

Luis E Carvalho

Associate Professor
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Boston University
Dept. of Mathematics and Statistics
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Boston, MA 02215

CURRICULUM VITAE

Education

Brown University
Division of Applied Math
Providence, RI

Ph.D., 2003–2008

Title: Bayesian centroid estimation

Advisor: Charles Lawrence, PhD

Related areas: Computational biology, Bayesian statistics, Statistical inference.

**Federal University
of Ceara (UFC)**
Dept. of Computer Science
Brazil

M.Sc., 2000–2002

Title: Bounded tree width decomposition in graphs: an algorithmic research

Advisor: Claudia Linhares-Sales, PhD

Related areas: Graph theory, Combinatorial optimization, Algorithm analysis and complexity.

**Federal University
of Rio de Janeiro (UFRJ)**
Program in Transportation
Engineering (PET)
Brazil

M.Sc., 1998–2001

Title: Development of an integrated solution for solid waste collection systems in GIS (Geographic Information System) environment

Advisor: Amaranto Pereira, PhD

Related areas: Logistics and optimization, Information systems, Urban development.

**Federal University
of Ceara (UFC)**

B.S., 1993–1997

Civil Engineering, *Magna Cum Laude*

Research Interests

Bayesian Statistics

Statistical inference (point and interval estimation) on high-dimensional discrete spaces: characterization, algorithms, and applications. *Centroid estimation.*

Computational Statistics

MCMC methods in discrete structures and constrained high-dimensional discrete spaces. Graphical models.

Computational Biology

Bayesian statistical inference applied to genome-wide association studies (GWAS), motif discovery, and, more generally, systems biology.

Networks

Community detection and inference in stochastic block models. *Network modeling*, including regression and regularization.

Remote Sensing

Land cover classification, above-ground biomass modeling.

Research Interests (continued)

Transportation Engineering Origin-destination matrix estimation, link count based inference, traffic assignment.

Professional Experience

Fall 2020– **Director**, MSc in Statistical Practice, Dept. of Math. and Statistics, Boston University

Fall 2016– **Associate Professor**, Dept. of Math. and Statistics, Boston University

Fall 2009–Spring 2016 **Assistant Professor**, Dept. of Math. and Statistics, Boston University

Fall 2008–Spring 2009 **Postdoctoral Researcher**, Division of Applied Math., Brown University

2001–2002 **Consultant** on Logistics and Geographic Information Systems (GIS), Brazil

1997–1999 **Project Manager**, Construtora Marquise, Brazil

Teaching Experience

Spring 2021 *MSSP Practicum II* ~ 50 students

Fall 2020 *MSSP Practicum I* ~ 50 students

Spring 2020 *Statistical Machine Learning* ~ 40 students
MSSP Practicum II ~ 40 students

Fall 2019 *Bayesian Statistics* ~ 50 students
MSSP Practicum I ~ 40 students

Summer 2019 *Basic Probability and Statistics* ~ 20 students

Spring 2019 *Generalized Linear Models* ~ 50 students

Fall 2018 *Computational Statistics* ~ 50 students
Data Science in R ~ 60 students

Summer 2017 *Applied Statistics* ~ 10 students

Spring 2017 *Generalized Linear Models* ~ 30 students

Fall 2016 *Basic Statistics and Probability* ~ 100 students
Computational Statistics ~ 30 students

Spring 2016 *Applied Statistics* ~ 80 students
Generalized Linear Models ~ 30 students

Teaching Experience (continued)

