

# CURRICULUM VITAE

**Tingting Zhang**

Department of Statistics  
University of Pittsburgh  
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## EDUCATION

2008                      **Ph.D.**, Statistics, Harvard University  
                                 Advisors: Samuel Kou and Jun S. Liu  
2003                      **B.Sc.**, Mathematics, Beijing University, China

## POSTDOCTORAL RESEARCH

2008-2009                Postdoctoral Fellow in Statistics  
                                 Department of Statistics, Harvard University  
                                 Mentors: Samuel Kou and Jun S. Liu

## PROFESSIONAL EXPERIENCE

2022-present             Professor  
                                 Department of Statistics, University of Pittsburgh

2020-2022                Associate Professor  
                                 Department of Statistics, University of Pittsburgh

2015-2020                Associate Professor  
                                 Department of Statistics, University of Virginia

2013 Spring              Visiting Faculty  
                                 Department of Biostatistics, Johns Hopkins University

2010-2011                Senior Fellow, Analysis of Object Data Program  
                                 Statistical & Applied Mathematical Sciences Institute

2009-2015                Assistant Professor  
                                 Department of Statistics, University of Virginia

2007-2008                Resident Advisor  
                                 GSAS Residence Halls, Harvard University

2006-2009                Non-Resident Tutor in Statistics  
                                 Mather House, Harvard University

## EDITORIAL ACTIVITIES

### Editorial Positions

2022-	<i>Journal of the American Statistical Association</i>	Associate Editor
2016-	<i>The Annals of Applied Statistics</i>	Associate Editor
2015-2018	<i>Stat</i>	Associate Editor

### Review of Grant Proposals

2022	National Science Foundation	Electronic Proposal Review
2020	National Science Foundation	Electronic Proposal Review
2019	National Science Foundation	Electronic Proposal Review
2016	National Science Foundation	Electronic Proposal Review
2015	National Science Foundation	Virtual Panel Review
2014	National Science Foundation	Electronic Proposal Review
2014	National Science Foundation	Panel Review
2012	National Science Foundation	Panel Review

### Peer Review

Bayesian Analysis, Biometrics, Canadian Journal of Statistics, Cerebral Cortex, Computational Statistics and Data Analysis, Frontiers in Neuroscience, Human Brain Mapping, IEEE Transactions on Medical Imaging, Journal of American Statistical Association, Journal of Computational and Graphical Statistics, Journal of Multivariate Analysis, Journal of Neural Engineering, Mathematical Reviews, NeuroImage, PLOS Computational Biology, Proceedings of the National Academy of Sciences, Scientific Reports, Stat, Statistica Sinica, Statistical Applications in Genetics and Molecular Biology, Statistics and Its Interface, Statistics in Medicine, The Annals of Applied Statistics, The Plant Cell.

## MANUSCRIPTS and PUBLICATIONS

\* The corresponding author. The names of Ph.D. and postdoctoral advisees are underlined.

1. Li, S, Wang, Y, Peng, L, Tudorascu, DL, Yan, G, and **Zhang, T\*** (2023). Whole-Brain Directed Network Analysis of fMRI Data. Under review.
2. Sukoff Rizzo, SJ, Homanics, G, Schaeffer, D, Schaeffer, L, Park, JE, Oluoch, J, **Zhang, T**, Haber, A, Seyfried, N, Patten, B, Greenwood, A, Murai, T, Choi, SH, Huhe, H, Kofler, J, Strick, PL, Carter, GW, and Silva, AC (2023). Bridging the Rodent to Human Translational Gap: Marmosets as Model Systems for the Study of Alzheimer's disease. *Alzheimer's & Dementia: Translational Research & Clinical Interventions*. Under review.
3. Sun, Y, Li, J, Xu, Y, **Zhang, T**, and Wang, X (2023). Deep Learning versus Conventional Statistical Methods for Missing Data Imputation: A Comparative Study. *Expert Systems with Applications*, accepted.

