February 3, 2026

Yao Xie (she/her/hers)

Coca-Cola Foundation Chair and Professor, Georgia Institute of Technology
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Education

Ph.D. in Electrical Engineering (minor in Mathematics), *Stanford University*, January 2012.
Advisors: David Siegmund and Andrea Goldsmith.
Thesis: "Statistical signal detection with multi-sensor and sparsity."
M.Sc. in Electrical and Computer Engineering, *University of Florida*, August 2006.
B.Sc. in Electrical Engineering and Information Science, *University of Science and Technology of China (USTC)*, July 2004. (*Best Undergraduate Thesis Award* by USTC.)

Work Experience

Georgia Institute of Technology, Atlanta, GA.
Professor. August 2023 – present.
Coca-Cola Foundation Chair. May 2023 – present.
Associate Director, Machine Learning Center. January 2020 – present.
Associate Professor, H. Milton School of Industrial and Systems Engineering (ISyE). August 2019 – August 2023.
Harold R. and Mary Anne Nash Early Career Professorship, ISyE, September 2017–May 2023.
Assistant Professor, ISyE, August 2013 – August 2019.
Adjunct Professor, School of Electrical and Computer Engineering (ECE). October 2018–present.

Duke University, Durham, NC.
Postdoctoral Research Scientist, Department of Electrical and Computer Engineering. December 2011 – August 2013.
Mentors: Robert Calderbank and Rebecca Willett.

General Electric Global Research Center, Niskayuna, NY.
Research Intern, Medical Imaging Lab. June 2007 – August 2007.

Honors and Awards

Major Research Honors and Distinctions

Member of Cohort 2026 in the New Voices in Sciences, Engineering, and Medicine Program, National Academies.
IEEE Information Theory Society Distinguished Lecturer, 2026-2027.
CWS Woodroofe Award, 2024.
Citation: "Renowned for her innovative methods in statistical learning, Yao has made significant strides in sequential analysis and change-point detection. Her work tackles real-world challenges by developing advanced algorithms for big data problems, including sparse changes in high-dimensional data and spatio-temporal modeling. Notably, her methods have been applied to enhance crime data analysis and optimize police zone designs, demonstrating profound societal impact. Yao's research combines rigorous statistical theory with practical applications, making her a standout in the field of statistics and data science."
INFORMS Gaver Early Career Award for Excellence in Operations Research, 2022.
Citation: "For outstanding research contributions at the interface of operations research, statistics, machine learning, and optimization; for successfully applying her research talent to applications of societal importance; and for contributions to the education and mentoring of students at all levels." (One recipient annually across INFORMS.)
INFORMS Wagner Prize (1 of 4 Finalists), 2021.
National Science Foundation (NSF) CAREER Award, 2017.

Smart 50 Award, Smart Cities Connect Conference & Expo, 2018.
— for the Atlanta Police crime-linkage detection system.

Leadership and Fellows Programs

Executive Leadership in Academic Technology, Engineering, and Science (ELATES) Fellow, 2025-2026 Cohort.
Georgia Tech ISyE DEI Fellow, 2022.
Georgia Tech Emerging Leaders Program, 2020.

Teaching and Educational Recognition

Thank-a-Teacher Recipient, Georgia Tech, 2018-2025.
Georgia Tech Serve-Learn-Sustain Research Fellow, 2017.
Class of 1969 Teaching Fellow, Georgia Tech, 2015.

Student Awards

General Yao-Wu Wang Stanford Graduate Fellowship, 2007-2010.
Pan Wen-Yuan Scholarship, Stanford University, 2007.
Best Undergraduate Thesis Award, USTC, 2004.
Zong-Zhi Zhang Scholarship, USTC, 2003.
Gold Scholarship (highest grade), USTC, 2003.

Research Paper Awards

Runner Up, *INFORMS ICS Student Paper Award*, 2024.
Finalist, *INFORMS 2024 Data Mining Best Paper Award Competition*, 2024.
Runner Up, *Best Paper Award at IJCAI 2023, AI for Time Series Workshop*.
Finalist, *INFORMS QSR best student paper competition*, 2023.
Finalist, *18th INFORMS DMDA Workshop Best Paper Competition - Applied Track*, 2023.
Winner, *18th INFORMS DMDA Workshop Best Paper Competition - Theoretical Track*, 2023.
Student Paper Competition, *American Medical Informatics Association (AMIA) Annual Symposium*, 2022.
Winner and Runner-Up, *INFORMS Poster Competition*, 2022.
Winner, Applied Best Paper Competition, *17th INFORMS Data Mining & Decision Analytics Workshop*, 2022.
Finalist, *INFORMS Data Mining Best Paper Competition Award* (Student Track), 2022.
Finalist, *INFORMS Wagner Prize*, 2021.
Best Paper Award (Honorable Mention), *ICML Time Series Workshop*, 2021.
Best Paper for 16th *INFORMS Workshop on Data Mining and Decision Analytics*, Finalist, 2021.
Best Paper for 15th *INFORMS Workshop on Data Mining and Decision Analytics*, 2nd Place, 2020.
INFORMS Doing Good OR for Social Good Paper Competition, 2nd Place, 2019.
INFORMS QSR Best Student Paper Competition, Finalist, 2019.
INFORMS ICS Best Student Paper Competition, Runner-Up, 2019.
Best Student Paper Award, *IEEE ICASSP Conference*, 2019.
INFORMS Social Media Analytics Best Student Paper Competition, Finalist, 2018.
INFORMS QSR Best Student Paper Competition, Finalist, 2018.
Best Poster Award at IMA Workshop, Forecasting from Complexity, 2018.
INFORMS QSR Best Student Paper Competition, Finalist, 2017.
Best Student Paper Award, *IEEE ICASSP Conference*, Finalist, 2007.
Best Student Paper Award, *IEEE Asilomar Conference*, 1st place, 2005.

Editorial Board Memberships

Associate Editor, *Annals of Applied Statistics*, 2025—present
Associate Editor, *Technometrics*, 2025—present
Associate Editor, *Operations Research*, 2024—present
Associate Editor, *Journal of the American Statistical Association, Theory and Methods (JASA-T&M),* January 2023—present.
Associate Editor, *IEEE Transactions on Information Theory*, June 2022 – present.
Associate Editor, *IEEE Transactions on Signal Processing*, September 2018 – 2023.
Associate Editor, *INFORMS Journal on Data Science*, November 2020 – present.
Associate Editor, *Sequential Analysis*, January 2020– present.
Editorial Board Reviewer, *Journal of Machine Learning Research*, 2020 – present.
Lead Guest Editor, *IEEE Journal on Selected Areas in Information Theory (JSAIT)*, Special Issue on "Sequential, active, and reinforcement learning," 2020.
Guest Editor, *IEEE Intelligent Systems Trends & Controversies (T&C)*, Special Issue on "Systems informatics," 2015.
Area Chair, NeurIPS 2021-2025, ICML 2023-2025, ICLR 2024.
Senior Program Committee, AAAI 2025.

Publication List

Book Chapters

[B1] Song Wei, Hanyu Zhang, Ronald Moore, Rishikesan Kamaleswaran, Yao Xie. Transfer learning for causal effect estimation. *Springer Book on Big Data Analysis, Biostatistics and Bioinformatics* (Edited by Yichuan Zhao and Din Chen). A preliminary version appeared in the 3rd Workshop on Interpretable Machine Learning in Healthcare (IMLH), 2023.

[B2] Zheng Dong, Yao Xie. Atlanta gun violence modeling via nonstationary spatio-temporal point processes. Invited book chapter submission to *Gun Violence Volume*, to be published by CRC Press of Taylor and Frances (Edited by Charles E. Loeffler, Lingzhou Xue, and James L. Rosenberger), 2024.

Journal Publications

[J87] Song Wei, Yao Xie. Online kernel CUSUM for change-point detection. Accepted, *Journal of the Royal Statistical Society Series B: Statistical Methodology (JRSS-B)*. 2026.

[J86] Matthew Repasky, He Wang, Yao Xie. Multi-agent reinforcement learning for joint police patrol and dispatch. Accepted, *Naval Research Logistics (NRL): Special Issue on Online and Offline Learning in Operations Management.*

[J85] Zheng Dong, Jorge Mateu, Yao Xie. Spatio-temporal-network point processes for modeling crime events with landmarks. *Annals of Applied Statistics*. 2025.

[J84] Che-Yi Liao, Gian-Gabriel Garcia, Kamran Paynabar, Zheng Dong, Yao Xie, Mohammad S. Jalali. Tides need STEMMED: A locally operating spatio-temporal mutually exciting point process with dynamic network for improving opioid overdose death prediction. Accepted, *Manufacturing and Service Operations Management (MSOM)*. 2025.

[J83] Zheng Dong, Matthew Repasky, Xiuyuan Cheng, Yao Xie. Deep graph kernel point processes, *Journal of Computational and Graphical Statistics (JCGS)*. Accepted with minor revision. Preliminary version presented at *Temporal Graph Learning Workshop at NeurIPS 2023*. (Long paper and Spotlight Presentation.)

[J82] Yao Xie, Xiuyuan Cheng. Flow-based generative models as iterative algorithms in probability space. Accepted, *IEEE Signal Processing Magazine, Special Issue on The Mathematics of Deep Learning*, 2025.

[J81] Xiuyuan Cheng, Zheng Dong, Yao Xie. (Authors listed alphabetically.) Deep spatio-temporal point processes: Advances and new directions. *Annual Review of Statistics and Its Applications (ARSIA).* 2025.

[J80] Jie Wang, Rui Gao, Yao Xie. Sinkhorn distributionally robust optimization. Accepted, *Operations Research*. 2025.

[J29] Tingnan Gong, Seong-Hee Kim, Yao Xie. Distribution-free online change detection for low-rank images. *Sequential Analysis, Design Methods and Applications*. 2025.

[J78] Nauman Ahad, Eva L. Dyer, Keith B. Hengen, Yao Xie, Mark A. Davenport. Learning sinkhorn divergences for supervised change point detection. Accepted, *IEEE Transactions on Signal Processing*. 2025.

[J77] Brian D. Huang, Yongjoon Yu, Matthew W. Repasky, Junghwan Lee, Yao Xie, Matthew J. Realff, Corey J. Wilson. Engineering wetware and software for the predictive design of compressed genetic circuits for higher-state decision-making. Accepted, *Nature Communications*. 2025.

[J76] Kerisha N. Williams, Henry Shaowu Yuchi, Gardy Kevin Ligonde, Mathew Repasky, Yao Xie, Nazanin Bassiri-Gharb. Needle in a haystack: Information recovery in low signal-to-noise piezoresponse force microscopy data. *Small Methods*. 2025.

[J75] John D. Banja, Yao Xie, Jeffrey R. Smith, Shaheen Rana, Andre L. Holder. Mitigating bias in machine learning models with ethics-based initiatives: The case of sepsis. Accepted, *American Journal of Bioethics*.

[J74] Liyan Xie, Xi He, Pinar Keskinocak, Yao Xie. Survival analysis with graph-based regularization for predictors. *Statistics in Biosciences, S.I.: Memorial for Professor Tze L. Lai.* 2025.

[J73] Minghe Zhang, Chen Xu, Andy Sun, Feng Qiu, and Yao Xie. Solar radiation anomaly events modeling using spatio-temporal mutually interactive processes. *INFORMS Journal on Data Science*. 2025.

