thompson AD, Krack A, Piroutek MJ, Lucrezia S, Chung SH, Chowdhury N, Jackson K, Cheng T, Pulcini CD, Kannikeswaran N, Truschel LL, Lin K, Chu J, Molyneaux ND, Duong M, Dingeldein L, Rose JA, Theiler C, Bhalodkar S, Powers E, Waseem M, Lababidi A, Yan X; **Lou XY**, Fernandez R, Lion KC (2023). Race, ethnicity, language and the management of low-risk febrile infants. *JAMA Pediatrics* (accepted).
3. McVay MA, Lavoie HA, Rajoria M, Leong MC, **Lou XY**, McMahon LN, Patnode CD, Pagoto SL, Jake-Schoffman DE (2023). Pre-enrollment steps and run-ins in weight loss trials: A meta-regression. *American Journal of Preventive Medicine* 64 (6): 910–917.
4. Wang P, Wang Y, Xu S, Zhang Y, Wu B, Li M, Gao G, **Lou XY**, Yin P, Liu N (2023). MOVER-R and penalized MOVER-R confidence intervals for the ratio of two quantities. *The American Statistician* (accepted).
5. Shan G, **Lou XY**, Wu SS (2023). Continuity corrected Wilson interval for the difference of two independent proportions. *Journal of Statistical Theory and Applications* 22 (1-2): 38–53.
6. Lampotang S, Lizdas DE, Johnson WT, Mei V, Wakim J, **Lou XY**, Destephens AJ, Acar YA, Moy L, Ahmad A, Brisbane W, Stringer TF (2023). Development and validation of a mixed-reality simulator for reducing core deviation during simulated freehand systematic

prostate biopsy. *Simulation in Healthcare* (accepted).

7. Altshuler E, Franke AJ, Skelton IV WP, Feely M, Wang Y, Lee JH, Read T, Terracina K, **Lou XY**, Dai Y, George TJ (2022). Impact of institutional universal microsatellite-instability (MSI) reflex testing on molecular profiling differences between younger and older patients with colorectal cancer. *JCO Oncology Practice* (in press). PMID: 36319582
8. McVay MA, Jake-Schoffman DE, Leong MC, **Lou XY** (2022). Privacy concerns in group format lifestyle interventions for obesity. *International Journal of Behavioral Medicine* (in press). PMID: 36261768
9. Gutman CK, Lion KC, Aronson PL, Fisher CL, Bylund CL, McFarlane A, **Lou XY**, Patterson M, Lababidi A, Fernandez R (2022). Disparities and implicit bias in the management of low-risk febrile infants: A mixed-methods study protocol. *BMJ Open* 12 (9): e063611. PMID: 36127098 PMCID: PMC9490627
10. Alamin M, Sultana MH, **Lou XY**, Jin WF, Xu HM (2022). Dissecting complex traits using omics data: A review on the linear mixed models and their application in GWAS. *Plants* (Basel) 11 (23): 3277. PMID: 36501317 PMCID: PMC9739826
11. Khatun M, Monri MM, **Lou XY**, Zhu J, Xu HM (2022). Genome-wide association studies revealed complex genetic architecture and breeding perspective of maize ear traits. *BMC Plant Biology* 22: 537. PMID: 36397013 PMCID: PMC9673299
12. Herremans KM, Szymkiewicz DD, Riner AN, Bohan RP, Tushoski GW, Davidson AM, **Lou XY**, Leong MC, Han S, Hughes SJ (2022). The interleukin-1 axis and the tumor immune microenvironment in pancreatic ductal adenocarcinoma. *Neoplasia* 28 (C): 100789. PMID: 35395492; PMCID: PMC8990176
13. Abi Nehme AM, **Lou XY**, Yan X, Lee JH, Lindblom E, Salloum RG (2022). Transition to smoking cessation among dual cigarette and e-cigarette users in the population assessment of tobacco and health study, Waves 3 and 4 (2015–2017). *Addictive Behaviors* 129: 107284. PMID: 35217415
14. Rashkin SR, Cleves MA, Shaw GM, Nembhard WN, Nestoridi E, Jenkins MM, Romitti PA, **Lou XY**, Brown M, Mitchell LE, Olshan AF, Lomangino K, Bhattacharyya S, Witte JS, Hobbs CA, and the National Birth Defects Prevention Study (2022). A genome-wide association study of obstructive heart defects among participants in the National Birth Defects Prevention Study. *American Journal of Medical Genetics Part A* 188 (8): 2303–2314. PMID: 35451555
15. **Lou XY**, Hou TT, Liu SY, Xu HM, Lin F, Tang XY, MacLeod SL, Cleves MA, Hobbs CA (2021). Innovative approach to identify multi-genomic and environmental interactions associated with birth defects in family-based hybrid designs. *Genetic Epidemiology* 45 (2): 171–189. PMID: 32996630; PMCID: PMC8495752
16. Lin WY, Wang YC, Teng IH, **Lou XY** (2021). Associations of five obesity metrics with epigenetic age acceleration: evidence from 2,474 Taiwan Biobank participants. *Obesity* 29 (10): 1731–1738. PMID: 34472716
17. Li T, Badger TM, Bellando BJ, Sorensen ST, **Lou XY**, Ou XW (2020). Brain cortical

- structure and executive function in children may be influenced by parental choices of infant diets. *American Journal of Neuroradiology* 41 (7): 1302–1308. PMID: 32527846; PMCID: PMC7357629
18. Tang X, Andres A, West DS, **Lou XY**, Krukowski RA (2020). Eating behavior and weight gain during pregnancy. *Eating Behaviors* 36: 101364. PMID: 32032810
 19. Xu T, Monir M, **Lou XY**, Xu HM, Zhu J (2020). Conditional and unconditional genome-wide association study reveal complicate genetic architecture of human body weight and impacts of smoking. *Scientific Reports* 10: 12136. PMID: 32699216; PMCID: PMC7376032
 20. Ballard H, Fuell W, Elwy R, **Lou XY**, Albert GW (2020). Effects of growth hormone therapy in pediatric patients with growth hormone deficiency and Chiari I malformation: A retrospective study. *Child's Nervous System* 36 (4): 835–839. PMID: 31502034
 21. Lin F, Qi G, Xu T, **Lou XY**, Hong YB, Xu HM (2020). Joint association analysis method to dissect complex genetic architecture of multiple genetically related traits. *Crop Journal* 8 (5): 733–744.
 22. Hou TT, Lin F, Bai S, Cleves MA, Xu HM, **Lou XY** (2019). Generalized multifactor dimensionality reduction approaches to identification of genetic interactions underlying ordinal traits. *Genetic Epidemiology* 43 (1): 24–36. PMID: 30387901; PMCID: PMC8495755 (the senior author)
 23. Feng K, Rowell AC, Andres A, Bellando BJ, **Lou XY**, Glasier CM, Ramakrishnaiah RH, Badger T, Ou X (2019). Diffusion tensor MRI of white matter of healthy full-term newborns: Relationship to neurodevelopmental outcomes. *Radiology* 292 (1): 179–187. PMID: 31161971; PMCID: PMC6614910
 24. Jenkins MM, Almli LM, Pangilinan F, Chong JX, Blue EE, Shapira SK, White J, McGoldrick D, Smith JD, Mullikin JC, Bean CJ, Nembhard WN, **Lou XY**, Shaw GM, Romitti PA, Keppler-Noreuil K, Yazdy MM, Kay DM, Carter TC, Olshan AF, Voltzke K, Nascone-Yoder N, Finnell RH, Lupo PJ, Feldkamp NL, NISC Comparative Sequencing Program, The University of Washington Center for Mendelian Genomics, Nickerson DA, Bamshad MJ, Brody LC, Reefhuis J, and The National Birth Defects Prevention Study (2019). Exome sequencing of family trios from the National Birth Defects Prevention Study: Tapping into a rich resource of genetic and environmental data. *Birth Defects Research* 111 (20): 1618–1632. PMID: 31328417; PMCID: PMC6889076
 25. Sharma NS, Lal CV, Li JD, **Lou XY**, Viera L, Abdalla T, King R, Sethi J, Kanagarajah P, Restrepo-Jaramillo R, Sales-Conniff A, Wei S, Jackson PL, Blalock JE, Gaggar A, Xu X (2018). The neutrophil chemoattractant peptide proline-glycine-proline is associated with acute respiratory distress syndrome (ARDS). *American Journal of Physiology-Lung Cellular and Molecular Physiology* 315 (5): L653–L661. PMID: 30091378; PMCID: PMC6295514
 26. Du XM, Liu SY, Sun JL, Zhang GY, Jia YH, Pan ZE, Xiang HT, He SP, Xia QJ, Xiao SH, Shi WJ, Quan ZW, Liu JG, Ma J, Pang BY, Wang LR, Sun GF, Gong WF, Jenkins JN, **Lou XY**, Zhu J, Xu HM (2018). Dissection of complicate genetic architecture and breeding

