

Genevera I. Allen

CONTACT INFORMATION

Department of Statistics
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RESEARCH INTERESTS

Statistical Learning; Modern Multivariate Analysis; Data Integration; Graphical Models; High-Dimensional Data; Applications in Bioinformatics and Neuroscience.

EDUCATION

Stanford University, Stanford CA

P.h.D., Statistics, June 2010.

- Advisor: Robert Tibshirani.

Rice University, Houston TX

B.A., Statistics, *cum laude*, May 2006.

ACADEMIC EXPERIENCE

Rice University & Baylor College of Medicine, Houston, TX.

Associate Professor, July 2017 - present
Department of Statistics, Department of Electrical and Computer Engineering (by courtesy),
and Department of Computer Science (by courtesy), Rice University.

Assistant Professor, July 2012 - present
Department of Pediatrics-Neurology, Baylor College of Medicine & Jan and Dan Duncan
Neurological Research Institute, Texas Children's Hospital.

Dobelman Family Junior Chair, Rice University July 2013 - June 2017

Assistant Professor, (Tenure-track at Rice) July 2012 - June 2017
Department of Statistics, Department of Electrical and Computer Engineering (by courtesy),
and Department of Computer Science (by courtesy), Rice University.

Assistant Professor, (Tenure-track at BCM & Rice) July 2010 - June 2012

Other Academic Affiliations: Institute for Biosciences and Bioengineering, Rice University; Structural and Computational Biology and Molecular Biophysics Graduate Program, Baylor College of Medicine; Rice Systems and Synthetic Biology Group, Rice University; Ken Kennedy Institute for Information Technology, Rice University; Computational and Integrative Biomedical Research, Baylor College of Medicine; Gulf Coast Consortia; Center for NeuroEngineering, Rice University

HONORS

- Research and Teaching Excellence (T+R)² Award, George R. Brown School of Engineering, Rice University.
- Ihaka Lectureship, University of Auckland, New Zealand.
- NSF CAREER Award, 2016.
- Chosen to represent the American Statistical Association at the Coalition for National Science Funding Congressional Exhibition, May 2014.
- Named to Forbes '30 under 30 in Science and Healthcare' list, January 2014.
- Dobelman Family Junior Chair, Department of Statistics, Rice University, July 2013.
- Chosen to represent the American Statistical Association at the Coalition for National Science Funding Congressional Exhibition, May 2013.
- International Biometrics Society Young Statistician Showcase (North America representative), IBS 2012 in Kobe, Japan, 2012.
- David P. Byar Young Investigator Travel Award, Biometrics Section, American Statistical Association, 2011.
- SF Bay Area Chapter of the American Statistical Association Travel Award: Honorable Mention, 2010.
- VIGRE Graduate Fellowship, Stanford University, 2006-2009.
- Rice University Distinguished Trustee Scholarship, 2003 - 2006.
- Rice University Undergraduate Research Symposium, 2nd Prize Engineering Division, 2006.
- VIGRE Undergraduate Fellowship, Rice University, 2005-2006.

EDITORIAL POSITIONS

Associate Editor, *Biometrics*, 2014 - present.

Associate Editor, *Electronic Journal of Statistics*, 2013 - 2016.

PUBLICATIONS

Note: Student and postdoctoral fellow co-authors are underlined.

Submitted Articles:

47. **G. I. Allen**, and Z. Zhang, "Semi-Symmetric Tensor Decompositions", (Submitted), 2017.
46. J. Nagorski and **G. I. Allen**, "Genomic Region Detection via Spatial Convex Clustering", (Submitted), arXiv:1611.04696, 2016.
45. M. Narayan, **G. I. Allen**, S. Tomson, "Two Sample Inference for Populations of Graphical Models with Applications to Functional Connectivity", arXiv:1502.03853, 2015.
44. E. Yang, P. Ravikumar, **G. I. Allen**, Y. Baker, Y. Wan, and Z. Liu, "A General Framework for Mixed Graphical Models", arXiv:1411.0288, 2014.
43. **G. I. Allen**, "Sparse and Functional Principal Components Analysis", arXiv:1309.2895, 2013.

42. **G. I. Allen**, “Regularized Tensor Decompositions and Higher-Order PCA”, arXiv:1202.2476, 2012.

Peer-Reviewed Journal Articles:

41. F. Campbell and **G. I. Allen**, “Within Group Variable Selection through the Exclusive Lasso”, (To Appear), *Electronic Journal of Statistics*, arXiv:1505.07517, 2017.
40. D. Inouye, E. Yang, **G. I. Allen**, and P. Ravikumar, “A Review of Multivariate Distributions for Count Data Derived from the Poisson Distribution”, *Wiley Interdisciplinary Reviews: Computational Statistics*, **9**:3, 2017.
39. E. C. Chi, **G. I. Allen**, and R. Baraniuk, “Convex Biclustering”, *Biometrics*, **73**:1, 10-19, 2017.
38. Y. W. Wan, **G. I. Allen**, and Z. Liu, “TCGA2STAT: Simple TCGA Data Access for Integrated Statistical Analysis in R”, *Bioinformatics*, **32**:6, 952-954, 2016.
37. Y. W. Wan, **G. I. Allen**, Y. Baker, E. Yang, P. Ravikumar, and Z. Liu, “XMRF: An R package to fit Markov Networks to High-Throughput Genetics Data”, *BMC Systems Biology*, **10**(S3):69, 2016.
36. M. Narayan and **G. I. Allen**, “Mixed Effects Models for Resampled Network Statistics Improves Statistical Power to Find Differences in Multi-Subject Functional Connectivity” *Frontiers in Neuroscience*, **10**:108, 2016.
35. **G. I. Allen** et al. (100+ authors in alphabetical order), “Crowdsourced estimation of cognitive decline and resilience in Alzheimer’s disease”, *Alzheimer’s & Dementia*, **12**:6, 645-653, 2016.
34. S. Tomson, M. Schreiner, M. Narayan, T. Rosser; N. Enrique, A. J. Silva, **G. I. Allen**, S. Y. Bookheimer, and C. Bearden, “Resting state functional MRI reveals abnormal network connectivity in Neurofibromatosis 1”, *Human Brain Mapping*, **36**:11, 4566-4581, 2015.
33. Y. Hu and **G. I. Allen**, “Local-Aggregate Modeling for Big-Data via Distributed Optimization: Applications to Neuroimaging”, *Biometrics*, **71**:4, 905-917, 2015.
32. E. Yang, P. Ravikumar, **G. I. Allen**, and Z. Liu, “Graphical Models via Univariate Exponential Family Distributions”, *Journal of Machine Learning Research*, **16**, 3813-3847, 2015.
31. **G. I. Allen**, L. Grosenick and J. Taylor, “A Generalized Least Squares Matrix Decomposition”, *Journal of the American Statistical Association: Theory and Methods*, **109**:505, 145-159, 2014.
30. Y. Wan, C. M. Mach, **G. I. Allen**, M. L. Anderson, and Z. Liu, “On the Reproducibility of TCGA Ovarian Cancer MicroRNA Profiles”, *PLoS ONE*, **9**:1, e87782, 2014.
29. **G. I. Allen** and Z. Liu, “A Local Poisson Graphical Model for Inferring Networks from Next Generation Sequencing Data”, *IEEE Transactions on NanoBioscience*, **12**:3, 1-10, 2013.
28. S. Tomson, M. Narayan, **G. I. Allen**, D. Eagleman, “Neural Networks of Synesthesia”, *Journal of Neuroscience*, **33**:35, 14098-14106, 2013.
27. W. Zhang, Y. Wan, **G. I. Allen**, K. Pang, M. L. Anderson, and Z. Liu, “Molecular pathway identification using biological network-regularized logistic models”, *BMC Genomics*, **14**:(Suppl 8):S7, 2013.
26. **G. I. Allen**, C.B. Peterson, M. Vannucci, and M. Maletic-Savatic, “Regularized Partial Least Squares with an Application to NMR Spectroscopy”, *Statistical Analysis and Data Mining*, **6**:4, 302-314, 2013.