Fall 2015	<i>Bayesian Statistics</i> ~ 30 students
Spring 2015	<i>Generalized Linear Models</i> ~ 30 students
Fall 2014	<i>Basic Statistics and Probability</i> ~ 120 students <i>Computational Statistics</i> ~ 30 students
Spring 2014	<i>Basic Statistics and Probability</i> ~ 90 students <i>Generalized Linear Models</i> ~ 10 students
Spring 2013	<i>Basic Statistics and Probability</i> ~ 130 students <i>Generalized Linear Models</i> ~ 15 students
Fall 2012	<i>Computational Statistics</i> ~ 30 students
Spring 2012	<i>Basic Statistics and Probability</i> ~ 130 students
Fall 2011	<i>Linear Models</i> ~ 60 students
Summer 2011	<i>Basic Statistics and Probability</i> ~ 30 students
Spring 2011	<i>Basic Statistics and Probability</i> ~ 125 students
Fall 2010	<i>Linear Models</i> ~ 40 students <i>Bayesian Statistical Modeling and Discrete Inference</i> ~ 20 students
Spring 2010	<i>Basic Statistics and Probability</i> ~ 125 students
Fall 2009	<i>Linear Models</i> ~ 50 students
Spring 2009	Postdoctoral Researcher , Division of Applied Math, Brown University <i>Computational Statistics</i> ~ 20 students

Publications

Peer-Reviewed

- Pitombeira Neto, A. R., Loureiro, C. F. G., and Carvalho, L. E., (2020) *A Dynamic Hierarchical Bayesian Model for the Estimation of Day-to-Day Origin-destination Flows in Transportation Networks*. *Networks and Spatial Economics* 20, 499–527. doi:10.1007/s11067-019-09490-5
- Baccini, A., Walker, W., Carvalho, L. E., Farina, M., and Houghton, R. A., (2019) *Response to Comment on “Tropical forests are a net carbon source based on aboveground measurements of gain and loss”*. *Science* 363, (6423), eaat1205. doi:10.1126/science.aat1205
- Pitombeira Neto, A. R., Loureiro, C. F. G., and Carvalho, L. E., (2018) *Bayesian Inference on Dynamic Linear Models of Day-to-Day Origin-Destination Flows in Transportation Networks*. *Urban Science* 2 (4), 117. doi:10.3390/urbansci2040117

Publications (continued)

- Klein, J., Carvalho, L. E., Zaia, J., (2018) *Application of Network Smoothing to Glycan LC-MS Profiling*. *Bioinformatics* 34(20), 3511–3518. doi:10.1093/bioinformatics/bty397
- Hogan, J. D., Klein, J. A., Wu, J., Chopra, P., Boons, G. J., Carvalho, L. E., Lin, C., Zaia, J., (2018) *Software for peak finding and elemental composition assignment for glycosaminoglycan tandem mass spectra*. *Molecular and Cellular Proteomics*, pii:mcp.RA118.000590. doi:10.1074/mcp.RA118.000590
- Glanz, H. and Carvalho, L. E., (2017) *An Expectation-Maximization Algorithm for the Matrix Normal Distribution with an Application in Remote Sensing*. *Journal of Multivariate Analysis* 167, 31–48. doi:10.1016/j.jmva.2018.03.010
- Baccini, A., Walker, W., Carvalho, L. E., Farina, M., Sulla-Menashe, D., and Houghton, R. A., (2017) *Tropical Forests Are a Net Carbon Source Based on New Measurements of Gain and Loss*. *Science*, 358 (6360), 230–234. doi:10.1126/science.aam5962
- Johnston, I., Hancock, T., Mamitsuka, H., and Carvalho, L. E., (2016) *Gene-Proximity Models for Genome-Wide Association Studies*. *Annals of Applied Statistics*, 10 (3), 1217–1244. doi:10.1214/16-AOAS907
- Peng, L. and Carvalho, L. E., (2016) *Bayesian Degree-Corrected Stochastic Blockmodels for Community Detection*. *Electronic Journal of Statistics*, 10 (2), 2746–2779. doi:10.1214/16-EJS1163
- Pham, L. M., Carvalho, L. E., Schaus, S., and Kolaczyk, E. D., (2015) *Perturbation Detection Through Modeling of Gene Expression on a Latent Biological Pathway Network: A Bayesian Hierarchical Approach*. *Journal of the American Statistical Association*, 111 (513), 73–92. doi:10.1080/01621459.2015.1110523
- Carvalho, L. E., (2015) *An Improved Evaluation of Kolmogorov's Distribution*. *Journal of Statistical Software*, 65 (CS3).
- Glanz, H., Carvalho, L. E., Sulla-Menashe, D., and Friedl, M., (2014) *A Parametric Model for Classifying Land Cover and Evaluating Training Data Based on Multi-Temporal Remote Sensing Data*. *ISPRS Journal of Photogrammetry and Remote Sensing*, 97 (0), 219–228.
- Gomes, A. L. C., Abeel, T., Peterson, M., Azizi, E., Lyubetskaya, A., Carvalho, L. E., and Galagan, J., (2014) *Decoding ChIP-seq with a Double-Binding Signal Provides Site Detection with Single-Nucleotide Resolution and Predictions of Cooperative Interaction*. *Genome Research*, July, 2014. doi:10.1101/gr.161711.113
- Carvalho, L. E., (2013) *A Bayesian Statistical Approach for Inference on Static Origin-Destination Matrices in Transportation Studies*. *Technometrics*, 56(2), 225–237. doi:10.1080/00401706.2013.826144
- Carvalho, L. E., (2013) *Bayesian Centroid Estimation for De Novo Motif Discovery*. *PLoS ONE*, 8(12): e80511. doi:10.1371/journal.pone.0080511.
- Carvalho, L. E. and Lawrence, C. E., (2008) *Centroid estimation in discrete high-dimensional spaces with applications in biology*. *Proc. Nat. Acad. Sci. USA* 105(9):3209–3214.

