## Benjamin Brewster Risk


CONTACT INFORMATION

Department of Biostatistics and Bioinformatics
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EDUCATION

**Cornell University**, Ithaca, NY

Ph.D., Statistics, August 2015

- Dissertation: *Topics in Independent Component Analysis, Likelihood Component Analysis, and Spatiotemporal Mixed Modeling*
- Advisors: David S. Matteson and David Ruppert

M.S., Statistics, January 2014

**University of California Berkeley**, Berkeley, CA

M.S., Environmental Science, Policy, and Management, May 2009

- Thesis: *A Robust-Design Formulation of the Incidence Function Model of Metapopulation Dynamics Applied to Two Species of Rails*
- Advisor: Steven R. Beissinger

**Dartmouth College**, Hanover, NH

B.A., Environmental and Evolutionary Biology, June 2003

- *summa cum laude*, with high major honors

ACADEMIC APPOINTMENTS

**Department of Biostatistics & Bioinformatics, Emory University**, Atlanta, GA
*Assistant Professor* **July 2017 - Present**

**Statistical and Applied Mathematical Sciences Institute** and the **Department of Biostatistics, University of North Carolina, Chapel Hill**
*Postdoctoral Research Associate* **August 2015 - June 2017**

- Mentors: Daniel Rowe and Hongtu Zhu

PEER-REVIEWED PUBLICATIONS

**Methodology**

1. **B. B. Risk*** and I. Gaynanova*. Simultaneous non-Gaussian component analysis (SING) for data integration in neuroimaging. *Annals of Applied Statistics*, to appear. *Authors contributed equally.
2. **B. B. Risk**, R. J. Murden, J. Wu, M. B. Nebel, A. Venkataraman, Z. Zhang, D. Qiu. Which multiband factor should you choose for your resting-state fMRI study? *NeuroImage* 234: 117965, 2021.
3. M. Cole, K. Murray, E. St-Onge, **B. Risk**, J. Zhong, G. Schifitto, M. Descoteaux, Z. Zhang. Surface-based connectivity integration: An atlas-free approach to joint study functional and structural connectivity. *Human Brain Mapping*, 42(11): 3481-3499, 2021.

4. S. Kundu and **B. B. Risk**. Scalable Bayesian Matrix Normal Graphical Models for Brain Functional Network. *Biometrics*, 77(2): 439-450, 2021.

5. **B. B. Risk** and Hongtu Zhu. ACE of Space: Estimating genetic components of high-dimensional imaging data. *Biostatistics*, 22(1): 131-147, 2021. Code on github.

6. D. Sung, **B. B. Risk**, M. Owusu-Ansah, X. Zhong, H. Mao, C. C. Fleischer. Optimized truncation to integrate multi-channel MRS data using rank-R singular value decomposition. *NMR in Biomedicine*, 33 (7), e4297, 2020.

7. Z. Jin, **B. B. Risk**, and D. S. Matteson. Optimization and testing in linear non-Gaussian component analysis. *Statistical Analysis and Data Mining*, March 1, 2019.

8. **B. B. Risk**, D. S. Matteson, and D. Ruppert. Linear non-Gaussian component analysis via maximum likelihood. *Journal of the American Statistical Association.* 114(525): 332-343, 2019. Code on github.

9. **B. B. Risk**, M. Kociuba, and D. Rowe. Impacts of simultaneous multislice acquisition on sensitivity and specificity in fMRI. *NeuroImage.* 172: 538-553, 2018.

10. Q. Yu, **B. B. Risk**, K. Zhang, J. S. Marron. JIVE integration of imaging and behavioral data. *NeuroImage.* 152: 38-49, 2017.

11. **B. B. Risk**, D. S. Matteson, R. N. Spreng, and D. Ruppert. Spatiotemporal mixed modeling of multi-subject task fMRI via method of moments. *NeuroImage.* 142: 280-292, 2016.

12. **B. B. Risk**, D. S. Matteson, D. Ruppert, A. Eloyan, and B. S. Caffo. An evaluation of independent component analyses with an application to resting state fMRI. *Biometrics.* 70(1):224–236, 2014. Infomax code in R package steadyICA.

13. **B. B. Risk**, P. de Valpine, and S. R. Beissinger. A robust-design formulation of the incidence function model of metapopulation dynamics applied to two species of rails. *Ecology.* 92(2):462–474, 2011. Code in R package MetaLandSim.

