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# Keith D. Levin

## Research Interests

Statistical methods for network data; high-dimensional statistics; concentration inequalities; randomized linear algebra; streaming and sketching algorithms; Bayesian nonparametrics; applications to neuroscience and speech recognition.

## Education

- 2017 **Ph.D., Computer Science**, Johns Hopkins University, Baltimore, MD.  
*Thesis: Graph Inference with Applications to Low-Resource Audio Search and Indexing*, under supervision of Professors Carey E. Priebe (JHU Applied Mathematics and Statistics), Vincent Lyzinski (University of Maryland Mathematics and Statistics) and Ben Van Durme (JHU Computer Science)
- 2016 **M.S.E., Computer Science**, Johns Hopkins University, Baltimore, MD.
- 2011 **B.S., Linguistics & Psychology**, Northeastern University, Boston, MA.

## Positions

- 2020–Present **Assistant Professor**, University of Wisconsin–Madison Department of Statistics, Madison, WI.
- 2017–2020 **Postdoctoral Research Fellow**, University of Michigan Department of Statistics, Ann Arbor, MI.  
Statistical methods for analyzing multiple networks, supervised by Elizaveta Levina.
- 2017 **Postdoctoral Researcher**, Johns Hopkins University Department of Applied Mathematics and Statistics, Baltimore, MD.  
Network inference: theory, methods and applications, supervised by Carey E. Priebe.
- 2012–2017 **Graduate Student**, Johns Hopkins University Department of Computer Science, Baltimore, MD.  
Ph.D. research on applying graph inference techniques to large-scale search problems in speech recognition. Additional research on streaming clustering algorithms.
- 2010–2012 **Avoke Caller Experience Analyst**, Raytheon BBN Technologies, Cambridge, MA.  
Compiled and analyzed call center data; prototyped topic models for call categorization; prototyped keyword spotting system for event detection.
- 2007–2011 **Research Assistant**, Sentence Processing Laboratory, Department of Psychology, Northeastern University, Boston, MA.  
Ran experiments, designed experimental stimuli, gathered and processed experimental data.

2009–2011 **Research Assistant**, Speech Perception Laboratory, Department of Psychology, Northeastern University, Boston, MA.  
Maintained laboratory equipment and records.

## Peer-reviewed Publications

K. Levin and E. Levina. Bootstrapping networks with latent space structure. *Electronic Journal of Statistics*, 19(1):745–791, 2025.

H. Yan and K. Levin. Improved dependence on coherence in eigenvector and eigenvalue estimation error bounds. *28th International Conference on Artificial Intelligence and Statistics*, 2025.

H. Yan and K. Levin. Coherence-free entrywise estimation of eigenvectors in low-rank signal-plus-noise matrix models. In *Proc. NeurIPS*, 2025.

M. Fredrickson A. Hayes and K. Levin. Estimating network-mediated causal effects via spectral embeddings. *Journal of Machine Learning*, 26(13):1–99, 2025.

J. Kruse, S. Gao, Y. Ji, K. Levin, Q. Huang, and K. R. Mayer. Identifying rich clubs in spatiotemporal interaction networks. *Annals of the American Association of Geographers*, 115(4):899–922, 2025.

K. Levin and B. Betancourt. Fast generation of exchangeable sequences of clusters data. *Statistics and Computing*, 34(2), 2024.

K. Levin, A. Lodhia, and E. Levina. Recovering shared structure from multiple networks with unknown edge distributions. *Journal of Machine Learning*, 23(3):1–48, 2022.

A. Lodhia, K. Levin, and E. Levina. Matrix means and a novel high-dimensional shrinkage phenomenon. *Bernoulli*, 28(4):2578–2605, 2022.

K. Levin, F. Roosta, M. Tang, M. W. Mahoney, and C. E. Priebe. Limit theorems for out-of-sample extensions of the adjacency and Laplacian spectral embeddings. *Journal of Machine Learning Research*, 22(194):1–59, 2021.

V. Braverman, H. Lang, K. Levin, and Y. Rudoy. Metric  $k$ -median clustering in insertion-only streams. *Discrete Applied Mathematics*, 304:164–180, 2021.

C. M. Le, K. Levin, P. J. Bickel, and E. Levina. Comment: Ridge regression and regularization of large matrices. *Technometrics*, 62(4):443–446, 2020.