Publications (continued)

- McKee, A. E., Neretti, N., Carvalho, L. E., Meyer, C. M., Fox, E. A., Brodsky, A. S., and Silver, P. A., (2007) *Exon expression profiling reveals stimulus-mediated exon use in neural cells*. *Genome Biology* 8:R159.

Refereed Proceedings

- Peng, L., and Carvalho, L. E., (2014) *Group-Corrected Stochastic Blockmodels for Community Detection on Large-scale Networks*. In: NIPS 2014 Workshop, "Networks: From Graphs to Rich Data", Montreal, Canada.
- Johnston, I. and Carvalho, L. E., (2014) *A Bayesian Hierarchical Gene Model on Latent Genotypes for Genome-Wide Association Studies*. *BMC Proceedings*, 8(Suppl 1):S45. doi:10.1186/1753-6561-8-S1-S45
- Carvalho, L. E. and Loureiro, C. F. G., (2010) *A Bayesian multinomial-Poisson simplified model for network traffic inference based on link count data*. In: World Conference in Transport Research, 2010, Lisbon, Portugal.
- Vieira, A. B., Carvalho, L. E., Balassiano, R., Teypez, N., and Cung, V., (2007) Solving the transit network design problem with constraint programming. In: *11th World Conference on Transport Research (WCTR)*, Berkeley, CA.
- Carvalho, L. E., Silva, H. N., Loureiro, C. F. G., and Meneses, H. B., (2006) Geographically weighted linear regression in GIS environment (in portuguese). In: *XX Congresso de Pesquisa e Ensino em Transportes – ANPET*, Brasilia, DF, Brazil.
- Loureiro, C. F. G., Silva, H. N., and Carvalho, L. E., (2006) Analysis methodology for geographically weighted linear regression when applied to intermunicipal trip phenomena (in portuguese). In: *XX Congresso de Pesquisa e Ensino em Transportes – ANPET*, Brasilia, DF, Brazil.