4. Wang, Y, Yan, G, Wang, X, Li, S, Peng, L, Tudorascu, DL, and **Zhang, T\*** (2023). A Variational Bayes Approach to Identifying Whole-Brain Directed Networks Using fMRI Data. *The Annals of Applied Statistics*, 17, 518-538.
5. Hu, SS, Liu, L, Li, Q, Ma, W, Guertin, MJ, Mayer, CA, Deng, K, **Zhang, T**, and Zang, C (2022). Intrinsic bias estimation for improved analysis of bulk and single-cell chromatin accessibility profiles using SELMA. *Nature Communications*, 13(1):5533.
6. Wang, Y, Yan, G, Tanabe, S, Liu, C, Moosa, S, Quigg, M, and **Zhang, T\*** (2022). High-Dimensional Directional Brain Network Analysis for Focal Epileptic Seizures. arXiv:2208.07991.
7. Corliss, BA, Brown, TR, **Zhang, T**, Janes, KA, Shakeri, H, and Bourne, PE (2022). The most difference in means: A statistic for the strength of null and near-zero results. arXiv:2201.01239.
8. **Zhang, T\***, Pham, M, Yan, G, Wang, Y, Medina-Devilliers, S, and Coan, JA (2021). Spatial-Temporal Analysis of Multi-Subject Functional Magnetic Resonance Imaging Data. *Econometrics and Statistics*, 2452-3062.
9. Li, H, Wang, Y, Yan, G, Sun, Y, Tanabe, S, Liu, C, Quigg, M, and **Zhang, T\*** (2021). A Bayesian State-Space Stochastic Block Model for Mapping Epileptic Brain Networks. *Journal of the American Statistical Association*, 116(536), 1637-1647.
10. Li, H, Wang, Y, Tanabe, S, Sun, Y, Yan, G, Quigg, M, and **Zhang, T\*** (2021). Mapping Epileptic Directional Brain Networks Using Intracranial EEG Data. *Biostatistics*, 22(3), 613-628.
11. Corliss, BA, Doty, R, Matthews, C, Rohde, G, Yates, P, **Zhang, T**, and Peirce, SM (2020). REAVER: A Program for Improved Image Analysis and Quantification of Vascular Networks Through Multigroup Analysis of Accuracy and Precision. *Microcirculation*, 27(5), e12618.
12. **Zhang, T\***, Sun, Y, Li, H, Yan, G, Tanabe, S, Miao, R, Wang, Y, Caffo, B, and Quigg, M (2020). Bayesian Inference of a Directional Brain Network for Intracranial EEG Data. *Computational Statistics and Data Analysis*, 106847.
13. **Zhang, T\***, Pham, M, Sun, J, Yan, G, Gonzalez, MZ, and Coan, JA (2018). A Low-Rank Multivariate General Linear Model for Multi-Subject fMRI Data and a Non-Convex Optimization Algorithm for Brain Response Comparison. *NeuroImage*, 173, 580-591.
14. Xu, P, **Zhang, T**, and Gu, Q (2017). Efficient Algorithm for Sparse Tensor-variate Gaussian Graphical Models via Gradient Descent. In *Proceedings of the 20th International Conference on Artificial Intelligence and Statistics (AISTATS)*, Fort Lauderdale, Florida, USA.
15. **Zhang, T\***, Yin, Q, Caffo, B, Sun, Y, and Boatman-Reich, D (2017). Bayesian Inference of High-Dimensional, Cluster-Structured Ordinary Differential Equation Models with Applications to Brain Connectivity Studies. *The Annals of Applied Statistics*, 11(2), 868-897.

