Benjamin Leinwand

CONTACT INFORMATION

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CURRENT POSITION

Assistant Professor, *Department of Mathematical Sciences*
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.
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. Leinwand, B. and Pipiras, V. (2022+) Block dense weighted networks with augmented degree correction. To appear in *Network Science*. Preprint with technical appendix.

4. Baek, C., Gampe, M., **Leinwand, B.**, Lindquist, K. A., Jeong, S., Hopfinger, J., Gates K., and Pipiras, V. (2022+) Detecting functional connectivity changes in fMRI data. Submitted to *Psychometrika*. Preprint with accompanying R package detectR.

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.

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

Teaching Experience

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)

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 *Networks 2021* Conference

Service

2022 **Session Chair, Joint Statistical Meetings,** *Exploring the Impact of Air Pollution on Alzheimer's Disease and Other Indicators of Dementia*

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

- 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**

- 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

Presentations

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.

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