25. **G. I. Allen**, “Automatic Feature Extraction via Weighted Kernels and Regularization”, *Journal of Computational and Graphical Statistics*, **22**:2, 284-299, 2013.
24. L.C. Harshman, R.J. Yu, **G. I. Allen**, S. Srinivas, H.S. Gill, B.I. Chung, “Surgical outcomes and complications associated with presurgical tyrosine kinase inhibition for advanced renal cell carcinoma (RCC)”, *Urologic Oncology*, **31**:3, 379-385, 2013.
23. **G. I. Allen** and R. Tibshirani, “Inference with Transposable Data: Modeling the Effects of Row and Column Correlations”, *Journal of the Royal Statistical Society, Series B*, **74**:4, 1-23, 2012.
22. N. Bellance, L. Pabst, **G. I. Allen**, R. Rossignol, D. Nagarath, “Oncosecretomics coupled to bioenergetics identifies amino adipic acid, isoleucine and GABA as potential biomarkers of cancer: Differential expression of c-Myc, Oct1 and KLF4 coordinates metabolic changes”, *Biochimica et Biophysica Acta (BBA) - Bioenergetics*, **1817**:11, 2060-2071, 2012.
21. **G. I. Allen** and M. Maletic-Savatic, “Sparse Non-negative Generalized PCA with Applications to Metabolomics”, *Bioinformatics*, **27**:21, 3029-3035, 2011.
20. L.C. Harshman, G. Bepler, Z. Zheng, J.P. Higgins, **G. I. Allen**, S. Srinivas, “Ribonucleotide reductase subunit M1 expression in resectable, muscle-invasive urothelial cancer correlates with survival in younger patients”, *British Journal of Urology International*, **106**:11, 1805-1811, 2010.
19. **G. I. Allen** and R. Tibshirani, “Transposable regularized covariance models with an application to missing data imputation”, *Annals of Applied Statistics*, **4**:2, 764-790, 2010.

Peer-Reviewed Conference Papers:

18. M. Narayan and **G. I. Allen**, “Population Inference for Node Level Differences in Functional Connectivity”, In *IEEE International Workshop on Pattern Recognition in Neuroimaging (PRNI)*, oral presentation, 2015.
17. E. Yang, Y. Baker, P. Ravikumar, **G. I. Allen**, and Z. Liu, “Mixed Graphical Models via Exponential Families”, *Artificial Intelligence and Statistics (AISTATS)*, oral presentation, 2014.
16. E. Yang, P. Ravikumar, **G. I. Allen**, and Z. Liu, “On Poisson Graphical Models”, In *Advances in Neural Information Processing Systems (NIPS)*, 2013.
15. E. Yang, P. Ravikumar, **G. I. Allen**, and Z. Liu, “Conditional Random Fields via Univariate Exponential Families”, In *Advances in Neural Information Processing Systems (NIPS)*, 2013.
14. E. Chi, **G. I. Allen**, H. Zhou, O. Kohannim, K. Lange, P. Thompson, “Imaging Genetics Via Sparse Canonical Correlation Analysis”, In *IEEE International Symposium on Biomedical Imaging*, oral presentation, 2013.
13. M. Narayan and **G. I. Allen**, “Randomized Approach to Differential Inference in Multi-Subject Functional Connectivity”, In *IEEE International Workshop on Pattern Recognition in Neuroimaging*, oral presentation, 2013.
12. Y. Hu and **G. I. Allen**, “Local-Aggregate Modeling for Multi-Subject Neuroimage Data via Distributed Optimization”, In *IEEE International Workshop on Pattern Recognition in Neuroimaging*, 2013.
11. W. Y. Wan, J. Nagorski, **G. I. Allen**, Z. Li, and Z. Liu, “Identifying cancer biomarkers through a network regularized Cox model”, In *IEEE International Workshop on Genomic Signal Processing and Statistics*, oral presentation, 2013.
10. **G. I. Allen**, “Multi-way Functional Principal Components Analysis”, In *IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, 2013.

9. **G. I. Allen**, “Sparse Higher-Order Principal Components Analysis”, *Artificial Intelligence and Statistics (AISTATS)*, 2012.
8. **G. I. Allen** and Z. Liu, “A Log-Linear Graphical Model for Inferring Genetic Networks from High-Throughput Sequencing Data”, In *IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, oral presentation, 2012.
7. E. Yang, P. Ravikumar, **G. I. Allen**, and Z. Liu, “Graphical Models via Generalized Linear Models”, In *Advances in Neural Information Processing Systems (NIPS)*, oral presentation, 2012.