- perspective of cottonseed traits by genome-wide association study. *BMC Genomics* 19 (1): 451. PMID: 29895260; PMCID: PMC5998501
27. Liu C, Chu C, Zhang J, Wu D, Xu D, Li P, Chen Y, Liu B, Pei L, Zhang L, Liu S, Qi T, **Lou XY**, Li L (2018). *IRX3* is a genetic modifier for birth weight, adolescent obesity, and transaminase metabolism. *Pediatric Obesity* 13 (3): 141–148. PMID: 28316138
 28. Xu X, Abdalla T, Bratcher PE, Jackson PL, Sabbatini G, Wells JM, **Lou XY**, Quinn R, Blalock JE, Clancy JP, Gaggar A (2017). Doxycycline improves clinical outcomes during cystic fibrosis exacerbations. *European Respiratory Journal* 49 (4): 1601102. PMID: 28381428
 29. **Lou XY** (2017). Hidden Markov model approaches for biological studies. *Biometrics & Biostatistics International Journal* 5 (4): 132–144 (00139).
 30. Zhang YX, Zhou LY, Shen XH, Chen DB, Wu WX, Zhan XD, Liu QE, Zhu AK, **Lou XY**, Xu HM, Cheng SH, Cao LY (2017). Genetic dissection of yield traits in super hybrid rice Xieyou9308 using both unconditional and conditional genome-wide association mapping. *Scientific Reports* 7 (1): 824. PMID: 28400567
 31. **Lou XY** (2017). Hidden Markov models and their applications to biomedical studies. *Journal of Zhengzhou University (Medical Sciences)* 52 (3): 237–246. (in Chinese)
 32. Xu HM, Xu LF, Hou TT, Luo LF, Chen GB, Sun XW, **Lou XY** (2016). GMDR: Versatile software for detecting gene-gene and gene-environment interactions underlying complex traits. *Current Genomics* 17 (5): 396–402. PMID: 28479868; PMCID: PMC5320543 (the senior author)
 33. Zhou LY, Liu SY, Wu WX, Chen DB, Zhan XD, Zhu AK, Zhang YX, Cheng SH, Cao LY, **Lou XY**, Xu HM (2016). Dissection of genetic architecture of rice plant height and heading date by multiple-strategy-based association studies. *Scientific Reports* 6: 29718. PMID: 27406081; PMCID: PMC4942822
 34. Yan Q, Weeks DE, Tiwari HK, Yi N, Zhang K, Gao G, Lin WY **Lou XY**, Chen W, Liu N (2016). Rare-variant kernel machine test for longitudinal data from population and family samples. *Human Heredity* 80 (3):126–138. PMID: 27161037; PMCID: PMC4940283
 35. **Lou XY** (2015). UGMDR: A unified conceptual framework for detection of multifactor interactions underlying complex traits. *Heredity* 114 (3): 255–261. PMID: 25335557; PMCID: PMC4815578
 36. Qi T, Cao YJ, Cao LY, Gao YM, Zhu SJ, **Lou XY**, Xu HM (2015). Dissecting genetic architecture underlying seed traits in multiple environments. *Genetics* 199 (1): 61–71. PMID: 25335503; PMCID: PMC4286693
 37. Xu HM, Jiang BB, Cao YJ, Zhang YX, Zhan XD, Shen XH, Cheng SH, **Lou XY**, Cao LY (2015). Detection of epistatic and gene-environment interactions underlying three quality traits in rice using high-throughput genome-wide data. *BioMed Research International* Vol. 2015: 135782. PMID: 26345334; PMCID: PMC4539430 (the co-senior author)
 38. Park T, Van Steen K, **Lou XY**, Xiong M (2015) Statistical analysis of high-dimensional

- genetic data in complex traits (Editorial). *BioMed Research International* Vol. 2015: 564273. PMID: 26346557; PMCID: PMC4539419
39. Yan Q, Tiwari HK, Yi N, Gao G, Zhang K, Lin WY, **Lou XY**, Cui X, Liu N (2015). A sequence kernel association test for dichotomous traits in family samples under a generalized linear mixed model. *Human Heredity* 79 (2): 60–68. PMID: 25791389; PMCID: PMC4825859
 40. Xu HM, Kong XD, Chen F, Huang JX, **Lou XY**, Zhao JY (2015). Transcriptome analysis of *Brassica napus* pod using RNA-Seq and identification of lipid-related candidate genes. *BMC Genomics* 16: 858. PMID: 26499887; PMCID: PMC4619414 (the co-senior author)
 41. Yan Q, Weeks DE, Celedón JC, Tiwari HK, Li B, Wang X, Lin WY, **Lou XY**, Gao G, Liu N, Chen W (2015). Associating multivariate quantitative phenotypes with genetic variants in family samples with a novel kernel machine regression method. *Genetics* 201 (4):1329–1339. PMID: 26482791; PMCID: PMC4676518
 42. Chen GB, Liu N, Klimentidis YC, Zhu X, Zhi D, Wang X, **Lou XY** (2014). A unified GMDR method for detecting gene-gene interactions in family and unrelated samples with application to nicotine dependence. *Human Genetics* 133 (2): 139–150. PMID: 24057800; PMCID: PMC3947150 (the senior author)
 43. Lin WY, **Lou XY**, Gao GM, Liu NJ (2014). Rare variant association testing by adaptive combination of p-values. *PLoS One* 9 (1): e85728. PMID: 24454922; PMCID: PMC3893264
 44. Xu HM, Sun XW, Qi T, Lin WY, Liu N, **Lou XY** (2014). Multivariate dimensionality reduction approaches to identify gene-gene and gene-environment interactions underlying multiple complex traits. *PLoS One* 9 (9): e108103. PMID: 25259584; PMCID: PMC4178067 (the senior author)
 45. Qi T, Jiang BB, Zhu ZH, Wei CS, Gao YM, Zhu SJ, Xu HM, **Lou XY** (2014). Mixed linear model approach for mapping quantitative trait loci underlying crop seed traits. *Heredity* 113 (3): 224–232. PMID: 24619175; PMCID: PMC4815641 (the co-senior author)
 46. Yi N, Xu S, **Lou XY**, Mallick H (2014). Multiple comparisons in genetic association studies: a hierarchical modeling approach. *Statistical Applications in Genetics and Molecular Biology* 13 (1): 35–48. PMID: 24259248; PMCID: PMC5003626
 47. Yan Q, Tiwari HK, Yi N, Lin WY, Gao G, **Lou XY**, Cui X, Liu N (2014). Kernel-machine testing coupled with a rank-truncation method for genetic pathway analysis. *Genetic Epidemiology* 38 (5): 447–456. PMID: 24849109; PMCID: PMC4073214
 48. Jiang BB, Yu SZ, Xiao BG, **Lou XY**, Xu HM (2014). Constructing linkage map based on a four-way cross population. *Journal of Zhejiang University (Agriculture & Life Science)* 40 (4): 387–396. PMCID: PMC4274998
 49. **Lou XY** (2014). Gene-gene and gene-environment interactions underlying complex traits and their detection (Mini-review). *Biometrics & Biostatistics International Journal* 1 (2): 00007. PMID: 25584363; PMCID: PMC4288817