[J72] Xiuyuan Cheng, Jianfeng Lu, Yixin Tan, and Yao Xie. (Authors listed alphabetically.) Convergence of flow-based generative models via proximal gradient descent in Wasserstein space. *IEEE Transactions on Information Theory*. 2024. Vol. 70, No. 11, pp. 8087-8106.

[J71] Shixiang Zhu, Rui Yao, Yao Xie, Feng Qiu, Yueming (Lucy) Qiu, and Xuan Wu. Quantifying grid resilience against extreme weather using large-scale customer power outage data. Accepted, *INFORMS Journal on Data Science*.

[J70] Jingge Wang, Liyan Xie, Yao Xie, Shao-Lun Huang, Yang Li. Generalizing to unseen domains with Wasserstein distributional robustness under limited source knowledge. *IEEE Journal of Selected Topics in Signal Processing*, 2025. Vo. 19, No. 1, pp. 103-114.

[J69] Chen Xu, Jonghyeok Lee, Xiuyuan Cheng, and Yao Xie. Flow-based distributionally robust optimization. *IEEE Selected Areas in Information Theory*. 2024. Vol. 5. pp. 62-77. Preliminary version presented in *NeurIPS 2023 Workshop on Mathematics of Modern Machine Learning.*

[J68] Xiaojun Zheng, Simon Mak, Liyan Xie, Yao Xie. eRPCA: Robust Principal Component Analysis for Exponential Family Distributions. *Statistical Analysis and Data Mining.* 2024. Vol. 17, No. 2.

[J67] Tingnan Gong, Di Liu, Heeseon Kim, Seong-Hee Kim, Taeheung Kim, Dongki Lee, and Yao Xie. Distribution-free image monitoring with application to battery coating process. *IISE Transactions*. 2024. Vo. 57, No. 2, pp. 199-212.

[J66] Xiuyuan Cheng, Yao Xie. Kernel two-sample tests for manifold data. *Bernoulli.* 2024, Vol. 30, No. 4, 2572-2597.

[J65] Nauman Ahad, Mark A. Davenport, Yao Xie. Data-adaptive symmetric CUSUM for sequential change detection. *Sequential Analysis*. 2024. Vol. 43, No. 1. pp. 1-27.

[J64] Song Wei, Yao Xie, Christopher S. Josef, and Rishikesan Kamaleswaran. Causal graph discovery from self and mutually exciting time series. *IEEE Selected Areas in Information Theory*. 2023. Vol. 4, pp. 747-761.

[J63] Matthew Repasky, Xiuyuan Cheng, Yao Xie. Neural Stein critics with staged L2-regularization. *IEEE Transactions on Information Theory*. 2023. Vol. 69, No. 11, pp. 7246-7275.

[J62] Haoyun Wang, Yao Xie. Sequential change-point detection: Computation versus statistical performance. *Wiley Interdisciplinary Reviews: Computational Statistics*, e1628, July 2023.

[J61] Liyan Xie, George V. Moustakides, Yao Xie. Window-limited CUSUM for sequential change detection. *IEEE Transactions on Information Theory*. 2023. Vol. 69, No. 9, pp. 5990-6005.

[J60] Chen Xu, and Yao Xie. Conformal prediction for time series. *IEEE Transactions on Pattern Recognition and Machine Intelligence*. 2023. Vol. 45, No. 10. pp. 11575-11587.

[J59] Minghe Zhang, Liyan Xie, and Yao Xie. Spectral CUSUM for online network structure change detection. *IEEE Transactions on Information Theory*. 2023. Vol. 69, No. 7, pp. 4691-4707.

[J58] Chen Xu, Daniel A. Zuniga Vazquez, Rui Yao, Feng Qiu, Yao Xie. Spatio-temporal wildfire prediction using multi-modal data. *IEEE Journal Selected Areas in Information Theory (JSAIT)*. 2023 Vol. 4, pp. 302-313.

[J57] Jie Wang, Minshuo Chen, Tuo Zhao, Wenjing Liao, Yao Xie. A manifold two-sample test study: Integral probability metric with neural networks. *Information and Inference: A Journal of the IMA*. 2023. Vol. 12, No. 3.

[J56] Alexander Bukharin, Shaobo Han, Yuheng Chen, Ming-Fang Huang, Yue-Kai Huang, Yao Xie, and Ting Wang. Ambient noise-based weakly supervised manhole localization methods over deployed fiber networks. *Optics Express*. 2023. Vol. 31, No. 6, pp. 9591-9607.

[J55] Zheng Dong, Shixiang Zhu, Yao Xie, Jorge Mateu, Francisco J. Rodriguez-Cortes. Non-stationary spatio-temporal point process modeling for high-resolution COVID-19 data. *Journal of Royal Statistical Society, Series C*. 2023. Vol. 72, No. 2. pp. 368-386.

[J54] Haoyun Wang, Liyan Xie, Yao Xie, Alex Cuozzo, and Simon Mak. Sequential change-point detection for mutually exciting point processes. *Technometrics*. 2023. Vol. 65, No. 1, pp. 44-56.

[J53] Junzhuo Chen, Mustafa M. Aral, Seong-Hee Kim, Chuljin Park, and Yao Xie. Constrained Bayesian optimization and spatio-temporal surveillance for sensor network design in the presence of measurement errors. *Engineering Optimization*. 2023. Vol. 33, No. 3, pp. 510-525.

[J52] Heejune Sheen, Xiaonan Zhu, and Yao Xie. Tensor kernel recovery for spatio-temporal Hawkes processes. *IEEE Transactions on Signal Processing*. 2022. Vol. 70, pp. 5859-5870.

[J51] Chen Xu, Xiuyuan Cheng, Yao Xie. Invertible neural networks for graph prediction. *IEEE Journal on Selected Areas in Information Theory (JSAIT)*. 2022. Vol. 3, No. 3, pp. 454-467.

[J50] Rui Zhang, Haoyun Wang, and Yao Xie. Online score statistics for detecting clustered change in network point processes. *Sequential Analysis*. 2023. Vol. 42, No. 1, pp. 70-89.

[J49] Shixiang Zhu, Shuang Li, Zhigang Peng, and Yao Xie. Imitation learning of neural spatio-temporal point processes. *IEEE Transactions on Knowledge and Data Engineering*. 2022. Vol. 34, No. 11, pp. 5391-5402.

[J48] Di Liu, Heeseon Kim, Seong-Hee Kim, Taeheung Kim, Dongki Lee, Yao Xie. Distribution-free multivariate time-series monitoring with analytically determined control limits. 2022. *International Journal of Production Research*. pp. 1-18.

[J47] Shixiang Zhu, Henry Shaowu Yuchi, Minghe Zhang, and Yao Xie. Sequential adversarial anomaly detection for one-class event events. *INFORMS Journal on Data Science.* 2023. No. 2, Vol. 1, pp. 45-59.

[J46] Xiaojun Zheng, Simon Mak, Liyan Xie, and Yao Xie. PERCEPT: A new online change-point detection method using topological data analysis. *Technometrics*. 2023. Vol. 65, No. 2, pp. 162-178.

[J45] Henry Shaowu Yuchi, Simon Mak, and Yao Xie. Bayesian uncertainty quantification for low-rank matrix completion. *Bayesian Analysis*. 2023. No. 18, Vol. 2, pp. 491-518.

[J44] Shixiang Zhu, Ruyi Ding, Pascal Van Hentenryck, and Yao Xie. Spatio-temporal point processes with attention for traffic congestion event modeling. *IEEE Transactions on Intelligent Transportation Systems*. 2022. Vol. 23, No. 7, pp. 7298 - 7309.

[J43] Shixiang Zhu, He Wang, and Yao Xie. Data-driven optimization for police zone design. *INFORMS Journal on Applied Analytics*: 52, 5, 412-432, 2022. (Wagner Prize Finalist 2021.)

[J42] Shixiang Zhu, Alexander Bukharin, Liyan Xie, Khurram Yamin, Shihao Yang, Pinar Keskinocak, and Yao Xie. Early detection of COVID-19 hotspots using spatio-temporal data. *IEEE Journal Selected Topics in Signal Processing (JSTSP)*. 2022. Vol. 16, No. 2, pp. 250-260.

[J41] Josh Kacher, Yao Xie, Shixiang Zhu, Sven Voigt, Henry Yuchi, Jordan Key, and Surya R. Kalidindi. Signal processing challenges and examples for in-situ transmission electron microscopy. *IEEE Signal Processing Magazine*. 2022. Vol. 39, No. 1, pp. 89-103.

[J40] Shixiang Zhu, and Yao Xie. Crime linkage detection by spatial-temporal-textual point processes. *Annals of Applied Statistics*. 2022. Vol. 16, No. 2, pp. 1151-1170.

[J39] Yiwei Chen, Zheng Wen, and Yao Xie. Dynamic pricing in an evolving and unknown marketplace. Accepted, *Management Science*, October 2022.

[J38] Liyan Xie and Yao Xie. Sequential change detection by optimal weighted l_2 divergence. *IEEE Selected Areas in Information Theory (JSAIT)*. 2021. Vol. 2, No. 2, pp. 747-761.

[J37] Liyan Xie, Shaofeng Zou, Yao Xie, and Venugopal Veeravalli. Sequential (quickest) change detection: Classical results and new directions. (Invited Survey.) *IEEE Selected Areas in Information Theory (JSAIT)*. 2021. Vol. 2, No. 2, pp. 494-514.

[J36] Renee T. Rios, Francesca Lolli, Liyan Xie, Yao Xie, and Kimberley Kurtis. Time-series surface resistivity data with change-point detection: Evaluating pozzolanicity under standard and accelerated curing. *Cement and Concrete Research*. 2021. Vol. 148.

[J35] Shixiang Zhu, Alexander Bukharin, Liyan Xie, Mauricio Santillana, Shihao Yang, and Yao Xie. High-resolution spatio-temporal model for county-level COVID-19 activity in the U.S. *ACM Transactions on Management Information Systems (TMIS)*. 2021. Vol. 12, No. 4, pp. 1-20.

[J34] Rui Zhang, Junting Chen, Yao Xie, Alexander Shapiro, Urbashi Mitra. Testing rank of incomplete unimodal matrices. *IEEE Signal Processing Letter*. 2021. Vol. 28, pp. 877-881.

[J33] Alexander Shapiro, Yao Xie, and Rui Zhang. (Authors listed alphabetically.) Goodness-of-fit tests on manifolds. *IEEE Transactions on Information Theory*. 2021. Vol. 67, No. 4, pp. 2539-2553.

[J32] Alexander Shapiro, Yao Xie, and Rui Zhang. (Authors listed alphabetically.) On characteristic rank for matrix and tensor completion. *IEEE Signal Processing Magazine*. 2021. Vol. 38, no. 2, pp. 125-129.

[J31] Anatoli Juditsky, Alexander Nemirovski, Liyan Xie, and Yao Xie. (Authors listed alphabetically.) Convex parameter recovery for interacting marked processes. *IEEE Journal on Selected Areas in Information Theory*. 2020. Vol. 1, no. 3, pp. 799-813.

[J30] Santanu Dey, Guanyi Wang, Yao Xie. (Authors listed alphabetically.) An Approximation Algorithm for training One-Node ReLU Neural Network. *IEEE Transactions on Signal Processing*. 2020. Vol. 68, pp. 6696-6706.

[J29] Liyan Xie, Yao Xie, and George Moustakides. Sequential subspace change-point detection. *Sequential Analysis*. 2020. 39:3, pp. 307-335.

[J28] Junzhuo Chen, Seong-Hee Kim and Yao Xie. S^3T: An efficient score statistic for spatial-temporal surveillance. *Sequential Analysis*. 2020. 39:4, pp. 563-592.