**Collaborative**

14. C. E. Park, R. E. Sayed, **B. B. Risk**, D. C. Haussen, R. G. Nogueira, J. N. Oshinski, J. W. Allen. Carotid webs produce greater hemodynamic disturbances than atherosclerotic disease: a DSA time-density curve study. *Journal of NeuroInterventional Surgery*, to appear.

15. M. E. Cooper, **B. Risk**, A. Corey, A. J. Fountain, J. W. Allen. Statistical learning of blunt cerebrovascular injury risk factors using the elastic net. *Emergency radiology*, to appear.

16. S. Tigges, E. Krupinski, U. Luhanga, D. Schulman, and **B. Risk**. Graphic narrative versus journal article for teaching medical students about P values: a randomized trial. *Journal of the American College of Radiology*, to appear.

17. K. Shinn, S. Gilyard, A. Chahine, S. Fan, **B. Risk**, T. Hanna, J. Johnson, C. Hawkins, M. Xing, R. Duszak, J. Newsome, N. Kokabi. Contemporary management of pediatric blunt splenic trauma: a National Trauma Databank Analysis. *Journal of Vascular and Interventional Radiology*, 2021, 32(5): 692-702.

18. A. H. Chahine, S. Gilyard, T. N. Hanna, S. Fan, **B. Risk**, J. O. Johnson, R. Duszak Jr., J. Newsome, M. Xing, N. Kokabi. Management of Splenic Trauma in Contemporary Clinical Practice: A National Trauma Data Bank Study. *Academic Radiology*, to appear.

19. D. Sung, P. A. Kottke, **B. B. Risk**, J. W. Allen, F. Nahab, A. G. Federov, C. C. Fleischer. Personalized predictions and non-invasive imaging of human brain temperature. *Communications Physics*, 4(68), 2021.

20. D. Capone, P. Chigwechokha, F. de los Reyes, R. Holm, **B. B. Risk**, E. Tilley, J. Brown. Impact of sampling depth on pathogen detection in pit latrines. *PLoS neglected tropical diseases*, 15(3), 2021.

21. D. Hsu, T. Rath, B. Branstetter, Y. Anzai, C. Phillips, A. Juliano, K. Mosier, M. Bazylewicz, S. Poliashenko, M. Kulzer, P. Rhyner, **B. Risk**, R. Wiggins, A. Aiken. Interrate reliability of NI-RADS on post-treatment PET/Contrast-enhanced CT scans in head and neck squamous cell carcinoma. *Radiology: Imaging Cancer*, 3(3), 2021.

22. D. Capone, D. Berendes, O. Cumming, J. Knee, R. Nala, **B. B. Risk**, C. Stauber, K. Zhu, and J. Brown. Analysis of fecal sludges reveals common enteric pathogens in urban Maputo, Mozambique. *Environmental Science & Technology Letters*, 7(12): 889-895, 2020.

23. J. E. Hurtado, L. Heusel-Gillig, **B. B. Risk**, A. Trofimova, S. A. Abidi, J. W. Allen, R. K. Gore. Technology-enhanced visual desensitization home exercise program for post-concussive visually induced dizziness: a case series. *Physiotherapy Therapy Theory and Practice*, to appear.

24. S. Ekici, **B. B. Risk**, S.G. Neill, H. Shu, and C.C. Fleischer. Characterization of dysregulated glutamine metabolism in human glioma tissue with $^{1}$H NMR. *Scientific Reports*, 10, 20435, 2020.

25. M. C. Schechter, M. K. Ali, **B. B. Risk**, A. D. Singer, G. Santamarina, H. K. Rogers, R. R. Rajani, G. Umpierrez, M. Fayfman, and R. R. Kempkar. Percutaneous bone biopsy for diabetic foot osteomyelitis: a systematic review and meta-analysis. *Open forum infectious diseases*, 7(10):ofaa393, 2020.

26. M. Braileanu, **B. B. Risk**, N. Kadom, M. E. Mullins, E. A. Krupinski, A. M. Saindane, and B. D. Weinberg. Structured Curriculum Vitae scoring as a standardized tool for selecting interview candidates for academic neuroradiology faculty positions. *Current Problems in Diagnostic Radiology*, 49(6), 377-381, 2020.

27. K. D. Herr, **B. Risk**, and T. N. Hanna. Diagnostic radiology resident perspectives on fellowship training and career interest in emergency radiology. *Emergency Radiology* 25(6), 653-658, 2018.