Peer-Reviewed Book Chapters:

6. Y. Hu, E. C. Chi, and **G. I. Allen**, “ADMM Algorithmic Regularization Paths for Sparse Statistical Learning”, In *Splitting Methods in Communication and Imaging, Science and Engineering*, R. Glowinski, W. Yin, and S. Osher (eds), Springer, 433-459, 2016.
5. **G. I. Allen** and P. O. Perry, “Singular value decomposition and high-dimensional data”, *Encyclopedia of Environmetrics Second Edition*, A. H. El-Shaarawi and W. Piegorisch (eds), John Wiley & Sons Ltd, Chichester, UK, 2469-2472, 2012.

Invited Discussions & Book Reviews:

4. **G. I. Allen**, “Statistical Data Integration: Challenges and Opportunities”, *Statistical Modelling*, **17**:4-5, 1-6, 2017.
3. **G. I. Allen**, Y. Hu, and F. Campbell, “Comments on ”Visualizing Statistical Models”: Visualizing Modern Statistical Methods for Big Data”, *Statistical Analysis and Data Mining*, **8**:4, 226-228, 2015.
2. Y. Liu and **G. I. Allen**, “Review of *Introduction to Statistical Learning with Applications in R*”, *Journal of the American Statistical Association*, **109**:508, 1713-1714, 2014.
1. **G. I. Allen**, “Comment on Article by Hoff”, *Bayesian Analysis*, **6**:2, 197-202, 2011.

Works in progress to be submitted soon:

- **G. I. Allen**, Y. Hu, and M. Weylandt, “Algorithmic Regularization Paths: A New Approach to Variable Selection for High-dimensional, Highly Correlated Data”, (Intended for *Journal of the Royal Statistical Society, Series B*), 2016.
- J. Nagorksi, E. M. Sweeney, T. Yao, J. Lipschultz, E. Burnett, J. Shulman, and **G. I. Allen**, “A Quantitative Score for Cognitive Resilience in Alzheimer’s Disease”, (Intended for *Alzheimer’s & Dementia*), 2016.
- F. Campbell, M. Ozeker, M. Beauchamp, **G. I. Allen**, “Interpretable Decoding for Electro-corticography via Higher-Order Partial Least Squares”, (Intended for *NeuroImage*), 2016.
- Y. Baker and **G. I. Allen**, “Variable Selection for High-Dimensional, Mixed, Multi-Modal Data”, (Intended for *Annals of Applied Statistics*), 2016.

Extended Abstracts (Peer-Reviewed):

10. S.N. Tomson, Schreiner, M., Narayan, M., Rosser, T., Enrique, N., Silva, A.S., **Allen, G.I.**, Bookheimer, S.Y., Bearden, C.E., “Neural network deficits in neurofibromatosis type 1”, In Organization for Human Brain Mapping, *Neuroimage*, 2014.

9. S.N. Tomson, Narayan, M., **Allen, G.I.**, Dapretto, M., Bookheimer, S.Y. “Novel network estimation tools extract common ASD features from ABIDE data set”, In *International Society for Autism Research*, 2014.
8. M. Narayan and **G. I. Allen**, “Hypothesis Tests for Detecting Differential Features in Functional Connectivity Networks”, In Organization for Human Brain Mapping, *Neuroimage*, 2013.
7. S.N. Tomson, M. Narayan, **G.I. Allen**, D.M. Eagleman. “Markov networks and inference tests for neural networks of colored sequence synesthesia”, In Organization for Human Brain Mapping, *Neuroimage*, 2013.
6. S.N. Tomson., Narayan, M., **Allen, G.I.**, Dapretto, M., Bookheimer, SY. “Novel network estimation tools extract common ASD features from ABIDE data set”, In *The Networked Brain*, 2013.
5. S.N. Tomson, M. Narayan, **G.I. Allen**, R. Gibbs, S. Leal, D.M. Eagleman, “Functional connectivity and genetics of synesthesia.” In Organization for Human Brain Mapping, *Neuroimage*, 2012.
4. **G. I. Allen**, L. Grosenick, and J. Taylor, “Whole-Brain Spatio-Temporal Dimension Reduction via Sparse Generalized PCA”, In Organization for Human Brain Mapping, *Neuroimage*, 2011.
3. S.A. Helekar, J. Bishop, C. Karmonik, S. Fung, **G. I. Allen**, R. Yekovich, and D.B. Rosenfield, “Activation of Cross-modal and Multimodal Brain Areas in Musical Cognition”, In IBRO World Congress of Neuroscience, 2011.
2. L. C. Harshman, G. Bepler, Z. Zheng, J. P. Higgins, **G. I. Allen**, R. Tibshirani, S. Srinivas, “Correlation of RRM1 expression in muscle invasive locally advanced urothelial cancer with age”, In ASCO Annual Meeting Proceedings, 2009.
1. L. C. Harshman, G. Bepler, Z. Zheng, J. Higgins, **G. I. Allen**, S Srinivas, “PP14 RRM1 expression in muscle invasive, locally advanced urothelial cancer is associated with survival in younger patients”, In *European Journal of Cancer Supplements*, 7:4, 19, 2009.

Thesis:

1. **G. I. Allen**, “Transposable Regularized Covariance Models with Applications to High-Dimensional Data”, Stanford University, June 2010.

Other Professional Publications:

2. R. E. Kass et. al, “Statistical Research and Training Under the BRAIN Initiative”, American Statistical Association White Paper, http://www.amstat.org/policy/pdfs/StatisticsBRAIN_April2014.pdf, 2014.
1. **G. I. Allen**, & J. Leek, “Changing Our Culture: Perspectives from Young Faculty”, *AMSTAT News*, December 2013.

MAJOR PUBLIC
LECTURES &
KEYNOTE
TALKS

3. Ihaka Lecture Series, University of Auckland, Auckland, New Zealand, March, 2017.
2. Australian Mathematical Sciences Institute Summer School Public Lecture, University of Sydney, Sydney Australia, January 2017.
1. Refining the Concept of Scientific Inference When Working With Big Data: A Workshop, National Academy of Sciences and Committee on Applied and Theoretical Statistics, Washington, DC, June 2016.