J. Yoder, L. Chen, H. Pao, E. Bridgeford, K. Levin, D. E. Fishkind, C. E. Priebe, and V. Lyzinski. Vertex nomination: The canonical sampling and the extended spectral nomination schemes. *Computational Statistics and Data Analysis*, 145:106916, 2020.

J. T. Vogelstein, E. W. Bridgeford, B. D. Pedigo, J. Chung, K. Levin, B. Mensh, and C. E. Priebe. Connectal coding: discovering the structures linking cognitive phenotypes to individual histories. *Current Opinion in Neurobiology*, 55:199–212, 2019.

- V. Lyzinski, K. Levin, and C. E. Priebe. On consistent vertex nomination schemes. *Journal of Machine Learning Research*, 20(69):1–39, 2019.
- C. M. Le, K. Levin, and E. Levina. Estimating a network from multiple noisy realizations. *Electronic Journal of Statistics*, 12(2):4697–4740, 2018.
- K. Levin, F. Roosta, M. W. Mahoney, and C. E. Priebe. Out-of-sample extension of graph adjacency spectral embedding. In *Proceedings of the International Conference on Machine Learning*, Stockholm, Sweden, 2018.
- A. Athreya, D. E. Fishkind, K. Levin, V. Lyzinski, Y. Park, Y. Qin, D. L. Sussman, M. Tang, J. T. Vogelstein, and C. E. Priebe. Statistical inference on random dot product graphs: a survey. *Journal of Machine Learning Research*, 18(226):1–92, 2018.
- K. Levin and V. Lyzinski. Laplacian eigenmaps from sparse, noisy similarity measurements. *IEEE Transactions on Signal Processing*, 65(8):1988–2003, 2017.
- S. Settle, K. Levin, H. Kamper, and K. Livescu. Query-by-example search with discriminative neural acoustic word embeddings. In *Proceedings of INTERSPEECH*, Stockholm, Sweden, 2017.
- V. Lyzinski, K. Levin, D. E. Fishkind, and C. E. Priebe. On the consistency of the likelihood maximization vertex nomination scheme: Bridging the gap between maximum likelihood estimation and graph matching. *Journal of Machine Learning Research*, 17(179):1–34, 2016.
- V. Braverman, H. Lang, K. Levin, and M. Monemizadeh. Clustering problems on sliding windows. In *Proceedings of the ACM-SIAM Symposium on Discrete Algorithms*, Arlington, VA, USA, 2016.
- V. Braverman, H. Lang, K. Levin, and M. Monemizadeh. Clustering on sliding windows in polylogarithmic space. In *Proceedings of the 35th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science*, Bangalore, India, 2015.
- K. Levin, A. Jansen, and B. van Durme. Segmental acoustic indexing for zero resource keyword search. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing*, Brisbane, Australia, 2015.
- K. Levin, K. Henry, A. Jansen, and K. Livescu. Fixed-dimensional acoustic embeddings of variable-length segments in low-resource settings. In *Proceedings of the IEEE Automatic Speech Recognition and Understanding Workshop*, Olomouc, Czech Republic, 2013.
- A. Jansen, E. Dupoux, S. Goldwater, M. Johnson, S. Khudanpur, K. Church, N. Feldman, H. Hermansky, F. Metze, R. Rose, M. Seltzer, P. Clark, I. McGraw, B. Varadarajan, E. Bennett, B. Borschinger, J. Chiu, E. Dunbar, A. Fourtassi, D. Harwath, C. Lee, K. Levin, A. Norouzi, V. Peddinti, R. Richardson, T. Schatz, and S. Thomas. A summary of the 2012 CLSP workshop on zero resource speech

technologies and models of early language acquisition. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing*, Vancouver, Canada, 2013.

## Preprints and Manuscripts

K. Levin. Spectral embeddings of correlation networks. *In preparation*, 2025+.

A. Fuchs-Kreiss and K. Levin. Testing for correlation between network structure and high-dimensional node covariates. *Under review; arXiv:2509.03772*, 2025+.

A. Hayes and K. Levin. Peer effects in the linear-in-means model may be inestimable even when identified. *Under review; arXiv:2410.10772*, 2025+.

H. Yan and K. Levin. Estimating multiple weighted networks with node-sparse differences and shared low-rank structure. *Under review; arXiv:2506.15915*, 2025+.

H. Yan and K. Levin. Minimax rates for estimation in low-rank network models. *Under review, arXiv:2307.01942*, 2025+.

N. Aviles and K. Levin. Asymptotic behavior of exchangeable sequences of clusters models under heavy-tailed cluster size distributions. *In preparation*, 2025+.