28. S. A. Kaiser, **B. B. Risk**, T. S. Sillett, and M. S. Webster. Ecological and social factors constrain spatial and temporal opportunities for mating in a migratory songbird. *American Naturalist.* 189(3): 283-296, 2017.

29. F. Mestre, **B. B. Risk**, R. Pita, A. Mira, and P. Beja. A metapopulation approach to predict species range shifts under different climate change and landscape connectivity scenarios. *Ecological Modelling.* 359: 406-414, 2017. Code in R package MetaLandSim.

30. S. A. Kaiser, T. S. Sillett, **B. B. Risk**, and M. S. Webster. Experimental food supplementation reveals habitat-dependent male reproductive investment in a migratory bird. *Proceedings of the Royal Society B: Biological Sciences.* 282(1803), 2015.

31. O. M. Richmond, S. Chen, **B. B. Risk**, J. Tecklin, and S. R. Beissinger. California Black Rails depend on irrigation-fed palustrine emergent wetlands in the Sierra Nevada Foothills. *California Agriculture.* 64(2):85–93, 2010.

**Letters and commentary**

32. **B. B. Risk** and H. Zhu. Note on bias from averaging repeated measurements in heritability studies. *Proceedings of the National Academy of Sciences*. 115(2): E122, 2018.

33. **B. B. Risk**. Book Review of "A Handbook of Neuroimaging Statistics." *Journal of the American Statistical Association*, 113:521, 480-485, 2018.

## Invited Presentations

1. **B. B. Risk**. Statistical considerations for multiband resting-state fMRI studies. The ASA Statistics in Imaging Section. Invited presentation (Webinar). April 16, 2021.

2. **B. B. Risk** and I. Gaynanova. Simultaneous Non-Gaussian component analysis (SING) for data integration in neuroimaging. *ENAR Spring Meeting 2021*, March 14–17, 2021.

3. **B. B. Risk** and H. Zhu. Heritability models for neuroimaging. *Joint Statistical Meetings 2020*, August 2–6, 2020.

4. **B. B. Risk**. Which multiband factor should you choose for your resting-state fMRI study? Research in Progress Seminar, Department of Radiology and Imaging Sciences, Emory School of Medicine, Atlanta, GA, March 11, 2020.

5. **B. B. Risk**. Which multiband factor should you choose for your resting-state fMRI study? PennSIVE (Penn Statistics in Imaging and Visualization Endeavor) Seminar, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, March 3, 2020.

6. **B. B. Risk** and S. Kundu. Scalable Bayesian Matrix Normal Graphical Models for Brain Functional Networks. *CMStatistics 2019*, University of London, London, UK, December 14–16, 2019.

7. **B. B. Risk** and I. Gaynanova. Joint and Individual Non-Gaussian Component Analysis for Data Integration. *2019 ICSA Applied Statistics Symposium*, Raleigh, NC, June 9–12, 2019.

8. **B. B. Risk**. Data Integration via Joint and Individual Non-Gaussian Component Analysis. Department of Mathematics, Statistics, and Computer Science Colloquium, Marquette University, WI, March 21, 2019.

9. **B. B. Risk** and I. Gaynanova. Joint and Individual Non-Gaussian Component Analysis. *CMStatistics*, Pisa, Italy, December 14–16, 2018.

10. **B. B. Risk**. Dimension Reduction, Non-Gaussian Component Analysis, and Data Integration. Department of Biostatistics Colloquium, University of Rochester, NY, November 29, 2018.

11. **B. B. Risk**, M. Kociuba, and D. Rowe. Statistical impacts of reconstruction method in simultaneous multislice acquisition of MRI. *Statistical Methods in Imaging Conference*, University of Pennsylvania, Philadelphia, PA, June 6–8, 2018.

12. **B. B. Risk**. Scalable Estimation for Genetic Components of High-Dimensional Imaging Data. *NOGGINS (Network of Greater Georgia Institutions for Neuroimaging and Statistics) 2018*, University of Georgia, April 13, 2018.

13. **B. B. Risk**. Statistical impacts of simultaneous multislice imaging and implications for experimental design in fMRI. Statistics Department Colloquium, Indiana University, Bloomington. November 13, 2017.

14. Qunqun Yu, **B. B. Risk***, Kai Zhang, and J. S. Marron. *Presenting author. JIVE integration of behavioral and fMRI data. *JSM 2017*, Baltimore, Maryland, July 29 – August 3, 2017.