INVITED
CONFERENCE
TALKS

50. Joint Statistical Meetings, Baltimore, MD, July 30 - August 3, 2017.
49. World Statistics Congress, International Statistics Institute, Marrakech, Morocco, July 16-21, 2017.
48. Workshop on Data Mining for Medicine and Healthcare (Keynote Talk), Houston, TX, April 2-17.
47. Network of the Mind Workshop, Sydney, Australia, January, 2017.
46. Rice Machine Learning Workshop, Rice University, Houston, TX, January 2017.
45. Society for Neuroscience Webinar, December, 2016.
44. Cell Symposia on Technology, Biology, and Data Science, Berkeley, CA, October, 2016.
43. Workshop on Higher-Order Asymptotics and Post-Selection Inference, St. Louis, MO, October, 2016.
42. AI With the Best Conference, September 2016.
41. SAMSI Optimization Program Opening Workshop, Raleigh, NC, September 2016.
40. Mathematical Biosciences Institute Capstone Conference (Keynote Talk), Columbus, OH, August 2016.
39. Joint Statistical Meetings, Chicago, IL, August 2016.
38. Institute of Mathematical Statistics, World Congress in Probability and Statistics, Toronto, CA, July 2016.
37. American Statistical Association Statistics / Biostatistics Chairs Workshop, Washington, DC, July 2016.
36. Conference on Statistical Learning and Data Science, Chapel Hill, NC, June 2016.
35. International Biometrics Society, Eastern North American Region Spring Meetings (ENAR), Austin, TX, March 2016.
34. iBRIGHT Conference, MD Anderson Cancer Center, Houston, TX, November 3, 2015.
33. Gulf Coast Undergraduate Research Symposium, Houston, TX, October 17, 2015.
32. ASQ Annual Fall Technical Conference, Houston, TX, October 9, 2015.
31. NeuroEngineering Annual Symposium, Houston, TX, October 2, 2015.
30. Joint Statistical Meetings, Seattle, WA, August 8-13, 2015.
29. World Statistics Congress, International Statistics Institute, Rio de Janeiro, Brazil, July 26-31, 2015.
28. International Society for Business and Industrial Statistics (ISBIS) Satellite Conference, University of Campinas, Brazil, July 23-24, 2015.
27. SRCOS Summer Research Conference, Carolina Beach NC, June 7 - 10, 2015.
26. Big Data in Biomedicine Conference, Stanford University, May 20-22, 2015.
25. International Biometrics Society, Eastern North American Region Spring Meetings (ENAR), Miami, FL, March 2015.
24. INFORMS Annual Meeting, San Francisco, CA, November 2014.

23. Workshop: Quantifying Structure in Large Neural Datasets, Grossman Center for the Statistics of Mind, Columbia University, September, 2014.
22. Joint Statistical Meetings, Boston, MA, August 2014.
21. International Society of NonParametric Statistics Conference, Cadiz, Spain, June 2014.
20. International Symposium on Business and Industrial Statistics/ Conference of the American Statistical Association Section on Statistical Learning and Data Mining, Durham, NC, June 2014.
19. Southern Regional Council on Statistics Summer Research Conference, Galveston, TX, June 2014.
18. INFORMS Optimization Society Conference, Houston, TX, March 2014.
17. IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, Saint Martin, December 2013.
16. International Statistics Institute World Statistics Congress, Hong Kong, China, August 2013.
15. Joint Statistical Meetings, Montreal, Canada, August 2013.
14. International Biometric Society, Eastern North American Region Spring Meetings, Orlando, FL, March 2013.
13. SACNAS Conference, Seattle, Washington, 2012.
12. International Biometrics Society, Kobe, Japan, 2012.
11. Joint Statistical Meetings, San Diego, CA, 2012.
10. International Chinese Statistical Association Symposium, Boston, MA, 2012.
9. Statistical Learning and Data Mining Workshop, Ann Arbor, MI, 2012
8. Interface 2012: The Future of Statistical Computing, Houston, TX, 2012.
7. Pan American Institute for Advanced Studies in Statistics and Probability, Xalapa, MX, August 2011.
6. Joint Statistical Meetings, Miami Beach, FL, August, 2011.
5. Fourth Erich Lehmann Symposium, Houston, TX, May, 2011.
4. Joint Statistical Meetings, Vancouver, BC, August 2010.
3. Pan American Institute for Advanced Studies in Statistics and Probability, Guanajuato, MX, May 2010.
2. SIAM Conference Mathematics for Industry: Challenges and Frontiers, San Francisco, CA, October 2009.
1. International Biometric Society, Eastern North American Region Spring Meetings, San Antonio, TX, March 2009.

INVITED
SEMINAR
TALKS

59. Biomedical Informatics Seminar, University of Texas School of Public Health, Houston, TX, January, 11, 2017.
58. MD Anderson Cancer Center Biostatistics Seminar, Houston, TX, November 11, 2016.
57. University of Michigan Complex Systems Seminar, Ann Arbor, MI, April 12, 2016.
56. Australia National University Statistics Seminar, Canberra, Australia, April 1, 2016.
55. Monash University Statistics Seminar, Melbourne, Australia, March 30, 2016.
54. University of Otago Statistics Seminar, Dunedin, New Zealand, March 24, 2016.
53. University of Otago Computer Science Seminar, Dunedin, New Zealand, March 23, 2016.
52. University of Otago Molecular Biology Seminar, Dunedin, New Zealand, March 22, 2016.
51. University of Otago Preventative Medicine Seminar, Dunedin, New Zealand, March 21, 2016.
50. University of Auckland Statistics Seminar, Auckland, New Zealand, March 18, 2016.
49. University of Florida Informatics Institute Seminar, Gainesville, FL, February 12, 2016.
48. University of Florida Statistics Seminar, Gainesville, FL, February 11, 2016.
47. Ohio State University Statistics Seminar, Columbus, OH, November 5, 2015.
46. University of Houston Statistics Seminar, Houston, TX, October 30, 2015.
45. Brain and Behavior Seminar, University of Texas Dallas, May 1, 2015.
44. Department of Statistics Seminar, University of Virginia, March 20, 2015.
43. Statistics Seminar, Imperial College, London, UK, March 6, 2015.
42. Statistical Laboratory Seminar, Cambridge University, Cambridge, UK, March 5, 2015.
41. Computational and Biological Learning Seminar, Cambridge University, Cambridge, UK, March 4, 2015.
40. Department of Statistics Seminar, Texas A & M University, College Station, TX, October 24, 2014.
39. Rice University Cognitive Division Seminar, Houston, TX, October 8.
38. Human Genetics Seminar, University of Texas School of Public Health, Houston, TX, September 29, 2014.
37. UCLA Advanced Neuroimaging Summer Training Program, UCLA, July 28, 2014.
36. Special Biostatistics Seminar, University of Texas Medical Branch, July 2, 2014.
35. Department of Statistics, University of Michigan, April 4, 2014.
34. Keck Seminar, Gulf Coast Consortia, March 14, 2014.
33. Scientia Series, Rice University, March 11, 2014.
32. Department of Statistics, Purdue University, February 28, 2014.
31. Department of Biostatistics, University of Texas School of Public Health, February 14, 2014.
30. Neuroimaging Seminar, New York University, December 10, 2013.