50. Lin WY, Yi N, **Lou XY**, Zhi D, Zhang K, Gao G, Tiwari HK, Liu N (2013). Haplotype kernel association test as a powerful method to identify chromosomal regions harboring uncommon causal variants. *Genetic Epidemiology* 37 (6): 560–570. PMID: 23740760; PMCID: PMC4116485
51. Zhu ZH, Hayart Y, Xiao BG, Yang J, Cao LY, **Lou XY**, Xu HM (2012). Statistical method for mapping QTLs for complex traits based on two backcross populations. *Chinese Science Bulletin* 57 (21): 2645–2654. PMCID: PMC3924781
52. Li M, **Lou XY**, Lu Q (2012). On epistasis: A methodological review for detecting gene-gene interactions underlying various types of phenotypic traits. *Recent Patents on Biotechnology* 6(3): 230–236. PMID: 23003010
53. Chen GB, Zhu J, **Lou XY** (2011). A faster pedigree-based generalized multifactor dimensionality reduction method for detecting gene-gene interactions. *Statistics and Its Interface* 4 (3): 295–304. PMID: 21927640; PMCID: PMC3173778 (the senior author)
54. Xu HM, Wei CS, Tang YT, Zhu ZH, Sima YF, **Lou XY** (2011). A new mapping method for quantitative trait loci of silkworm. *BMC Genetics* 12: 19. PMID: 21276233; PMCID: PMC3042969 (the senior author)
55. Wu JX, **Lou XY**, Gonda M (2011). Stochastic deletion-insertion algorithm to construct dense linkage maps. *Statistics and Its Interface* 4 (3): 381–388. PMID: 21927641; PMCID: PMC3173768
56. Chen GB, Xu Y, Xu HM, Li MD, Zhu J, **Lou XY** (2011). Practical and theoretical considerations in study design for detecting gene-gene interactions using MDR and GMDR approaches. *PLoS One* 6 (2): e16981. PMID: 21386969; PMCID: PMC3046176 (the senior author)
57. Wu JX, Jenkins JN, McCarty JC, **Lou XY** (2011). Comparisons of four approximation algorithms for large-scale linkage map construction. *Theoretical & Applied Genetics* 123 (4): 649–655. PMID: 21611760; PMCID: PMC3172867
58. Chen GB, Ingram KH, de los Campos G, Yi NJ, **Lou XY**, Pomp D, Allison DB (2011). A two-step modeling strategy for testing and estimating genetic susceptibility to the ill-effects of adiposity: Illustration in an outbred F2 mice population. *International Journal of Obesity* 35: S21–S21.
59. **Lou XY**, Allison DB (2011) Statistics in Human Genetics and Molecular Biology by REILLY, C. *Biometrics* 67: 1672–1673 (Book Reviews).
60. Chi XF, **Lou XY**, Shu QY (2010). Combining DNA pooling with selective recombinant genotyping for increased efficiency in fine mapping. *Theoretical & Applied Genetics* 120 (4): 775–783. PMID: 19898814; PMCID: PMC2829194 (the senior author)
61. Li MD, Xu Q, **Lou XY**, Payne TJ, Niu T, Ma JZ (2010). Association and interaction analysis of variants in CHRNA5/CHRNA3/CHRNA4 gene cluster with nicotine dependence in African and European Americans. *American J Medical Genetics B Neuropsychiatric Genetics* 153B (3): 745–756. PMID: 19859904; PMCID: PMC292463

62. Dou BD, Hou BW, Xu HM, **Lou XY**, Chi XF, Yang JB, Wang F, Ni ZF, Sun QX (2009). Efficient mapping of a female sterile gene in wheat (*Triticum aestivum* L.). *Genetics Research* 91 (5): 337–343. PMID: 19922697
63. Li MD, Mangold JE, Seneviratne C, Chen GB, Ma JZ, **Lou XY**, Payne TJ (2009). Association and interaction analyses of *GABBR1* and *GABBR2* with nicotine dependence in European- and African-American populations. *PLoS One* 4 (9): e7055. PMID: 19763258; PMCID: PMC2739294
64. Chi XF, **Lou XY**, Yang MCK, Shu QY (2009). An optimal DNA pooling strategy for progressive fine mapping. *Genetica* 135 (3): 267–281. PMID: 18506582 (the senior author)
65. Shi CH, Shi Y, **Lou XY**, Xu HM, Zheng X, Wu JG (2009). Identification of endosperm and maternal plant QTLs for protein and lysine contents of rice across different environments. *Crop and Pasture Science (Australian Journal of Agricultural Research)* 60 (3): 295–301.
66. **Lou XY**, Chen GB, Yan L, Ma JZ, Mangold JE, Zhu J, Elston RC, Li MD (2008). A combinatorial approach to detecting gene-gene and gene-environment interactions in family studies. *American Journal of Human Genetics* 83 (4): 457–467. PMID: 18834969; PMCID: PMC2561932
67. Chen GB, Payne TJ, **Lou XY**, Ma JZ, Zhu J, Li MD (2008). Association of amyloid precursor protein-binding protein, family B, member 1 with nicotine dependence in African and European American smokers. *Human Genetics* 124 (4): 393–398. PMID: 18777128
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MANUSCRIPTS IN SUBMISSION OR PREPARATION:

1. **Lou XY**. Generalized Multifactor Dimensionality Reduction (GMDR) (Book chapter, Cambridge University Press, submitted and expected to appear in 2016).
2. Sinumporn S, Zhang YX, Zhang PP, Chen YY, Anis GB, Wu WX, Cao YR, **Lou XY**, Cheng SH, Cao LY. A nonsynonymous mutation of *ONAC43* causes early leaf senescence in rice. *Plant Molecular Biology*.
3. Cheng AQ, **Lou XY**, Xu HM, Lai CQ, Zhu J. Impacts of Physical Activities on Genetic Architecture of Epistasis and Ethnic-Specific Effects of Calibrated Factor VIII Level in the Multiethnic Study of Atherosclerosis (MESA). (to be submitted).
4. Wang LW, **Lou XY**, Xu HM, Lai CQ, Zhu J. Dissecting impacts of nutrition on epistasis and ethnicity-specific effects of calibrated factor VIII level in the multiethnic study of atherosclerosis (MESA) (to be submitted).
5. Zhang B, **Lou XY**, Zhu J. Impact of gender and cigarette on genetic architecture of BMI. (in preparation).
6. Lou XY, Ma JZ, Payne TJ, Chen GB, Niu T, Wang J, Li MD. Searching susceptibility loci for nicotine dependence through a pathway-based association analysis approach.
7. Alamin M, Zhu J, **Lou XY**, Haiming Xu HM (2022). Dissecting impacts of nutrition on epistasis and ethnicity-specific effects of calibrated Factor VIII level in the Multiethnic Study of Atherosclerosis. *Genes & Nutrition* (submitted). (the co-senior author)
8. Jin SL, Xu X, Cao J, Zhou LT, Weng LL, **Lou XY**, Li JD, Gaggar A, Li Z (2022). The matrikine proline-glycine-proline links neutrophilic inflammation and tissue remodeling in colorectal cancer. *OncImmunology* (submitted).
9. Gomez-Acevedo H, Nembhard WN, Moore CA, Jenkins MM, Almli LM, **Lou XY**, Reefhuis J, Shaw GM, Romitti PA, Werler MM, Yazdy MM, Olshan AF, Kay DM, Finnell RH, Feldkamp ML, Bamshad MJ, Brody LC, Mullikin JC, Pangilinan F, Nickerson D, McGoldrick D, NISC Comparative Sequencing Program, University of Washington Center for Mendelian Genomics, & the National Birth Defects Prevention Study (2022). Rare variants in transverse limb deficiencies found through data integration. *European Journal of Medical Genetics* (submitted).
10. Nembhard WN, Maity S, **Lou XY**, Hu Z, Tang X, MacLeod X, Orloff M, Stowe Z, Browne M, Botto L, Finnell R, Jenkins M, Olshan A, Romitti P, Shaw G, Werler M, the National Birth Defects Prevention Study (2022). Folic acid supplementation, maternal genotype and decreased risk of congenital heart defects in women using selective serotonin reuptake inhibitors during pregnancy. (to be submitted).
11. Nguyen L, Ajredini R, Guo S, Romano LEL, Zu T, Coronel MB, Vasilakos G, Kelley CP, Tays A, Redding-Ochoa J, Pletnikova O, Ranum P, Clark HB, Thangaraju K, Davidson BL,

Yachnis AT, Golde T, **Lou XY**, Prokop S, Wang ET, Troncoso JC, Ranum LPW (2022). CASP8 intronic expansion identified by polyGlycineArginine pathology increases Alzheimer's risk. *Science* (submitted).