[J27] Jordan W. Key, Shixiang Zhu, Christopher M. Rouleauc, Raymond R. Unocic, Yao Xie, and Josh Kacher. Investigating local oxidation processes in Fe thin films in a water vapor environment by in situ liquid cell TEM. *Ultramicroscopy*. 2020. Vol. 209.

[J26] Shuang Li, Yao Xie, Hanjun Dai, and Le Song. Scan B-statistics for kernel change-point detection. *Sequential Analysis*. 2019. Vol. 38, No. 4, pp. 503-544.

[J25] Junzhuo Chen, Chuljin Park, Seong-Hee Kim, and Yao Xie. To reduce or not to reduce: A Study on spatio-temporal surveillance. *Environmental and Ecological Statistics (EEST).* 2019. Vol. 26, No. 3, pp. 217-238.

[J24] Alexander Shapiro, Yao Xie, and Rui Zhang. (Authors listed alphabetically.) Matrix completion with deterministic pattern. *IEEE Transactions on Signal Processing.* 2019. Vol. 67, Issue 4, pp. 1088-1103.

[J23] Yang Cao, Andrew Thompson, Meng Wang, and Yao Xie. (Authors listed alphabetically.) Sketching for sequential change-point detection. *EURASIP Journal on Advances in Signal Processing.* No.1, 2019: pp. 1-22.

[J22] Simon Mak, and Yao Xie. Maximum entropy low-rank matrix recovery. *IEEE Journal of Selected Topics in Signal Processing.* 2018. Vol. 12, No. 5, pp. 886-901.

[J21] Ruiyang Song, Yao Xie, and Sebastian Pokutta. On the effect of model mismatch for sequential Info-Greedy Sensing. *EURASIP Journal on Advances in Signal Processing*. 2018:32

[J20] Yang Cao, Liyan Xie, Yao Xie, and Huan Xu. Sequential change-point detection via online convex optimization. *Entropy, Special Issue on Information Theory in Machine Learning and Data Science*. 2018. Vol. 20, No. 108.

[J19] Yang Cao, Arkadi Nemirovski, Yao Xie, Vincent Guigues, and Anatoli Juditsky. (Authors listed alphabetically.) Change detection via affine and quadratic detectors. *Electronic Journal of Statistics*. 2018. Vol. 12, no. 1, pp. 1-57.

[J18] Shuang Li, Yao Xie, Mehrdad Farajtabar, and Le Song. Detecting changes in dynamic events over networks. *IEEE Transactions on Signal and Information Processing over Networks (TSIPN)*. 2017. Vol. 3, no. 2, pp. 346-359.

[J17] Yang Cao, Yao Xie, and Nagi Gebraeel. Multi-sensor slope change detection. *Annals of Operations Research.* 2016. Vol. 263, no. 1-2, pp. 163-189.

[J16] Yang Cao, and Yao Xie. Poisson matrix completion. *IEEE Transactions on Signal Processing*. 2016. Vol. 64, no. 6, pp. 1609-1620

[J15] Gabor Braun, Sebastian Pokutta, and Yao Xie. (Authors listed alphabetically.) Info-Greedy sequential adaptive compressed sensing. *IEEE Journal on Selected Topics in Signal Processing*. 2015. Vol. 9, no. 4, pp. 601-611.

[J14] Tirza Routtenberg, Yao Xie, Rebecca M. Willett, and Lang Tong. PMU based detection of imbalance in three-phase power systems. *IEEE Transactions on Power Systems*. 2015. Vol. 30, no. 4, pp. 1966-1976.

[J13] Robert Calderbank, Andrew Thompson, and Yao Xie. On group coherence of frames. *Applied and Computational Harmonic Analysis*. 2015. Vol. 38, no. 1, pp. 50-71.

[J12] David Maragoni-Simonsen, and Yao Xie. Sequential change-point approach for community detection. *IEEE Signal Processing Letter*. 2014. Vol. 22, no. 8, pp. 1035-1039.

[J11] Yao Xie, and David Siegmund. Sequential multi-sensor change-point detection. *Annals of Statistics*. 2013. Vol. 41, no. 2, pp. 670-692.

[J10] Yao Xie, Yonina Eldar, and Andrea Goldsmith. Reduced-dimension multiuser detection. *IEEE Transactions on Information Theory*. 2013. Vol. 59, no. 6, pp. 3858-3864.

[J9] Yao Xie, Jiaji Huang, and Rebecca Willett. Change-point detection for high-dimensional time series with missing data. *IEEE Transactions on Selected Topics of Signal Processing*. 2013. Vol. 7, no. 1, pp. 12-27.

[J8] Yao Xie, Benjamin Armbruster, and Yinyu Ye. Dynamic spectrum management with the competitive market model. *IEEE Transactions on Signal Processing*. 2010. Vol. 58, no. 4, pp. 2442-2446.

[J7] Yao Xie, Bin Guo, Jian Li, Ku Geng, and Lihong V. Wang. Adaptive and robust methods of reconstruction (ARMOR) for thermoacoustic tomography. *IEEE Transactions on Biomedical Engineering*. 2008. Vol. 55, no. 12, pp. 2741-2752.

[J6] Xiayu Zheng, Yao Xie, Jian Li, and Peter Stoica. MIMO transmit beamforming under uniform elemental power constraint. 2007. *IEEE Transactions on Signal Processing*. Vol. 55, no. 11, pp. 5395-5406.

[J5] Jian Li, Yao Xie, Xiayu Zheng, and James Ward. Beampattern synthesis via a matrix approach for signal power estimation. *IEEE Transactions on Signal Processing*. 2007. Vol. 55, no. 12, pp. 5643-5657.

[J4] Peter Stoica, Jian Li, and Yao Xie. On probing signal design for MIMO radar. *IEEE Transactions on Signal Processing*. 2007. Vol. 5, no. 8, pp. 4151-4161.

[J3] Yao Xie, Bin Guo, Luzhou Xu, Jian Li and Peter Stoica. Multi-static adaptive microwave imaging (MAMI) for early breast cancer detection. *IEEE Transactions on Biomedical Engineering*. 2006. Vol. 53, no. 8, pp. 1647-1657.

[J2] Yao Xie, Bin Guo, Jian Li, and Peter Stoica. Novel multi-static microwave imaging (MAMI) for early breast cancer detection. *EURASIP Journal on Applied Signal Processing, Special Issue on Multi-Sensor Processing*, vol. 2006.

[J1] Peter Stoica, Luzhou Xu, Jian Li, and Yao Xie. Optimal correction of an indefinite estimated MA spectral density matrix. *Statistics and Probability Letter*. 2006. Vol. 77, no. 10, pp. 973-980.

Referred Conference Papers

Abbreviations below:

AMIA: American Medical Informatics Association Annual Symposium.
Allerton: Annual Allerton Conference on Communication, Control, and computing.
Asilomar: Annual Asilomar Conference on Signals, Systems, and Computers.
AISTATS: International Conference on Artificial Intelligence and Statistics.
CVPR: The Conference on Computer Vision and Pattern Recognition.
CAMSAP: International Workshop on Computational Advances in Multi-Sensor Adaptive Processing.
GlobalSIP: IEEE Global Conference on Signal and Information Processing.
ICASSP: IEEE International Conference on Acoustics, Speech and Signal Processing.
ICML: International Conference on Machine Learning.
ISIT: International Symposium on Information Theory.
ICLR: International Conference on Learning Representations.
NeurIPS: Advances on Neural Information Processing Systems.
SSP: IEEE Statistical Signal Processing Workshop.
ICLR: International Conference on Learning Representation.
KDD: ACM SIGKDD Conference on Knowledge Discovery and Data Mining.

[C92] Junghwan Lee, Chen Xu, Yao Xie. Flow-based conformal prediction for multi-dimensional time series. *ICLR* 2026. (Preliminary version presented at *NeurIPS 2025 MLxOR Workshop*.)

[C91] Dongze Wu, Feng Qiu, Yao Xie. DoFlow: Causal generative flows for interventional and counterfactual time-series prediction. *ICLR* 2026.

[C90] Jiajia Yu, Junghwan Lee, Yao Xie, Xiuyuan Cheng. High-dimensional mean-field games by particle-based flow matching. *ICLR* 2026. (Preliminary version presented at *NeurIPS 2025 Workshop the Frontiers of Optimization, Sampling, and Games*.)

[C89] Hanyang Jiang, Yao Xie, Feng Qiu. Spatio-temporal conformal prediction for power outage data. *ISIT* 2025.

[C88] Jie Wang, March Boedihardjo, Yao Xie. Statistical and computational guarantees of kernel max-sliced Wasserstein distances. *ICML* 2025.

[C87] Dongze Wu, Yao Xie. Annealing flow generative model towards sampling high-dimensional and multi-modal distributions. *ICML* 2025.

[C86] Jonghyeok Lee, Chen Xu, Yao Xie. Kernel-based optimally weighted conformal prediction intervals. *ICLR* 2025.

[C85] Jonathan Y. Zhou, Yao Xie. Nonlinear time-series embedding by monotone variational inequality. *ICLR* 2025. (Spotlight, top 5.1%.)

[C84] Vishal Purohit, Matthew Repasky, Jianfeng Lu, Qiang Qiu, Yao Xie, Xiuyuan Cheng. Posterior sampling via Langevin dynamics based on generative priors. *CVPR* 2025.

[C83] Chen Xu, Xiuyuan Cheng, Yao Xie. Computing high-dimensional optimal transport by flow neural networks. *AISTATS* 2025. Preliminary version presented at *NeurIPS 2023 Workshop Optimal Transport and Machine Learning*.

[C82] Chen Xu, Hanyang Jiang, Yao Xie. Conformal prediction for multi-dimensional time series by ellipsoidal sets. *ICML* 2024 (Spotlight, top 3.5%).

[C81] Jie Wang, Rui Gao, Yao Xie. Non-convex robust hypothesis testing using sinkhorn uncertainty sets. *ISIT* 2024.

[C80] Matthew Repasky, Xiuyuan Cheng, Yao Xie. Stage-Regularized Neural Stein Critics for Testing Goodness-of-Fit of Generative Models, *ICASSP* 2024.

[C79] Hanyang Jiang, Yao Xie. A graph-prediction-based approach for debiasing underreported data. *ICASSP* 2024.

[C78] Chen Xu, Xiuyuan Cheng, Yao Xie. Normalizing flow neural networks by JKO scheme. *NeurIPS* 2023. (Spotlight, top 3%.)

[C77] Yifan Hu, Jie Wang, Yao Xie, Andreas Krause, Daniel Kuhn. Contextual stochastic bilevel optimization. *NeurIPS* 2023.

[C76] Jie Wang, Talha Bozkus, Yao Xie, Urbashi Mitra. Reliable adaptive recoding for batched network coding with burst-noise channels. *Asilomar* 2023.

[C75] Henry Yuchi Shaowu, Matthew Repasky, Yao Xie. Streaming low-rank matrix data assimilation and change detection. *Asilomar* 2023.

[C74] Matthew Repasky, Yao Xie, Yichen Zhang, Feng Qiu, Power grid faults classification via low-rank tensor modeling. *Asilomar* 2023.

[C73] Song Wei, Yao Xie. Causal structural learning from time series: A convex optimization approach. *Asilomar* 2023.