29. Department of Statistics, Carnegie Mellon University, October 14, 2013.
28. Networks Seminar, University of Houston, September 20, 2013.
27. Department of Neuroscience, Baylor College of Medicine, May 10, 2013.
26. Department of Statistics Seminar, Florida State University, March 29, 2013.
25. Department of Biostatistics Seminar, University of North Carolina at Chapel Hill, February 27, 2013.
24. Department of Statistics Seminar, University of Washington, December 3, 2012.
23. XSEDE Scholars Webinar, November 7, 2012.
22. Grand Rounds, Pediatric-Neurology, Texas Children's Hospital, July 18, 2012.
21. Ken Kennedy Institute for Information Technology Seminar Series, Rice University, March 9, 2012.
20. Biostatistics Seminar, Johns Hopkins University School of Public Health, Department of Biostatistics, February 15, 2012.
19. Statistics Seminar Series, University of North Carolina, Department of Statistics and Operations Research, April 9, 2012.
18. Biostatistics Seminar, University of Texas School of Public Health, Department of Biostatistics, September 13, 2011.
17. Seminar Series, Computational and Integrative Biomedical Research, Baylor College of Medicine, September 21, 2011.
16. Biostatistics Seminar, Johns Hopkins University School of Public Health, Department of Biostatistics, October 5, 2011.
15. Seminar Series, Johns Hopkins University, Department of Applied Math and Statistics, October 6, 2011.
14. Statistics Seminar, Stanford University, Department of Statistics, October 11, 2011.
13. Texas Children's Research Seminar Series, Texas Children's Hospital, October 19, 2011.
12. Statistics Colloquium, Rice University Department of Statistics, Houston, TX, February 21, 2011.
11. Biostatistics Seminar, MD Anderson Cancer Center, Houston, TX, March 16, 2011.
10. Statistics Seminar, University of Texas at Austin, McCombs School of Business, Austin, TX, April, 1, 2011.
9. Webinar, SAMSI Hierarchical Modeling Group, April, 8, 2011.
8. Department Colloquia, Texas A&M University Department of Statistics, College Station, TX, October 7, 2010.
7. Houston Area Chapter of the American Statistical Association Meetings, Houston, TX, October 12, 2010.
6. Computational and Applied Mathematics Colloquium, Rice University, Houston, TX, November 22, 2010.
5. Computational Biology Symposium, Baylor College of Medicine, Houston, Texas, January 12, 2010.
4. Statistics Seminar Series, University of Florida Department of Statistics, Gainesville, Florida, January 19, 2010.

3. Statistics Seminar Series, University of Southern California Marshall School of Business, Los Angeles, January 26, 2010.
2. Seminar Series, Carnegie Mellon University Department of Statistics, Pittsburgh, PA, February 8, 2010.
1. Statistics Colloquium, Rice University Department of Statistics, Houston, TX, February 22, 2010.

FUNDING

Funding as a PI or Co-PI:

- 2017-2022, National Science Foundation NeuroNex-1707400, “NeuroNex: Inferring interactions between neurons, stimuli, and behavior”, PI: K. Josic, Co-PIs: **G. I. Allen**, X. Pitkow, A. Patel, R. Rosenbaum, A. Tolias, \$4,400,000.
- 2016-2021, National Science Foundation DMS-1554821, “CAREER: New Techniques for Statistical Learning and Multivariate Analysis”, **PI: G. I. Allen**, \$400,000.
- 2013-2017, National Science Foundation DMS-1264058, “Statistical Methods for Integrated Analysis of High-Throughput Biomedical Data”, **PI: G. I. Allen**, Co-PIs: P. Ravikumar, Z. Liu, \$1,330,000.
- 2013-2016, National Science Foundation CNS-1338099, “MRI: Acquisition of Big-Data Private-Cloud Research Cyberinfrastructure (BDPC)”, PI: M. Vardi, Co-PIs: J. Odegard, L. Kaviraki, **G. I. Allen**, S. Bradshaw, A. Veeraraghavan, \$400,000.
- 2013, Computational and Integrative Biomedical Research Seed Grant, Baylor College of Medicine, “Population Level Differences in Functional Brain Connectivity”, **PI: G. I. Allen**, Co-PI: D. Eagleman, \$15,000.
- 2012-2015, National Science Foundation DMS-1209017, “Multivariate Methods for High-Dimensional Transposable Data”, **PI: G. I. Allen**, \$120,000.
- 2012-2013, Collaborative Advances in Biomedical Computing, Ken Kennedy Institute for Information Technology, Rice University, “Integrating Genetic Networks to Discover Biomarkers for Glioblastoma”, **PI: G. I. Allen**, Co-PI: Z. Liu, \$100,000.
- 2011-2012, Computational and Integrative Biomedical Research Seed Grant, Baylor College of Medicine, “Integrating Genetic Networks to Discover Biomarkers for Glioblastoma”, **PI: G. I. Allen**, Co-PI: Z. Liu, \$15,000.