R. Taing and K. Levin. Consistent spectral embeddings under dimension misspecification. *In preparation*, 2025+.

K. Levin and Y. Zhang. Asymptotic behavior of average shortest path length under the graphon. *In preparation*, 2025+.

D. Kessler, K. Levin, and E. Levina. Prediction of network covariates using edge and node attributes. *Under review, arXiv:2210.17519*, 2024+.

C. E. Priebe, Y. Park, K. Levin, E. Levina, and Y. Qin. Bootstrapping network data: Conditional versus marginal approaches. *In preparation*, 2025+.

C. E. Priebe, K. Levin and V. Lyzinski. On the role of features in vertex nomination: Content and context together are better (sometimes). *Journal of Machine Learning, to appear; arXiv:2005.02151*, 2025+.

K. Levin, A. Athreya, M. Tang, C. E. Priebe, and V. Lyzinski. A central limit theorem for the omnibus embedding. *Under review, arXiv:1705.09355*, 2017.

## Teaching Experience

Fall 2025 **Instructor**, STAT310: Introduction to Probability and Mathematical Statistics II, University of Wisconsin, Department of Statistics.  
Undergraduate introduction to statistical modeling and analysis.

Spring 2025 **Instructor**, STAT606: Computing for Data Science and Statistics, University of Wisconsin, Department of Statistics.  
Graduate-level survey of Python for data science.

- Fall 2024 **Instructor**, STAT310: Introduction to Probability and Mathematical Statistics II, University of Wisconsin, Department of Statistics.  
Undergraduate introduction to statistical modeling and analysis.
- Summer 2024 **Instructor**, Introduction to Statistical Network Analysis, Instituto de Matemática Pura e Aplicada (IMPA) Summer School on Randomness and Learning in Networks, IMPA, Rio de Janeiro, Brazil.  
One-week graduate-level workshop introducing basic concepts in statistical network analysis, aimed at beginner graduate students in mathematics.
- Spring 2024 **Instructor**, STAT606: Computing for Data Science and Statistics, University of Wisconsin, Department of Statistics.  
Graduate-level survey of Python for data science.
- Fall 2023 **Instructor**, STAT310: Introduction to Probability and Mathematical Statistics II, University of Wisconsin, Department of Statistics.  
Undergraduate introduction to statistical modeling and analysis.
- Spring 2023 **Instructor**, STAT606: Computing for Data Science and Statistics, University of Wisconsin, Department of Statistics.  
Graduate-level survey of Python for data science.
- Fall 2022 **Instructor**, STAT340: Introduction to Data Modeling II, University of Wisconsin, Department of Statistics.  
Undergraduate introduction to statistical modeling and analysis.
- Spring 2022 **Instructor**, STAT679: Computing for Data Science and Statistics, University of Wisconsin, Department of Statistics.  
Graduate-level survey of Python for data science.
- Fall 2021 **Instructor**, STAT340: Introduction to Data Modeling II, University of Wisconsin, Department of Statistics.  
Undergraduate introduction to statistical modeling and analysis.
- Spring 2021 **Instructor**, STAT679: Computing for Data Science and Statistics, University of Wisconsin, Department of Statistics.  
Graduate-level survey of Python for data science.
- Fall 2020 **Instructor**, STAT605: Data Science Computing Project, University of Wisconsin, Department of Statistics.  
Graduate-level introduction to computing for data analysis.
- Fall 2019 **Instructor**, STATS426: Introduction to Theoretical Statistics, University of Michigan, Department of Statistics.  
Upper-level undergraduate course on mathematical statistics.
- 2017-2019 (4 times) **Instructor**, STATS507: Data Analysis using Python, University of Michigan, Department of Statistics.  
Masters/Ph.D.-level survey of tools for large-scale data analysis in the Python ecosystem.
- 2016 (twice) **Teaching Assistant**, EN 550.430: Introduction to Statistics, Johns Hopkins University, Department of Applied Mathematics and Statistics.  
Upper-level undergraduate/first-year graduate course on mathematical statistics.

Spring 2014 **Teaching Assistant**, EN 600.363/463: Introduction to Algorithms, Johns Hopkins University, Department of Computer Science.  
Upper-level undergraduate/first-year graduate course on analysis of algorithms.