16. **Zhang, T\***, Shen, H, and Fan, L (2016). Linear and Non-linear Models for fMRI Time Series Analysis. In Ombao, H, Lindquist, M, Thompson, W, and Aston, J ed. *Handbook of Modern Statistical Methods: Neuroimaging Data Analysis*. Chapman and Hall/CRC.
17. Li, F<sup>†</sup>, **Zhang, T<sup>†</sup>**, Wang, Q, Gonzalez, MZ, Maresh, EL, and Coan, JA. (2015). Spatial Bayesian Variable Selection and Grouping in High-dimensional Scalar-on-Image Regressions. *The Annals of Applied Statistics*, 9, 687-713.  
<sup>†</sup> Equally contributing authors.
18. **Zhang, T\***, Wu, J, Li, F, Caffo, B, and Boatman-Reich, D. (2015). A Dynamic Directional Model for Effective Brain Connectivity Using Electrocorticographic (ECoG) Time Series. *Journal of the American Statistical Association*, 110, 93-106.
19. **Zhang, T\***, Li, F, Gonzalez, MZ, Maresh, EL, and Coan, JA. (2014). A Semi-Parametric Nonlinear Model for Event-Related fMRI. *NeuroImage*, 97, 178-187.
20. **Zhang, T\***, Li, F, Beckes, L, and Coan, JA. (2013). A Semi-Parametric Model of the Hemodynamic Response for Multi-Subject fMRI Data. *NeuroImage*, 75, 136-145.  
  - NSF HIGHLIGHT “REACH OUT AND TOUCH SOMEONE”.
21. **Zhang, T\***, Li, F, Beckes, L, Brown, C, and Coan, JA. (2012). Nonparametric Inference of Hemodynamic Response for Multi-Subject fMRI Data. *NeuroImage*, 63, 1754-1765.
22. Zhong, W, **Zhang, T**, Zhu, Y, and Liu, JS. (2012). Correlation Pursuit: Variable Selection Beyond Linear Regression. *Journal of Royal Statistical Society Series B*, 74, 849-870.
23. **Zhang, T** and Liu, JS. (2012). Nonparametric Hierarchical Bayes Analysis of Binomial Data via Bernstein Polynomial Priors. *Canadian Journal of Statistics*, 40(2), 328-344.
24. **Zhang, T** and Kou, S. (2010). Nonparametric Inference of Doubly Stochastic Poisson Process via Kernel Method. *The Annals of Applied Statistics*, 4, 1913-1941.
25. Shedlock, AM, Botka, CW, Zhao, S, Shetty, J, **Zhang, T**, Liu, JS, Deschavanne, PJ, and Edwards, SV. (2007). Phylogenomics of Nonavian Reptiles and the Structure of the Ancestral Amniote Genome. *Proceedings of National Academy of Science (USA)*, 104(8), 2767-2772.

## GRANTS

1. Bayesian Inference of Whole-Brain Directed Networks Using Neuroimaging Data. 2023-2026. PI. NSF-SES. \$275,112.00 (direct cost of \$187,646.00 and indirect cost of \$87,466.00).
2. Generation, Characterization, and Validation of Marmoset Models of Alzheimer’s Disease. 2022-2027. Co-investigator (PIs: Gregory W Carter, Stacey J Rizzo, and Afonso C Silva). NIH. \$32,498,845.00 (Zhang’s component: direct cost of \$777,875.00 and indirect cost of \$359,235.00).
3. The Role of Astroglialosis in Aging and the Pathological and Clinical Progression of Alzheimer’s Disease. 2022-2027. Co-investigator (PIs: Howard J Aizenstein, Ann D Cohen, Milos D Ikonovic, and Victor Luis Villemagne). NIH. \$33,507,019.00 (Zhang’s component: direct cost of \$117,970.00 and indirect cost of \$69,602.00).

4. Spatial Temporal Analysis of Multi-Subject Neuroimaging Data for Human Emotion Studies. 2018-2022. PI. NSF-SES. \$247,955.00 (direct cost of \$153,532.00 and indirect cost of \$94,423.00).
5. CBMS Conference: Elastic Functional and Shape Data Analysis (EFSDA). 2017-2018. Co-PI (PI: Sebastian Kurtek; other Co-PIs: Yusu Wang, Facundo Memoli, and Hongtu Zhu). NSF-DMS. \$35,748.00.
6. University of Virginia Quantitative Collaborative Seed Grant. 2017-2018. PI. \$12,000.00.
7. University of Virginia CHARGE Enhancement Grant. 2016-2017. PI. \$5,000.00.
8. Collaborative Research: Statistical Modeling and Inference for High-dimensional Multi-subject Neuroimaging Data. 2012-2015. PI. NSF-DMS. \$101,600.00.
9. ATD Collaborative Research: Statistical Modeling of Short-Read Counts in RNA-Seq. 2011-2014. PI. NSF-DMS. \$53,039.00.