[C72] Song Wei, Yao Xie, Christopher S. Josef, Rishikesan Kamaleswaran. Granger causal chain discovery for sepsis-associated derangements via multivariate Hawkes processes. *KDD* 2023. (Acceptance rate: 313/1416 = 22.1%)

[C71] Chen Xu, Yao Xie. Sequential predictive conformal inference for time series. *ICML* 2023. (Acceptance rate: 1827/6538 = 27.9%)

[C70] Junghwan Lee, Yao Xie, Xiuyuan Cheng. Training neural networks for sequential change-point detection. *ICASSP 2023*.

[C69] Zheng Dong, Xiuyuan Cheng, Yao Xie. Spatio-temporal point processes with deep non-stationary kernels. *ICLR 2023*.

[C68] Jefferey R. Smith Jr., Yao Xie, Christopher Josef, Rishikesan Kamaleswaran. Online critical-state detection of sepsis among ICU patients using Jensen-Shannon divergence. *AMIA 2022.* (First Place, Student Paper Competition).

[C67] Jie Wang, Ronald Moore, Rishikesan Kamaleswaran, Yao Xie. Improving sepsis prediction model generalization with optimal transport. *Machine Learning for Heath (ML4H) Symposium*, 2022.

[C66] Rui Zhang, Rui Yao, Yao Xie, and Feng Qiu. Online detection of a cascade of multiple change-points. *Allerton* 2022.

[C65] Shixiang Zhu, Liyan Xie, Minghe Zhang, Rui Gao, and Yao Xie. Distributionally robust k-nearest neighbors. *NeurIPS* 2022.

[C64] Jie Wang, Yao Xie. A data-driven approach to robust hypothesis testing using sinkhorn uncertainty sets. *ISIT* 2022.

[C63] Jie Wang, Rui Gao, Yao Xie. Two-sample test with kernel projected Wasserstein distance. *AISTATS* 2022. (Oral, top 44/1685 = 2.6%.)

[C62] Shixiang Zhu, Haoyun Wang, Xiuyuan Cheng, Yao Xie. Neural spectral marked point processes. *ICLR 2022*. (Acceptance rate 1095/3391 = 32.3%.)

[C61] Khurram Yamin, Matthew Oswald, Yao Xie, Ellen Zegura, and Dima Nazzal. A density based clustering approach to detect election anomalies. *ACM Conference on Computing Systems and Sustainable Societies (COMPASS 2022).*

[C60] Xiuyuan Cheng, and Yao Xie. Neural tangent kernel maximum mean discrepancy. *NeurIPS* 2021.

[C59] Song Wei, Yao Xie, Dobromir Rahnev. Inferring serial correlation with dynamic backgrounds. *ICML* 2021. (Long presentation, top 3%).

[C58] Chen Xu and Yao Xie. Conformal prediction interval for dynamic time-series. *ICML* 2021. (Long Presentation, Top 3%).

[C57] Song Wei, Shixiang Zhu, Minghe Zhang, and Yao Xie. Goodness-of-fit test for mismatched self-exciting process models. *AISTATS*, 2021.

[C56] Shixiang Zhu, Minghe Zhang, Ruyi Ding, and Yao Xie. Deep attention point processes with neural spectrum Fourier kernel. *AISTATS*, 2021. (Oral, Top 3%.)

[C55] Haoyun Wang, Liyan Xie, Alexander Cuozzo, Simon Mak, and Yao Xie. Uncertainty quantification for inferring Hawkes networks. *NeurIPS*, 2020.

[C54] Shuang Li, Lu Wang, Ruizhi Zhang, Xiaofu Chang, Xuqin Liu, Yao Xie, Yuan Qi, and Le Song. Temporal logic point processes. *ICML*, 2020.

[C53] Shixiang Zhu, Henry Yuchi Shaowu, and Yao Xie. Adversarial anomaly detection for marked spatio-temporal streaming data. (Invited.) *ICASSP*, 2020.

[C52] Minghe Zhang, Liyan Xie, and Yao Xie. Online community detection by spectral CUSUM. *ICASSP* 2020.

[C51] Zheng Dong, Yifei Yang, and Yao Xie. Sequential vessel trajectory identification using truncated Viterbi algorithm. *ICASSP*, 2020.

[C50] Xiangru Huang, Zhenxiao Liang, Xiaowei Zhou, Yao Xie, Leonidas J. Guibas, Qixing Huang. Learning transformation synchronization. *CVPR* 2019.

[C49] Yang Cao, Zheng Wen, Branislav Kveton, and Yao Xie. Nearly optimal adaptive procedure for piecewise-stationary bandit: A change-point detection approach. *AISTATS* 2019.

[C48] Liyan Xie, Yao Xie, and George V. Moustakides. Asynchronous multi-sensor change-point detection for seismic tremors. *ISIT* 2019.

[C47] Rui Zhang, Alexander Shapiro, and Yao Xie. Statistical rank selection for incomplete low-rank matrices. *ICASSP* 2019. (Best Paper Award.)

[C46] Shixiang Zhu, and Yao Xie. Crime event embedding with unsupervised feature selection. *ICASSP* 2019.

[C45] Danye Xu, Bingqing Song, Yao Xie, Sin-Mei Wu, Fan-Chi Lin, and WenZhan Song. Low-rank matrix completion for distributed ambient noise imaging systems. *Asilomar* 2019.

[C44] Qinghua Liu, Rui Zhang, and Yao Xie. Distributed change detection based on average consensus. Chapter in *Springer Proceedings in Mathematics and Statistics*. October. 2019.

[C43] Rui Gao, Liyan Xie, Yao Xie, and Huan Xu. Robust hypothesis testing using Wasserstein uncertainty sets. *NeurIPS*, 2018. (Spotlight, top 3%.)

[C42] Shuang Li, Shuai Xiao, Shixiang Zhu, Nan Du, Yao Xie, and Le Song. Learning temporal point processes via reinforcement learning. *NeurIPS*, 2018. (Spotlight, top 3%.)

[C41] Yang Cao, Liyan Xie, Yao Xie, and Huan Xu. On near optimality of one-sample update for joint detection and estimation. *AISTATS*, 2018.

[C40] Simon Mak, and Yao Xie. Maximum entropy low-rank matrix recovery. *ISIT*, 2018.

[C39] Liyan Xie, George Moustakides, and Yao Xie. First-order optimal sequential subspace change-point detection. *GlobalSIP*, 2018.

[C38] Liyan Xie, Yao Xie, Sin-Mei Wu, Fan-Chi Lin, WenZhan Song. Communication efficient signal detection for distributed ambient noise imaging. *Asilomar*, 2018.

[C37] Xi He, Yao Xie, Sin-Mei Wu, Fan-Chi Lin. Sequential graph scanning statistic for change-point detection. *Asilomar*, 2018.

[C36] Shixiang Zhu, and Yao Xie. Crime incidence embedding via restricted Boltzmann machine. *ICASSP*, 2018.

[C35] Yang Cao, Shixiang Zhu, Yao Xie, Jordan Key, and Josh Kacher. Sequential adaptive detection for in-situ transmission emission microscopy (TEM). *ICASSP*, 2018.

[C34] Yang Cao, and Yao Xie. Robust sequential change-point detection by convex optimization. *ISIT*, 2017.

[C33] Liyan Xie, and Yao Xie. Sequential detection of low-rank changes using extreme eigenvalues. *CAMSAP*, 2017.

[C32] Maria Valero, Goutham Kamath, Jose Clemente, Fan-Chi Lin, Yao Xie, and WenZhan Song. Real-time ambient noise subsurface imaging in distributed sensor networks. The *3rd IEEE International Conference on Smart Computing (SMARTCOMP)*, 2017.

[C31] Tirza Routtenberg and Yao Xie. PMU-based online change-point detection of imbalance in three-phase power systems. *IEEE Innovative Smart Grid Technologies Conference (ISGT),* 2017.

[C30] Yao Xie and Lee Seversky. Sequential rank change detection. *Allerton*, 2016.

[C29] Shuang Li, Yang Cao, Christina Leamon, Yao Xie, Lei Shi, and WenZhan Song. Online seismic event picking via sequential change-point detection. *Allerton*, 2016.

[C28] Shanshan Cao, Yao Xie, and Yuxin Chen. Dynamic change-point detection using correlation networks. *Asilomar*, 2016.

[C27] Shuang Li, Yao Xie, Hanjun Dai, and Le song. M-statistics for kernel change-point detection. *NeuIPS*, 2015.

[C26] Ruiyang Song, Yao Xie, and Sebastian Pokutta. Sequential sensing with model mismatch. *ISIT*, 2015.

[C25] Yang Cao, and Yao Xie. Poisson matrix completion. *ISIT*, 2015.

[C24] Chengwei Zhou, Yujie Gu, WenZhan Song, Yao Xie, and Zhiguo Shi. Robust adaptive beamforming based on DOA support using decomposed coprime subarrays. *ICASSP*, 2015.

[C23] Yang Cao, and Yao Xie. Categorical matrix completion. *CAMSAP*, Cancun, Mexico, 2015.

[C22] Yao Xie, Meng Wang, and Andrew Thompson. Sketching for sequential change-point detection. *GlobalSIP*, 2015.

[C21] Yang Cao, and Yao Xie. Multi-sensor gradual change detection. *Allerton*, 2015.

[C20] Yang Cao, and Yao Xie. Fast algorithm for low-rank matrix recovery in Poisson noise. *GlobalSIP*, 2014.

[C19] Gabor Braun, Sebastian Pokutta, and Yao Xie. Info-Greedy sequential adaptive compressed sensing. *Allerton*, 2014. (Authors listed alphabetically).

[C18] Yao Xie, Yuejie Chi, and Robert Calderbank. Low-rank matrix recovery with Poisson noise. *GlobalSIP* 2013.

[C17] Yao Xie, and Rebecca Willett. Online logistic regression on manifolds. *ICASSP*, 2013.

[C16] Yao Xie, and David Siegmund. Spectrum opportunity detection with weak and correlated signals. *Asilomar*, 2012.

[C15] Yao Xie, Yonina Eldar, and Andrea Goldsmith. Reduced-dimension multiuser detection: detectors and performance guarantees. *IEEE International Conference on Communications (ICC),* 2012.

[C14] Yao Xie, Jiaji Huang, and Rebecca Willett. Multi-scale online tracking of manifolds. *SSP* 2012.

[C13] Yao Xie, Yuejie Chi, Lorne Applebaum, and Robert Calderbank. Compressive demodulation of mutually interfering signals. *SSP*, 2012.

[C12] Yao Xie, Yonina Eldar, and Andrea Goldsmith. Reduced-dimension multiuser detection. *Allerton*, 2010.

[C11] Yao Xie, and Andrea Goldsmith. Diversity-multiplexing-delay tradeoffs in MIMO multi-hop networks with ARQ. *ISIT*, 2010.

[C10] Yao Xie, Deniz Gunduz, and Andrea Goldsmith. Multihop MIMO relay networks with ARQ. *IEEE Globecom Telecommunications Conference, Communication Theory Symposium*, 2009.

[C9] Adam S. Wang, Yao Xie, and Norbert Pelc. Effects of the frequency content and spatial location of raw data errors on CT images. *Proceedings of SPIE*, 2008.

[C8] Yao Xie, Adam S. Wang, and Norbert Pelc. Lossy raw data compression in computed tomography with noise shaping to control image effects. *Proceedings of SPIE*, 2008.

[C7] Yao Xie, Jian Li, and James Ward. Adaptive weighting of signals via one matrix entity (AWESOME). *IEEE International Radar Conference*, 2007.

[C6] Yao Xie, Jian Li, Xiayu Zheng, and James Ward. Optimal array pattern synthesis via weight matrix. *ICASSP*, 2007. (Finalist, Best Student Paper Award.)

