

# Jichun Xie

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## POSITION

<b>Associate Professor</b> Department of Biostatistics and Bioinformatics and Department of Mathematics, Duke University	2020 — Present
<b>Associate Professor</b> Department of Biostatistics and Bioinformatics, Duke University School of Medicine	2018 — 2020
<b>Assistant Professor</b> Department of Biostatistics and Bioinformatics, Duke University School of Medicine	2014 — 2018
<b>Assistant Professor</b> Department of Statistics, Fox School of Business, Temple University	2011 — 2014

## EDUCATION

<b>Ph.D. in Biostatistics</b> — University of Pennsylvania School of Medicine Dissertation Advisor: T. Tony Cai and Hongzhe Li Dissertation Title: Methods for high dimensional inferences with applications in genomics	2006 — 2011
<b>B.S. in Statistics</b> — School of Mathematics, Peking University	2002 — 2006

## RESEARCH INTERESTS

### **Omics and Multi-omics Analysis**

Singe-cell omics and multi-omics; spatial transcriptomics; flow cytometry; rare variants and disease associations; immunology.

### **Machine Learning**

Deep testing

## PUBLICATION

(†: student under my supervision, \$: corresponding author or methodology corresponding author)

(from the oldest to the newest):

1. Cotch, MF, Peet, J, Shults, J, Stambolian, D, and **Xie, J**<sup>\$</sup>. Quasi-least squares with mixed linear

- correlation structures. *Statistics and Its Interface* 3, no. 2 (2010): 223-233. PMID: 22518205, PMCID: PMC3328409
2. Chen, J, **Xie, J**, and Li, H. A penalized likelihood approach for bivariate conditional normal models for dynamic co-expression analysis. *Biometrics* 67, no. 1 (2011): 299-308. PMID: 20374241, PMCID: PMC2902622
  3. **Xie, J**, Cai, TT, and Li, H. Sample size and power analysis for sparse signal recovery in genome-wide association studies. *Biometrika* 98, no. 2 (2011): 273-290. PMID: 23049128, PMCID: PMC3419390
  4. **Xie, J**, Cai, TT, Maris, J, and Li, H. Optimal False Discovery Rate Control for Dependent Data. *Statistics and its interface* 4, no. 4 (2011): 417-430. PMID: 23378870, PMCID: PMC3559028  
[**Xie, J**<sup>§</sup>, Cai, TT, and Li, H. Correction to the paper "Optimal false discovery rate control for dependent data". *Statistics and its Interface* 9, no. 1 (2016): 33-35.]
  5. Daye, ZJ, **Xie, J**, and Li, H. A Sparse structured shrinkage estimator for nonparametric varying-coefficient model with an application in genomics. *Journal of Computational and Graphical Statistics* 21, no. 1 (2012): 110-133. PMID: 22904608, PMCID: PMC3419598
  6. Cai, TT, Li, H, Liu, W, and **Xie, J**<sup>§</sup>. Covariate-adjusted precision matrix estimation with an application in genetical genomics. *Biometrika* 100, no. 1 (2013): 139-156. PMID: 28316337, PMCID: PMC5351557
  7. Napoli, A, **Xie, J**, and Obeid, I. Understanding the temporal evolution of neuronal connectivity in cultured networks using statistical analysis. *BMC neuroscience* 15 (2014): 17. PMID: 24443925, PMCID: PMC3902005
  8. Farber, SH, Hatef, J, Han, JL, Marky, AH, **Xie, J**, Huang, K, Verla, T, Lokhnygina, Y, Collins, TA, and Lad, SP. Implantable neurostimulation for headache disorders: effect on healthcare utilization and expenditures. *Neuromodulation: Journal of the International Neuromodulation Society* 19, no. 3 (2016): 319-328. PMID: 26857099
  9. Cai, TT, Li, H, Liu, W, and **Xie, J**<sup>§</sup>. Joint Estimation of Multiple High-dimensional Precision Matrices. *Statistica Sinica* 26, no. 2 (2016): 445-464. PMID: 28316451, PMCID: PMC5351783
  10. Ha, MJ, Sun, W, and **Xie, J**. PenPC: A two-step approach to estimate the skeletons of high-dimensional directed acyclic graphs. *Biometrics* 72, no. 1 (March 2016): 146-155. PMID: 26406114, PMCID: PMC4808501
  11. **Xie, J**<sup>§</sup>, and Kang, J. High-dimensional tests for functional networks of brain anatomic regions. *Journal of Multivariate Analysis* 156 (2017): 70-88. PMID: 28413234, PMCID: PMC5391152
  12. Krucoff, MO, Cook, S, Adogwa, O, Moreno, J, Yang, S, **Xie, J**<sup>§</sup>, Firempong, AO, Lad, N, and Bagley, CA. Racial, Socioeconomic, and Gender Disparities in the Presentation, Treatment, and Outcomes of Adult Chiari I Malformations. *World neurosurgery* 97 (2017): 431-437. PMID: 27751919
  13. Murphy, KR, Han, JL, Yang, S, Hussaini, SMQ, Elsamadicy, AA, Parente, B, **Xie, J**<sup>§</sup>, Pagadala, P, and Lad, SP. Prevalence of Specific Types of Pain Diagnoses in a Sample of United States Adults. *Pain physician* 20, no. 2 (2017): E257-E268. PMID: 28158163
  14. Farber, SH, Murphy, KR, Suryadevara, CM, Babu, R, Yang, S, Feng, L, **Xie, J**<sup>§</sup>, Perfect, JR, and Lad, SP. Comparing outcomes of early, late, and non-surgical management of intraspinal abscess. *Journal of clinical neuroscience: Official Journal of the Neurosurgical Society of Australasia* 36 (2017): 64-71. PMID: 27836393
  15. Murphy, KR, Han, JL, Hussaini, SMQ, Yang, S, Parente, B, **Xie, J**<sup>§</sup>, and Lad, SP. The Volume-Outcome Effect: Impact on Trial-to-Permanent Conversion Rates in Spinal Cord Stimulation. *Neuromodulation: Journal of the International Neuromodulation Society* 20, no. 3 (2017): 256-262. PMID: 27696607, PMCID: PMC5378689
  16. Hussaini, SMQ, Murphy, KR, Han, JL, Elsamadicy, AA, Yang, S, Premji, A, Parente, B, **Xie, J**<sup>§</sup>, Pagadala, P, and Lad, SP. Specialty-Based Variations in Spinal Cord Stimulation Success Rates