## █ Presentations

- November 2025 **El Zoominario Español, Invited Talk**, Redes: la Ciencia de Sistemas Interconectados.
- October 2025 **University of Iowa Department of Biostatistics, Department Seminar, Invited Talk**, Peer effects in the linear-in-means model may be inestimable even when identified.
- August 2025 **International Conference on Econometrics and Statistics (EcoSta), Invited Talk**, Spectral Embeddings of Correlation Networks.
- August 2025 **Joint Statistical Meetings, Contributed Talk**, Spectral Embeddings of Correlation Networks.
- June 2025 **International Indian Statistical Association (IISA) Conference, Invited Talk**, Coherence-free Entrywise Estimation of Eigenvectors in Low-rank Signal-plus-noise Matrix Models.
- April 2025 **SLMath (formerly MSRI) Workshop on Detection, Estimation, and Reconstruction in Networks, Invited Talk**, Coherence-free Entrywise Estimation of Eigenvectors in Low-rank Signal-plus-noise Matrix Models.
- March 2025 **Levina-Zhu Research Group, University of Michigan**, Spectral Embeddings of Correlation Networks.
- March 2025 **University of Waterloo Department of Statistics and Actuarial Science, Department Seminar, Invited Talk**, Peer effects in the linear-in-means model may be inestimable even when identified.
- March 2025 **University of Wisconsin–Madison Institute for Foundations of Data Science Seminar**, Spectral Embeddings of Correlation Networks.
- March 2025 **Johns Hopkins University Applied Math and Statistics Department Seminar, Invited Talk**, Peer effects in the linear-in-means model may be inestimable even when identified.
- December 2024 **International Indian Statistical Association (IISA) Conference, Invited Talk**, Asymptotic failure of peer effects in network regression models.
- December 2024 **IMS International Conference on Statistics and Data Science (ICSIDS), Invited Talk**, Asymptotic failure of peer effects in network regression models.
- December 2024 **International Conference of the Computational and Financial Economics Working Group on Computational and Mathematical Statistics (CMStatistics), Invited Talk**, Asymptotic failure of peer effects in network regression models.
- October 2024 **ASA Conference on Statistical Learning and Data Science, Invited Talk**, Coherence-free Entrywise Estimation of Eigenvectors in Low-rank Signal-plus-noise Matrix Models.
- October 2024 **University of Minnesota School of Statistics, Department Seminar**, Asymptotic failure of peer effects in network regression models.

- August 2024 **Banff International Research Station Workshop on Causal Inference and Prediction for Network Data, Invited Talk**, Expository Lecture: Introduction to Peer Effects and Causal Inference.
- August 2024 **Joint Statistical Meetings, Invited Talk**, Asymptotic non-identification of peer effects in network regression models.
- July 2024 **Leipzig University Seminar of Statistical Learning and Probability**, Asymptotic non-identification of peer effects in network regression models.
- June 2024 **Workshop on Statistical Network Analysis and Beyond, Invited Talk**, Estimating network-mediated causal effects via spectral embeddings.
- June 2024 **Annual Meeting of the Western North American Region of the International Biometric Society, Invited Talk**, Estimating network-mediated causal effects via spectral embeddings.
- April 2024 **University of Maryland Department of Mathematics, Statistics Seminar**, Asymptotic non-identification of peer effects in network regression models.
- March 2024 **University of Southern California Department of Statistics, Department Seminar**, Estimating network-mediated causal effects via spectral embeddings.
- February 2024 **University of Maryland Department of Mathematics, Statistics Research Interaction Team Seminar**, Estimating network-mediated causal effects via spectral embeddings.
- December 2023 **IMS International Conference on Statistics and Data Science (ICSIDS), Invited Talk**, Estimating network-mediated causal effects via spectral embeddings.
- December 2023 **International Conference of the Computational and Financial Economics Working Group on Computational and Mathematical Statistics (CMStatistics), Invited Talk**, Estimating network-mediated causal effects via spectral embeddings.
- November 2023 **University of Wisconsin-Madison Department of Statistics, Department Seminar**, Estimating network-mediated causal effects via spectral embeddings.
- November 2023 **Washington University at St. Louis Department of Statistics, Department Seminar**, Estimating network-mediated causal effects via spectral embeddings.
- October 2023 **Statistical Inference on Networks and High-Dimensional Data Workshop, Invited Talk**, Minimax Rates for Low-rank Network Models.
- August 2023 **International Conference on Econometrics and Statistics (EcoSta), Invited Talk**, Estimating network-mediated causal effects via spectral embeddings.
- June 2023 **International Indian Statistical Association (IISA) Conference, Invited Talk**, Estimating network-mediated causal effects via spectral embeddings.
- February 2023 **Texas A&M University Department of Statistics, Department Seminar**, Estimating network-mediated causal effects via spectral embeddings.
- December 2022 **International Conference of the Computational and Financial Economics Working Group on Computational and Mathematical Statistics (CMStatistics), Invited Talk**, Bootstrapping Network Data: Conditional versus Marginal Distributions.

