Benjamin Leinwand

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CURRENT POSITION

Assistant Professor, Department of Mathematical Sciences, 2022 - Present

Schaefer School of Engineering & Science

Stevens Institute of Technology, Hoboken, NJ

EDUCATION

University of North Carolina at Chapel Hill, Chapel Hill, NC

Ph.D., Statistics and Operations Research, 2017 – 2022

M.S., Statistics and Operations Research, 2017 – 2021

Advisors: Vladas Pipiras, Guorong Wu

Dissertation: Novel statistical methods for modeling brain and other dense, weighted networks.

Cornell University, Ithaca, NY

M.P.S., Applied Statistics, 2013

Advisor: David Matteson

B.A., Double Major in Statistical Science and Economics, 2009 – 2013

RESEARCH INTERESTS

Networks (simple; temporal; dense weighted; bipartite; multilayer; conditionally dependent), Machine Learning

Applications to: Neuroscience, Recommender Systems, Disease Transmission, Urban Data, Economics/Finance, Sports, Politics, Health

PUBLICATIONS

7. Leinwand, B., Lyzinski, V. (2025+) ACRONYM: Augmented degree corrected, Community Reticulated Organized Network Yielding Model. *To appear in Journal of Computational and Graphical Statistics* [Link]

6. Leinwand, B. and Pipiras, V. (2024) Augmented degree correction for bipartite networks with applications to recommender systems. *Applied Network Science* 9, 19 [Link]

5. Baek, C., **Leinwand, B.**, Lindquist, K. A., Jeong, S., Hopfinger, J., Gates K., and Pipiras, V. (2023) Detecting Changes in Correlation Networks with Application to Functional Connectivity of fMRI Data. *Psychometrika.* [Link] with accompanying R package detectR

4. Leinwand, B. and Pipiras, V. (2022) Block dense weighted networks with augmented degree correction. *Network Science*, 10(3), 301-321. [Link]

3. Leinwand, B., Ge, P., Kulkarni, V. and Smith, R. (2021), Winning an election, not a popularity contest. *Significance*, 18: 24-29. [Link]

2. Baek, C., Gates K., **Leinwand, B.**, and Pipiras, V. (2021) Two sample tests for high-dimensional autocovariances. *Computational Statistics & Data Analysis*: 107067. [Link]

1. Leinwand, B., Wu, G., and Pipiras, V. (2020) Characterizing frequency-selective network vulnerability for Alzheimers Disease by identifying critical harmonic patterns. *IEEE International Symposium on Biomedical Imaging.* [Link]

IN PREPARATION	**8.** Albrecht, K., **Leinwand, B.**, Mucha, P., Campbell, A., Zheng, F., Network Community Detection to Measure Policy Implementation Capacity: Top-Down vs. Bottom-Up Implementation in Public Safety Networks.

DIALOGUES	**9.** Dialogue with Sevryn Napora on the subject of passion. Published in *Palaver: The Stevens Journal*, April 2023.

ADVISING	**PhD**	Neil Hwang (started Fall 2023) Topic: Causal Inference Leveraging Sparse Networks
	Masters Thesis	Devashri Chauhan (co-advised with Hadi Safari Katesari, 2025), Topic: Empirical Analysis on Jump Statistics For Clustering of a Set of Univariate Scalar Time Series
	Masters	48 current students

PROJECT ADVISING	2023 - 2024	J. Caroppo, J. Richter, Z. Hack, Undergraduate Honors Program, *Wearables and Quality of Life.* Sponsored by Bristol Myers Squibb
	Spring 2023	L. Yin, Undergraduate Honors Program, *Solow Model on Graphs*
	2023	M. Murray, Independent Study, *Analysis of Greatests of All Time*

COURSE DEVELOPMENT	Summer 2025	Co-developed graduate course: *Statistical Foundation for Data Science*
	Spring 2025	Co-developed graduate courses: *Bayesian Modeling and Reasoning* and *Data Science Capstone Project*
	Fall 2022	Designed and proposed graduate course: *Statistical Network Analysis*

SERVICE	2025 – 2026	**New York City Metro Area Chapter of the American Statistical Association**, Vice President

- Conducted survey of membership, analyzed responses of 43 members to guide chapter priorities, and publicized findings in *Amstat News*

- Organized Happy Hour in March 2025

- Member of Organizing Committee for AI Workshop on July 20, 2025. The workshop hosted 125 participants consisting of 90 paying attendees and 35 volunteers/speakers.