## UNIVERSITY SERVICE

2023-2024	The Provost's Advisory Council University of Pittsburgh	Tenure and Promotion Council Member
2022-2023	The School of Arts and Sciences University of Pittsburgh	Faculty Grants Committee Member
2022	Department of Statistics University of Pittsburgh	Graduate Student Qualifying Exam Committee Member
2022-2023	Department of Statistics University of Pittsburgh	Faculty Diversity Committee Member
2021-2023	The School of Arts and Sciences University of Pittsburgh	Faculty Diversity Committee Member
2021-2023	Department of Statistics University of Pittsburgh	Reading Committee Chair for Junior Faculty
2021-2023	Department of Statistics University of Pittsburgh	Graduate Student Admission Committee Member
2020-2023	The School of Arts and Sciences University of Pittsburgh	<i>Ad hoc</i> Tenure Review Committee Member
2019-2020	Department of Statistics University of Virginia	Tenure Committee Member

2019-2020	Department of Statistics University of Virginia	Faculty Hiring Committee Member
2017-2018	Department of Statistics University of Virginia	The Director of Graduate Studies
2016-2017	Department of Statistics University of Virginia	Graduate Program Committee Member
2016-2017	Vice President for Research University of Virginia	Internal Review Committee Member
2016-2017	Next Third Century Campaign University of Virginia	Review Committee Member
2015-2017	The College of Arts and Sciences University of Virginia	Undergraduate Faculty Advisor

## **PROFESSIONAL ACTIVITIES**

2023	The Statistics Methods in Imaging Conference	Conference Planning Committee Member
2021	The Applied Methodology Savage Award Committee	Committee Member
2021	ASA Statistics in Imaging Section	Section Chair
2021	The Statistics Methods in Imaging Conference	Conference Planning Committee Member
2018-2019	ASA Statistics in Imaging Section	Program Chair
2017	ENAR Spring Meetings Committee ASA Statistics in Imaging	Committee Representative
2016-2017	JSM Statistical Learning and Data Mining (SLDM) Student Paper Competition	Committee Member
2016	Tsinghua-Sanya International Mathematics Forum: Mathematics and Statistics in Big Data Integration Workshop	Organizer

2016	SAMSI Workshop on Challenges in Functional Connectivity	Organizer
2015-2016	ENAR Spring Meetings Committee ASA SLDM Section	Committee Representative

## MENTORING

### Former Post-Doctoral Advisee

Name	Department (Year)
<u>Minh Pham</u>	Statistics, University of Virginia (2017)
First Placement:	Assistant Professor, Rochester Institute of Technology

### Current Ph.D. Students

Name	Department (Year)
<u>Jie He</u>	Statistics, University of Pittsburgh (Expected 2026)
<u>Lingyi Peng</u>	Biostatistics (co-advising with Dr. Dana L Tudorascu), University of Pittsburgh (Expected 2025)
<u>Shuoran Li</u>	Statistics, University of Pittsburgh (Expected 2025)
<u>Yaotian Wang</u>	Statistics, University of Pittsburgh (2023)
<i>Dissertation:</i>	High-Dimensional Directional Network Analysis of Human Brains

Yaotian Wang's paper received the 2022 Best Student Paper Award from the Bayesian Statistical Science Section in the American Statistical Association.

### Former Ph.D. Students

Name	Department (Year)
<u>Huazhang Li</u>	Statistics, University of Virginia (2020)
<i>Dissertation:</i>	Mapping Epileptic Directional Brain Networks using State-Space Approaches
First Placement:	GE Healthcare
<u>Yinge Sun</u>	Statistics, University of Virginia (2020)
<i>Dissertation:</i>	Bayesian Inference of Directional Brain Network Models for Intracranial EEG Data
First Placement:	Expedia
<u>Qiannan Yin</u>	Statistics, University of Virginia (2017)
<i>Dissertation:</i>	Bayesian Inference of High-Dimensional Ordinary Differential Equation Models for Brain Networks