15. **B. B. Risk**, M. Kociuba, and D. Rowe. Impacts of multiband acceleration factors on sensitivity and specificity. *23rd Annual Meeting of the Organization for Human Brain Mapping*, Vancouver, Canada, June 25–29, 2017.

16. **B. B. Risk** and H. Zhu. Genetic covariance functions and heritability in neuroimaging with an application to cortical thickness analysis. *Statistical Methods in Imaging Conference*, Pittsburgh, PA, May 31–June 2, 2017.

17. **B. B. Risk**, D. S. Matteson, and D. Ruppert. Likelihood-based non-Gaussian and Gaussian component analysis. *CMStatistics*, Seville, Spain, December 9–11, 2016.

18. **B. B. Risk**. Modeling dependence in neuroimaging data. Functional Data Seminar, North Carolina State University, September 29, 2016.

19. **B. B. Risk**. Likelihood component analysis. Statistics Department Colloquium, Texas A&M University. September 16, 2016.

20. **B. B. Risk**, D. S. Matteson, R. N. Spreng, and D. Ruppert. Spatiotemporal mixed modeling of multi-subject task fMRI via method of moments. *IISA 2016*, Corvallis, OR, U.S.A., August 18–21, 2016.

21. **B. B. Risk** and D. B. Rowe. Examination of artifacts from multiband imaging. *SAMSI CCNS Transitions Workshop*, Research Triangle Park, NC, U.S.A., May 4–6, 2016.

22. **B. B. Risk**, D. S. Matteson, R. N. Spreng, and D. Ruppert. Spatiotemporal mixed modeling of multi-subject task fMRI. *ENAR Spring Meeting 2016*, Austin, TX, U.S.A., March 6–9, 2016.

### Topic Contributed Presentations

1. **B. B. Risk** and I. Gaynanova. Data integration using joint and individual non-Gaussian component analysis. *JSM 2019*, Denver, Colorado, July 27–August 1, 2019. Topic contributed session.

2. **B. B. Risk**, M. Kociuba, and D. Rowe. Impacts of multiband acceleration factors on sensitivity and specificity. *JSM 2018*, Vancouver, Canada, July 28–August 2, 2018. Topic contributed session.

3. **B. B. Risk**, D. S. Matteson, R. N. Spreng, and D. Ruppert. Spatiotemporal mixed modeling of multi-subject task fMRI via method of moments. *JSM 2016*, Chicago, IL, U.S.A., July 30–August 4, 2016. Topic contributed session.

4. **B. B. Risk**, D. S. Matteson, and D. Ruppert. Likelihood component analysis. *JSM 2015*, Seattle, WA, U.S.A., August 8–13, 2015. Topic contributed session.

## Contributed Presentations

1. **B. B. Risk**, D. Lidstone, L. Wang, D. Benkeser, M. Nebel. Doubly robust targeted minimum loss-based estimation to address sampling bias in functional connectivity studies. *JSM 2021*, virtual, August 8-12, 2021.
2. **B. B. Risk** and H. Zhu. Large covariance estimation for spatial functional data with an application to twin studies. *Mathematical and Statistical Challenges in Neuroimaging Data Analysis*, Banff International Research Station, Alberta, CA, January 31–February 5, 2016.
3. **B. B. Risk**, D. S. Matteson, and D. Ruppert. Unsupervised dimension reduction via maximization of a non-Gaussian likelihood. *JSM 2014*, Boston, MA, U.S.A., August 2–7, 2014.
4. **B. B. Risk**, D. S. Matteson, and D. Ruppert. An evaluation of independent component analysis with an application to resting-state fMRI. *JSM 2013*, Montreal, Quebec, CA, August 3–8, 2013.
5. **B. B. Risk**. Spatial and temporal variation in the hydrology of restored wetlands: Impacts on migrating waterbirds along the South Platte River. *Wildlife & Conservation Biology Seminar Series*, University of California Berkeley. Berkeley, CA, U.S.A., September 19, 2008.
6. **B. B. Risk** and S. R. Beissinger. Predicting the effects of habitat destruction on a metapopulation of the California Black Rail in the Sierra Foothills. *American Ornithologists Union, Cooper Ornithological Society, and Society of Canadian Ornithologists 2008 Meeting*, Portland, OR, U.S.A. August 4–9, 2008.
7. **B. B. Risk** and S. R. Beissinger. Assessing the impacts of habitat loss and degradation on a metapopulation of the California Black Rail. *Bay Area Conservation Biology Symposium*, Davis, CA, February 2, 2008.