- for Treatment of Chronic Pain. *Neuromodulation: Journal of the International Neuromodulation Society* 20, no. 4 (2017): 340-347. PMID: 28370989, PMCID: PMC5464972
17. Han, JL, Murphy, KR, Hussaini, SMQ, Yang, S, Parente, B, **Xie, J<sup>§</sup>**, Pagadala, P, and Lad, SP. Explantation Rates and Healthcare Resource Utilization in Spinal Cord Stimulation. *Neuromodulation: Journal of the International Neuromodulation Society* 20, no. 4 (2017): 331-339. PMID: 28205332, PMCID: PMC5464976
  18. Elsamadicy, AA, Farber, SH, Yang, S, Hussaini, SMQ, Murphy, KR, Sergesketter, A, Suryadevara, CM, Pagadala, P, Parente, B, **Xie, J<sup>§</sup>**, and Lad, SP. Impact of Insurance Provider on Overall Costs in Failed Back Surgery Syndrome: A Cost Study of 122,827 Patients. *Neuromodulation: Journal of the International Neuromodulation Society* 20, no. 4 (2017): 354-360. PMID: 28322477, PMCID: PMC5482408
  19. Farber, SH, Han, JL, Petraglia Iii, FW, Gramer, R, Yang, S, Pagadala, P, Parente, B, **Xie, J<sup>§</sup>**, Petrella, JR, and Lad, SP. Increasing Rates of Imaging in Failed Back Surgery Syndrome Patients: Implications for Spinal Cord Stimulation. *Pain physician* 20, no. 6 (2017): E969-E977. PMID: 28934801
  20. Farber, SH, Han, JL, Elsamadicy, AA, Hussaini, Q, Yang, S, Pagadala, P, Parente, B, Xie, J<sup>§</sup>, and Lad, SP. Long-term Cost Utility of Spinal Cord Stimulation in Patients with Failed Back Surgery Syndrome. *Pain physician* 20, no. 6 (2017): E797-E805. PMID: 28934786
  21. Charalambous, LT, Premji, A, Tybout, C, Hunt, A, Cutshaw, D, Elsamadicy, AA, Yang, S, **Xie, J**, Giamberardino, C, Pagadala, P, Perfect, JR, and Lad, SP. Prevalence, healthcare resource utilization and overall burden of fungal meningitis in the United States. *Journal of medical microbiology*, 67-2 (2017): 215-227. PMID: 29244019
  22. Elsamadicy, AA, Sergesketter, A, Ren, X, Mohammed Qasim Hussaini, S, Laarakker, A, Rahimpour, S, Ejikeme, T, Yang, S, Pagadala, P, Parente, B, **Xie, J<sup>§</sup>**, and Lad, SP. Drivers and Risk Factors of Unplanned 30-Day Readmission Following Spinal Cord Stimulator Implantation. *Neuromodulation: Journal of the International Neuromodulation Society* (2017). PMID: 28961362
  23. Elsamadicy, AA, Yang, S, Sergesketter, AR, Ashraf, B, Charalambous, L, Kemeny, H, Ejikeme, T, Ren, X, Pagadala, P, Parente, B, **Xie, J<sup>§</sup>**, and Lad, SP. Prevalence and Cost Analysis of Complex Regional Pain Syndrome (CRPS): A Role for Neuromodulation. *Neuromodulation: Journal of the International Neuromodulation Society*, 21-1 (2018): 87-92. PMID: 28961359
  24. **Xie, J<sup>§</sup>**, and Li, R. False discovery rate control for high dimensional networks of quantile associations conditioning on covariates. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)* (2018); 80(5): 1015-1034. PMID: 31057329, PMCID: PMC6497089
  25. Lin, J, Gresham, J, Wang, T, Kim, SY, Alvarez, J, Damrauer, JS, Floyd, S, Granek, J, Allen, A, Chan, C, **Xie, J**, and Owzar, K. bcSeq: An R Package for Fast Sequence Mapping in High-throughput shRNA and CRISPR Screens. *Bioinformatics* (2018). 15; 34(20): 3581-3583. doi: 10.1093/bioinformatics/bty402. PMID: 29790906
  26. Feng, Y, Wang, Y, Liu, H, Liu, Z, Mills, C, Owzar, K, **Xie, J**, Han, Y, Qian, DC, Hung Rj, RJ, Brhane, Y, McLaughlin, J, Brennan, P, Bickeböller, H, Rosenberger, A, Houlston, RS, Caporaso, N, Landi, MT, Brüske, I, Risch, A, Ye, Y, Wu, X, Christiani, DC, Amos, CI, and Wei, Q. Novel genetic variants in the P38MAPK pathway gene ZAK and susceptibility to lung cancer. *Molecular carcinogenesis* (2018): 57(2): 216–24. PMID: 29071797
  27. Duan, B, Hu, J, Liu, H, Wang, Y, Li, H, Liu, S, **Xie, J**, Owzar, K, Abbruzzese, J, Hurwitz, H, Gao, H, and Wei, Q. Genetic Variants in the Platelet-Derived Growth Factor Subunit B Gene Associated with Pancreatic Cancer Risk. *International journal of cancer* 142-7 (2018): 1322-1331. PMID: 29168174