First Placement: LinkedIn

Jingwei Wu            Statistics, University of Virginia (2015)  
*Dissertation:*        High-Dimensional Ordinary Differential Equation Models for Connectivity  
                              Studies

First Placement: Barclays Investment Bank

### **Doctoral Thesis Committees**

Name	Department	Year
Thomas Sale	Mathematics	2020
Haoyi Liang	Electrical and Computer Engineering	2019
Jie Liu	Systems Engineering	2018
Yin Zhang	Statistics	2018
Haiyun Hu	Electrical and Computer Engineering	2016
Chun-Ju Lai	Mathematics	2016
Huichen Bao	Mathematics	2015
Feiyang Niu	Statistics	2015
Hao Liu	Physics	2014
Sean Clark	Mathematics	2014
Wei Ma	Statistics	2013
Yanqing Hu	Statistics	2011
Jiakang Lu	Computer Science	2011

### **Master's Thesis Committees**

Name	Department	Year
Shangshu Zhao	Statistics	2021
Yiwei Zhang	Systems Engineering	2012

## **TEACHING EXPERIENCE**

### **Undergraduate Courses at the University of Pittsburgh**

STAT 1651 Introduction to Bayesian Statistics  
STAT 1731 Stochastic Processes

### **Graduate Courses at the University of Pittsburgh**

STAT 2650 Introduction to Bayesian Statistics  
STAT 2651 Bayesian Statistics  
STAT 2730 Stochastic Processes

### **Undergraduate Courses at the University of Virginia**



STAT 3120 Introduction to Mathematical Statistics  
STAT 3220 Introduction to Regression Analysis  
STAT 5120 Applied Linear Models  
STAT 5160 Experimental Design

### **Graduate Courses at the University of Virginia**

STAT 6120 Linear Models  
STAT 6160 Experimental Design  
STAT 6190 Introduction to Mathematical Statistics  
STAT 6440 Introduction to Bayesian Methods  
STAT 6510 Advanced Data Experience  
STAT 6520 Statistical Literature  
STAT 7110 Foundations of Statistics  
STAT 7220 Statistical Inference

### **INVITED TALKS**

1. (2022) IMS International Conference on Statistics and Data Science, Florence, Italy.
2. (2022) Department of Biostatistics, Johns Hopkins University.
3. (2022) ICSA-Canada Chapter 2022 Symposium, Banff Center, Banff, Alberta, Canada.
4. (2022) The Statistical Methods in Imaging Conference, Nashville, TN.
5. (2022) ENAR Spring Meeting, Houston, TX.
6. (2021) Biostatistics Group, Department of Statistics, King Abdullah University of Science and Technology.
7. (2021) Department of Statistics, University of Akron.
8. (2021) Joint Statistical Meetings, Virtual Conference.
9. (2021) Department of Statistics, Penn State University.
10. (2020) Workshop on Recent Advances in Statistical Analysis of Imaging Data.
11. (2020) Department of Biostatistics, University of Pittsburgh.
12. (2020) The 30th International Biometric Conference.
13. (2020) Joint Statistical Meetings, Virtual Conference.
14. (2019) Tsinghua-Sanya Workshop on Mathematics in Advanced Medical Imaging: Models, Algorithms, and Big Data, Tsinghua Sanya International Mathematics Forum, China.
15. (2019) The 11th ICSA International Conference, Hangzhou, China.
16. (2019) The 12th International Conference on Computational and Methodological Statistics, London, UK.