## Panel Discussions

1. A. Fang (Data Scientist, Google) and **B. B. Risk**. NISS Affiliate Graduate Student Networking Event: Meeting with Alumni. November 19, 2020. Virtual meeting discussing academic and industry careers.

## Selected Posters

1. **B. B. Risk**, Junjie Wu, and Deqiang Qiu. 3942. Which multiband factor should you choose for your resting-state study? *ISMRM 2019*, Montreal, QC, Canada, May 11–16, 2019.
2. **B. B. Risk**, Yuxuan Zhao, M. B. Nebel, D. S. Matteson. Group and Individual Non-Gaussian Component Analysis for Multi-Subject fMRI. *ENAR 2019*. Philadelphia, PA, March 24–27, 2019. (Invited Speed Poster.)
3. Mingrui Liang and **B. B. Risk***. *Presenting author. Time series modeling in high resolution fMRI. *Forecasting from Complexity*, Institute for Mathematics and its Applications, Minneapolis, MN, April 23–27, 2018.
4. Qunqun Yu, **B. B. Risk***, Kai Zhang, and J. S. Marron. *Presenting author. JIVE integration of behavioral and fMRI data. *19th Meeting of New Researchers in Statistics and Probability (NRC 2017)*, Baltimore, Maryland, July 27 - July 29, 2017.

5. B. Langworthy, **B. B. Risk**, K. Sellers, B. Vaughn, J. Gilmore, H. Zhu, and F. Frohlich. The effect of transcranial alternating current stimulation on alpha and gamma oscillations. *2016 Triangle Imaging Symposium*, Chapel Hill, North Carolina, March 23, 2016.

6. **B. B. Risk**, D. S. Matteson, and D. Ruppert. Comparing independent component analysis estimation methods with an application to neuroimaging of resting state functional connectivity in attention deficit and hyperactivity disorder. *2012 ENAR Spring Meeting*, Washington, D.C., April 1–4, 2012. Poster abstract.

## Research Support

**Ongoing**

1. Grant and research support for the Department of Radiology and Imaging Sciences, Emory School of Medicine. Effort: 20%.

2. **MPI: Risk, B.** (contact PI: Zhang, Z.) Advancing methods for structural connectome estimation and acquisition in older adults. NIH 1R21AG066970, 2020-2022. Percentile: 1.0. Effort: 10%.

3. **Co-I: Risk, B.** (PI: Fleischer, C.) Improved non-invasive MR brain thermometry for therapeutic hypothermia. NIH R21. Effort: 5%.

4. **Co-I: Risk, B.** (PI: Sun, P.) Development of fast penumbral imaging in acute ischemic stroke. NIH R01. Effort: 8%. 2021-2026.

5. **Co-I: Risk, B.** (PI: Mao, H.) High-sensitivity Immunomagnetic System for "Liquid Biopsy" of Alzheimer's Disease. NIH R01. Effort: 8%.

6. **Co-I: Risk, B.** (PI: Cubells, J. and Duncan, E.). Psychosis-related physiological and neuronal phenotypes in 22Q11 Deletion Syndrome. NIH 1R01MH117315, 2019-2024. Effort: 10%.

7. **Co-I: Risk, B.** (PI: Reiter, D.) Prognostic Imaging and Blood Markers of Wound Healing Among Patients with Diabetic Foot Ulcers. Augusta University/ Diabetic Complications Consortium (NIDDK). 2019-2020. Effort: 1% in kind.

**Completed**

1. **PI: Risk, B.** Improving estimates of functional connectivity in the human brain. Emory University Rollins School of Public Health Pilot Grants Awards. 2019-2020. Effort: 1% in kind.

2. **Co-PI: Risk, B.** (PI: Qiu, D.) Computational models for biomarker and risk predictions in Alzheimer's Disease. Alzheimer's Disease Research Center at Emory University. Pilot study subaward of P50AG025688. 2019-2020. Effort: 1% in kind.

## Honors and Awards

- Teaching Award, Department of Biostatistics and Bioinformatics, Emory University, 2021.
- Runner-up in the student paper competition, Imaging Section of the American Statistical Association, JSM 2016.
- Presidential Scholar, Dartmouth College, 2003.
- Phi Beta Kappa, Member, 2002.