28. Lad, SP, Yang, S, **Xie, J**, Farjat, A, Pagadala, P, and Parente, B. Down the Rabbit Hole: Specialty Influence on SCS Outcomes. *Neuromodulation: Journal of the International Neuromodulation Society* 21, no. 4 (2018): 417-420. PMID: 29975008
29. Elsamadicy, AA, Ren, X, Kemeny, H, Charalambous, L, Sergesketter, AR, Rahimpour, S, Williamson, T, Goodwin, CR, Abd-El-Barr, MM, Gottfried, ON, **Xie, J<sup>§</sup>**, and Lad, SP. Independent Associations With 30- and 90-Day Unplanned Readmissions After Elective Lumbar Spine Surgery: A National Trend Analysis of 144 Patients. *Neurosurgery* (2018). PMID: 29893899
30. Elsamadicy, AA, Yang, S, Sergesketter, AR, Ashraf, B, Charalambous, L, Kemeny, H, Ejikeme, T, Ren, X, Pagadala, P, Parente, B, **Xie, J<sup>§</sup>**, and Lad, SP. Prevalence and Cost Analysis of Complex Regional Pain Syndrome (CRPS): A Role for Neuromodulation. *Neuromodulation: Journal of the International Neuromodulation Society* 21, no. 5 (2018): 423-430. PMID: 28961359
31. Xu, Y, Liu, H, Liu, S, Wang, Y, **Xie, J**, Stinchcombe, TE, Su, L, Zhang, R, Christiani, DC, Li, W, and Wei, Q. Genetic variant of IRAK2 in the toll-like receptor signaling pathway and survival of non-small cell lung cancer. *International Journal of Cancer* (2018). PMID: 29978465
32. Zeng, Y; Nie, C; Min, J; Chen, H; Liu, X; Ye, R; Chen, Z; Bai, C; Xie, E; Yin, Z; Lv, Y; Lu, J; Li, J; Ni, T; Bolund, L; Land, KC; Yashin, A; O'Rand, AM; Sun, L; Yang, Z; Tao, W; Gurinovich, A; Franceschi, C; **Xie, J**; Gu, J; Hou, Y; Liu, X; Xu, X; Robine, J-M; Deelen, J; Sebastiani, P; Slagboom, E; Perls, T; Hauser, E; Gottschalk, W; Tan, Q; Christensen, K; Shi, X; Lutz, M; Tian, X-L; Yang, H; and Vaupel, J. Sex Differences in Genetic Associations With Longevity. *JAMA Network Open* (2018): 1(4). PMID: 30294719; PMCID: PMC6173523
33. Xu, Y, Liu, H, Liu, S, Wang, Y, **Xie, J**, Stinchcombe, TE, Su, L, Zhang, R, Christiani, DC, Li, W, and Wei, Q. Genetic variant of IRAK2 in the toll-like receptor signaling pathway and survival of non-small cell lung cancer. *International Journal of Cancer* 143, no. 10 (2018): 2400–2408. PMID: 29978465; PMCID: PMC6205899
34. Elsamadicy, AA; Ren, X; Kemeny, H; Charalambous, L; Sergesketter, AR; Rahimpour, S; Williamson, T; Goodwin, CR; Abd-El-Barr, MM; Gottfried, ON; **Xie, J<sup>§</sup>**; and Lad, SP. Independent Associations With 30- and 90-Day Unplanned Readmissions After Elective Lumbar Spine Surgery: A National Trend Analysis of 144,123 Patients. *Neurosurgery*. (2019) 1; 84(3): 758–67. PMID: 29893899
35. Wang, X; Liu, H; Xu, Y; **Xie, J**; Zhu, D; Amos, CI; Fang, S; Lee, JE; Li, X; Nan, H; Song, Y; and Wei, Q. Genetic variants in the calcium signaling pathway genes are associated with cutaneous melanoma-specific survival. *Carcinogenesis*. (2019); 40(2): 279–88. PMID: 30596980; PMCID: PMC6487681
36. Elsamadicy, AA; Ashraf, B; Ren, X; Sergesketter, AR; Charalambous, L; Kemeny, H; Ejikeme, T; Yang, S; Pagadala, P; Parente, B; **Xie, J**; Pappas, TN; Lad, SP. Prevalence and Cost Analysis of Chronic Pain After Hernia Repair: A Potential Alternative Approach with Neurostimulation. *Neuromodulation*. (2019) 22(8): 960–9
37. Mathews, AM, Wysham, NG, **Xie, J<sup>§</sup>**, Qin, X, Giovacchini, CX, Ekström, M, & MacIntyre, NR. Hypercapnia in Advanced Chronic Obstructive Pulmonary Disease: A Secondary Analysis of the National Emphysema Treatment Trial. *Chronic Obstructive Pulmonary Diseases* (2020). 7(4).
38. Sung, AD; Jauhari, S; Siamakpour-Reihani, S; Rao, AV; Staats, J; Chan, C; Meyer, E; Gadi, VK; Nixon, AB; Lyu, J; **Xie, J**; Bohannon, L; Li, Z; Hourigan, CS; Dillon, LW; Wong, HY; Shelby, R; Diehl, L; de Castro, C; LeBlanc, T; Brander, D; Erba, H; Galal, A; Stefanovic, A; Chao, N; Rizzieri, DA. Microtransplantation in older patients with AML: A pilot study of safety, efficacy and immunologic effects. *American Journal of Hematology* (2020) 95(6), 662–671.
39. Siamakpour-Reihani, S; Cao, F; Lyu, J; Ren, Y; Nixon, AB; **Xie, J**; Bush, AT; Starr, MD; Bain, JR; Muehlbauer, MJ; Ilkayeva, O; Byers Kraus, V; Huebner, JL; Chao, NJ; Sung, AD. Evaluating immune response and metabolic related biomarkers pre-allogenic hematopoietic stem cell transplant in acute myeloid leukemia. *Plos One* (2020) 17(6), e0268963.