- November 2022 **Leipzig University Seminar of Statistical Learning and Probability/Dynamical Systems**, Bootstrapping Network Data: Conditional versus Marginal Distributions.
- October 2022 **Bayesian Nonparametrics, Contributed Talk**, Fast Generation of Exchangeable Sequence of Clusters Data.
- August 2022 **Joint Statistical Meetings, Contributed Talk**, Bootstrapping Network Data: Conditional versus Marginal Distributions.
- July 2022 **Levina/Zhu Research Group, University of Michigan, Invited Talk**, Bootstrapping Network Data: Conditional versus Marginal Distributions.
- July 2022 **International Chinese Statistical Association China Conference, Invited Talk**, Bootstrapping Network Data: Conditional versus Marginal Distributions.
- June 2022 **Annual Meeting of the Western North American Region of the International Biometric Society, Invited Talk**, Bootstrapping Network Data: Conditional versus Marginal Distributions.
- June 2022 **International Conference on Econometrics and Statistics (EcoSta), Invited Talk**, Limit theorems for out-of-sample extensions of spectral graph embeddings.
- May 2022 **New England Statistics Symposium, Invited Talk**, Limit theorems for out-of-sample extensions of spectral graph embeddings.
- April 2022 **University of Delaware Department of Applied Economics and Statistics, Statistics Seminar**, Averaging Connectomes: Beyond the Arithmetic Mean.
- March 2022 **University of Florida Department of Statistics, Department Seminar**, Averaging Connectomes: Beyond the Arithmetic Mean.
- December 2021 **University of Pittsburgh Department of Statistics, Department Seminar**, Averaging Connectomes: Beyond the Arithmetic Mean.
- November 2021 **University of Wisconsin-Madison SILO Seminar**, Averaging Connectomes: Beyond the Arithmetic Mean.
- April 2021 **University of Wisconsin-Madison Probability Seminar**, Network Embeddings and Latent Space Models.
- April 2021 **Ohio State University Department of Statistics Seminar Series**, Averaging Connectomes: Beyond the Arithmetic Mean.
- March 2021 **International Biometric Society Eastern North American Region Spring Meeting, Invited Talk**, Averaging Connectomes: Beyond the Arithmetic Mean.
- December 2020 **International Conference of the Computational and Financial Economics Working Group on Computational and Mathematical Statistics (CMStatistics), Invited Talk**, Estimation and bootstrapping for collections of low-rank networks.
- July 2020 **University of Maryland College Park Department of Mathematics, Networks Seminar**, Bootstrapping networks with latent space structure.
- May 2020 **SIAM Conference on Mathematics of Data Science Minisymposium on Machine Learning on Data with Low Dimensional Structures, Invited Talk (canceled due to COVID-19)**, Bootstrapping networks with latent space structure.
- January 2020 **University of Wisconsin-Madison Department of Statistics, Department Seminar**, Bootstrapping networks with latent space structure.