## Software

Software available at github.com/BenjaminRisk and github.com/thebrisklab.

1. **B. B. Risk** and Hongtu Zhu. Code supporting "ACE of space: estimating genetic components of high-dimensional imaging data." github.com/BenjaminRisk/SpatialACE.
2. **B. B. Risk**, D. S. Matteson, and D. R. Ruppert. Code supporting "Linear Non-Gaussian Component Analysis via Maximum Likelihood."
   github.com/BenjaminRisk/LNGCA.
3. **B. B. Risk**, N. A. James, and D. S. Matteson. steadyICA: An R-package for independent component analysis and multivariate tests of independence using distance covariance. cran.r-project.org/web/packages/steadyICA/
4. F. Mestre, F. Canovas, **B. Risk**, R. Pita, A. Mira, and P. Beja. MetaLandSim: An R-package for landscape and range expansion simulation. cran.r-project.org/web/packages/MetaLandSim/
5. **B. B. Risk**. Code supporting "Spatiotemporal mixed modeling of multi-subject task fMRI via method of moments." github.com/BenjaminRisk/stmm
6. **B. B. Risk**. Code supporting "An evaluation of independent component analyses with an application to resting state fMRI." http://onlinelibrary.wiley.com/doi/10.1111/biom.12111/full.
7. **B. B. Risk**. Code supporting "A robust-design formulation of the incidence function model of metapopulation dynamics applied to two species of rails." www.esapubs.org/archive/ecol/E092/040/.

## Mentoring

**PhD Students Supervised**

1. Gavin Tian (current)
2. Raphiel Murden (Completed: Summer 2021)

**PhD Student Committees**

1. Samuel Aiyedipe (current)
2. Zeena Ammar (Neuroscience) (current)
3. Yikai Wang (Completed: Spring 2020)

**Master's Students Supervised**

1. Sijian Fan. 2019-2020. Improved Algorithm for Independent Component Analysis (ICA) with Relax and Split Approximation.
2. Lingyi Peng. 2019-2020. Variable Selection of Neuroimaging Features in Mild Cognitive Impairment.
3. Liwei Wang. 2019-2020. The impact of quality control exclusion criteria on functional connectivity in children with neurodevelopmental disorders.
4. Zixi Yang. 2018-2019. The impact of initialization in optimization of independent components in functional magnetic resonance imaging.
5. Mingrui Liang. 2017-2018. An exploration of time series models and their application to functional magnetic resonance imaging. Currently a PhD student in statistics at Rice University.

**Master's Students Reader**

1. Praveen Suthaharan. 2018-2019. Thesis title: A Bayesian Latent Scale Brain Network Approach to Conceptualize Post-Traumatic Stress Disorder. Poster award winner at Emory Biostatistics Poster Symposium. Role: Reader.
2. Xinyi Yang. 2018-2019. Thesis title: A Novel Network Connectivity Measure with Application to Multimodal Brain Imaging Study. Role: Reader.

**Visiting Doctoral Students**

1. Yuxuan Zhao (Department of Statistics and Data Science, Cornell University)
2. Mingrui Liang (Department of Statistics, Rice University)

## Teaching Experience

**Emory University**
*Instructor*

- BIOS 526. Modern Regression Analysis (Fall 2018, Fall 2019, Fall 2020). 3 credits.
- BIOS 780R. Research Methods in Biostatistics (Spring 2018, Spring 2019, Spring 2020). 1 credit.
- BIOS 590/790. Colloquium (Spring 2019, Spring 2020). 1 credit.
- Guest lecturer / lab organizer for Emory Summer Institute in Biostatistics, Summer 2019. (1 day.)
- Guest lecturer in BIOS 516: Introduction to Large-Scale Biomedical Data Analysis (Fall 2019). (1 2-hr lecture.)
- Guest lecturer in BIOS 760: Special Topics: Neuroimaging Statistics (Spring 2020). (1 2-hr lecture.)

**Cornell University**, Ithaca, NY
*Teaching Assistant*

- BTRY 6020: Statistical Methods II. Led discussion section, computer labs in R, and office hours for a second course in statistics for graduate students in life sciences and undergraduate statistics majors.
- BTRY 4030: Applied Linear Statistical Models via Matrices. Led discussion section, computer labs, and office hours in R for an upper-level undergraduate course in linear models.
- ORIE 5550: Applied Time Series Analysis. Led discussion section, computers labs in R, and office hours for a master's level course in time series analysis. Created solution sets and contributed to lab material.
- ILRST 5110: Statistical Methods for the Social Sciences II. Led discussion section and office hours for undergraduate and graduate students in industrial and labor relations.
- ILRST 2100: Introductory Statistics. Led discussion section and office hours for introductory statistics.