GRANT SUPPORT:

Grant support as PI or Co-PI

Principal Investigator (07/15/2015–08/31/2024), Division of Mathematical Sciences, NSF (No. DMS1462990/DMS1632985/DMS1701433/DMS2002865, \$1,545,157). “A telescopic algorithm for two-dimensional hidden Markov models with application to genetic studies”

Principal Investigator (03/01/2023–02/29/2024), UFHCC Artificial Intelligence Supplement Proposal (AI-2023-02, \$10,000). “AI for improving quantification accuracy of magnetic particle imaging”

Principal Investigator (01/27/2017–07/31/2020), UAMS Research Scholar Pilot Grant Awards in Child Health (271-G1-51898-01, \$50,000). “New statistical approach for studying interplays between maternal genes, child genes, environmental and lifestyle factors within a family-based hybrid design”

Principal Investigator (07/01/2008–03/31/2015), National Institute on Drug Abuse, NIH (No. R01DA025095, \$1,136,250). “Detection of multifactor interactions with application to nicotine dependence”

Co-PI (09/01/2011–08/31/2012), National Institute of General Medical Sciences, NIH (No. R01GM077490, \$1,250,000 from 09/01/2007 to 08/31/2012). “Genome-wide structured association testing and regional admixture mapping”

Principal Investigator (01/01/2001–12/31/2003), Natural Science Foundation of China (No. 30000097, RMB140,000). “Developing a mapping method for QTL with conditional genetic effect and the dynamic gene expressions of QTLs for some agronomic traits in rice (*Oryza sativa* L.)”

Principal Investigator (07/01/1999–12/31/2002), Zhejiang Education Commission Grant (No. 19990032, RMB20,000). “Mapping a storable gene (*lox-3*) in rice (*Oryza sativa* L.) and its utilization in breeding”

Principal Investigator (pending, 12/01/2021–11/30/2023), National Institute on Drug Abuse, NIH (No. R21DA055237, \$403,569). “Innovative analyses to identify disparities in pattern of tobacco product use and addiction in the U.S. population”

Principal Investigator (under revision), National Institute of General Medical Sciences, NIH (No. 1R01GM111482-01A1). “Innovative statistical frameworks for emerging challenges in family studies”

Co-Principal Investigator (under revision), National Institute of General Medical Sciences, NIH (No. 1R01GM114333-01). “Statistical methods for family-based whole genome sequence studies of complex human traits with application to Jackson Heart Study”

Grant support as Co-I

Co-Investigator (06/01/2023–02/28/2028), National Institute on Aging (NIA), NIH (R01AG077677, MPI: Loewenstein & Curiel Cid; \$994,771/\$1,414,551 first year direct/total). “Innovative deep phenotyping of African Americans at risk for Alzheimer’s disease”

Other-BQS Team Lead (06/01/2023–05/31/2027), National Cancer Institute (NCI), NIH (P30CA247796, PD: Licht; \$1,400,000/\$2,134,999 first year direct/total). “University of Florida Health Cancer Center Support Grant”

Co-Investigator (05/01/2023–04/30/2027), National Institute on Aging (NIA), NIH (R01AG081477, PI: Clark; \$977,857/\$1,244,992 first year direct/total). “Cognitively engaging walking exercise and neuromodulation to enhance brain function in older adults”

Co-Investigator (09/01/2022–06/30/2027), National Institute on Aging (NIA), NIH (R01AG075136, MPI: Leeuwenburgh & Anton; \$409,785/\$624,922 first year direct/total). “Functional decline in low functioning older adults: Role of iron dysregulation”

Co-Investigator (09/01/2022–08/31/2027), National Institute of Neurological Disorders and Stroke (NINDS), NIH (R01NS122943, PI: Wagle Shukla; \$342,180/\$521,825 first year direct/total). “Progressive resistance exercise and dystonia pathophysiology”

Co-Investigator (09/01/2022–08/31/2027), National Institute of Mental Health (NIMH), NIH (DP2MH132938, PI: Pearl; \$1,500,000/\$2,287,500 direct/total). “Transdiagnostic intervention to reduce internalized health-related stigma”

Co-Investigator (09/09/2022–08/31/2027), National Cancer Institute (NCI), NIH (U01CA274970, PI: Raup-Krieger; \$530,993/\$704,063. first year direct/total). “Precision clinical trial recruitment to promote cancer health equity across Florida”

Co-Investigator (09/21/2021–08/31/2026), National Institute on Aging (NIA), NIH (R24AG074867, PI: Raup-Krieger; \$499,220/\$761,311 first year direct/total). “Tailoring recruitment communication using virtual human technology to increase participation of older minority adults in clinical trials”

Co-Investigator (09/22/2021–08/31/2026), National Institute on Alcohol Abuse and Alcoholism (NIAAA), NIH (U24AA029959, MPI: Wu & Cook; \$340,259/\$519,253 first year direct/total). “Southern HIV and alcohol research consortium biomedical data repository”

Co-Investigator (05/01/2021–04/30/2026), National Institute of Neurological Disorders and Stroke (NINDS), NIH (U01NS116752, \$543,896/\$792,500 first year direct/total). “Immunomodulation approaches to improve safety and efficacy of gene therapy treatment in Friedreich’s Ataxia”

Co-Investigator (07/01/2021–06/30/2026), National Institute of Neurological Disorders and Stroke (NINDS), NIH (R01NS058487, \$273,896/\$399,115 first year direct/total). “Preclinical markers of Parkinsonism”

Co-Investigator (04/01/2020–03/31/2024), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH (R21DK122317, \$275,000/\$370,910). Phentermine/tOpiramate to eND Obesity and Uric acid stones Trial (POuNDOUT).