[C5] Yao Xie, Bin Guo, Jian Li, Geng Ku, and Lihong V. Wang. Adaptive and Robust Techniques (ART) for thermoacoustic and photoacoustic tomography. *Proceedings of SPIE*, 2007.

[C4] Yao Xie, Bin Guo, Jian Li, Geng Ku, and Lihong V. Wang. Adaptive and Robust Techniques (ART) in breast cancer detection. *Asilomar*, 2006.

[C3] Peter Stoica, Jian Li, and Yao Xie. On probing signal design for MIMO radar. *Asilomar*, 2006.

[C2] Yao Xie, Bin Guo, Jian Li, and Peter Stoica. On multi-static adaptive microwave imaging methods for early breast cancer detection. *ICASSP*, 2007.

[C1] Yao Xie, Bin Guo, Luzhou Xu, Jian Li, and Peter Stoica. Multi-static adaptive microwave imaging (MAMI) for early breast cancer detection. *Asilomar*, 2005. (First Place in Best Student Paper Competition.)

Preprints

1. Tinglong Dai, David Simchi-Levi, Michelle Xiao Wu, Yao Xie (alphabetical). Assured autonomy: How operations research powers and orchestrates generative AI systems. 2025. *arXiv:2512.23978.*
2. Xiuyuan Cheng, Yao Xie, Linglingzhi Zhu, Yunqin Zhu (alphabetical). Worst-case generation via minimax optimization in Wasserstein space. 2025. *arXiv:2512.08176*
3. Apoorva Narula, Yao Xie, Santanu Dey. Mixed integer programming for change-point detection. Preliminary version presented at *NeurIPS 2025 MLxOR Workshop*.
4. Anatoli Juditsky, Arkadi Nemirovski, Yao Xie, Chen Xu (alphabetical). Generalized generalized linear models: Convex estimation and online bounds. 2023. arXiv:2304.13793.
5. Jie Wang, Santanu S. Dey, Yao Xie. Variable selection for kernel two-sample tests. In Revision, *Journal of Machine Learning Research (JMLR)*, arXiv:2302.07415

Other Publications

1. "System informatics: From methodology to applications." Guest Editor's Introduction, *IEEE Intelligent Systems*, Vol. 30, No. 6, October 2015.
2. "Sequential, active, and reinforcement learning." Editorial, *IEEE Journal on Selected Areas in Information Theory (JSAIT)*, Vol. 2, No. 2, June 2021, pp. 492-493.

Presentations

Keynote Addresses and Plenary Lectures

1. Keynote Speaker, KDD Workshop on Mining and Learning from Time Series (MileTS) 2025.
2. Keynote Speaker, KDD Workshop on Temporal Graph Learning, 2025.
3. Keynote Speaker, 19th INFORMS Workshop on Data Mining and Decision Analytics, 2024.
4. Plenary Speaker at the 8th International Workshop in Sequential Methodologies (IWSM) 2024.
5. Keynote Speaker, 1st ACM SIGSPATIAL International Workshop on Spatiotemporal Causal Analysis (STCausal Workshop) 2024.
6. Tutorial at ISIT on "Theory and methods for deep generative models," July 2024.
7. Tutorial at ICASSP on “Deep generative model for inference,” April 2024.
8. Featured Speaker, Georgia Statistics Day, October 2022.
9. Plenary Lecture, IEEE East Asian School of Information Theory. August 2022.
10. Keynote Talk, Joint Graduate Student Workshop, DATA-INSPIRE TRIPOD Institute at Rutgers. March 2022.

Invited Conference and Workshop Presentations

1. Joint Mathematics Meetings (JMM), Special Session on Recent Trends of Stochastic Methods in Modern Generative AI. January 2026.
2. Workshop “Optimal transport: stochastics, projections, and applications”, the Fields Institute for Research in Mathematical Sciences, Toronto, Canada. November 2025.
3. Allerton Conference, September 2025.
4. Detecting Anomalous Structures in Stream Settings Workshop, Lancaster University, UK, 2025
5. International Conference on Continuous Optimization (ICCOPT), July 2025.
6. Summer Workshop in AI Science and Engineering at Lingnan University of Hong Kong, June 2025.
7. Workshop on Statistical Network Analysis and Beyond (SNAB 2025), June 2025.
8. 7th Conference on Discrete Optimization and Machine Learning, Kyoto, Japan, May 2025.
9. Artificial Intelligence Modeling, Analysis, and Control of Complex Systems Workshop, May 8-9, 2025, Columbus, OH.
10. Audio Imagination: NeurIPS 2024 Workshop on AI-Driven Speech, Music, and Sound Generation. December 2024.
11. Workshop on "Statistical machine learning for high dimensional data." Institute of Mathematical Sciences (IMS) at the National University of Singapore. May 2024.
12. DDSS Frontiers in Data Science Symposium, Princeton University. May 2024.
13. Workshop on “Women in Optimal Transport” at the University of British Columbia, Vancouver, Canada. April 2024.
14. 58th Annual Conference on Information Sciences and Systems (CISS). March 2024.
15. BIRS Workshop on “Optimal Transport and Distributional Robustness.” March 2024.
16. Statistics Empowering Data Science (SEEDS) Conference at the University of Southern California, January 2024.
17. 2023 IMS International Conference on Statistics and Data Science (ICSDS), Lisbon, Portugal. December 2023.
18. Symposium on Theoretical Statistics, Applied Statistics and Probability in Celebration of Tze Leung Lai, held by Stanford University. November 2023.
19. INFORMS invited talk in a session. October 2023.
20. Allerton Conference invited talk in a session. September 2023.

21. Joint Statistical Meetings (JSM) 2023, invited talk in the session “Best of AOAS.”
22. 64th International Statistical Institute (ISI), World Statistics Congress (WSC) 2023, in Session "On statistical learning through the lens of machine learning." Ottawa, Canada, July 2023.
23. 10th International Congress on Industrial and Applied Mathematics (ICIAM) Minisymposium on Optimization, Tokyo, Japan. July 2023.
24. ICSA International Conference, at the invited session "Recent progresses on change-point analysis", Hong Kong, China. July 2023.
25. International Workshop on Applied Probability (IWAP), Thessaloniki, Greece, July 2023.
26. Workshop on Change Point Analysis at the University of Warwick, UK. May 2023.
27. 7th London Symposium on Information Theory (LSIT), May 2023.
28. BIRS-IMAG scientific program on "Modern Statistical and Machine Learning Approaches for High-Dimensional Compound Spatial Extremes," Granada, Spain. May 2023.
29. 8th Workshop on Biostatistics and Bioinformatics, Atlanta, GA. May 2023.
30. National Institute of Statistical Sciences (NISS) Webinar on "Conformal Inference: Advancing the Boundaries of Machine Learning."
31. Information Theory and Applications (ITA) Workshop, February 2023.
32. Information Theory, and Data Science Workshop held at the Institute for Mathematical Science (IMS), National University of Singapore (NUS). January 2023.
33. Mini-symposium on “Geometric distances and robust data analysis” at the SIAM Data Science Conference, San Diego, September 2022.
34. Joint Statistical Meeting (JSM), August 2022. “The Best of AOAS” Session and the “Statistical Advances in Learning Large-Scale Networks from Massive Data Sets” Session, August 2022.
35. IFDS Workshop on Distributional Robustness in Data Science, at the University of Washington, August 2022.
36. ICML Workshop on Distribution-Free Uncertainty Quantification, July 2022.
37. Statistical Methods in Imaging (SMI) Conference, in the session "New statistical and machine learning methods for complex imaging data," May 2022.
38. Information Theory and Application (ITA) Workshop, May 2022.
39. Conference in Honor of David Siegmund's Contribution to Statistical Sciences at Stanford University, May 2022.
40. Monie A. Ferst Award Symposium, in honor of Professor Jeff Wu, November 2021.
41. INFORMS Session on “Optimization and Machine Learning”, Oct. 2021.
42. International Chinese Statistical Association (ICSA) Applied Statistics Symposium, September 2021.
43. IFDS-MADLab Workshop, sponsored by NSF Tripod Phase-II Institute, August 2021.
44. Bernoulli-IMS 10th World Congress in Probability and Statistics, July 2021.
45. Mathematical criminology and crime science, International Center for Mathematical Sciences (ICMS), July 2021.
46. Innovative Smart Grid Technologies Conference NA (ISGT NA), Artificial Intelligence/Machine Learning (AI/ML), January 2021.
47. Tsinghua-Berkeley Research Institute, Workshop on Data Science, Shen Zhen, China, December 2019.
48. SAMSI Deep Learning Workshop, Duke University, August 2019.
49. European Meeting of Statisticians (EMS), Palermo, Italy, July 2019.
50. 3rd International Conference on Econometrics and Statistics (EcoStat) Conference, Taichung, Taiwan, June 2019.
51. 2nd Symposium on Machine Learning in Science and Engineering (MLSE), Georgia Tech, June 2019.
52. BIRS Workshop on Mathematical Criminology and Security, in Banff, Alberta, Canada, March 2019.

53. 14th Workshop on Stochastic Models, Statistics, and their Application (SMSA), at TU Dresden, Germany, March 2019.
54. ITA Workshop, February 2019.
55. INFORMS Session on "Machine Learning in Manufacturing Informatics", November 2018.
56. The Most OM Workshop, Tsinghua University, China, June 2018.
57. The 9th International Workshop on Applied Probability (IWAP), Budapest, Hungary, June 2018.
58. The 40th Conference on Stochastic Processes and their Applications (SPA), Gothenburg, Sweden, June 2018.
59. The Workshop on "Forecasting from Complexity" at the Institute for Mathematics and its Applications (IMA), the University of Minnesota, April 2018.
60. The 52th Annual Conference on Information Sciences and Systems (CISS) March 2018.
61. The Information Theory and Applications Workshop (ITA), San Diego, CA, February 2018.
62. The 7th International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP), Curacao, December 2017.
63. The NSF Algorithm for Threat Detection (ATD) workshop, Arlington, VA, September 2017.
64. Statistical Learning Summer School, organized by the Chinese University of Hong Kong (CUHK), Shen Zhen, China, August 2017.
65. AFOSR Dynamic Data Driven Applications and Systems (DDDAS) Workshop, Cambridge, MA, June 2017.
66. The 6th International Workshop in Sequential Methodologies (IWSM), Rouen, France, June 2017.
67. Information Theory and Application (ITA) Workshop, San Diego, CA, February 2017.
68. IEEE COMPSAC 2016 Human Computing and Social Computing (HCSC) Symposium, Atlanta, GA, June 2016.
69. Symposium of International Chinese Statistical Association (ICSA), Atlanta, GA, June 2016.
70. The 50th Annual Conference on Information Sciences and Systems (CISS), Princeton University, March 2016.
71. Information Theory and Application Workshop (ITA), La Jolla, CA, February 2016.
72. The 5th International Workshop in Sequential Methodologies (IWSM), Columbia University, NYC, NY, June 2015.
73. Information Theory and Application Workshop (ITA), La Jolla, CA, February 2015.
74. Information Theory and Application Workshop (ITA), San Diego, SD, February 2013.
75. The 4th International Workshop in Sequential Methodologies (IWSM), Athens, GA, August 2013.
76. The 3rd International Workshop in Sequential Methodologies (IWSM), Stanford, CA, June 2011.