40. DiMarco, AV; Qin, X; McKinney, BJ; Garcia, NMG; Van Alsten, SC; Mendes, EA; Force, J; Hanks, BA; Troester, MA; Owzar, K; **Xie, J**<sup>§</sup>; Alvarez, JV. APOBEC Mutagenesis Inhibits Breast Cancer Growth through Induction of T cell-Mediated Antitumor Immune Responses. *Cancer Immunol Res* (2022) 10(1), 70–86.
41. Fang, J<sup>†</sup>, Chan, C, Owzar, K, Wang, L, Qin, D, Li Q, and **Xie, J**<sup>§</sup>. Clustering Deviation Index (CDI): A robust and accurate internal measure for evaluating scRNA-seq data clustering. *Genome Biology* (2022); 23: 269. <https://doi.org/10.1186/s13059-022-02825-5>.
42. NIH SenNet Consortium to map senescent cells throughout the human lifespan to understand physiological health. (Listed as a consortium coauthor) *Nature aging* (2022); 2: 1090-1100.
43. Pura, J<sup>†</sup>, Li, X<sup>†</sup>, Chan, C, and **Xie, J**<sup>§</sup>. TEAM: A Multiple Testing Algorithm on the Aggregation Tree for Flow Cytometry Analysis. *Annals of Applied Statistics* (2023); 17(1): 621-640.