Co-Investigator (07/20/2018–05/31/2023), National Institute of Nursing Research (NINR), NIH (R01NR015988, \$424,498/\$641,638 first year direct/total). “Implementing a guidelines-based M-health intervention for high risk asthma patients”

Co-Investigator (08/10/2019–06/30/2024), Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), NIH (R01HD099099, \$399,102/\$605,004 first year direct/total). “Effects of maternal obesity and inflammation on offspring brain development”

Co-Investigator (04/01/2020–03/31/2022), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH (R21DK122317, \$125,000/\$172,767 first year direct/total). “Phentermine/topiramate to end obesity and uric acid stones trial”

Biostatistician (09/01/2018–08/07/2023), United States Department of Agriculture-Agricultural Research Service (USDA-ARS). “Impact of early dietary factors on child development and health” (6026-51000-010-00-D)

Biostatistician (08/01/2013–07/31/2019), United States Department of Agriculture-Agricultural Research Service (USDA-ARS). “Impact of early dietary factors on child development and health” (6026-51000-010-00-D)/”Effects of diet and physical activity on maternal/child/adolescent health and development” (6026-51000-010-06-S)

Co-Investigator (09/01/2018-08/07/2023), National Center on Birth Defects and Developmental Disabilities (NCBDD), Centers for Disease Control and Prevention (CDC) (No. U01DD001229, \$995,000 first year total). “Component A: Arkansas proposal to participate in the birth defects study to evaluate pregnancy exposures (BD-STEPS II)”

Co-Investigator (04/01/2012–03/31/2018), Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH (No. R01HD039054, \$6,082,366). “Genomic/epigenomic factors and non-syndromic congenital heart defect risk”

Co-Investigator (09/01/2013–08/31/2018), National Center on Birth Defects and Developmental Disabilities (NCBDD), Centers for Disease Control and Prevention (CDC) (No. U01DD001039, \$641,630). “Birth Defects Study to Evaluate Pregnancy ExposureS (BD-STEPS)”

Co-Investigator (12/01/2015–11/30/2018), DoD/PCRP/Idea Development Award (PC14030, \$330,750). “Effects of CD24-RCC2 signaling on prostate cancer metastasis”

Co-Investigator (01/01/2017–12/31/2020), Natural Science Foundation of China (No. 31671570, RMB620,000 direct). “Study on new methods for association mapping and molecular design of complex traits by integrated analysis of multiple omics data”

Co-Investigator (09/01/2012–08/31/2017), National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH (No. R01AR059781, \$3,687,250). “Epigenomewide DNA methylation study for osteoporosis risk”

Co-Investigator (09/01/15–08/30/16), UAB Comprehensive Cancer Center NCTN-LAPS Program Translational Research Initiative Awards, “p53 and CD24 expression in localized prostate cancer to predict the risk of metastasis”

Co-Investigator (01/01/2015–12/31/2016), Natural Science Foundation of China (No. 31470083, RMB300,000). “Development of new approach for association mapping of multiple traits and its application in breeding design”

Co-Investigator (01/01/2013–12/31/2016), Natural Science Foundation of China (No.31271608, RMB700,000). “Developing new methods for analyzing genetic architecture and candidate genes for complex traits”

Co-Investigator (07/01/2009–04/30/2014), National Institute on Drug Abuse, NIH (No. DA-12844, \$5,338,931). “Fine mapping susceptibility loci for nicotine dependence”

Co-Investigator (03/01/2006–02/28/2009), National Institute on Drug Abuse, NIH (No. DA-12844, \$1,409,332). “Fine mapping susceptibility loci for nicotine dependence”

Co-Investigator (09/01/2005–08/31/2006), National Institute on Drug Abuse, NIH (No. DA-12844, \$ 170,494). “Mapping of susceptibility loci for nicotine dependence”

Co-Investigator (01/01/2006–12/31/2008), Natural Science Foundation of China (No. 30571198, RMB260,000). Project title “Genetic model for mapping embryo, endosperm and maternal plant QTLs underlying seed quality traits in cereal crops and its application to a rice breeding study”

Co-Investigator (01/01/2005–12/31/2007), Natural Science Foundation of China (No. 30471067, RMB200,000). Project title “Identification of special genes in rice genome”

Co-Investigator (01/2000–12/2002), Natural Science Foundation of China (No. 39970473). “Developing new methods for improving genetic population and predicting heterosis based on QTL effects”

Co-Investigator (01/1999–12/2002), Key Project of Natural Science Foundation of China (39830250). “Studies on the mechanism of inheritance and environmental control for cereal quality traits in rice (*Oryza sativa* L.)”

Co-Investigator (01/1998–12/2001), Important Project of Natural Science Foundation of China (39893354). “Developing genetic models and statistical methods for mapping QTLs”

Co-Investigator (01/1999–12/2001), Natural Science Foundation of Zhejiang Province (398265). “Identification, location, and exploitation of important genes for cereal quality traits in *indica* rice”

Co-Investigator (01/1997–12/1999), Natural Science Foundation of China (39670390). “Genetic mechanism of quantitative traits with developmental behavior in crop and their utilization”.

Co-Investigator (01/1994–12/1996), Transcentury Training Program Foundation for the Talents of the National Education Commission of China. “Genetic studies on quantitative cereal quality traits in crop”

Co-Investigator (01/1991–02/1994), Key Project of the Science and Technology Committee of Zhejiang Province in the 8th Five Year Plan. “Maize breeding”

Co-Investigator (09/1988–12/1990), Key Project of the Science and Technology Committee of

Zhejiang Province in the 7th Five Year Plan. “Maize breeding”

PRESENTATIONS/PUBLISHED ABSTRACTS/POSTERS:

Unifying multilocus linkage and linkage disequilibrium mapping: A human model. Division of Biostatistics, School of Public Health, Yale University. May 18, 2004

Unifying multilocus linkage and association mapping: A human model. Department of Epidemiology and Biostatistics, Case Western Reserve University School of Medicine. November 6, 2004

GMDR: A novel strategy for detecting multifactor interactions. The 3rd International Conference of Quantitative Genetics, Hangzhou, Zhejiang, China. August 23, 2007 (<http://ibi.zju.edu.cn/icqg/programs.htm>).

GMDR: A novel strategy for detecting multifactor interactions. Maize Research Institute, Zhejiang Agricultural Science Academy (Invited Speaker), Dongyang, Zhejiang, China. September 7, 2007.

GMDR: A novel strategy for detecting multifactor interactions. Institute of Bioinformatics, Zhejiang University (Invited Speaker), Hangzhou, Zhejiang, China. September 29, 2007.

Generalized MDR approaches to detecting multifactor interactions in population-based and family-based studies. Department of Biostatistics, University of Alabama at Birmingham, Birmingham, AL. October 20, 2008.

Generalized MDR approaches to detecting multifactor interactions in population-based and family-based studies. Department of Psychiatry and Neurobehavioral Sciences, University of Virginia, Charlottesville, VA. December 5, 2008.

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The meaning of interactions and the GMDR approach. China National Rice Research Institute (Invited Speaker), Hangzhou, Zhejiang, China. July 14, 2011.

The challenges and opportunities of statistical genetics in the post-genomic era. China National Rice Research Institute (Invited Speaker), Hangzhou, Zhejiang, China. August 25, 2012.

The challenges and opportunities of statistical genetics in the post-genomic era. Zhejiang A & F University (Invited Speaker), Hangzhou, Zhejiang, China. September 7, 2012.

GMDR: A conceptual framework for detection of multifactor interactions underlying complex traits. Michigan Technological University. Houghton, Michigan. February 26, 2014.

GMDR: A conceptual framework for detection of multifactor interactions underlying complex traits. Invited Session 201426 - Recent Advances in Statistical Genetics, organized by Taesung Park, Seoul National University. 2014 Joint Applied Statistics Symposium of International Chinese Statistical Association (ICSA) & Korean International Statistical

Society (KISS). Portland Mariot Downtoen Waterfront, Portland, OR, June 15–18, 2014

UGMDR: A unified conceptual framework for detection of multifactor interactions underlying complex traits. China National Rice Research Institute (Invited Speaker). Hangzhou, Zhejiang, China. December 26, 2014

UGMDR: A unified conceptual framework for detection of multifactor interactions underlying complex traits. Kansas State University. Manhattan, Kansas. February 23, 2015

UGMDR: A unified conceptual framework for detection of multifactor interactions underlying complex traits. George Washington University. Washington, DC. March 6, 2015

UGMDR: A unified conceptual framework for detection of multifactor interactions underlying complex traits. St. Jude Children’s Research Hospital. Memphis, TN. March 12, 2015

UGMDR: A unified conceptual framework for detection of multifactor interactions underlying complex traits. UC Riverside. Riverside, CA. April 28, 2015

Challenges in studying gene-gene and gene-environment interactions and the GMDR approach. Mississippi State University, Mississippi State, MS. August 19, 2015

The role of gene-gene and gene-environment interactions in biology and the GMDR approach. University of Arkansas for Medical Sciences. Little Rock City, AR. September 29, 2015