Book Chapters

- Glanz, H. and Carvalho, L. E., (2015) A Spanning Tree Hierarchical Model for Land Cover Classification, In: de Campos, A. P., Neto, F. L., Rifo, L. R., Stern, J. M., Lauretto, M. (eds.), *Interdisciplinary Bayesian Statistics* (Refereed proceedings of EBEB 2014, XII Brazilian Meeting on Bayesian Statistics).
- Peng, L. and Carvalho, L. E., (2015) Bayesian Ridge-Regularized Covariance Selection with Community Behavior in Latent Gaussian Graphical Models, In: de Campos, A. P., Neto, F. L., Rifo, L. R., Stern, J. M., Lauretto, M. (eds.), *Interdisciplinary Bayesian Statistics* (Refereed proceedings of EBEB 2014, XII Brazilian Meeting on Bayesian Statistics).
- Johnston, I., Jin, Y., and Carvalho, L. E., (2015) Assessing a Spatial Boost Model for Quantitative Trait GWAS, In: de Campos, A. P., Neto, F. L., Rifo, L. R., Stern, J. M., Lauretto, M. (eds.), *Interdisciplinary Bayesian Statistics* (Refereed proceedings of EBEB 2014, XII Brazilian Meeting on Bayesian Statistics).
- Carvalho, L. E., (2008) Building data structures and iterators in Lua, In: de Figueiredo, L. H., Ierusalimschy, R., and Celes, W. (eds.), *Lua programming gems*, Lua.org.
- Carvalho, L. E., (2008) A primer of scientific computing in Lua, In: de Figueiredo, L. H., Ierusalimschy, R., and Celes, W. (eds.), *Lua programming gems*, Lua.org.

Submitted Publications

- Reynolds, D., Carvalho, L., *A Latent Association Graph Model for Frequent Itemset Mining*. Under revision at Computational Statistics and Data Analysis.
- Ahelegbey, D. F., Carvalho, L. E., Kolaczyk, E., *A Bayesian Covariance Graphical and Latent Position Model for Multivariate Financial Time Series*. Under revision on Annals of Applied Statistics. Pre-print available at <https://arxiv.org/abs/1712.06797>.
- Upton, E., Carvalho, L., *Bayesian Network Regularized Regression for Modeling Urban Crime Occurrences*. Submitted to Annals of Applied Statistics. Pre-print available at <https://arxiv.org/abs/1708.05047>
- Hogan, J. D., Wu, J., Klein, J. A., Lin, C., Carvalho, L. E., Zaia, J., *GAGrank: Software for Glycosaminoglycan Sequence Ranking Using a Bipartite Graph Model*. Submitted to Molecular and Cellular Proteomics.

Publications in Preparation

- Carvalho, L. E., Consonni, G., Forte, A. D., Garcia-Donato, G., *Linearly Invariant Objective Bayesian Priors for Linear Models*. In preparation.
- Frost, R., Baccini, A., Carvalho, L. E., *A Bayesian Dynamic Linear Model to Track Landsat Reflectance and Predict Above-Ground Carbon Stock*. In preparation.
- Reynolds, D., Fabian, P., Carvalho, L. E., *Longitudinal HMM for Modeling Lung Function in Pediatric Asthma Patients*. In preparation.
- Chou, L., Carvalho, L. E., *Linearly Constrained Models for Origin-Destination Matrix Estimation*. In preparation.
- Huang, M., Carvalho, L. E., *A Soft Support Vector Machine Generalized Linear Model for Binary Classification*. In preparation.
- Wang, L., Carvalho, L. E., *Deviance Matrix Factorization*. In preparation.