**University of California Berkeley**, Berkeley, CA
*Teaching Assistant:*

- Biology 1B: General Biology. Designed and led discussion section and led labs in plant physiology, ecology, and evolution.

## Professional Service

**National**

1. Program Chair Elect, Statistics in Imaging Section.
2. ENAR Regional Advisory Board, 2019-2021. Secretary: 2020-2021.

3. Invited session organizer for *ENAR 2021*: Modeling with Large Covariance Matrices: Applications in Neuroimaging.

4. Statistical Methods in Imaging Conference 2020. Co-organizer of the Student Paper Award.

5. Invited session organizer for *ENAR 2019*: Nonconvex optimization and biological applications.

6. Session chair, "Session 215633: Applications in Time Series Analysis." JSM 2018, Vancouver, BC, CA.

7. Session organizer for *Statistics in Medical Imaging 2018 (Conference of the Imaging Section of the American Statistical Association)*: Analysis and Processing of Complex-valued MRI.

8. Reviewer for the 2018 David P. Byar Award for the Biometrics Section of the American Statistical Association.

9. 2016 Field of Dreams Conference, Math Alliance. *SAMSI representative and presenter*
   - The Alliance seeks to increase the number of doctoral degrees in the mathematical sciences in under-represented groups.

**Emory University**

1. Member of Diversity, Equity, and Inclusion committee, Department of Biostatistics and Bioinformatics, 2018-present.

2. Member of methods curriculum committee 2018-present. Department of Biostatistics & Bioinformatics, Emory University.

3. Member of research computing working group 2017-present. Department of Biostatistics & Bioinformatics, Emory University.

4. Member of Computation and Data Science Advisory Group, Rollins School of Public Health, 2018-present.

5. Shepard Award committee 2018 for best Master's thesis in the Department of Biostatistics & Bioinformatics, Emory University. Committee member and reviewer of master's theses.

6. Qualifying exam committee 2018. Department of Biostatistics & Bioinformatics, Emory University.

7. Emory STEM Research and Career Symposium, 2018. BIOS organizer and participant. The symposium brings together students from diverse backgrounds for networking, mentoring, and recruitment.

**Referee**

- Annals of Applied Statistics
- Annals of Statistics
- Biometrics
- Biometrika
- Biostatistics
- Brain and Behavior
- Canadian Journal of Statistics
- Computational Statistics and Data Analysis

- Human Brain Mapping
- IEEE Transactions on Medical Imaging
- IEEE Transactions on Computational Biology and Bioinformatics
- International Conference on Machine Learning
- Journal of Alzheimer's Disease
- Journal of the American Statistical Association
- NeuroImage
- Scandinavian Journal of Statistics
- Statistics and Its Interface
- Statistics in Medicine

**Grant Review**
- Review of NSF proposal in Cognitive Neuroscience

## Professional Experience

**SUNY-ESF**, Pinta and Santa Cruz Islands, Galápagos, Ecuador
*Field Technician* **Summer 2010**

**American Journal Experts**
*Contract Editor* **Fall 2009 - Spring 2010**

**Rocky Mountain Bird Observatory**, Fort Collins, CO
*Avian Ecologist* **Winter - Summer 2007**
- Conducted statistical analyses of habitat use by birds.

**Charles River Associates**, Oakland, CA
*Research Associate* **Winter 2004 - Summer 2006**
- Conducted statistical analyses in antitrust and energy economics.

**Resource Systems Group**, White River Junction, VT
*Intern* **Winter - Spring 2003**

**Smithsonian Migratory Bird Center**, Hubbard Brook, NH
*Field Technician* **Summer 2000 and Summer 2002**

**Cooperative Extension Unit, University of Montana**, Cosanga, Ecuador
*Field Technician* **Spring 2001**

## Professional Memberships

American Statistical Association (ASA)
Eastern North American Region of the International Biometric Society (ENAR)
International Society for Magnetic Resonance in Medicine
Organization for Human Brain Mapping

## Software Skills

R, Matlab, experience with STATA, SAS, ArcGIS, SPM, FSL

## Hobbies

Cycling, guitar, birdwatching.

## Citizenship

U.S.A.