

Xi (Rossi) Luo

Curriculum Vita

Information

Assistant Professor, Brown University
Department of Biostatistics
& Center for Statistical Sciences
& Data Science Initiative
& Brown Institute for Brain Science
& Computation in Brain and Mind Initiative

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Web: BigComplexData.com or BrainDataScience.com or LoveDataScience.com

GitHub: <https://github.com/rluo> (public repos)

Youtube: <http://bit.ly/bigdatayoutube>

Bitbucket: <https://bitbucket.org/sabd/> (private repos)

Education

2009, PhD in Statistics, Yale University, USA.

Dissertation: *Penalized Likelihoods: Fast Algorithms and Risk Bounds*.

PhD advisor: Andrew Barron

2006, MA in Statistics, Yale University, USA.

2003, BSc in Geophysics, Peking University, CHINA.

Academic Positions

- 2019–. Associate Professor, Department of Biostatistics and Data Science, School of Public Health, The University of Texas Health Science Center at Houston.
- 2011–2018, Assistant Professor, Department of Biostatistics, School of Public Health, Brown University.
- 2009–2011, Visiting Lecturer, Department of Statistics, The Wharton School, University of Pennsylvania.
Postdoc Mentor: T. Tony Cai
- 2008–2010, Statistical Consultant, Department of Psychiatry, Yale University.

Publications

My publications have received **1957** citations on Google Scholar (<http://bit.ly/xluopub>), as of December 6, 2018. My h-index is **19**.

Full Publications

¶ marks authorships listed in the **alphabetic** order, following the tradition for papers on mathematical statistics. Student authors of my primary advisees are shown in **red**.

- 47 F Bunea, C Giraud, **X Luo**¶[alphabetic order], M Royer, N Verzelen (In Press). Model Assisted Variable Clustering: Minimax-optimal Recovery and Algorithms. *Annals of Statistics*. arXiv:1508.01939. Open Science manuscript DOI link: <https://doi.org/10.17605/OSF.IO/ENC32>

CRAN R pkg **cord** (<https://cran.r-project.org/web/packages/cord/>):

downloads 5989

- 46 X Lin, KK Chan, YT Huang, **X Luo**, L Liang, J Wilson, A Correa, D Levy, S Liu (2018). Genetic Determinants for Leisure-Time Physical Activity. *Med Sci Sports Exerc*. DOI link: <https://doi.org/10.1249/MSS.0000000000001607>
- 45 L Shu, KH Chan, T Huan, Z Kurt, Y Zhao, V Codoni, DA Tregouet, Cardiogenics Consortium, JG Wilson, **X Luo**, D Levy, AJ Lusis, S Liu, X Yang (2017). Shared Genetic Regulatory Networks for Cardiovascular Disease and Type 2 Diabetes in Multiple Populations of Diverse Ethnicities in the United States. *PLOS Genetics*. DOI link: <https://doi.org/10.1371/journal.pgen.1007040>
- 44 ME Lacy, GA Wellenius, AE Sumner, A Correa, MR Carnethon, RI Liem, DR Jacobs, **X Luo**, JG Wilson, A Gjelsvik, AP Carson, AP Reiner, RP Naik, SK Musani, CB Eaton, WC Wu (2017). Association of Sick Cell Trait With Hemoglobin A1c in African Americans. *Journal of the American Medical Association*. 17(5): 507-15. DOI link: <https://doi.org/10.1001/jama.2016.21035>
- 43 ME Lacy, G Wellenius, MR Carnethon, EB Loucks, AP Carson, **X Luo**, CI Kiefe, A Gjelsvik, EP Gunderson, CB Eaton, WC Wu (2016). Racial Differences in the performance of existing risk prediction models for incident type 2 diabetes: The CARDIA study. *Diabetes Care*, 39(2): 285-291. DOI link: <https://doi.org/10.2337/dc15-0509>
- 42 **X Luo**, S Gee, V Sohal, D Small (2016). A Point-process Response Model for Optogenetics Experiments on Neural Circuits. *Statistics in Medicine*, 35(3): 455-474. DOI link: <https://doi.org/10.1002/sim.6742>