## FUNDING SUPPORT:

### Current:

1. 1R01HG012555-01 (**Xie**) 09/23/2022 – 07/31/2026  
 NIH, “New computational methods to dynamically pinpointing the subregions carrying disease-associated rare variants”  
 Role: PI, 25% effort time  
 Total amount: \$1,581,918
2. R25CA244070 (Owzar/Chan/Granek) 07/01/2020 – 06/30/2025  
 NIH, “Training Program in Bioinformatics at the Intersection of Cancer Immunology and Microbiome”  
 Role: Training Faculty  
 Total amount: \$916,658
3. 5U54-AG075936-02 (Lee/Chan) 09/30/2021 – 08/31/2026  
 NIH, “The Duke Senescent Cell Evaluations in Normal Tissues (SCENT) Mapping Center: Data Analysis Core”  
 Role: Investigator  
 Total amount: \$12,505,171 (Composite total, all years)

## LECTURES AND PRESENTATIONS

1. Invited talk, 2023 ICSA Applied Statistics Symposium, MI, Jun 2023.
2. Invited talk, Department of Biostatistics, Epidemiology, and Informatics, The University of Pennsylvania, PA, Feb 2023.
3. Invited talk, Department of Mathematics, Duke University, NC, Sep 2022.
4. Invited talk, Computational Biology and Bioinformatics (CBB) program, Duke University, NC, Apr 2022.
5. Invited talk, Duke CHSI Symposium, Duke University, NC, Aug 2021.
6. Invited talk, ENAR Spring Meeting, Virtual, Mar 2021.
7. Invited talk, Department of Statistics, University of Chicago, IL, Nov 2019.
8. Invited talk, Division of Biostatistics, Department of Population Health, New York University, Oct 2019.
9. Invited talk, 2019 IMS China Conference, Dalian, China, Jul 2019.
10. Invited talk, 2019 ICSA China Conference, Tianjin, China, Jul 2019.