Funding as a Co-I:

- 2017-2020, CPRIT RP170387, “Development and Validation of a Network-guided, Multi-objective Optimization Model for Cancer Data Analysis”, PI: Z. Liu, Role: Co-I with 5% salary effort.
- 2016-2020, National Institutes of Health / National Institute of General Medicine R01-GM-120033, “Advanced Computational Approaches for NMR Data-mining”, PIs: M. Maletic-Savatic & Z. Liu; Role: Co-I with 10% salary effort.
- 2016-2018, Robert Belfer Neurodegeneration Consortium, “Identification of novel therapeutic targets for Alzheimer’s disease”, PIs: Zoghbi, Tsai, De Pinho; Role: Co-I with 5% effort.
- 2015, National Institutes of Health / National Institute on Drug Abuse R01-DA-026437, “Oxytocin and Brain Reward and Stress Responses to Infant Cues in Addicted Mothers”, PIs: L. Strathearn & L. C. Mayes; Role: Co-I with 5% effort. (Note: Subcontract inactive as of 08/01/2015 as PI moved to University of Iowa).
- 2013-2016, National Science Foundation DMS-1317602, “Computation of large-scale, multi-dimensional sparse optimization problems”, PI: W. Yin, Senior Personnel: **G. I. Allen** (Reviewed as Co-PI. Changed to Senior Personnel after W. Yin moved to UCLA).

PUBLISHED
SOFTWARE

Major Software Packages or Toolboxes:

- “TCGA2STAT: Simple TCGA Data Access for Integrated Statistical Analysis in R”, R package, July 2015.
- “XMRF: An R package to fit Markov Networks to High-Throughput Genetics Data”, R package, July 2015.
- “cvxbiclustr: Convex Biclustering Algorithm”, R package, June 2015.
- “MoNet: Markov Network Toolbox for Functional Connectivity”, Matlab Toolbox, July 2013.
- “sGPCA: Sparse Generalized PCA”, R package and Matlab Toolbox, June 2013.

Other Software:

- “SpaCCr: Spatial Convex Clustering, R package, November, 2016.
- “Local-Aggregate Modeling”, Matlab functions, May 2014.
- “Sparse and Functional PCA”, Matlab functions, August 2013.
- “Tsphere: Transposable Sphering for large-scale inference with correlated data”, R package, November 2011.
- “Sparse Non-Negative Generalized PCA”, Matlab functions, June 2011.
- “KNIFE: KerNel Iterative Feature Extraction”, Matlab functions, July 2011.
- “Transposable Regularized Covariance Models”, R functions, June 2011.

TEACHING
EXPERIENCE

Rice University

1. “Introduction to Statistical Machine Learning”, Statistics 413. (*Undergraduate survey course on practical statistical machine learning and data analysis.*)
 - Fall 2017.
2. “Statistical Machine Learning”, Statistics 613. (*Ph.D. survey course on statistical machine learning theory and methods.*)
 - Fall 2017.
3. “Advanced Topics in Statistical Machine Learning”, Statistics 620. (*Ph.D. advanced seminar course on statistical machine learning theory, methods, and computation.*)
 - Spring 2017.
4. “Data Mining and Statistical Learning”, Statistics 640. (*Ph.D. level survey course on statistical learning theory and methods.*)
 - Fall 2016. (*Also offered as Statistics 444, an undergraduate level survey course.*)
 - Fall 2015. (*Also offered as Statistics 444, an undergraduate level survey course.*)
 - Fall 2014. (*Also offered as Statistics 444, an undergraduate level survey course.*)
 - Fall 2013.
 - Fall 2012.
 - Fall 2011.
5. “Probability and Statistics”, Statistics 310. (*Undergraduate calculus-based introduction to mathematical probability and statistical inference.*)
 - Spring 2015.
 - Spring 2014.

- Spring 2013.
- 6. “Big Data Analytics”, Statistics 699, Fall 2014. *Ph.D. level course focused on data mining for Big Data.*
 - Students participated as a team (Rice Fighting Owl-zheimer’s) in Alzheimer’s Disease Big Data DREAM Challenge and came in 4th place.
- 7. “Statistical Learning: High-Dimensional Data”, Statistics 699, Spring 2011. (*Ph.D. level discussion course on statistical learning for high-dimensional data.*)

Short Courses:

1. Summer Institute for Statistics in Big Data, University of Washington, Seattle, Washington; Module 4: “Unsupervised Methods for Statistical Machine Learning”, Co-Instructor with Yufeng Liu.
 - July 24-26, 2017.
 - July 25-27, 2016.
 - July 15-17, 2015.
2. K2I Summer Institute on Data Science, Rice University, Houston Texas; Instructor for Module 2: “Introduction to Unsupervised Learning”.
 - May 17, 2017.
 - May 25, 2016.
 - June 16, 2015.
3. Eastern North American Region (ENAR) of the International Biometrics Society, Austin, TX; “Introduction to Statistical Learning”, Co-Instructor with Yufeng Liu.
 - March 6, 2016.

Invited Lectures and Guest Lectures:

- “Multi-Level Statistical Modeling”, Neurological Research Institute continuing education lecture, July 2016.
- Random Matrix Theory (Stat 498, 3 lectures), Rice University (Fall 2010); Pediatric-Neurology Grand-Rounds Lecture (09/2011) and Pediatric-Neurology Fellows Lecture (01/2012), Texas Children’s Hospital; Department of Biostatistics Guest Lecture (07/2011), University of Texas School of Public Health, UCLA Advanced Neuroimaging Summer Training Program (07/2014).

MENTORING

Current PhD Students:

1. Fredrick Campbell, PhD Candidate, Statistics (PhD expected 2017).
 - Student Travel Award, Conference on Statistical Learning and Data Science, June 2016.
 - NSF Graduate Research Fellow, 2012-2015.
2. Yulia Baker, PhD Candidate, Statistics (PhD expected 2017).
 - Student Travel Award, Southern Regional Council on Statistics Summer Conference, June 2014.
3. John Nagorski, PhD Candidate, Statistics (PhD expected 2017).
 - Student Travel Award, Southern Regional Council on Statistics Summer Conference, June 2015.
4. Minjie Wang, PhD Candidate, Statistics (PhD expected 2020).

Former Postdoctoral Fellows:

1. Elizabeth Sweeney, PhD 2016 Johns Hopkins University; Now at Flatiron Health.
 - Rice Academy Postdoctoral Fellowship, 2016 - 2017.