CRAN R pkg **pro** (<https://cran.r-project.org/web/packages/pro/>):

downloads 4769

- 41 A Huang, JW Hogan, **X Luo**, A DeLong, S Saravanan, Y Wu, S Sirivichayakul, N Kumarasamy, F Zhang, P Phanuphak, L Diero, N Buziba, SC Istrail, DA Katzenstein, R Kantor (2015). Global Comparison of Drug Resistance Mutations Following First Line Antiretroviral Therapy across HIV-1 Subtypes. *Open Forum Infectious Diseases*, ofv158. DOI link: <https://doi.org/10.1093/ofid/ofv158>
- 40 LE Salminen, P Schofield, K Pierce, **Y Zhao**, **X Luo**, Y Wang, D Laidlaw, R Cabeen, T Conturo, D Tate, E Akbudak, E Lane, J Heaps, J Bolzenius, L Baker, L Cagle, R Paul (2015). Neuromarkers of the Common Angiotensinogen Polymorphism in Healthy Older Adults: A Comprehensive Assessment of White Matter Integrity and Cognition. *Behavioral Brain Research*, 296:85-93. DOI

link: <https://doi.org/10.1016/j.bbr.2015.08.028>

- 39 LE Salminen, PR Schofield, KD Pierce, **X Luo**, **Y Zhao**, DH Laidlaw, RP Cabeen, T.E Conturo, EM Lane, JM Heaps, JD Bolzenius, LM Baker, SA Cooley, S Scott, LM Cagle, RH Paul RH (2015). Genetic Markers of Cholesterol Transport and Gray Matter Diffusion: A Preliminary Study of the CETP I405V Polymorphism. *Journal of Neural Transmission*, 122(11):1581-92. DOI link: <https://doi.org/10.1007/s00702-015-1434-0>
- 38 AM Behrman, C Usher, TE Conturo, S Correia, D.H Laidlaw, EM Lane, J Bolzenius, JM Heaps, LE Salminen, LM Baker, R Cabeen, **X Luo**, P Yan, RH Paul (2015). Fiber Bundle Lengths and Cognition: A Length-based Tractography MRI Study. *Brain Imaging and Behavior*, 9(4):765-75. DOI link: <https://doi.org/10.1007/s11682-014-9334-8>
- 37 W Liu, and **X Luo**^{†,¶}[alphabetic order, corresponding author] (2015). Fast and Adaptive Sparse Precision Matrix Estimation in High Dimensions. *Journal of Multivariate Analysis*, 135: 153-162. DOI link: <https://doi.org/10.1016/j.jmva.2014.11.005>
- CRAN R pkg **scio** (<https://cran.r-project.org/web/packages/scio/>): downloads 10K
- 36 LM Baker, DH Laidlaw, TE Conturo, J Hogan, **Y Zhao**, **X Luo**, S Correia, R Cabeen, EM Lane, JM Heaps, J Bolzenius, LE Salminen, E Akbudak, AR McMichael, RH Paul (2014). White Matter Changes with Age Utilizing Quantitative Diffusion MRI. *Neurology*, 83(3): 247-252. DOI link: <https://doi.org/10.1212/WNL.0000000000000597>
- 35 TR Seider, **X Luo**, A Gongvatana, KN Devlin, SM de la Monte, JD Chasman, P Yan, KT Tashima, B Navia, RA Cohen (2014). Verbal Memory Declines More Rapidly with Age in HIV Infected versus Uninfected Adults. *Journal of Clinical and Experimental Neuropsychology*, 36(4): 356-367. DOI link: <https://doi.org/10.1080/13803395.2014.892061>
- 34 LE Salminen, PR Schofield, KD Pierce, EM Lane, JM Heaps, JD Bolzenius, LM Baker, **X Luo**, RH Paul (2014). Triallelic Relationships between Serotonin Transporter Expression and Cognition among Healthy Older Adults. *International Journal of Neuroscience*, 124(5): 331-338. DOI link: <https://doi.org/10.3109/00207454.2013.845822>
- 33 D Matuskey, **X Luo**, S Zhang, P Morgan, O Abdelghany, R Malison, CS Li (2013). Methylphenidate Remediate Error-preceding Activation of the Default Mode Brain Regions in Cocaine-addicted Individuals. *Psychiatry Research: Neuroimaging*, 214(2): 116-121. DOI link: <https://doi.org/10.1016/j.pscychresns.2013.06.009>
- 32 S Zhang, S Hu, HH Chao, JS Ide, **X Luo**, OM Farr, CR Li (2013) . Ventromedial Prefrontal Cortex and the Regulation of Physiological Arousal. *Soc Cogn Affect Neurosci*, 9(7): 900-908. DOI link: <https://doi.org/10.1093/scan/nst064>
- 31 C Dunn, **X Luo**, Z Wu (2013). Phylogenetic Analysis of Gene Expression. *Integrative and Comparative Biology*, 53(5): 847-856. DOI link: <https://doi.org/10.1093/icb/ict068>
- 30 **X Luo**, S Zhang, S Hu, SR Bednarski, E Erdman, OM Farr, K Hong, R Sinha, CM Mazure, CR Li

(2013). Error Processing and Gender-shared and-specific Neural Predictors of Relapse in Cocaine Dependence. *Brain*, 136(Pt 4): 1231-1244. DOI link: <https://doi.org/10.1093/brain/awt040>