11. Invited talk, 2017 ICSA Applied Statistics Symposium, Chicago, Jun 2017.
12. Invites talk, Atlantic Causal Inference Conference, The University of North Carolina at Chapel Hill, NC, May 2017.
13. Invited talk, Joint Conference of “the application of statistics in the drug quality control and regulation”, Beijing, China, May 2017.
14. Invited talk, The 10<sup>th</sup> ICSA International Conference on Global Growth of Modern Statistics in the 21<sup>st</sup> Century, Dec 2016.
15. Invited talk, Duke Industry Statistics Symposium, Duke University, NC, Sep 2016
16. Invited talk, International Conference on Advances in Interdisciplinary Statistics and Combinatorics, The University of North Carolina at Greensboro, NC, Aug 2016.
17. Invited talk, Computational Biology and Bioinformatics (CBB) program, Duke University, NC, Feb 2016.
18. Invited session talk, Joint 24<sup>th</sup> ICSA Applied Statistics Symposium and 13<sup>th</sup> Graybill Conference, Fort Collins, CO, Jun 2015
19. Invited talk, ICSA-KISS Applied Statistics Symposium, Portland, OR, Jun 2014.
20. Contributed talk, ISBIS 2014 and SLDM Joint Meeting, Durham, NC, Jun 2014.
21. Invited talk, IID, Duke University, NC, Mar 2014
22. Invited talk, Department of Statistics, Indiana University, IN, Jan 2014.
23. Contributed talk, 2013 Joint Statistical Meetings, Montreal, Canada, Aug 2013.
24. Invited talk, The IMS-China International Conference on Statistics and Probability, Chengdu, China, Jun 2013.
25. Invited talk, 2013 ICSA/ISBS Joint Statistical Conference, Washington, D.C., Jun 2013.
26. Invited talk, Department of Mathematics, NJIT, Apr 2013.
27. Invited talk, Department of Biostatistics, Thomas Jefferson University, Feb 2013.
28. Invited talk, Division of Biostatistics, Fox Chase Cancer Center, Nov 2012.
29. Invited talk, Temple CROO Symposium, Temple University, Oct 2012.
30. Invited talk, International Conference on Robust Statistics, Burlington, VT, Aug 2012.
31. Contributed talk, 2012 Joint Statistical Meetings, San Diego, CA, Aug 2012.
32. Invited talk, Conference on Statistical Learning and Data Mining, Ann Arbor, MI, Jun 2012.
33. Invited talk, ICSA the 21<sup>st</sup> Applied Statistics Symposium, Boston, MA, Jun 2012.
34. Invited talk, Department of Biostatistics and Bioinformatics, Duke University, NC, Dec 2012.
35. Invited talk, Department of Statistics and Applied Probability, University of California, Santa Barbara, Feb 2012.
36. Invited talk, Department of Statistics, Michigan State University, MI, 2012.
37. Invited talk, Department of Statistics, Indiana University, Jan 2012.
38. Invited talk, Division of Statistics, The University of Texas at Austin, Jan 2012.
39. Invited talk, Department of Statistics, North Carolina State University, NC, Sep 2011.
40. Invited talk, Department of Biostatistics, Columbia University, NY, May 2011.
41. Invited talk, Department of Statistics, Temple University, PA, May 2011.
42. Invited talk, Department of Statistics, Rutgers University, NJ, Jan 2011.