Former PhD Students:

1. Manjari Narayan, 2016 PhD, Electrical and Computer Engineering; Now a Postdoctoral Fellow at Stanford University.
 - Distinguished Student Paper Award, Eastern North America Region of the International Biometric Society, March 2016.
 - First Place, Conference of Texas Statisticians Student Poster Competition, March 2013.
 - Student Travel Award Pattern Recognition in Neuroimaging, June 2013
 - R. L. Anderson Student Poster Award, Southern Regional Council on Statistics Summer Conference, June 2014.
2. Yue Hu, 2016 PhD, Statistics; Now at Liberty Mutual Insurance.
 - Distinguished Student Paper Award, Eastern North America Region of the International Biometric Society, March 2015.

Current Undergraduate Students & Senior Design Projects:

1. Tiffany Tang, Statistics, January 2017 - present.

Former Undergraduate Researchers & Senior Design Projects Supervised:

1. Andrew Dumit, Statistics, August 2016 - May 2017; Now at Buoy Health.
 - First place, Rice Undergraduate Research Symposium (group project), April 2017.
2. Raymond Cano, Computer Science, August 2016 - May 2017; Now at Plaid Technologies.
 - First place, Rice Undergraduate Research Symposium (group project), April 2017.
3. Tianyi Yao, Statistics & Electrical and Computer Engineering, January 2016 - May 2017; Now a Rice Statistics PhD student.
4. Joshua Lipshultz, Computer Science, August 2015 - May 2016; Now at Google.
5. Emily Burnett, Statistics, January 2016 - May 2016; Now at NC State University.
6. Jake Kornblau, Statistics & Computer Science, January 2016 - May 2016; Now at Two Sigma.
7. Linda Zheng, Statistics & Computer Science, January 2016 - May 2016; Now at Capital One.
8. Qijia Jiang, Statistics & Electrical and Computer Engineering, Summer 2014 - Spring 2015; Now at Stanford University.
9. Connor Barnhill, Statistics, Spring 2015; Now at Two Sigma.
10. Jessica Gan, Statistics, Spring 2014; Now at Accenture Consulting.

External Committees:

1. Dingqiao Wen, PhD Computer Science, Advisor: Luay Nakhleh, 2017.
2. Yangyang Xu, PhD Computational and Applied Mathematics, Advisor: Wotao Yin, 2014.
3. Andrew Lan, Masters Electrical and Computer Engineering, Advisor: Rich Baraniuk, 2014.

4. Eva Dyer, PhD Electrical and Computer Engineering, Advisor: Rich Baraniuk, 2014.
5. Anna Drummond, PhD Computer Science, Advisor: Chris Jermaine, 2014.
6. Rajoshi Biswas, Masters Electrical and Computer Engineering, Advisor: Ashutosh Sabharwal, 2013.
7. Jay Ghosh, PhD Civil and Environmental Engineering, Advisor: Jamie Padgett, 2013.
8. Benjamin Appiah, PhD Bioengineering, Advisor: Rebekah Drezek, 2011.

DEPARTMENTAL
& UNIVERSITY
SERVICE

Rice University
Departmental Service (Statistics)

Graduate Admissions Committee.

- 2010-2011.
- 2011-2012.
- 2012-2013.
- 2013-2014.

Faculty Search Committee

- 2013-2014.
- 2016-2017.

Graduate Curriculum Committee, 2014-2015.

Undergraduate Curriculum Committee, 2015-2016.

External and University Service

Team Lead, “Rice Center for Transforming Data to Knowledge”, Rice LIFT, 2017.

Faculty Search Committee, Department of Electrical and Computer Engineering, 2016-2017.

Adviser, Data Science Search Committee, 2016-2017.

Faculty Search Committee, Department of Computer Science.

- 2014-2015.
- 2015-2016.

Data Science Minor Committee, School of Engineering, 2014-2015.

Weiss College Associate, 2011 - present.

Baylor College of Medicine & Texas Children’s Hospital

Statistical Consulting Office Hours. May 2011 - present. *This is a free drop-by consulting service lasting one hour per week where I offer statistical advice to the BCM / TCH community. Helped 100+ people.*

Reviewer, Computational and Integrative Biomedical Research Seed Grants, 2011 & 2012.

SELECTED
OUTREACH
ACTIVITIES

- Tapia Center for Excellence: Math, Enhancement Speaker, June, 2017.
- Kipp Houston Leadership Speaker Series, May, 2017.
- Rice Alumni Classroom Connect Keynote Speaker, April, 2017.
- Papadopoulos Fellow, Kinkaid School, April 2017.

- Australian Mathematical Sciences Institute, ChooseMaths campaign speaker, January 2017.
- Rice Office of STEM Engagement, Middle-School Mathematics Teacher’s Workshop, guest speaker, June 2016.
- “This is Statistics” outreach video as part of the American Statistical Associations public relations campaign, August 2014.
- Women in STEM, Rice University course guest speaker, April 2014.
- Association for Women in Mathematics, Salary Negotiation Workshop, panelist, March 2014.
- SACNAS Conference, Seattle, Washington, speaker and undergraduate judge / mentor, October 2012.
- Pan American Institute for Advanced Studies in Statistics and Probability, Xalapa, MX, speaker, August 2011.
- Pan American Institute for Advanced Studies in Statistics and Probability, Guanajuato, MX, speaker, May 2010.

SELECTED
PRESS

- “NSF funds Houston-based teams’ quest to better understand the brain”, *Rice News*, August 2017.
- “Maths set to hold back jobs in big data”, *The Australian*, February 1, 2017. (Press for Australian Mathematical Sciences Institute summer public lecture).
- “Big Data’s Prospects for Big Results”, *Houston Matters*, August 30, 2016.
- “Rice statistician’s persistence helps scientists interpret big data”, *Houston Chronicle*, August 2016.
- “Rice’s Genevera Allen wins NSF CAREER award”, *Rice News*, April 2016.
- “PROFILES: Dr. Genevera Allen (Rice University)”, *ISBIS News*, March 2015.
- “American Statistical Association PR Campaign Launches to Great Interest”, *AMSTAT News*, October 2014.
- “The Crystal Ball Says. . .”, *AMSTAT News*, October 2014.
- “American Statistical Association Participates in Capitol Hill Event Highlighting NSF-Funded Research”, *AMSTAT News*, July 2014.
- “Statistical Scientists Advance Federal Research Initiatives”, *AMSTAT News*, July 2014.
- “miRNA profiling depends on platform”, *Nature Methods* **11**, 369, March 2014.
- “30 under 30: Science & Healthcare”, *Forbes Magazine*, January 2014.
- “New statistical tools being developed for mining cancer data”, *Rice News*, November, 2013.
- Congressman McNerney highlights research in speech on the House floor, September 20, 2013.
- “American Statistical Association Takes Part in Annual Capitol Hill Exhibition”, *AMSTAT News*, July 2013.
- “IBS Young Statistician Showcase”, *IBS Biometric Bulletin*, **29**:4, December 2012.
- “Making Sense of Big Data”, *Rice Engineering Magazine*, Fall 2012.
- “New Faculty Spotlight”, *Rice Engineering Magazine*, Fall 2010.
- Sallie Ann Keller, “Vital Statistics”, *Nature*, **467**, pg. 914, 2010.