Invited Talks

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| July 2019 | <i>Statistical Applications in Network Science (Short Course)</i> , Universidade de São Paulo, São Carlos, Brazil. |
| June 2019 | <i>Applications of Bayesian Network Regularized Regression</i> , Università Cattolica del Sacro Cuore, Milan, Italy. |
| June 2018 | <i>Bayesian Network Regularized Regression for Crime Modeling</i> , 14th World Meeting of the International Society for Bayesian Analysis (ISBA), Edinburgh, Scotland. Jointly with <u>Liz Upton</u> . |

Invited Talks (continued)

- April 2018** *Bayesian Network Regularized Regression for Crime Modeling*, Università Cattolica del Sacro Cuore, Milan, Italy.
- April 2018** *Statistical Modeling of Network Indexed Big Data*, Wetsus Workshop, Leeuwarden, Netherlands.
- November 2017** *Bayesian Network Regularized Regression for Crime Modeling*, Universitat de València, Valencia, Spain.
- January 2017** *Data Science in Statistics*, BU Data Science Day, Boston, MA.
- August 2016** *Bayesian Network Regularized Regression for Crime Modeling*, BU-Keio Workshop, Boston, MA.
- February 2016** *A Gene-Proximity Model and Computational Methods for Genome-Wide Association Studies*, Ohio State University, Columbus, OH.
- October 2015** *A Hierarchical Statistical Model based on Latent Genotypes for Genome-Wide Association Studies*, University of Connecticut, Storrs, CT.
- October 2015** *A Hierarchical Statistical Model based on Latent Genotypes for Genome-Wide Association Studies*, Worcester Polytechnic Institute, Worcester, MA.
- July 2015** *A Hierarchical Statistical Model based on Latent Genotypes for Genome-Wide Association Studies*, 60th World Statistics Congress, Rio de Janeiro, Brazil.
- June 2015** *Recent Bayesian Developments in Origin-Destination Matrix Estimation*, Federal University of Ceara Summer Workshop, Fortaleza, Brazil.
- March 2015** *A Hierarchical Statistical Model and Computational Methods for Genome-Wide Association Studies*, Biostatistics Seminar, University of North Carolina, Chapel Hill, NC.
- September 2014** *A Hierarchical Statistical Model and Computational Methods for Genome-Wide Association Studies*, Statistics Seminar, Rice University, Houston, TX.
- July 2014** *Hierarchical Gene-Proximity Models for Genome-Wide Association Studies*, Joint Statistical Meetings 2014, Boston, MA. Jointly with [Ian Johnston](#), Timothy Hancock, and Hiroshi Mamitsuka. *Best student paper, Section on Bayesian Statistical Science.*
- April 2014** *A Bayesian Degree-Corrected Stochastic Block Model for Community Detection in Large Networks*, 28th New England Statistics Symposium, Cambridge, MA.
- March 2014** *Bayesian Ridge-Regularized Covariance Selection with Community Behavior in Latent Gaussian Graphical Models*, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil.
- December 2013** *A Hierarchical Statistical Model and Computational Methods for Genome-Wide Association Studies*, Forsyth Institute, Cambridge, MA.
- October 2013** *Inference in Discrete Multidimensional Spaces: A Bayesian Approach*, First Symposium of the Brazilian Scientific Community in New England, Cambridge, MA.

Invited Talks (continued)