Invited Seminar Presentations

1. MIT Operations Research Center (ORC) Seminar, May 2026.
2. John Hopkins, Applied Mathematics and Statistics Seminar, March 2026.
3. EURO Online Seminar Series on Operational Research and Machine Learning, March 2026.
4. Columbia University, IEOR-DRO Seminar, March 2026.
5. University of Wisconsin-Madison, SILO Seminar, December 2025.
6. Virginia Tech, Department of Statistics, October 2025.
7. Duke University, Fuqua School of Business, Decision Sciences Group seminar, April 2025.
8. University of Houston, Department of Industrial and Systems Engineering, April 2025.
9. Boston University, Department of Mathematics & Statistics, March 2025.
10. One World Mathematics of INformation, Data, and Signals (1W-MINDS) Seminar, March 2025.
11. University of Pittsburgh, Industrial Engineering, February 2025.

12. University of Chicago, Booth School of Business, Econometrics and Statistics Colloquium, Dec. 2024.
13. Purdue University, Daniels School of Business, Nov. 2024.
14. Columbia University, Statistics Seminar, Oct. 2024.
15. University of Southern California (USC) Epstein Dept. of Industrial & Systems Engineering, Sept. 2024.
16. CORMSIS Seminar, University of Southampton, April 2024.
17. Distinguished Lecture Series at ORFE, Princeton University. February 2024.
18. Arizona State University, LIONS Seminar. School of Electrical, Computer, and Energy Engineering. February 2024.
19. Northwestern University Department of Industrial Engineering and Management Science (IEMS) seminar. November 2023.
20. New York University, Stern School of Business, statistics seminar. November 2023.
21. CUNY, Department of Mathematics and Statistics, Hunter College, CUNY. Applied Probability and Statistics Seminar. November 2023.
22. London School of Economics, statistics seminar. May 2023.
23. Northwestern University, Department of Statistics and Data Science seminar, April 2023.
24. Zuse Institute Berlin, seminar. April 2023.
25. Iowa State University, Department of Industrial & Manufacturing Systems Engineering seminar, March 2023.
26. North Carolina State University, Department of Industrial and Systems Engineering (ISE) Seminar, Oct. 2022.
27. Online seminar on spatial and spatio-temporal point processes. March 2022.
28. Cornell University, ORIE Colloquium, November 2021.
29. Auburn University, Data Science Seminar, August 2021.
30. Online Seminar on Mathematical Foundations of Data Science, July 2021.
31. Wireless Systems Lab Seminar, Stanford University, February 2021.
32. University of Wisconsin Madison, SILO Seminar, February 2021.
33. University of California, Davis, ECE Seminar, February 2021.
34. University of Pennsylvania, Wharton School of Business, Statistics Seminar, November 2020.
35. Carnegie Mellon University (CMU), Tepper School of Business, November 2020.
36. University of South Florida, Student Seminar, November 2020.
37. Duke University, Statistics Seminar, October 2020.
38. Center for Disease Control (CDC), Statistics Seminar, July 2020.
39. Rutgers University, Statistics Seminar, April 2020.
40. Rensselaer Polytechnic Institute, Mathematical Colloquium, November 2019.
41. Washington University in St. Louis, Department of Mathematics and Statistics, October 2019.
42. Carnegie Mellon University (CMU), Statistics Seminar, September 2019.
43. Princeton University, Electrical Engineering, May 2019.
44. Duke University, Statistics Seminar Series, April 2019.
45. University of Texas, Austin, WNCG Seminar Series, February 2019.
46. Kyoto University, Kyoto, Japan, July 2018.
47. University of Washington, Statistics Department, April 2018.
48. Stanford University, Department of Electrical Engineering, ISL Seminar, March 2018.
49. University of Michigan, Michigan Institute for Data Science (MIDAS), February 2017.
50. University of Illinois, Urbana-Champaign, Department of Electrical and Computer Engineering, SINE Seminar, February 2016.
51. University of Georgia, Statistics Department, Athens, GA, September 2015.
52. Chinese University of Hong Kong (CUHK), Computer Science Department, June 2015.
53. Chinese Academy of Sciences (CAS), June 2015.
54. Tsinghua University, Department of Electronic Engineering, Beijing, China, June 2015.

55. Clemson University, Statistics Department, SC, October 2013.
56. University of Georgia, Statistics Department, Athens, GA, September 2013.
57. Georgia State University, Atlanta, GA, September 2013.
58. Cornell University, Department of Electrical and Computer Engineering, May 2013.
59. Massachusetts Institute of Technology, CASIL Lab, July 2012.

Societal Impacts

On April 1, 2025, the Atlanta Police Department officially implemented a new patrol zone configuration for the City of Atlanta, developed in close collaboration with my research group at Georgia Tech ISyE. The redesign integrates data-driven optimization and statistical modeling, with a focus on neighborhood integrity, to improve alignment between patrol operations and community structure while maintaining operational efficiency.

My collaborative research with the Atlanta Police Department on data-driven patrol zone design and responsible use of analytics in public safety was discussed in national higher-education media, including coverage by Inside Higher Ed, in 2024, highlighting how universities can engage with law enforcement through transparent, research-driven, and community-aware approaches.

Our Police Beat Redesign for the City of South Fulton, Georgia, was approved by the city council and started the implementation in January 2020. I gave a presentation in front of the city council on January 14, 2020, to explain the redesign. More details, including media coverage (including Fox 5) can be found here https://www2.isye.gatech.edu/~yxie77/Police.html

Our Atlanta Police Department Beat Redesign was approved by the city council and implemented by the City of Atlanta on March 17, 2019. The project was covered by multiple news media, including WSB-TV and Atlanta Journal Constitution (AJC), and appeared as a cover story of Georgia Tech Whistle.

My research on crime correlation detection for the Atlanta Police Department received the "Smart 50" Award at the Smart Cities Connect and Expo in 2018. The Atlanta Police Department implemented our crime analysis algorithm on its AWARE system. APD plans to use our tool to adjust their future police zones. We showcase our crime analysis system at the City of Atlanta's "Experience the Smart City" event in Sept. 2017.

My research on ambient noise geophysical imaging systems is featured in a special report, "Signal processing opens new views on imaging," by John Edwards, in IEEE Signal Processing Magazine, Vol. 32, No. 5, pp. 8-18, 2015.

Grants and Contracts

1. Title: Cardiovascular physiologic phenotyping during sepsis resuscitation using a machine learning framework
   Agency/Company: American Heart Association
   Total Dollar Amount: $9,999
   Role: PI
   Period of Contract: 07/01/2025-06/30/2026

2. Title: Structure Discovery in Complex Dynamic Networks.
   Agency/Company: ONR

Total Dollar Amount: $200,000
Role: Co-PI.
Collaborators: Carey Priebe (PI at Johns Hopkins University)
Period of Contract: 07/01/2024-06/30/2027

3. Title: Pattern-driven shipment forecasting & optimization: Potentiality assessment
   Agency/Company: Michelin
   Total Dollar Amount: $175,323
   Role: Co-PI
   Collaborators: Benoit Montreuil (PI), Alan Erera
   Period of Contract: 04/01/2024-12/01/2024

4. Title: Collaborative Research: ATD: a-DMIT: a novel Distributed, MultI-channel, Topology-aware online monitoring framework of massive spatiotemporal data
   Agency/Company: NSF
   Total Dollar Amount: $100,000
   Role: PI.
   Collaborators: Simon Mak (PI at Duke)
   Period of Contract: 9/1/2023-8/30/2026

5. Title: Bridging statistical hypothesis tests and deep learning for reliability and computational efficiency.
   Agency: National Science Foundation (NSF), Division of Mathematical Sciences
   Total Dollar Amount: $1,100,000.
   Role: PI
   Collaborators: Xiuyuan Cheng (Co-PI), Mark Davenport (Co-PI), Guanghui Lan (Co-PI), Tuo Zhao (Co-PI).
   Period of Contract: 1/1/2022-12/31/2025

6. Title: Ethics and equity in developing artificial intelligence models for patients.
   Agency/Company: Emory Healthcare, Atlanta, GA.
   Total Dollar Amount: $103,224
   Role: PI.
   Collaborators: Andre Holder (PI at Emory), Rishi Kamaleswaran (Co-PI at Emory)
   Period of Contract: 9/1/2022-7/31/2024

7. Title: Sepsis physiomarkers for appropriate risk knowledge of monitored patients in ICU.
   Agency/Company: Emory Healthcare, Atlanta, GA
   Total Dollar Amount: $103,224
   Role: PI.
   Collaborators: Rishi Kamaleswaran (PI at Emory), Andre Holder (Co-PI at Emory)
   Period of Contract: 9/1/2022-7/31/2024

8. Title: Data-driven resiliency model and prediction for large-scale power grids facing wildfire.
   Agency: Argonne National Lab
   Total Dollar Amount: $100,000
   Role: PI
   Period of Contract: 3/1/2022-3/1/2024

9. Title: Atlanta police zone redistricting considering neighborhood integrity using big-data analytics and optimization.

Agency/Company: Atlanta Police Foundation (APF)
Total Dollar Amount: $51,606
Role: PI
Period of Contract: 7/1/2022-12/30/2023
Candidate's Share: 100% ($51,606)

10. Title: MFB: Novel graph neural networks to understand, predict, and design allosteric transcription factors
    Agency/Company: NSF
    Total Dollar Amount: $1,485,925.
    Role: Co-PI.
    Collaborators: Corey Wilson (PI), Matthew Realff (Co-PI)
    Period of Contract: 9/1/2022-8/31/2025

11. Title: Collaborative Research: IMR: MM-1A: MapQ: Mapping Quality of Coverage in Mobile Broadband Networks using Latent Gaussian Process Models
    Agency/Company: NSF
    Total Dollar Amount: $321,978
    Role: PI.
    Collaborators: Ellen Zagura (PI), Elizabeth Belding (Co-PI)
    Period of Contract: 7/1/2022-6/30/2025

12. Title of Project: Data-driven optimal police patrol zone districting and staffing.
    Agency/Company: NSF Division of Civil, Mechanical, and Manufacturing Innovation (CMMI)
    Total Dollar Amount: $540,877
    Role: Co-PI
    Period of Contract: 10/1/2020-9/30/2024

13. Title: AMPS: Sequential detection and prediction for solar situation awareness in power networks.
    Agency: National Science Foundation (NSF), Division of Mathematical Sciences
    Total Dollar Amount: $241,843
    Role: PI.
    Period of Contract: 8/1/2019-7/30/2022

14. Title: Predictive coating condition model for advanced asset management.
    Agency: SERDP (Strategic Environmental Research and Development Program)
    Total Dollar Amount: $2,500,000
    Role: PI at Georgia Tech.
    Period of Contract: 1/1/2020-9/30/2023

15. Title: Data-driven resiliency model and prediction for large-scale power grids in extreme conditions.
    Agency: Argonne National Lab
    Total Dollar Amount: 50,000
    Role: PI
    Period of Contract: 7/1/2021-6/30/2022

16. Title: Techniques to analyze and predict anomalous or erroneous situations in the supply chain and automatic adaption resulting from the analysis.