The role of gene-gene and gene-environment interactions in biology and the GMDR approach. Tulane University, New Orleans, LA, November 11, 2015

The versatile GMDR approach for identification of gene-gene and gene-environment interactions. 2016 International Chinese Statistical Association (ICSA)–China Statistics Conference, Qingdao, Shandong, China, June 24–25, 2016

New family-based association analytical framework for studying the interplays between maternal genes, child genes, and environmental factors: A generalized linear model/logistic approach. UAMS Pediatrics Biostatistics and Journal Club, Little Rock, AR. March 30, 2017

GMDR: A machine learning method for identifying multifactor interactions. University of Florida, Gainesville, FL, February 11, 2019

GMDR: A machine learning method for identifying multifactor interactions. University of Arkansas at Little Rock, Little Rock, AR, March 01, 2019

GMDR: A machine learning method for identifying multifactor interactions. 16th Annual MidSouth Conference on Computational Biology and Bioinformatics (MCBIOS 2019), Birmingham, AL. March 28–30, 2019

Health data ecosystem for improving outcome prediction. 2019 Zhejiang University Quantitative Genetics Symposium, Hangzhou, Zhejiang, China. May 24–26, 2019

Hidden Markov models and their applications to biomedical studies. Scientific Retreat for PREDICTION MODEL DEVELOPMENTS with Statistical, AI and Mathematical Approaches, Gainesville, FL. December 6, 2021

Session 1D: Machine Learning/Artificial Intelligence in Biomedical Research with ‘Big’ Data

- (Chair & Organizer), The 2022 ICSA Applied Statistics Symposium, Gainesville, FL. June 20–22, 2022
- Personalizing drug delivery in organ transplant. The 2nd UF Health Cancer Center Annual AI Day for Cancer Research. Gainesville, FL. September 12, 2022.
- rHMM: A new regularized algorithm-based hidden Markov model for high-dimensional longitudinal data analysis. The 2023 Joint Statistical Meetings, Toronto, Canada. August 6–10, 2023.
- Li MD, **Lou XY**, Chen GB (2008). “Linkage Studies of Nicotine Dependence” at the Short Course on the Genetics and Epigenetics of Addiction (National Institute on Drug Abuse, Bethesda, MD, Mar 31–Apr 4, 2008)
- Lou XY**, Zhu J (2001). Analysis of genetic effects of major genes and polygenes on quantitative traits. The 2nd Meeting of Plant Genomics in China. Hangzhou, Zhejiang, China, August 2001.
- Lou XY**, Ma JZ, Yang MCK, Zhu J, Liu PY, Deng HW, Elston RC, Li MD (2005). Improvement of mapping accuracy by unifying linkage and association analyses. The 55th Annual Meeting of the American Society of Human Genetics, Salt Lake City, UT, October 25–29, 2005.
- Lou XY**, Ma JZ, Sun D, Payne TJ, Li MD (2006). Fine mapping of a linkage region on chromosome 17p13 reveals that GABARAP and DLG4 are associated with vulnerability to nicotine dependence in European-Americans”. The 56th Annual Meeting of the American Society of Human Genetics, New Orleans, LA, October 9–13, 2006.
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- Chen GB, **Lou XY**, Yan L, Zhu J, Li MD (2007). GMDR: A package for detecting gene-by-gene and gene-by-environment interactions underlying complex traits. The 57th Annual Meeting of the American Society of Human Genetics, San Diego, CA, October 23–27, 2007.
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- Chi XF, **Lou XY**, Shu QY (2007). Optimizing DNA pooling strategy for progressive fine genetic mapping. The 3rd International Conference of Quantitative Genetics, Hangzhou, Zhejiang, China. August 19–24, 2007.
- Xu HM, Yang J, **Lou XY**, Shi CH, Zhu J (2007). Mixed model approach for mapping quantitative trait loci underlying crop seed traits. The 3rd International Conference of Quantitative Genetics, Hangzhou, Zhejiang, China. August 19–24, 2007.
- Lou XY**, Chen GB, Yan L, Mangold JE, Ma JZ, Zhu J, Elston RC, Li MD (2008). A generalized combinatorial approach for detecting gene by gene and gene by environment interactions. The 17th Annual Meeting of the International Genetic Epidemiology Society, St. Louis, Missouri, September 14–16, 2008.
- Chen GB, **Lou XY**, Xu HM, Xu Y, Zhu J, Li MD (2009). Power and design considerations for detecting gene-gene interactions: Analytical and simulation comparison of GMDR and MDR. The International Genetic Epidemiology Society 18th Annual Conference, Kahuku, Hawaii, October 18–20, 2009.
- Lou XY**, Ma JZ, Payne TJ, Chen GB, Niu T, Wang J, Li MD (2009). Searching susceptibility loci for nicotine dependence through a pathway-based association analysis. The 59th annual meeting of the American Society of Human Genetics (ASHG), Honolulu, Hawaii, October 20–24, 2009.
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- Chen GB & **Lou XY** (2010). A faster pedigree-based generalized multifactor dimensionality reduction method for detecting gene-gene interactions. UAB School of Public Health Research Day, Birmingham, AL, April 5, 2010.
- Li MD, Wang J, Niu T, Saadvandi J, Morris R, Ait-Daoud N, Campbell J, Haning W, Mawhinney J, Kahn R, Anderson A, Iturriaga E, **Lou XY**, Elkashef A, Johnson BA (2010). Transcriptome profiling and pathway analysis of genes differentially expressed in response to topiramate for treatment of methamphetamine dependence. The 72nd Annual Scientific Meeting of the College on Problems of Drug Dependence. Scottsdale, AZ, June 12–17, 2010.
- Chen GB, **Lou XY** (2010). MDR and Its Extensions for Identification of Interactions. The 2010 SSG Retreat. Columbiana, AL. August 8–10, 2010.
- Chen GB, Zhu J, **Lou XY** (2010). A faster pedigree-based generalized multifactor