## MENTORING ACTIVITIES

### Post-docs:

1. Tuhin Majumder, Post-doc, 2022 – Present

### Ph.D. students:

1. John Pura, Ph.D. in Biostatistics, graduated in 2020

2. Xuechan Li, Ph.D. in Biostatistics, graduated in 2022
3. Jiyuan Fang, Ph.D. in Biostatistics, graduated in 2022
4. Qi Gao, Ph.D. in Biostatistics, expect to graduate in 2023
5. Orlando Ferrer, Ph.D. in Mathematics, expect to graduate in 2026

#### Master students:

6. Xiaodi Qin, Master in Biostatistics, graduated in 2017
7. Jenny (Wenyue) Zhuo, Master in Biostatistics, graduated in 2022
8. Ruqian Cheng, Master in Biostatistics, graduated in 2022

## EDITORIAL EXPERIENCE

1. Associate Editor, Statistics in Biosciences, 2021 – Present.
2. Invited Guest Editor, Frontier in Genetics, Research Topic: Statistical and Computational Methods for Single-Cell Sequencing Analysis, 2022.

## TEACHING ACTIVITIES

#### Duke University

1. BIOS 704 – Introduction to Statistical Theory and Methods II: Introducing Master level inference concepts and methods, Spring 2015.
2. BIOS 707 – Statistical Methods for Learning and Discovery: Introducing statistical learning and data mining methods, Fall 2014, Fall 2015, Fall 2016.
3. BIOS 906 – Statistical Inference: Ph.D. level inference theory and methods, Fall 2017, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Fall 2022.
4. MATH 590 – Quantitative Methods for Biomedical Data: Introducing both biomedical domain knowledge and their quantitative analysis methods, designed for quantitative-major students, Fall 2020, Fall 2021, Fall 2022.

#### Temple University

1. STAT 8003 -- Statistical Methods I: Introducing basic inference methods such as estimation and hypothesis testing, Fall 2011, Fall 2012, Fall 2013
2. STAT 8004 – Statistical Methods II: Introducing statistical methods for categorical and survival data, Spring 2012, Spring 2013, Spring 2014
3. STAT 8112 – Statistical Methods III: Introducing statistical learning and data mining methods, Fall 2012, Fall 2013

## AWARD COMMITTEE/PANEL

#### Funding review panel/study section

1. Reviewer, National security agency, Mathematical Sciences Program, 2015.
2. Member, NIH NIA, Special Emphasis Panel, 2017.
3. Member, NIH NIA, Special Emphasis Panel, 2018.
4. Panelist, DOE, Genomic Sciences Program, 2019.
5. Reviewer, Duke University, Translational Duke Health Immunology Initiative, 2020.
6. Temporary member, NIH, GHD Study Section, 2021.

7. Panelist, NSF Smart Health Panel, 2023.
8. Member, NIH NIA, Special Emphasis Committee, 2023

Award committee: Member, Lingzi Lu Memorial Award Committee, ASA and ICSA, 2017 – Present

## PARTICIPATION IN UNIVERSITY ACADEMIC AND ADMINISTRATIVE ACTIVITIES

### Service at the Department of Biostatistics and Bioinformatics

1. Biostatistics Course Evaluation Committee, 2019
2. Biostatistics Education Committee, 2018
3. Biostatistics Faculty Recruitment Committee, 2017, 2018, 2020,2021
4. Biostatistics MS Admission Committee, 2017, 2019
5. Biostatistics MS Math Stat Track Entrance Exam Committee Chair, 2017 – 2022
6. Biostatistics MS Program co-Director-of-Graduate-Studies (co-DGS), 2019
7. Biostatistics MS Qualifying Exam Committee, 2014
8. Biostatistics PHD Admission Committee, 2017-2019
9. Biostatistics PHD Qualifying Exam Committee, 2014-2019
10. CBB PHD Admission Committee, 2017, 2018, 2022
11. Departmental Leadership Committee (for a smooth transition to the new Department Chair), 2019
12. Department Seminar Organizer, 2018 – 2019, 2021 – 2022

### Service at the Department of Mathematics

1. Academic adviser for Math undergraduate students, 2021 – 2022
2. Math Biology Seminar speaker, 2022

### Service at Duke Center for Human Systems Immunology (CHSI)

*Co-Director, Division of Statistical & Computational Immunology, 2020 – Present*

1. CHSI strategic planning
2. Organizing weekly journal club meetings and weekly research meetings
3. Coordinating, participating, and/or leading CHSI-related grant proposals
4. Participating in CHSI open science and outreach activities