- January 2020 **Boston University Department of Mathematics & Statistics, Department Seminar**, Bootstrapping networks with latent space structure.
- January 2020 **McGill University Department of Mathematics and Statistics, Department Seminar**, Bootstrapping networks with latent space structure.
- January 2020 **Cornell University Department of Statistics and Data Science, Department Seminar**, Bootstrapping networks with latent space structure.
- January 2020 **McMaster University Department of Mathematics and Statistics, Department Seminar**, Bootstrapping networks with latent space structure.
- January 2020 **University of Notre Dame Department of Applied and Computational Mathematics and Statistics, Department Seminar**, Bootstrapping networks with latent space structure.
- December 2019 **University of New Hampshire Department of Mathematics Department Seminar**, Bootstrapping networks with latent space structure.
- December 2019 **University of Massachusetts Amherst, Department of Mathematics and Statistics, Department Seminar**, Bootstrapping networks with latent space structure.
- September 2019 **George Mason University Department of Statistics, Department Seminar**, Limit theorems for out-of-sample extensions of spectral graph embeddings.
- September 2019 **University of Maryland College Park Department of Mathematics, Statistics Seminar**, Limit theorems for out-of-sample extensions of spectral graph embeddings.
- July 2019 **Joint Statistical Meetings, Invited Talk**, Matrix means for network estimation with applications to fMRI data.
- July 2019 **New Researchers Conference**, Bootstrapping networks with latent space structure.
- May 2019 **NetSci Statistical Inference in Network Models**, Testing treatment effects on network topology.
- May 2019 **New England Statistics Symposium, Invited Talk**, Bootstrapping networks with latent space structure.
- March 2019 **University of Michigan Complex Systems Seminar**, Recovering low-rank structure from multiple networks with unknown edge distributions.
- September 2018 **Mahoney Lab, University of California, Berkeley, Invited Talk**, Out-of-sample extensions for spectral embeddings of graphs.
- July 2018 **Joint Statistical Meetings, Contributed Talk**, Inferring low-rank population structure from multiple network samples.
- February 2018 **Boston University Department of Mathematics and Statistics, Statistics and Probability Seminar**, Joint embedding of multiple random dot product graphs.
- November 2017 **IEEE International Conference on Data Mining, Data-Driven Discovery of Models Workshop**, A central limit theorem for an omnibus embedding of random dot product graphs.
- June 2017 **MIT Lincoln Laboratory, Artificial Intelligence Technology and Systems Group, Invited Talk**, Recent advances in vertex nomination.
- May 2017 **Mahoney Lab, University of California, Berkeley, Invited Talk**, Recent advances in vertex nomination.

- May 2017 **Levina/Zhu Research Group, University of Michigan, Invited Talk**, Laplacian eigenmaps from sparse, noisy similarity measurements.
- November 2015 **Johns Hopkins University Department of Applied Mathematics and Statistics, Student Seminar**, Laplacian eigenmaps with noisy kernels.
- October 2014 **Johns Hopkins University Center for Language and Speech Processing, Student Seminar**, Low-resource fixed-dimensional embeddings of variable-length speech audio segments.
- October 2013 **Mid-Atlantic Student Colloquium on Speech, Language and Learning**, Toward faster audio search using context-dependent hashing.

## █ Awards and Memberships

- 2025-present **Affiliate**, Data Science Institute.
- 2025 **Best Student Paper Award (Senior Author)**, JSM Business and Economic Statistics Section.
- 2024-2025 **American Family Funding Initiative Grant**, Interpretable causal inference for multimodal and relational data, \$99,826.
- 2024 **Domestic Travel Award**, UW-Madison Office of the Vice Chancellor for Research and Graduate Education.
- 2023 **International Travel Award**, UW-Madison Office of the Vice Chancellor for Research and Graduate Education.
- 2021-2024 **NSF Grant**, FRG: Collaborative Research: Flexible Network Inference, NSF DMS 2052632, \$200,000.
- 2021-2022 **MTLE Fellow**, Madison Teaching and Learning Excellence.
- 2022 **Domestic Travel Award**, UW-Madison Office of the Vice Chancellor for Research and Graduate Education.
- 2013 **Best Student Paper**, IEEE Automatic Speech Recognition and Understanding Workshop.
- Member**, American Statistical Association.
- Member**, Institute of Mathematical Statistics.
- Member**, Bernoulli Society.
- Member**, Association for Computing Machinery.
- Member**, Institute of Electrical and Electronics Engineers.

## █ Conferences and Workshops Organized

- 2024 **Organizer**, Invited session: Frontiers in statistical network analysis, International Conference of the Computational and Financial Economics Working Group on Computational and Mathematical Statistics (CMStatistics).
- 2024 **Member of Program Committee; Organizer**, Invited session: Recent advances in statistical network analysis, ASA Conference on Statistical Learning and Data Science.

- 2024 **Organizer**, Invited session: Advances in statistical network analysis, International Conference on Econometrics and Statistics (EcoSta).
- 2023 **Organizer**, Invited session: Foundations of statistical network analysis, International Conference of the Computational and Financial Economics Working Group on Computational and Mathematical Statistics (CMStatistics).
- 2023 **Organizer**, Invited session: Statistical network analysis III, International Conference on Econometrics and Statistics (EcoSta).
- 2022 **Organizer**, Invited session: Advances in statistical network analysis, International Conference of the Computational and Financial Economics Working Group on Computational and Mathematical Statistics (CMStatistics).
- 2021 **Organizer**, Low-rank models in multiple-network analysis, Satellite Workshop of Networks 2021.