- dimensionality reduction method for detecting gene-gene interactions. The 60th annual meeting of the American Society of Human Genetics (ASHG), Washington, D.C., November 2–6, 2010.
- Tucci MC, **Lou XY**, Guay-Woodford LM (2010). Identification of a novel disease gene in dominantly transmitted glomerulocystic kidney disease. The 43rd Annual Meeting of American Society of Nephrology, Denver, CO, November 16–21, 2010. *Journal of American Society of Nephrology* 21: 2010 (SA-PO2451).
- Chen GB, Ingram KH, de los Campos G, Yi NJ, Lou XY, Pomp D, Allison DB (2011). A two-step modeling strategy for testing and estimating genetic susceptibility to the ill-effects of adiposity: Illustration in an outbred F2 Mice Population. *International Journal of Obesity* 35: S21.
- Chen GB & **Lou XY** (2011). A faster pedigree-based generalized multifactor dimensionality reduction method for detecting gene x gene interactions. UAB School of Public Health Research Day, Birmingham, AL, April 5, 2011.
- Lou XY**, Chen GB, Yan L, Liu N, Klimentidis YC, Zhu X, Zhi D, Wang X (2012). A PCA-based generalized multifactor reduction method for correcting population stratification. The 21st Annual IGES (the International Genetic Epidemiology Society) Conference, Stevenson, Washington, October 18–20, 2012.
- Lou XY**, Chen GB, Liu N, Klimentidis YC, Zhu X, Zhi D, Wang X (2012). A unified generalized multifactor reduction method for detecting gene-gene interactions in family and unrelated samples with application to nicotine dependence. The 62nd annual meeting of the American Society of Human Genetics (ASHG), San Francisco, California, November 6–10, 2012.
- Lou XY** (2013). GMDR: A conceptual framework for detection of multifactor interactions underlying complex traits. The 63rd annual meeting of the American Society of Human Genetics (ASHG), Boston, Massachusetts, October 22–26, 2013.
- Lin WY, **Lou XY**, Gao GM, Liu NJ (2013). Weighted combination of truncated P-values for rare casual variants detection. The 63rd annual meeting of the American Society of Human Genetics (ASHG), Boston, Massachusetts, October 22–26, 2013.
- Cheng A, **Lou XY**, Xu HM, Lai CQ, Zhu J (2014). Physical activities on epistasis and ethnicity specific effects of factor viii level in the multiethnic study of atherosclerosis. The Genomics of Common Diseases 2014. Bolger Center, Potomac, MD, USA, September 17–20, 2014.
- Abdallah T, **Lou XY**, King W, Li JD, Jackson PL, Blalock JE, Gaggar A, Xu X (2016). Neutrophil chemo attractant peptide proline-glycine-proline is increased in acute respiratory distress syndrome. The 2nd Annual Vanderbilt-UAB Pulmonary Research Summit, Birmingham, AL, USA, June 24–25, 2016.
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- markers of hepatic bile acid (BA) synthesis, while reducing serum total BA concentrations in sedentary, obese insulin resistant women. Experimental Biology 2019, Orlando, FL, USA, April 6–9, 2019.
- Jin S, Cao J, **Lou XY**, Ma W, Zong H, Gaggar A, Ma J, Xu X, Li Z (2019). The matrikine proline-glycine-proline as a potential new biomarker in colorectal cancer. 2019 American Society of Clinical Oncology (ASCO) Annual Meeting, Chicago, IL, USA, May 31–June 4, 2019.
- Gomez-Acevedo H, Nembhard WN, Moore CA, Jenkins MM, Almli LM, **Lou XY**, Reefhuis J, Shaw GM, Romitti PA, Werler MM, Yazdy MM, Olshan AF, Kay DM, Finnell RH, Feldkamp ML, Bamshad MJ, Brody LC, Mullikin JC, Pangilinan F, Nickerson D, McGoldrick D, NISC Comparative Sequencing Program, University of Washington Center for Mendelian Genomics, & the National Birth Defects Prevention Study (2021). New variants for transverse limb deficiency defects from whole exome sequencing: The National Birth Defects Study. The Society for Birth Defects Research & Prevention 61st Annual Meeting, Reston, VA, USA, June 24–July 1, 2021.
- Clark VC, Marek III G, Liu X, Miao G, **Lou XY**, Brantly M (2021). Progression to cirrhosis in Alpha-1 Antitrypsin Deficiency: A prospective liver biopsy study. The 72nd Annual Meeting of American Association for the Study of Liver Diseases (AASLD), Anaheim, California, USA, November 12–15, 2021. (AASLD Oral Abstract 35, Hepatology 74 (S1): 25A)
- McVay M, Jake-Schoffman D, McMahon L, Leong MC, **Lou XY**, Patnode C, Pagoto S, Rajoria M (2021). Impact of pre-enrollment burden on weight loss outcomes in behavioral weight loss trials. The 43rd Society of Behavioral Medicine Annual Meeting & Scientific Sessions, Baltimore, MD, USA, April 6–9, 2022.
- Cen R, Su LJ, Ying J, Orloff M, Bolin EH, **Lou XY**, Hobbs CA, Almli LM, Botto LD, Browne ML, Finnell RH, Jenkins MM, Nestoridi E, Olshan AF, Romitti PA, Shaw GM, Nembhard WN and the National Birth Defects Prevention Study (2022). Maternal dietary and supplemental myo-inositol intake during the periconceptional period is associated with reduced risk of congenital heart defects. The 62nd Annual Meeting of the Society for Birth Defects Research & Prevention, Vancouver, BC, Canada, June 25–29, 2022.
- Cen R, Su LJ, Ying J, Orloff M, Bolin EH, **Lou XY**, Hobbs CA, Almli LM, Botto LD, Browne ML, Finnell RH, Jenkins MM, Nestoridi E, Olshan AF, Romitti PA, Shaw GM, Nembhard WN and the National Birth Defects Prevention Study (2022). Interaction between maternal periconceptional myo-inositol and folic acid intake on the occurrence of congenital heart defects in offspring. The 62nd Annual Meeting of the Society for Birth Defects Research & Prevention, Vancouver, BC, Canada, June 25–29, 2022.
- McVay M, Jake-Schoffman D, Leong MC, **Lou XY** (2022). Self-disclosure and privacy concerns in group format lifestyle interventions for obesity online vs. in-person. International Society for Research on Internet Interventions (ISRII) 11th Scientific Meeting, Pittsburgh, PA, USA, September 18–21, 2022.

- Telisnor G, Lim A, Zhang Z, **Lou XY**, Nassour I, Han B, Agyare E, Rogers S (2022). Impact of COVID-19 on Pancreatic Cancer Outcomes in Florida. The AACR special conference: Pancreatic Cancer. Boston, Massachusetts, USA, September 13–16, 2022.
- Telisnor G, Lim A, Zhang Z, **Lou XY**, Nassour I, Rogers S (2022). Pancreatic Cancer Survival Disparities in Florida using a Statewide Database. The 15th AACR Conference on The Science of Cancer Health disparities in racial/ethnic minorities and the medically underserved. Philadelphia, Pennsylvania, USA, September 16–19, 2022.
- Cen R, Su LJ, Ying J, Orloff M, Bolin EH, **Lou XY**, Hobbs CA, Almli LM, Botto LD, Browne ML, Finnell RH, Jenkins MM, Nestoridi E, Olshan AF, Romitti PA, Shaw GM, Nembhard WN and the National Birth Defects Prevention Study (2022). Maternal dietary and supplemental myo-inositol intake during the periconceptional period is associated with reduced risk of congenital heart defects. The 48th International Clearinghouse for Birth Defects Surveillance and Research Annual Meeting, Bologna, Italy, September 18–21, 2022.
- Cen R, Su LJ, Ying J, Orloff M, Bolin EH, **Lou XY**, Hobbs CA, Almli LM, Botto LD, Browne ML, Finnell RH, Jenkins MM, Nestoridi E, Olshan AF, Romitti PA, Shaw GM, Nembhard WN and the National Birth Defects Prevention Study (2022). Interaction between maternal periconceptional myo-inositol and folic acid intake on the occurrence of congenital heart defects in offspring. The 48th International Clearinghouse for Birth Defects Surveillance and Research Annual Meeting, Bologna, Italy, September 18–21, 2022.
- Nguyen L, Ajredini R, Guo S, Romano LEL, Zu T, Coronel MB, Vasilakos G, Kelley CP, Tays A, Redding-Ochoa J, Pletnikova O, Ranum P, Clark HB, Renton AE, Goate A, Thangaraju K, Davidson BL, Yachnis AT, Golde T, **Lou XY**, Prokop S, Wang ET, Troncoso JC, Ranum LPW (2023). Isolation and detection of a novel repeat expansion in Alzheimer's disease. The Center for NeuroGenetics (CNG) International Brainstorm Symposium. Gainesville, FL, USA, January 25–27, 2023.
- Leong MC, Lee JH, **Lou XY** (2023). rHMM: A new regularized algorithm-based hidden Markov model for high-dimensional longitudinal data analysis. The 2023 Annual Florida ASA Chapter Meeting, Gainesville, FL, USA, March 24, 2023.
- Nguyen L, Ajredini R, Guo S, Romano LEL, Zu T, Coronel MB, Vasilakos G, Kelley CP, Tays A, Redding-Ochoa J, Pletnikova O, Ranum P, Clark HB, Renton AE, Goate A, Thangaraju K, Davidson BL, Yachnis AT, Golde T, **Lou XY**, Prokop S, Wang ET, Troncoso JC, Ranum LPW (2023). CASP8 GGGAGA repeat expansions produce poly-glycine-arginine containing proteins that accumulate in Alzheimer's disease brains. The AD/PDTM 2023 International Conference on Alzheimer's and Parkinson's Diseases and related neurological disorders. Gothenburg, Sweden, March 28–April 1, 2023.
- Ranum LPW, Ajredini R, Guo S, Romano LEL, Zu T, Coronel MB, Vasilakos G, Kelley CP, Tays A, Redding-Ochoa J, Pletnikova O, Ranum P, Clark HB, Renton AE, Goate A, Thangaraju K, Davidson BL, Yachnis AT, Golde T, **Lou XY**, Prokop S, Wang ET, Troncoso JC, Nguyen L (2023). Intronic GGGAGA expanded repeats in CASP8 produce

polyGlycineArginine proteins that accumulate in Alzheimer's brains and increase risk of disease. The AD/PD™ 2023 International Conference on Alzheimer's and Parkinson's Diseases and related neurological disorders. Gothenburg, Sweden, March 28–April 1, 2023.