June 2025	**Session Chair, Quality and Productivity Research Conference,** *Networks and High Dimensional Data Analysis*
2024 – 2025	**Benefits Advisory Committee**
2024	**Working Group on School of Engineering & Science Core AI Graduate Curriculum**, faculty member representing the Department of Mathematical Sciences
2023 – 2024	**Department of Mathematical Sciences Faculty Hiring Committee**
2023 – 2024	**Data Science M.S. Program Committee**, determined course eligibility in the Data Science curriculum
2023	**School of Engineering and Science Dean's Faculty Advisory Council,** representing the Department of Mathematical Sciences
August 2023	**First Year Read Program** Facilitator
March 2023	**External interviewer** for faculty candidate in Computer Science
August 2022	**Session Chair, Joint Statistical Meetings,** *Exploring the Impact of Air Pollution on Alzheimer's Disease and Other Indicators of Dementia*

2019 – 2021   **UNC STOR** Graduate Student Liaison

- Established and edited student run website for current and prospective students
- Conducted survey of STOR graduate students for ways to update the graduate programs, leading to department reorganizing program structure and first year courses
- Organized first STOR Faculty Roundtable and wrote all questions for faculty
- Organized and moderated first STOR Graduate Student Roundtable
- Spoke to students, faculty, and alumni about improving the graduate experience
- Compiled instructor feedback resulting in a new graduate course in Effective Pedagogy
- Persuaded faculty to allow a rotating student to speak before each faculty meeting
- Started monthly "tea time" for students and faculty to mingle in an informal setting
- Elected as Graduate and Professional Student Federation senator for 2019 – 2020
- Hosted a town hall to inform students about GPSF resources available to them
- Founding president of BIOSTOR, an organization created to facilitate camaraderie between the STOR Department and the Biostatistics Department including joint student seminars, hikes, and happy hours

2021   **ICM, Consortium for Mathematics and Its Applications** Triage Judge

2019 – 2020   **UNC STOR** Visit Day Coordinator

- Managed logistics for finding visitors lodging and transportation
- Assisted in planning visit day activities
- Advised accepted students about visiting UNC and choosing a graduate program

PROFESSIONAL DEVELOPMENT	August 2024	24th Meeting of New Researchers in Statistics and Probability. Corvallis, OR.
	June 2023	2023 MPS Workshop for New Investigators. NSF MPS, Alexandria, VA.
	Spring 2023	School of Engineering & Science Academic Teaching and Mentoring (ATEAM) Program. Hoboken, NJ.

TEACHING	Spring 2025	Intermediate Statistics *Instructor*, 30 students
	Fall 2024	Intermediate Statistics *Instructor*, 31 students Time Series Analysis I (Master's Level) *Instructor*, 45 students
	Spring 2024	Statistical Network Analysis (Master's Level) *Instructor*, 7 students
	Fall 2023	Intermediate Statistics *Instructor*, 35 students Introduction to Probability Theory (Master's Level) *Instructor*, 64 students
	Spring 2023	Introduction to Probability Theory (Master's Level) *Instructor*, 45 students
	Fall 2022	Introduction to Probability Theory (Master's Level) *Instructor*, 83 students
	Fall 2021	Data Models and Inference *Instructor*, 49 students
	Fall 2020	Data Science for COVID-19 *Co-Instructor*, 101 students
	Spring 2020	Data Models and Inference *Instructor*, 45 students
	Fall 2018	Methods of Data Analysis *Instructional Assistant*
	Spring 2018	Data Models and Inference *Instructional Assistant*
	Fall 2017	Data Models and Inference *Instructional Assistant*

PRESENTATIONS

23. CITE-ME: Controlling for Induced Triangles in Estimating Network Model Evolution. Invited Presentation. Networks and High Dimensional Data Analysis, Quality and Productivity Research Conference, Seattle, Washington, June 2025.

22. ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model. Prob/Stat Seminar, Department of Mathematics, Drexel University. Philadephia, PA, January 2025.

21. Augmented degree correction for bipartite networks with applications to recommender systems. Invited presentation, Recent advances in networks and high dimensional data, Joint Conference on Computational and Financial Econometrics and Computational and Methodological Statistics, London, England, December 2024.

20. Augmented Degree Correction: Brains, Recommendations, Twitter, and Covid-19. Seminar Series in Applied Math and Data Science, Department of Mathematical Science, University of Indianapolis (Virtual). Indianapolis, IN, November 2024.

19. ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model. Seminar, Department of Information Systems and Statistics, Baruch College. New York, NY, October 2024.

18. ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model. Seminar, Department of Physics, Stevens Institute of Technology. Hoboken, NJ, September 2024.

17. ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model. Flash Talk, 24th Meeting of New Researchers in Statistics and Probability. Corvallis, OR, August 2024.

16. Likelihoods of Weight Loss or: ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model. Invited presentation, Advances in Statistical Network analysis, The 7th International Conference on Econometrics and Statistics (Virtual). Beijing, China, July 2024.

15. Likelihoods of Weight Loss or: ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model. Invited presentation, Network Science 1, Joint Research Conference on Statistics in Quality, Industry and Technology, Waterloo, Ontario, June 2024.

