

Benjamin Leinwand

CONTACT INFORMATION

327 North Building
Stevens Institute of Technology
Hoboken, NJ 07030

Email: bleinwan@stevens.edu
Web: BLeinwand.github.io

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 (temporal; dense weighted; multilayer), Machine Learning
Applications to: Neuroscience, Urban Data, Economics/Finance, Sports, Politics

PUBLICATIONS

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

6. Robson, E., **Leinwand, B.**, and Pipiras, V. Hypocells: a machine learning framework for in silico simulation of cellular differentiation.

7. **Leinwand, B.** and Pipiras, V. Bipartite augmented degree correction with applications to recommender systems. *under revision* [[Link to Arxiv](#)]

8. **Leinwand, B.**, Albrecht, K., Zheng, F., Campbell, A., Thomas, J., Mucha, P. Multilayer network analysis of Iowa governmental agreements.

9. **Leinwand, B.**, Lyzinski, V. Likelihoods of Weight Loss or: ACRONYM: Augmented degree corrected, Community Reticulately Organized Network Yielding Model

DIALOGUES	10. Dialogue with Sevryn Napora on the subject of passion. Published in <i>Palaver: The Stevens Journal</i> , April 2023.
ADVISING	PhD N. Hwang (started in Fall 2023) Masters 13 current students
PROJECT ADVISING	2023 - 2024 J. Caroppo, J. Richter, Z. Hack, Undergraduate Honors Program, <i>Wearables and Quality of Life</i> . Sponsored by Bristol Myers Squibb Spring 2023 L. Yin, Undergraduate Honors Program, <i>Solow Model on Graphs</i> 2023 M. Murray, Independent Study, <i>Analysis of Greatest of All Time</i>
TEACHING	Spring 2024 Statistical Network Analysis (Master's Level) <i>Instructor</i> , 8 students Fall 2023 Intermediate Statistics <i>Instructor</i> , 35 students Introduction to Probability Theory (Master's Level) <i>Instructor</i> , 64 students Spring 2023 Introduction to Probability Theory (Master's Level) <i>Instructor</i> , 45 students Fall 2022 Introduction to Probability Theory (Master's Level) <i>Instructor</i> , 83 students Fall 2021 Data Models and Inference <i>Instructor</i> , 49 students Fall 2020 Data Science for COVID-19 <i>Co-Instructor</i> , 101 students Spring 2020 Data Models and Inference <i>Instructor</i> , 45 students Fall 2018 Methods of Data Analysis <i>Instructional Assistant</i> Spring 2018 Data Models and Inference <i>Instructional Assistant</i> Fall 2017 Data Models and Inference <i>Instructional Assistant</i>
COURSE DEVELOPMENT	Fall 2022 Designed and proposed new graduate course: <i>Statistical Network Analysis</i>
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
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 <i>Networks 2021</i> Conference
DISSERTATION COMMITTEES	PhD: Aray Almen (Math) Huihui Chen (Math) MS: Xiangyu Tian (Data Science, 2023)

SERVICE	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 - Present	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
	2022	Session Chair, Joint Statistical Meetings , <i>Exploring the Impact of Air Pollution on Alzheimer's Disease and Other Indicators of Dementia</i>
	2019 – 2021	Graduate Student Liaison, UNC STOR <ul style="list-style-type: none"> • 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	Triage Judge for ICM, Consortium for Mathematics and Its Applications
	2019 – 2020	Visit Day Coordinator, UNC STOR <ul style="list-style-type: none"> • 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	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.

PRESENTATIONS

- 13.** Block Dense Weighted Networks with Augmented Degree Correction. Conference 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, Connecticut, 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, 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 Mathematical 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

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. Zabaranin, R. N. Gilman, K. Smetana, A. Miasnikov, H. Safari Katesari. Northeast Regional Deans (NeRDs) Workshop. Hoboken, NJ, October 2022.

REFeree

Journal of Multivariate Analysis

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, L^AT_EX, C#, Excel, VBA

PROFESSIONAL
MEMBERSHIPS

American Statistical Association
Institute of Mathematical Statistics
Network Science Society