Agency: Cisco Research
Total Dollar Amount: 150,000
Role: Co-PI
Period of Contract: 9/1/2021-8/30/2022

17. Title: Demand planning optimization (including machine learning).
Agency: Cisco Research
Total Dollar Amount: 150,000
Role: Co-PI
Period of Contract: 9/1/2021-8/30/2022

18. Title: Real-time detection of fraudulent transactions.
Agency: Macy's Technology
Total Dollar Amount: $100,000
Role: PI
Period of Contract: 1/1/2019-12/30/2020

19. Title: Optimal police zone resign for the city of South Fulton using big-data analytics.
Agency: City of South Fulton
Total Dollar Amount: $50,000
Role: PI
Period of Contract: 4/15/2019-12/30/2019

20. Title: Scanning dynamic spatial-temporal discrete events for threat detection.
Agency: National Science Foundation (NSF), Division of Mathematical Sciences
Total Dollar Amount: $275,000
Role: PI
Period of Contract: 10/1/2018-9/30/2021

21. Title: Optimal police zone redistribution using statistical predictions with city growth factors.
Agency: Atlanta Police Foundation (APF)
Total Dollar Amount: $49,867
Role: PI
Period of Contract: 7/1/2018-2/30/2019

22. Title: CAREER: Quick detection for streaming data over dynamic networks.
Agency: National Science Foundation (NSF), Division of Computing and Communication Foundations (CCF).
Total Dollar Amount: $500,000
Role: PI
Period of Contract: 7/1/2017-6/30/2022

23. Title: CyberSEES: Type 2: Collaborative Research: Real-time ambient noise. seismic imaging for subsurface sustainability.
Agency: National Science Foundation (NSF), CCF, Division of Computing and Communication Foundations.
Total Dollar Amount: $1,200,000
Role: PI at Georgia Tech.
Period of Contract: 1/15/2015 – 12/31/2019

24. Title: Crime correlation detection from large-scale APD police report data.

Agency/Company: Atlanta Police Foundation
Total Dollar Amount: $150,000
Role: PI
Period of Contract: 7/1/2017-6/30/2018

25. Title: Multi-arm bandit in non-stationary setting.
Agency/Company: Adobe Research.
Total Dollar Amount: $10,000 (Gift Donation)
Role: PI
Period of Contract: 10/1/2017-9/1/2018

26. Title: Sensing complex networks for streaming inference.
Agency/Company: Visiting Faculty Research Program (VFRP), Air Force Research Lab (AFRL)
Total Dollar Amount: ~$9,000
Role: PI
Period of Contract: 5/9/2016 – 6/3/2016.

27. Title: NSF Student Travel Grant for the 10th ACM International Conference. on Underwater Networks and System (WUWNet'15)
Agency/Company: National Science Foundation, CNS, Division of Computer and Network Systems.
Total Dollar Amount: $10,000
Period of Contract: 10/1/2015 – 3/31/2016

28. Title: Workshop on decision analytics for dynamic policing.
Agency/Company: National Science Foundation, Operations Engineering.
Total Dollar Amount: $50,000
Collaborators: Victoria Chen (PI), Yuan Zhou, Burcu Keskin, James Brooks.
Period of Contract: 5/1/2019 – 6/30/2019

29. Title: Collaborative Research: IUCRC Preliminary Proposal Planning Grant Georgia Tech: Center for Digital Factory Innovations (CDFI).
Agency: National Science Foundation.
Total Dollar Amount: $20,000
Role: Co-PI.
Period of Contract: 06/01/2021-05/30/2022.

30. Title of Project: Smart vehicle distribution logistics
Agency/Company: Nissan
Total Dollar Amount: $357,055
Role: Co-PI
Period of Contract: 9/4/2020-9/30/2020

31. Title of the Project: Robust Process Monitoring for Critical-to-quality Sensor Data
Agency/Company: LG Electronics-PRI
Amount: $105,513.
Role: Co-PI
Period of Contract: 10/1/2019-9/31/2020
Collaborators: Seong-Hee Kim (PI)

32. Title of Project: Data-driven courier scheduling and management for express services
    Agency/Company: SF Express
    Total Dollar Amount: $529,889.93
    Role: Co-PI
    Period of Contract: 10/1/2017-9/30/2018
    Collaborator: Guanghui Lan (PI), Enlu Zhou (Co-PI), Alex Shapiro (Co-PI)

33. Title of Project: Combining statistical process control and optimization via simulation for robust sensor network design in the presence of sensor measurement error.
    Agency: National Science Foundation, Division of Civil, Mechanical, and Manufacturing Innovation (CMMI).
    Total Dollar Amount: $300,000
    Role: Co-PI
    Collaborators: Seong-Hee Kim (PI), Aral Mustafa (Co-PI)
    Period of Contract: 8/1/2015 – 7/31/2019

34. Title of Project: Dynamically responsive scanning diffraction for high-throughput analysis of phase assemblage in functional complex oxides.
    Agency/Company: Georgia Tech IMAT See Grant Award
    Total Dollar Amount: $20,000
    Role: Co-PI
    Collaborators: Josh Kacher, School of Material Science, Georgia Tech, and Mark Losego, School of Material Science, Georgia Tech.
    Period of Contract: 11/1/2016 – 6/30/2017

35. Title of Project: Sequential blood pressure change-point detection
    Agency/Company: George Family Foundation.
    Total Dollar Amount: $5,000
    Role: Co-PI
    Collaborators: Turgay Ayer (PI)
    Period of Contract: 8/1/2014 – 7/31/2015

Educational Activities

Students Mentoring

Graduated Ph.D. Students

1. Mr. Yang Cao, Ph.D. in Industrial Engineering (Statistics), Fall 2013-Summer 2018.
   Thesis: Poisson matrix completion and change-point detection.
   Placement post-graduation: Uber.

2. Ms. Shuang Li, Ph.D. in Industrial Engineering (Statistics). Fall 2014-Summer 2019.
   Co-advised with Le Song.
   Thesis: Statistical inference, modeling, and learning of point processes.
   Placement post-graduation: Postdoctoral Researcher at Harvard University, Statistics Department. September 2019.
   Currently: Tenure-Track Assistant Professor, Chinese University of Hong Kong (Shen Zhen).

3. Mr. Junzhuo Chen, Ph.D. in IE (Systems, Informatics and Control). Fall 2015-April 2019.
   Co-advised with Seong-Hee Kim.

Thesis: Spatial-temporal surveillance for environmental sensor networks.
Placement post-graduation: Uber.

4. Ms. Xi He, Ph.D. in Industrial Engineering (Statistics), Fall 2016-Summer 2020.
   Co-advised with Pinar Keskinocak.
   Thesis: Statistical detection and survival analysis in sensor networks and healthcare.
   Placement post-graduation: Amazon.

5. Mr. Rui Zhang, Ph.D. in Industrial Engineering (Statistics), Fall 2017-Spring 2021.
   Co-advised with Alexander Shapiro.
   Dissertation: Hypothesis test for manifold and networks.
   Placement post-graduation: Quantitative researcher at Morgan Stanley.

6. Ms. Liyan Xie, Ph.D. in Industrial Engineering (Statistics), Fall 2016- Summer 2021.
   Thesis: Robust statistical inference through the lens of optimization.
   Placement post-graduation: Tenure-Track Assistant Professor, Chinese University of Hong Kong (ShenZhen).
   Currently: Tenure-Track Assistant Professor at the University of Minnesota Twin Cities.

7. Mr. Shixiang Zhu, Ph.D. in Machine Learning (ISyE), Fall 2017-Spring 2022. (Expected graduation: Spring 2022.)
   Thesis: Statistical learning and decision-making for spatio-temporal data.
   Placement post-graduation: Tenure-Track Assistant Professor, Carnegie-Mellon University, Heinz School of Public Policy.

8. Mr. Shaowu (Henry) Yuchi, Ph.D. in Machine Learning (ISyE), Fall 2018-Spring 2023.
   Co-advised with C. F. Jeff Wu.
   Thesis: New Gaussian process modeling for low-rank and simulated data.
   Placement post-graduation: Research Scientist at Los Alamos National Lab.

9. Mr. Minghe Zhang, Ph.D. in Machine Learning (ISyE), Fall 2019-Spring 2023.
   Thesis: Statistical learning and change detection for dynamic networks.
   Placement post-graduation: Data Scientist at Byte Dance.
   Currently: Scientist at Meta.

10. Mr. Song Wei, Ph.D. in Machine Learning, Fall 2019-Spring 2024.
    Thesis: Change-point detection and causal inference for time series with applications in healthcare.
    Placement post-graduation: Data Scientist at Data Bricks.

11. Mr. Jefferey Smith, Ph.D. in Machine Learning, Fall 2021-Fall 2024.
    Thesis: Enhancing medical decision support systems for sepsis patients in the ICU: Real-time detection and algorithmic bias mitigation.
    Placement post-graduation: Assistant Professor at the Air Force Institute of Technology.

12. Ms. Haoyun Wang, Ph.D. in Industrial Engineering (Statistics), Fall 2019-Fall 2024.
    Thesis: Statistical estimation, uncertainty quantification, and detection for networked continuous-time Hawkes processes.
    Placement post-graduation: Quantitative researcher at Five Rings.

13. Mr. Zheng Dong, Ph.D. in Machine Learning, Spring 2021-Fall 2024.

Thesis: Thesis: Spatio-temporal event modeling through deep kernel-based point processes.
Placement post-graduation: Applied Scientist at Amazon.

14. Mr. Chen Xu, Ph.D. in Operations Research (OR), Fall 2020-Spring 2025.
    Thesis: Conformal prediction for time-series and flow-based generative models.
    Placement post-graduation: Researcher at Toyota Research Institute.

15. Mr. Matthew Repasky, Ph.D. in Machine Learning, Fall 2021-Spring 2025.
    Thesis: Deep learning for high-dimensional decision making and uncertainty quantification.
    Placement post-graduation: Senior Data Scientist at C3.ai.

16. Mr. Jie Wang, Ph.D. in Industrial Engineering (IE), Fall 2020-Spring 2025.
    Research: Reliable decision-making under uncertainty through the lens of statistics and optimization
    Placement post-graduation: Tenure-Track Assistant Professor at the Chinese University of Hong Kong (Shen Zhen).

17. Mr. Tingnan Gong, Ph.D. in Industrial Engineering (IE/Statistics), Spring 2021-Spring 2025.
    Research: Modeling and detection using high-dimensional time series data.
    Placement post-graduation: Hedge Fund Analyst

In Process Ph.D. Students

18. Mr. Hanyang Jiang. Ph.D. in Machine Learning, Fall 2022-present.
    Research: Mathematical foundations for active learning and uncertainty quantification.

19. Mr. Jay Lee. Ph.D. in Machine Learning, Fall 2022-present.
    Research: Health data analytics using statistical machine learning.

20. Mr. Jonghyeok Lee. Ph.D. in Operations Research, Fall 2023-present.
    Research: Conformal inference and change-point detection.

21. Mr. Dongze Wu. Ph.D. in Machine Learning, Fall 2024-present.
    Research: Flow-based generative models for statistical inference.

22. Mr. Yunqin Zhu. Ph.D. in Machine Learning, Fall 2024-present.
    Research: Modern statistical learning.

Postdoctoral Researcher

1. Dr. Linglingzhi Zhu.
   Postdoctoral Researcher (Fall 2024-)
   Ph.D. in Operations Research, Chinese University of Hong Kong (CUHK).

Master Students

1. Mr. Qingbin Li, Master in Computer Science and Engineering.
   Graduated in Spring 2015.
   Thesis: Online sufficient dimension reduction for high-dimensional time series.

2. Mr. David Marangoni-Simonsen
   Non-thesis Master in Statistics. Graduated Spring 2015.
   Project: sequential changepoint approach for online community detection.

3. Mr. Ruyi Ding, Master in Electrical and Computer Engineering.
   Graduated in Summer 2020.
   Thesis: Statistical modeling for highway traffic sensor data.