Gutman CK, Aronson PL, Fernandez R, Roach B, Pickett ML, Pulcini CD, Lucrezia S, Green RS, Kotler H, Singh N, Hoffmann JA, Corboy JB, Thompson AD, Tedford NJ, Tran TT, Piroutek MJ, Bouvay K, Bergmann KR, Chow JL, Chowdhury N, Gifford S, Jackson K, Kelly J, Hartford EA, Cheng T, Akinsola B, Ford V, Chung S, Hincapie M, St. Pierre-Hetz R, Krack A, Truschel L, Lin K, Chu J, Molyneaux ND, Duong M, Kannikeswaran N, Rose J, Dingeldein L, Theiler C, Sartori LF, Bhalodkar S, Tiller J, Waseem M, Lababidi A, **Lou XY**, Lion KC (2023). Race, ethnicity, language and the emergency management of low-risk febrile infants (an oral abstract presentation). The Pediatric Academic Societies Annual Meeting 2023. Washington, DC, USA, April 27–May 1, 2023.

Kannikeswaran N, Spencer P, Fernandez R, Aronson PL, Lion KC, Singh N, Pickett ML, Bouvay K, Kelly J, Hartford EA, St. Pierre-Hetz R, Hincapie M, Green RS, Roach B, Kotler H, Corboy JB, Hoffmann JA, Gifford S, Ford V, Akinsola B, Chow JL, Tran TT, Tedford NJ, Thompson AD, Krack A, Bergmann KR, Lucrezia S, Piroutek MJ, Lin K, Truschel L, Chung S, Molyneaux ND, Chu J, Chowdhury N, Sartori LF, Dingeldein L, Rose J, Duong M, Cheng T, Jackson K, Bhalodkar S, Lababidi A, Pulcini CD, Theiler C, Waseem M, **Lou XY**, Gutman CK (2023). Emergency department management and disposition of low-risk febrile infants with and without a documented primary care physician. The Pediatric Academic Societies Annual Meeting 2023. Washington, DC, USA, April 27–May 1, 2023.

MENTORSHIP OR CO-MENTORSHIP

Postdoctoral Fellow: Guo-Bo Chen (2010–2011), Amrit B. Karki (2012–2012), Haiming Xu (2017–2017)

Ph.D. Students: Guo-Bo Chen (2006–2009), Xiao-Fei Chi (2006–2008), Erdal Cosgun (2010–2010), Ting Qi (2012–2015), Man-Chong Leong (2020–), Xinyu Yan (2020–)

Master Students: Xiwei Sun (2012–2014), Tingting Hou (2015–2018), Shouye Liu (2015–2018), Qile Li (2020–), Shuqian Chen (2020–2022), Sabrina Khuntia (2020–2022), Brendan J. Lukomski (2021–), Yuying Wang (2022–)

Undergraduate (Honors Thesis): Sarah Nicole Parrett (2023)

Summer Interns: Haijun Wang (2017–2017)

Faculty member: Runhua Liu, M.D., Ph.D., Assistant Professor (Department of Genetics at UAB, 2013–2015); Colleen Kays Gutman, M.D., Clinic Assistant Professor (Department of Emergency at UF, 2020–)

PH.D. SUPERVISORY/EXAMINING COMMITTEES:

Yun-Guo Gong (Zhejiang University, 2009), Fei Xu (Zhejiang University, 2009), Guo-Bo Chen (Zhejiang University, 2009), Ruiqi Cen (UAMS, 2018–2021), Taiwo A. Famuyiwa (UALR, 2019–), Chang Jiang (UF, 2020–), Meilin Jiang (UF, 2020–), Quran Wu (UF, 2020–), Furtuna Girmay Tewolde (UF, 2023–)

TEACHING ACTIVITIES:

- UF PHC6063: Biostatistical Consulting (Spring 2023)
- UF PHC7979: Advanced Research (2021–)
- UF PHC6937: Frontiers in Biostatistics (Guest lectures; Spring 2020)
- UAMS Interprofessional Education Faculty Development Workgroup (2017–2019)
- UAB BST775: Statistical Methods for Genetic Analysis I (Fall 2013)
- UAB BST626 & Lab: Data Management & Reporting with SAS (Fall 2013)
- UAB BST795: Faculty Research Area Seminar (Fall 2011)
- “Linkage Studies of Nicotine Dependence” at the Short Course on the Genetics and Epigenetics of Addiction, National Institute on Drug Abuse, Bethesda, MD, March 31–April 4, 2008 (with Dr. Ming D. Li)
- Graduate Courses (Zhejiang University, China):
Advanced Population Genetics (1997–2002)
Linear Models and Statistical Analysis Methods (1997–2001)
- Undergraduate Courses (Zhejiang University, China):
Plant Breeding (1999–2000)
Biostatistics (1993–2000)
- High School Student Course (Shanglu High School, Dongyang, China):
Biology (1985–1988)

ADMINISTRATIVE ACTIVITIES AND OTHER SERVICES:

- UF PHHP Diversity, Equity, & Inclusion Committee (Member) (2019–)
- UF Biostatistics Diversity, Equity, & Inclusion Committee (Chair) (2020–)
- UF Health Cancer Center Data Integrity and Safety Committee (DISC) (Member) (2022–)
- UF Health Cancer Center COMPPARE Data Integrity and Safety Committee (DISC) (Member) (2022–)
- MUSC Data and Safety Monitoring Board (DSMB) for NIH R61AG068951 (Member) (2022–)
- UAB SSG Journal Club (Chair) (2009–2014)

- UAB SSG-NORC Professional Development Workshop Series (2010)

SOFTWARE DEVELOPED:

GMDR, Generalized Multifactor Dimensionality Reduction (available at <http://www.soph.uab.edu/ssg/software> and <http://ibi.zju.edu.cn/software>)

PATENTS:

GMDR-GPU software, Registration Number: CN2012SR014341

A Mixed Model-based Approach for Mapping Quantitative Trait Loci underlying Crop Seed Traits, Application Number: CN201310549029

CONTINUING EDUCATION AND TRAINING:

Short Course on Statistical Analysis for Genetic Epidemiology (S.A.G.E.), University of Virginia, Charlottesville, Virginia, U.S., December 11–14, 2006

High Performance and Parallel Computing Bootcamp, The University of Virginia Alliance for Computational Science and Engineering, University of Virginia, Charlottesville, Virginia, U.S., January 7–11, 2008

Short Course on the Genetics and Epigenetics of Addiction, National Institute on Drug Abuse, Bethesda, Maryland, U.S., March 31–April 4, 2008

Genome-wide Association: Analyze This! The Genes, Environment, and Health Initiative, NIH, Bethesda, Maryland, U.S., August 4–5, 2008

The 5th Annual University of Washington Center for Mendelian Genomics (UW-CMG) Data Analysis Workshop, University of Washington, Seattle, Washington, U.S., August 14–18, 2017

COMPUTER SKILLS:

Languages: BASIC, C/C++, Fortran, Java++

Packages: SAS, SPLUS/R, MATLAB, MATHEMATICA, SIGMAPLOT, PERL, EXCEL, WORD, POWERPOINT, LATEX, and most statistical genetics software packages

Systems: MS-DOS/WINDOWS, LINUX/UNIX