- September 2013** *Bayesian Centroid Estimation for Discrete Inference: Theory and Applications*, Boston-Keio Summer Workshop, Boston, MA.
- April 2013** *Graph-regularized Centroid Estimation on a Hierarchical Bayesian Model for Genome-Wide Association Studies*, 27th New England Statistics Symposium, Storrs, CT.
- December 2012** *Graph-regularized Centroid Estimation on a Hierarchical Bayesian Model for Genome-Wide Association Studies*, Bayesian Methods in Biostatistics and Bioinformatics, Barcelona, Spain. Jointly with Ian Johnston.
- November 2012** *Integrating Lua for Fun and Profit: Vim's `if_lua` and PostgreSQL's PL/Lua*, Lua Workshop 2012, Reston, VA.
- August 2012** *Bayesian Models for Origin-Destination Matrix Estimation*, Federal University of Ceara Summer Workshop, Fortaleza, Brazil, August 2012.
- June 2012** *Bayesian Centroid Estimation for Genome-Wide Association Studies*, SIAM Conference on Discrete Mathematics, Halifax, Canada.
- April 2012** *Bayesian Centroid Estimation for Motif Discovery*, 26th New England Statistics Symposium, Boston, MA.
- April 2012** *MODIS Land Cover Classification using Mutual Information Spanning Trees*, 26th New England Statistics Symposium, Boston, MA. Jointly with [Hunter Glanz](#).
- April 2012** *A Gene-SNP Hierarchical Bayesian Model for Genome-Wide Association Studies*, 26th New England Statistics Symposium, Boston, MA. Jointly with [Ian Johnston](#).
- April 2012** *Bayesian Degree-corrected Stochastic Block Models for Community Detection*, 26th New England Statistics Symposium, Boston, MA. Jointly with [Lijun Peng](#).
- March 2012** *A Hierarchical Gene-SNP Bayesian Model for Genome-Wide Association Studies*, Biostatistics Seminar, Boston University.
- May 2011** *Doing Bioinformatics in PostgreSQL*, PGCon 2011, Ottawa, Canada.
- April 2011** *Bayesian Land Cover Classification for MODIS Data*, 25th New England Statistics Symposium, Storrs, CT.
- October 2010** *Bayesian Inference for Genome-Wide Association Studies*, Biostatistics Seminar, Boston University.
- June 2010** *Bayesian Inference for Genome-Wide Association Studies*, The 19th Annual ICSA Applied Statistics Symposium, Indianapolis, IN.
- April 2010** *Bayesian Inference for Genome-Wide Association Studies*, Statistics and Probability Seminar, Boston University.
- April 2010** *Bayesian Centroid Estimation*, The 24th New England Statistics Symposium, Cambridge, MA.

Invited Talks (continued)

February 2010 *Applications of Centroid Estimation to Statistical Genetics*, Statistical Genetics Seminar, Dept of Biostatistics, Boston University.

Contributed Talks, Abstracts, and Posters

December 2014 *Group-Corrected Stochastic Blockmodels for Community Detection on Large-Scale Networks*, NIPS 2014 Workshop on Networks, Montreal, Canada.

July 2014 *A Bayesian Degree-Corrected Stochastic Block Model for Community Detection in Large Networks*, Joint Statistical Meetings 2014, Boston, MA.

July 2014 *Bayesian Ridge-Regularized Covariance Selection with Community Behavior in Latent Gaussian Graphical Models*, Joint Statistical Meetings 2014, Boston, MA. Jointly with [Lijun Peng](#).

July 2014 *Bayesian Land Cover Classification in Massive Remote Sensing Satellite Datasets* (poster), Twelfth World Meeting of the International Society for Bayesian Analysis (ISBA), Cancun, Mexico. Jointly with Hunter Glanz, Mark Friedl, and Damien Sulla-Menashe.

April 2014 *Bayesian Ridge-Regularized Covariance Selection with Community Behavior in Latent Gaussian Graphical Models*, 28th New England Statistics Symposium, Cambridge, MA. Jointly with [Lijun Peng](#).

April 2014 *Hierarchical Gene-Proximity Models for Genome-Wide Association Studies*, 28th New England Statistics Symposium, Cambridge, MA. Jointly with [Ian Johnston](#). *Best student paper*.

August 2013 *Reducing Dimensionality in Multitemporal MODIS Data Using Principal Component Analysis for Land Cover Mapping*, Joint Statistical Meetings 2013, Montreal, Canada. Jointly with [Hunter Glanz](#), Damien Sulla-Menashe, and Mark Friedl.

August 2013 *Detecting Perturbed Biological Pathways Through Latent Network Modeling of Gene Expression*, Joint Statistical Meetings 2013, Montreal, Canada. Jointly with Eric Kolaczyk, [Lisa Pham](#), and Scott Schaus.

August 2013 *Bayesian Centroid Inference and Characterization of Posterior Spaces with Applications in Motif Finding*, Joint Statistical Meetings 2013, Montreal, Canada.