14. ACRONYM: Augmented degree corrected, Community Reticulated Organized Network Yielding Model. RIT on Statistics Seminar, Department of Mathematics, University of Maryland, College Park MD, May 2024.

13. Block Dense Weighted Networks with Augmented Degree Correction. Invited Presentation, The 16th International Conference on Brain Informatics, Hoboken, NJ, August 2023.

12. Block Dense Weighted Networks with Augmented Degree Correction. Keynote or Plenary, The International Workshop on The Intersection of Artificial Intelligence and Human Intelligence, Hoboken, NJ, August 2023.

11. Augmented degree correction for binary networks. Seminar, Algebra and Cryptology Center, Stevens Institute of Technology, Hoboken, NJ, October 2022.

10. Block dense weighted networks with augmented degree correction. Invited presentation, Common challenges and new solutions with network data, New England Statistics Symposium, Storrs, CT, May 2022.

9. Blind men and the elephant: a multilayer network of government agreements in Iowa. Seminar, Networks & Governance Lab, University of Illinois Chicago, Chicago, IL, April 2022.

8. Blind men and the elephant: a multilayer network of government agreements in Iowa. Seminar on Network Analysis at Carolina, Chapel Hill, NC, April 2022.

7. Block dense weighted networks with augmented degree correction. Seminar, UNC STOR, Chapel Hill, NC, March 2022.

6. Block dense weighted networks with augmented degree correction. Department of Math-

ematical Sciences Seminar, Stevens Institute of Technology, Hoboken, NJ, February 2022.

5. Block dense weighted networks with augmented degree correction. Seminar, Center for Statistical Research and Methodology, United States Census Bureau, Suitland, MD, September 2021.

4. Dense weighted networks featuring communities with augmented degree correction. Invited presentation, The Statistical and Applied Mathematical Sciences Institute, Durham, NC, March 2021.

3. Networks of networks working group overview. Invited presentation, The Statistical and Applied Mathematical Sciences Institute, Durham, NC, February 2021.

2. Community sociability modeling of dense weighted networks. Seminar, UNC STOR, Chapel Hill, NC, November 2020.

1. Characterizing frequency-selective network vulnerability for Alzheimers Disease by identifying critical harmonic patterns. IEEE International Symposium on Biomedical Imaging (Zoom recording), Ames, IA, April 2020.

POSTERS PRESENTED

4. ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model. 24th Meeting of New Researchers in Statistics and Probability. Corvallis, OR, August 2024.

3. Augmented Degree Correction for Bipartite Networks with Applications to Recommender Systems. With V. Pipiras. International School and Conference on Network Science. Vienna, Austria. July 2023.

2. OptiNet: Identifying Efficient Node Topologies for Resource Transport in Scale-Free Networks. With L. Lin. The 2023 Stevens Innovation Expo. Hoboken, NJ, April 2023.

1. Department of Mathematical Sciences. With M. Zabarankin, R. N. Gilman, K. Smetana, A. Miasnikov, H. Safari Katesari. Northeast Regional Deans (NeRDs) Workshop. Hoboken, NJ, October 2022.

HONORS AND AWARDS

2020   **Service and Mentorship Award**, UNC STOR

2020   **ISBI Travel Grant**, NIH, NIBIB, National Cancer Institute

2013   **Best Thesis Project**, Cornell University Department of Statistical Science

REFEREE   Journal of Multivariate Analysis, The Lancet Planetary Health

DISSERTATION COMMITTEES

PhD: Aray Almen (Math, 2024)
           Huihui Chen (Math, 2025)

MS: Xiangyu Tian (Data Science, 2023)

COLLABORATIVE EXPERIENCE	Spring 2021	**Graduate Research Assistant at The Statistical and Applied Mathematical Sciences Institute** for Program on Data Science in the Social and Behavioral Sciences working group researching networks of networks, resulting in a presentation at the *Networks 2021* Conference
PROFESSIONAL EXPERIENCE	2013 – 2016	**Senior Consultant at Oliver Wyman**, New York, NY Worked on 11 projects in a wide variety of industries and capacities, with a consistent emphasis on advanced quantitative analysis and clear communication of complex concepts
	2012	**Intern at First Manhattan Consulting Group**, New York, NY Measured effectiveness of ad campaigns by identifying mail recipients who subsequently opened accounts
	2011	**Intern at The Nielsen Company**, Wilton, CT Conducted quantitative analysis for pilot project incorporating internet buzz into Marketing Mix Models
COMPUTING SKILLS		R, Matlab, Python, SAS, SQL, LaTeX, C#, Excel, VBA
PROFESSIONAL MEMBERSHIPS		American Statistical Association Institute of Mathematical Statistics Network Science Society