## Professional Service

- 2016-present Reviewer: the Annals of Statistics (2018,2021,2025), the Annals of Applied Statistics (2020), Bernoulli (2022), Biometrika (2020,2021,2025), Journal of the American Statistical Association (2023,2023,2024,2024,2024,2025,2025), Journal of Machine Learning Research (2020,2022,2022,2023,2024), NeurIPS (2020), NeurIPS Workshop: Your Model is Wrong (2021), International Conference on Machine Learning (2019), Journal of the Royal Statistical Society Series B (2020,2020,2021), IEEE Transactions on Pattern Analysis and Machine Intelligence (2016,2021,2021,2022), Electronic Journal of Statistics (2020,2021,2022,2024), Journal of Computational and Graphical Statistics (2018,2021,2024,2025), Statistica Sinica (2025), SIAM Journal on Matrix Analysis and Applications (2023), ACM-SIAM Symposium on Discrete Algorithms (2018), Machine Learning (2017), Pattern Recognition Letters (2017), Complex Networks (2018), Sociological Methods and Research (2024), the R Journal (2019), Multivariate Behavioral Research (2016), Royal Society Proceedings A (2020), Political Analysis (2025), Taylor & Francis (Textbook Review; 2023)
- 2025-present Journal of Machine Learning Research Editorial Board of Reviewers
- 2021-present University of Wisconsin Department of Statistics Computing Committee
- 2020-present University of Wisconsin Department of Statistics MS Exam Committee
- 2020-present University of Wisconsin Department of Statistics Seminar Committee
- 2021-present Organizer: University of Wisconsin Junior Faculty Happy Hour
- 2019 Organizer: University of Michigan Department of Statistics Fall Preview Day
- 2015–2017 Johns Hopkins University Center for Language and Speech Processing Faculty Liason
- 2014–2016 Johns Hopkins University Computer Science Ph.D. Admissions Committee

## Mentoring

- 2023-present Mentoring PhD student project on asymptotics of microclustering models.
- 2023-present Mentoring PhD student project on applying network causal analysis methods to international relations data.

- 2023-present Mentoring PhD student project on applying statistical network analysis methods to astronomy data.
- 2022-present Mentoring PhD student project on effects of model misspecification in network embeddings.
- 2022-present Mentoring PhD student working on estimation in latent space network models and network mixed effects models.
- 2023-present Mentoring PhD student project on bootstrapping weighted network data.
- 2022-2023 Mentored masters-level student project on degree distribution of random spanning trees.
- 2021-2025 Mentored PhD student project on network mediation and contagion in causal inference.
- 2020-2024 Mentored PhD student project on hierarchical stochastic blockmodels.
- 2021-2022 Mentored masters-level student project on behavior of random walks in randomly generated networks.
- 2021-2022 Mentored masters-level student project on extreme values of degree distributions in network data.
- 2021-2022 Mentor for WISCERS, mentoring undergraduate in project on networks and basic reproductive number.
- 2019-2020 Oversaw two undergraduate statistics students in analyzing neuroscientific data from a study on addiction in a rat model.
- 2019-2020 Oversaw undergraduate data science project collecting and analyzing spatio-temporal data on locations and ownership structure of payday loan companies.
- 2018-2019 Oversaw two undergraduate statistics students in analyzing neuroscientific data from a study on addiction in a rat model.
- 2017-2019 Mentored early-career domestic graduate student in project on network regression with application to schizophrenia fMRI data.
- 2018-2019 Oversaw undergraduate statistics student class project to predict schizophrenia diagnoses from fMRI data.

## ■■■■■ Computing Skills

**Programming languages:** C/C++, Python, R, MATLAB, LISP, Julia, Java.

**High-performance computing:** HTCondor, Slurm, Hadoop MapReduce, Apache Spark, OpenMP, Message Passing Interface, Google TensorFlow, Keras, PyTorch.

## ■■■■■ Languages

Native fluency in English; Limited working proficiency in Spanish and French; Elementary proficiency in Yiddish, German, Hebrew, Russian and Portuguese

## ■■■■■ Personal

United States citizen.