August 2012 *Approximate Centroid Inference for Complex Graphical Models*, Joint Statistical Meetings 2012, San Diego, CA. Jointly with [Hunter Glanz](#).

August 2012 *Perturbation Detection through Modeling of Gene Expression on a Latent Biological Pathway Network*, Joint Statistical Meetings 2012, San Diego, CA. Jointly with [Lisa Pham](#), Scott Schaus, and Eric Kolaczyk.

August 2012 *A Bayesian Degree-Corrected Stochastic Block Model for Community Detection*, Joint Statistical Meetings 2012, San Diego, CA. Jointly with Lijun Peng.

Contributed Talks, Abstracts, and Posters (continued)

- July 2012** *Bayesian Centroid Estimation for De-novo Motif Discovery*, 8th World Congress in Probability and Statistics, Istanbul, Turkey.
- June 2012** *Graph-regularized Centroid Estimation on a Hierarchical Bayesian Model for Genome-Wide Association Studies*, 11th ISBA World Meeting, Kyoto, Japan. Jointly with Ian Johnston.
- December 2011** *Uncertainty Analysis in Large Area Aboveground Biomass Mapping*, AGU Fall Meeting 2011, San Francisco, CA. Jointly with Alessandro Baccini, Ralph Dubayah, Scott Goetz, and Mark Friedl.
- July 2011** *Bayesian Land Cover Classification for MODIS Data*, Joint Statistical Meetings 2011, Miami Beach, FL
- October 2010** *Bayesian Centroid Inference for Genome-Wide Association Studies*, The 19th Annual IGES Meeting, Boston, MA
- October 2010** *Bayesian Centroid Inference for Genome-Wide Association Studies*, Annual Genome Science Institute Research Symposium, Boston University Medical Center, Boston, MA.
- July 2010** *Bayesian Centroid Estimation*, The 13th Annual IMS Meeting of New Researchers in Statistics and Probability, Vancouver, Canada

Professional Activities

- 2018–** *Director* of Graduate Admissions, Department of Mathematics and Statistics, Boston University.
- 2020–** New England Journal of Statistics in Data Science: *member* of planning committee, *associate editor*.
- 2019–** Boston University: *member* of BU Hub council.
- 2010–** *Ad-hoc reviewer* for *Annals of Applied Statistics*, *Bayesian Analysis*, *Technometrics*, *Statistics and Computing*, *Remote Sensing of Environment*, *BMC Bioinformatics*.
- 2009–** Department of Mathematics and Statistics, Boston University: *member* of computer committee, web page committee, and graduate student committee.
- 2009–2012** Boston University Statistics and Probability Seminar *organizer*.

Professional Memberships

- 2011–** Institute of Mathematical Statistics
- 2011–** International Society of Bayesian Analysis

Professional Memberships (continued)

- 2010– International Genetic Epidemiology Society
- 2010– American Statistical Association
- 2008–2009 International Society for Computational Biology
- 2002–2009 American Mathematical Society

Honors and Awards

- 2021– Hariri Institute for Computing and Computational Science and Engineering grant 2021-01-001, *Land Cover Data Science Framework*, Co-principal Investigator.
- 2020– National Institutes of Health NIGMS grant 1 R01 GM133963-01, *Methods for Determination of Glycoprotein Glycosylation Similarities among Disease States*, Co-principal Investigator.
- 2014–2018 National Aeronautics and Space Administration CMS grant NNX14AO81G, *Direct Measurement of Aboveground Carbon Dynamics in Support of Large-Area CMS Development*, Co-principal Investigator.
- 2014–2015 Hariri Institute for Computing and Computational Science and Engineering Fellowship, *Statistical Models and Computational Methods for Community Detection in Large Networks*, Principal Investigator.
- 2011–2014 National Science Foundation grant DMS-1107067, *High-dimensional Discrete Inference*, Principal Investigator.