4. Ms. Le Lu, Master in Operations Research.
   Graduated in Summer 2020.
   Thesis: Data-driven police zone design for City of South Fulton.

5. Ms. Heejune Sheen. Non-Thesis Master in Statistics. Graduate in Fall 2021.
   Worked on a paper "Tensor kernel recovery for spatio-temporal Hawkes processes."

Undergraduate Students

1. Giuliano Grilli Tissot. ISyE. (2023—2024)
2. Lasya Akshara, ISyE. (2023—2024)
   President's Undergraduate Research Salary Award (PURA), 2023.
3. Mingxiao Song, Computer Science. (2023—2024)
   President's Undergraduate Research Salary Award (PURA), 2023.
4. Jonathan Zhou, Computer Science. (2021-present)
   President's Undergraduate Research Salary Award (PURA), 2021.
5. Khurram Yamin, ISyE. (2021-2023)
   President's Undergraduate Research Salary Award (PURA), 2021.
6. Alexander Bukharin, ISyE. (2019-2021).
   President's Undergraduate Research Salary Award (PURA), 2020.
   College of Engineering Outstanding Undergraduate Research Award, 2020.
   Currently Ph.D. in Machine Learning student at Georgia Tech.
7. Matthew Repasky, Physics. (2019-2021).
   President's Undergraduate Research Salary Award (PURA), 2021.
   Currently Ph.D. in Machine Learning student at Georgia Tech.
8. Kiran Gite, ISyE. (2019)
9. Yuvaneshwar Murugesan, ISyE and CS, Georgia Tech. (2018)
10. Joshua Gundugollu, ISyE and CS, Georgia Tech. (2018)
11. Swapnil Lad, ISyE, Georgia Tech. (2018)
12. Anunoy S. Dussa, CS, Georgia Tech. (2018)
13. Yijun (Emma) Wan, ISyE, Georgia Tech. (2018)
14. Ge Gao, AE. (2016-2017)
15. Shannon Gerhard, ISyE. (2017)
16. Christina Leamon, ISyE. (2016)

Educational Outreach Activities

1. Present an INFORMS Data Mining Webinar on "Generative models for statistical inference," February 2024.

2. Serve on a panel about “Technology and AI for Medicine” to high school students at Gwinnett School of Mathematics, Science, and Technology, Lawrenceville, GA. November 2023.

3. Talk at Midtown High School Visit by Georgia Tech on “Optimization 101.” October 2023.

4. Gave a research talk to train faculty participants of Clark Atlanta University, a Historically Black College and University (HBCU). June 2022.

5. Taught a session to ISyE Mission Possible, a summer camp for high school students, June 2022.

6. Gave a short course on "Introduction to Machine Learning and Statistical Modeling" to Center for Disease Control (CDC), Statistical Advisory Group, July 2021.

7. Serve as a founding Faculty Advisor for the Women in Technology (WIT) program at Georgia Tech since Fall 2020.

8. Participate in the Women in Technology (WIT) mentor program https://mywit.org/wit-girls-mentoring-program/, which is a program to mentor high school girls interested in STEM. Through the program, I mentored a high-school girl (Ms. Tamilore Dairo at Gwinnett School of Mathematics, Science and Technology) from August to December 2020.

9. Developed and taught a new course for the Online Masters in Analytics Program OMSA-6740, “Computational Data Analysis.” Since launching in Fall 2019, the course has been successful, and it has been taken by more than 2000 students. I received over 30 Thank-a-Teacher Notes from students in this class.

10. Co-organizing Foundation of Data Science (FDS) Summer School, sponsored by NSF TRIPODS Institutes at the Georgia Institute of Technology, August 2019. The audience includes about 30 graduate student participants from different universities in the U.S.

11. Gave a short course on "Introduction to Bayesian statistics" to participating graduate students at the 2nd Symposium on Machine Learning in Science and Engineering (MLSE), held at Georgia Tech in 2019.

12. Develop and offer a special topic course on statistical and probabilistic methods for data science in the Fall of 2017. The course covers state-of-the-art probabilistic modeling and statistical inference techniques, which are very important in machine learning and big-data analysis. The course filled the gap and satisfied the teaching need at Georgia Tech for a more in-depth course focusing on the more theoretical aspect of machine learning. The course was taken by 12 students from multiple departments, including ISyE, Civil Engineering, and Biomedical Engineering. The course was well-received, and I am a Thank-a-Teacher Recipient from CTL that year.

13. Supervise SURE undergraduate research program (including one African American student), Summer 2016, 2018.

14. Strengthened and improved ISyE 2028 Basic Statistical Methods to include a new course component, a project on “big data analytics.” The project component requires students to collect their data from their daily life and perform analysis using statistical inference techniques they

learned in class. This enhances students' understanding of statistics and helps them to connect statistics to their everyday life. The new component was highly rated by students.

15. Offered a session "How computers detect human faces" for Georgia Tech, ISyE Mission Possible program, a summer outreach program for high school students, June 2017 and June 2019. This component was well-received by students, which connects machine learning algorithms to what the students understand in their daily life.

16. Offered a guest lecture about machine learning for middle schoolers at the Atlanta International School, during the Atlanta Science Festival, March 2017.

Service

Society Offices, Activities, and Membership

1. Senior Member, IEEE, since 2024.
2. Elected Member of the IEEE SAM (Sensor Array and Multichannel) Technical Committee, 2019-2025.
3. Elected Member of the IEEE Machine Learning and Signal Processing (MLSP) Technical Committee (TPC), 2015-2018, and also served on the MLSP Award Committee, 2018.
4. Program Committee for IJCAI 2023 Workshop AI4TS: AI for time series analysis: Theory, Algorithms, and Applications.
5. Organize two INFORMS Sessions 2022, 2023, 2024, 2025.
6. Member of INFORMS, IISE, IEEE Signal Processing Society, IEEE Information Theory Society, and American Statistical Association (ASA).
7. Area Chair, ICML, ICLR, and NeurIPS.
8. Senior Program Committee: AAAI 2024.

Synergistic Activities

1. Organizer, Workshop on "Modern Perspectives on Change-Point and Anomaly Detection: High-Dimensional, Structured, and Non-Stationary Data" (with Hao Chen, Paul Fearnhead, Claudia Kirch, and Zhou Zhou), Banff International Research Station (BIRS), Banff, Canada, June 13–18, 2027.
2. Technical Program Committee (TPC) Co-Chair, Information Theory Workshop (ITW) 2026.
3. Co-organizing NeurIPS 2025 Workshop on "ML x OR: Mathematical Foundations and Operational Integration of Machine Learning for Uncertainty-Aware Decision-Making."
4. INFORMS 2025 organizing committee: Tutorial Chair.
5. National Academy of Engineering (NAE) 2025 Regional Meeting organizing committee.
6. Advisory Board for Detecting Anomalous Structure in Streaming data settings (DASS) program, since 2024, which brings together researchers from four of the UK's leading universities in statistics: Lancaster University, the London School of Economics and Political Science, the University of Bristol and the University of Warwick.
7. ISIT 2025 TPC Awards Subcommittee.
8. Program Co-Chair for Georgia Tech GenAI Summit, 2024, hosted by Georgia Tech IDEAS.
9. Organize a Special Session at CISS held by Princeton University on "Advances in sequential analysis and change-point detection" and "Theory and methods for robust learning," March 2024.
10. Serve on a panel at Emory AI Health Symposium. November 2023.
11. Serve on Panel "Foundational Topics in AI" at SAIL conference, October 2023.
12. Serve on a Panel "Starting academic career for new and prospective QSR faculty" at INFORMS 2023.

13. Present at the NSF/NSTC CAREER Panel at ISIT in Taipei to explain the impact of the NSF CAREER Award on young researchers and students. July 2023.
14. Organize a Special Session at CISS (virtual) held by Princeton University on "Recent advances in sequential analysis and hypothesis test," March 2022.
15. Reviewer for the National Research and Development Agency (ANID) of the Ministry of Science, Technology, Knowledge and Innovation of Chile, Nov. 2021.
16. Area Chair, NeurIPS 2021, 2022, 2023.
17. Co-organizing Machine Learning /AI Cluster at INFORMS, 2020.
18. Leading Organizing Committee. Georgia Statistics Day, 2019.
19. Co-organizing Workshop on Decision Analytics for Dynamic Policing in Arlington, Virginia, May 2019.
20. Organizing Committee. Georgia Statistics Day, 2018.
21. Technical Program Committee (TPC). The 26th European Signal Processing Conference (EUSIPCO), Rome, Italy, 2018.
22. Technical Program Committee (TPC). SSP, 2018.
23. Program Committee Member. Association for the Advancement of Artificial Intelligence (AAAI), the 32nd Conference on Artificial Intelligence, 2018.
24. Program Committee Member. IEEE International Workshop on Machine Learning for Signal Processing (MLSP), Tokyo, Japan, 2017.
25. Program Committee (PC) member. AISTATS, 2017.
26. Technical Program Committee. CAMSAP, 2017.
27. Organized a special session on “Sequential methods for high-dimensional structured signals” at ICASSP, New Orleans, USA, 2017.
28. Technical Program Committee (TPC). IEEE GlobalSIP, Washington, D.C., 2016.
29. Technical Program Committee (TPC). Workshop for Signal Processing for Big Data in Wireless Networks in IEEE Globecom Washington, D.C., 2016.
30. Session Chair. ICSA Applied Statistics Symposium, Atlanta, GA, 2016.
31. Technical Program Committee (TPC). IEEE Global Communications Conference: Workshops: Signal Processing for Big Data in Wireless Networks, 2015.
32. Technical Program Committee (TPC). The 22nd IEEE International Conference on Image Processing (ICIP), 2015.
33. Technical Program Committee (TPC). The 6th IEEE CAMSAP Conference, December 2015.
34. Session Chair. Asilomar, October 2015.
35. Finance Chair. The 10th ACM International Conference on Underwater Networks and Systems, 2015, Washington DC.
36. Social Media and SigView Chair. GlobalSIP, 2015, Orlando, FL.
37. Session Organizer. Modeling and Optimization: Theory and Application (MOPTA), Lehigh University, Special Session on “Information and Optimization”, 2014.
38. Organized the “Information Processing for Big Data Symposium” at GlobalSIP, December 2014, Atlanta, GA.
39. Session Chair. Asilomar, 2013.
40. Session Chair. Asilomar, 2012.
41. Session Chair. IEEE Statistical Signal Processing Workshop (SSP), August 2012.
42. Session Chair. The 3rd International Workshop in Sequential Methodologies (IWSM), June 2011.

Technical Journal or Conference Referee Activities

ICASSP, IEEE Proceedings, Neural Information Processing Systems (NeuIPS), International Conference on Machine Learning (ICML), International Conference on Learning Theory (ICLR), International Conference on Artificial Intelligence and Statistics (AISTATS), IEEE International

Conference on Image Processing (ICIP), IEEE Statistical Signal Processing Workshop (SSP), 2016, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), IEEE Global Conference on Signal and Information Processing (GlobalSIP), International Symposium on Information Theory (ISIT).

IIE Transactions, Journal of the Royal Statistical Society (JRSS), Annals of Statistics, Statistic Sinica, Technometrics, Computational Statistics and Data Analysis, IEEE Journal on Selected Topics in Signal Processing, IEEE Transactions on Pattern Recognition and Machine Intelligence, IEEE Transactions on Information Theory, IEEE Transactions on Signal Processing, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Aerospace and Electronic Systems, IEEE Signal Processing Letter, ACM Transactions on Intelligent Systems and Technology.