PROFESSIONAL
MEMBERSHIPS

American Statistical Association, Institute of Mathematical Statistics, International Biometrics Society.

PROFESSIONAL
SERVICE

1. Refereeing: *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society Series B*, *Electronic Journal of Statistics*, *Journal of Multivariate Analysis*, *Annals of Applied Statistics*, *Journal of Statistical Computation and Simulation*, *Journal of Computational and Graphical Statistics*, *Statistica Sinica*, *Algorithms*, *Computational Statistics & Data Analysis*, *Bioinformatics*, *PLOS One*, *Statistical Analysis and Data Mining*, *IEEE Trans. on Signal Processing*, *Biometrics*, *International Conference on Machine Learning*, *Artificial Intelligence and Statistics*, *Neural Information Processing Systems*, *International Conference on Pattern Recognition: Applications and Methods*, *Neural Information Processing Systems*, *NeuroImage*, *WIREs Computational Statistics*, *IEEE Data Science & Advanced Analytics*, *Proceedings of the National Academy of Science*, *PLOS Computational Biology*.
2. Elected Positions:
 - 2016-2018 American Statistical Association Section on Statistical Computing Secretary / Treasurer.
 - 2016-2018 American Statistical Association Section on Statistical Learning and Data Mining Program Chair Elect and Program Chair.
3. Appointed Positions:
 - 2017-2019 ASA Statistical Learning and Data Science awards chair.
 - 2016 Joint Statistical Meetings Poster Chair.
 - 2015-2016 National Academies of Sciences “Refining the Concept of Scientific Inference When Working With Big Data: A Workshop” Workshop Planning Committee.
4. Program Committee Co-Chair:
 - International Conference on Intelligent Biology and Medicine, 2016.
5. Program Committees:
 - Conference on Statistical Learning and Data Mining, 2016.
 - Interface 2012: The Future of Statistical Computing, 2012.
6. Sessions Organized:
 - “Models and Visualization for Exploratory Analysis of Big Data”, International Statistics Institute World Statistics Congress, 2017.
 - “Extraordinary Power of Data”, invited posters, Joint Statistical Meetings 2016.
 - “Topics in Statistical Learning”, Conference on Statistical Learning and Data Science 2016.
 - “Statistical Machine Learning for Big-Bio-Data”, Eastern North America Region (ENAR) of the International Biometric Society 2016.
 - “Statistical Machine Learning for Big Data”, International Statistics Institute World Statistics Congress, 2015.
 - “Optimization for Dimension Reduction”, INFROMS, 2014.
 - “Innovations in Dimension Reduction of Big-Data”, International Society for Business and Industrial Statistics / American Statistical Association Statistical Learning and Data Mining Conference, 2014.
 - “Big Data Statistics”, Conference of Texas Statisticians, 2013.
 - Interface 2012: The Future of Statistical Computing, “High-Dimensional Graphical Models”, 2012.
 - Joint Statistical Meetings late breaking session, “Heritage Health Prize”, 2011.
7. Sessions Chaired:
 - International Statistics Institute World Statistics Congress, July, 2017.

- International Conference on Intelligent Biology and Medicine, 2016.
 - Joint Statistical Meetings 2016.
 - Conference on Statistical Learning and Data Science 2016.
 - Eastern North America Region of the International Biometric Society 2016.
 - Joint Statistical Meetings 2015.
 - International Statistics Institute World Statistics Congress 2015.
 - INFORMS 2014.
 - International Society for Business and Industrial Statistics / American Statistical Association Statistical Learning and Data Mining 2014.
 - Conference of Texas Statisticians, 2013.
 - International Chinese Statistical Association 2012.
 - Statistical Learning and Data Mining Conference 2012.
 - Interface 2012.
 - Joint Statistical Meetings 2011.
8. Professional Committees Served:
- IEEE International Conference on Data Science and Advanced Analytics session on Statistical Learning and Data Science, reviewer, 2016.
 - American Statistical Association Statistical Learning and Data Science student paper competition committee, 2016.
 - American Statistical Association Statistics in Imaging student paper competition committee, 2014-2015.
 - Reviewer, American Statistical Association Big-Data white paper, 2014.
 - American Statistical Association white paper committee on Statistical Science and the BRAIN Initiative, 2014.
 - American Statistical Association Statistical Learning and Data Mining student paper competition committee, 2012-2013.
9. Roundtable Discussion Leader:
- “Statistics, Machine Learning & Big Data”, International Statistics Institute World Statistics Congress 2015.
 - “Visualizing High-Dimensional Data”, Joint Statistical Meetings 2011.
10. Discussant:
- International Statistics Institute World Statistics Congress, Marrakech, Morocco, July, 2017.
 - Statistical Analysis of Neural Data Workshop, Pittsburgh, Pennsylvania, May, 2017.
 - International Statistics Institute World Statistics Congress, Rio de Janeiro, Brazil, July, 2015.
11. Panelist:
- SIAM International Conference on Data Mining, Houston, TX, April, 2017.
12. Ad hoc Reviewer, Biostatistical Methods and Research Design Study Section (BMRD), National Institutes of Health (NIH):
- June 2012.
 - October 2012.
13. National Science Foundation (NSF) Review Panelist:
- DMS, 2013.
 - DMS, 2014.
 - NIH-NIGMS / NSF-DMS, 2015.
 - NIH / NSF-CRCNS, 2016.

REFERENCES

Available upon request.