17. (2019) Department of Statistical Sciences, Duke University.
18. (2019) Department of Statistics, Penn State University.
19. (2019) Department of Biostatistics, Yale University.
20. (2019) Joint Statistical Meetings, Denver, CO.
21. (2018) The 11th International Conference on Computational and Methodological Statistics, Pisa, Italy.
22. (2018) Department of Biostatistics, University of Florida.
23. (2018) Department of Statistics, University of Michigan.
24. (2018) Department of Biostatistics, Emory University.
25. (2018) Department of Statistics and Operations Research, The University of North Carolina at Chapel Hill.
26. (2018) ICSA China Conference with the Focus on Data Science, Qingdao, China.
27. (2018) Conference on Statistical Learning and Data Science/Nonparametric Statistics, Columbia University, NY.
28. (2018) Department of Biostatistics, Brown University.
29. (2018) ENAR Spring Meeting, Atlanta, GA.
30. (2017) The 10th International Conference on Computational and Methodological Statistics, London, UK.
31. (2017) Workshop on Applications-Driven Geometric Functional Data Analysis, Tallahassee, FL.
32. (2017) Department of Biostatistics, Virginia Commonwealth University, Richmond, VA.
33. (2017) Joint Statistical Meetings, Baltimore, MD.
34. (2017) Department of Statistics, North Carolina State University.
35. (2016) The 10th ICSA International Conference, Shanghai, China.
36. (2016) The 9th International Conference on Computational and Methodological Statistics, Seville, Spain.
37. (2016) Department of Statistics, University of Delaware.
38. (2016) Department of Biostatistics, University of Michigan.
39. (2016) Workshop on Challenges & Advances on Big Data in Neuroimaging, Cleveland Clinic, OH.
40. (2016) Workshop on Novel Statistical Methods in Neuroscience, Magdeburg, Germany.

41. (2016) Department of Statistics, University of California, Davis.
42. (2016) Department of Statistics, Virginia Tech.
43. (2016) ENAR Spring Meeting, Austin, TX.
44. (2016) Banff Workshop on Mathematical and Statistical Challenges in Neuroimaging Data Analysis, Banff, Canada.
45. (2015) Joint Statistical Meetings, Seattle, WA.
46. (2015) Tsinghua Summer Workshop on Modern Statistics, Beijing, China.
47. (2015) Department of Statistics, University of Pittsburgh.
48. (2015) Department of Biostatistics, Johns Hopkins University.
49. (2014) Tsinghua-Sanya Workshop on Big Data, Tsinghua Sanya International Mathematics Forum, China.
50. (2014) Department of Statistics, Columbia University, New York, NY.
51. (2014) Joint Statistical Meetings, Boston, MA.
52. (2014) ICSA and KISS Joint Applied Statistics Symposium in Portland, OR.
53. (2014) International Symposium on Business and Industrial Statistics (ISBIS) and ASA Section on Statistical Learning and Data Mining (SLDM) Joint Meeting, Durham, NC.
54. (2014) Department of Statistics, Chinese University of Hong Kong.
55. (2014) SIAM Conference on Imaging Science, Hong Kong.
56. (2014) Department of Statistics, University of Pennsylvania.
57. (2014) Department of Statistical Sciences and Operations Research, Virginia Commonwealth University, Richmond, VA.
58. (2014) ENAR Spring Meeting, Baltimore, MD.
59. (2014) Department of Child and Adolescent Psychiatry, The Biostatistics Division, New York University.
60. (2014) Department of Statistics and Operations Research, The University of North Carolina at Chapel Hill.
61. (2013) Joint Statistical Meetings, Montreal, Canada.
62. (2013) IMS New Researchers Conference, Montreal, Canada.
63. (2013) SAMSI Neuroimaging Data Analysis Workshop, Durham, NC.
64. (2013) International Perspectives on High Dimensional Data Analysis III, UBC campus, Canada.

65. (2013) Department of Statistics, Columbia University.
66. (2013) Department of Biostatistics, Johns Hopkins University.
67. (2013) ENAR spring meeting, Orlando, FL.
68. (2012) Department of Psychology, University of Virginia.
69. (2012) The 2nd IMS Asia Pacific Rim Meeting, Tsukuba, Japan.
70. (2012) ICSA Applied Statistics Symposium, Boston, MA.
71. (2012) Conference on Statistical Learning and Data Mining, Ann Arbor, Michigan.
72. (2011) The First Wuxi International Statistics Forum, Wuxi, China.
73. (2011) The Research Symposium on Frontiers of Statistics, Hefei, China.
74. (2011) SAMSI Transition Workshop, Durham, NC.
75. (2010) International Chinese Statistical Association (International) Conference, Guangzhou, China.
76. (2010) Department of Statistics, Chinese University of Hong Kong.
77. (2010) Division of Biostatistics, University of Virginia.