- 29 **X Luo**, D Small, C Li, and P Rosenbaum (2012). Inference with Interference between Units in an fMRI Experiment of Motor Inhibition. *Journal of the American Statistical Association*, 107(498): 530-541. DOI link: <https://doi.org/10.1080/01621459.2012.655954>

CRAN R pkg **cin** (<https://cran.r-project.org/web/packages/cin/>):

downloads 13K

- 28 HH Chao, E Uchio, S Zhang, S Hu, S Bednarski, **X Luo**, M Rose, J Concato, CS Li (2012). Effects of Androgen Deprivation on Brain Function in Prostate Cancer Patients — a Prospective Observational Cohort Analysis. *BMC Cancer*, 12(371). DOI link: <https://doi.org/10.1186/1471-2407-12-371>
- 27 S Zhang, S Hu, HH Chao, **X Luo**, CR Li (2012). Cerebral Correlates of Skin Conductance Responses in a Cognitive Task. *NeuroImage*, 62: 1489-1498. DOI link: <https://doi.org/10.1016/j.neuroimage.2012.05.036>
- 26 S Bednarski, E Erdman, **X Luo**, S Zhang, S Hu, C Li (2012). Neural Processes of an Indirect Analog of Risk Taking in Young Non-dependent Adult Alcohol Drinkers - an fMRI Study of the Stop Signal Task. *Alcoholism: Clinical and Experimental Research*, 36(5): 768-779. DOI link: <https://doi.org/10.1111/j.1530-0277.2011.01672.x>
- 25 O Hendrick, **X Luo**, S Zhang, C Li (2012). Saliency Processing and Obesity: a Preliminary Imaging Study of the Stop Signal Task. *Obesity*, 20(9): 1796-1802. DOI link: <https://doi.org/10.1038/oby.2011.180>
- 24 TT Cai, W Liu, and **X Luo**[¶](alphabetic order) (2011). A Constrained ℓ_1 Minimization Approach to Sparse Precision Matrix Estimation. *Journal of the American Statistical Association*, 106(494): 594-607. DOI link: <https://doi.org/10.1198/jasa.2011.tm10155>

CRAN R pkg **clime** (<https://cran.r-project.org/web/packages/clime/>):

downloads 16K

- 23 C-S R Li, P Morgan, D Matuskey, O Abdelghany, **X Luo**, J Chang, B Rounsaville, YS Ding, and R Malison (2010). Biological Markers of the Effects of Intravenous Methylphenidate on Improving Inhibitory Control in Cocaine Dependent Patients. *Proceedings of the National Academy of Sciences of the United States of America*, 107: 14455-14459. DOI link: <https://doi.org/10.1073/pnas.1002467107>
- 22 O Hendrick, J Ide, **X Luo**, and C Li (2010). Dissociable Processes of Cognitive Control during Error and Non-error Conflicts: a Study of the Stop Signal Task (2010). *PLoS ONE*, 5(10): e13155. DOI link: <https://doi.org/10.1371/journal.pone.0013155>
- 21 CR Li, **X Luo**, R Sinha, BJ Rounsaville, KM Carroll, RT Malison, Y Ding, S Zhang, and JS Ide (2009). Increased Error-related Thalamic Activity During Early Compared to Late Cocaine Abstinence. *Drug and Alcohol Dependence*, 109: 181-189. DOI link: <https://doi.org/10.1016/j.drugalcdep.2010.01.008>

- 20 CR Li, **X Luo**, P Yan, K Bergquist, and R Sinha (2009). Altered Impulse Control in Alcohol Dependence: Neural Measures of Stop Signal Performance. *Alcoholism: Clinical and Experimental Research*, 33(4), 745-750. DOI link: <https://doi.org/10.1111/j.1530-0277.2008.00891.x>
- 19 JR Duann, JS Ide, **X Luo**, and CR Li (2009). Functional Connectivity Delineates Distinct Roles of the Inferior Frontal Cortex and Presupplementary Motor Area in Stop Signal Inhibition. *Journal of Neuroscience*, 29(32): 10171-10179. DOI link: <https://doi.org/10.1523/JNEUROSCI.1300-09.2009>
- 18 HA Chao, **X Luo**, J Chang, and CR Li (2009). Activation of the Pre-Supplementary Motor Area but not Inferior Prefrontal Cortex in Association with Short Stop Signal Reaction Time—An Intra-subject Analysis. *BMC Neuroscience*, 10: 75. DOI link: <https://doi.org/10.1186/1471-2202-10-75>
- 17 AR Barron and **X Luo**[¶](2008). MDL Procedures with ℓ_1 Penalty and their Statistical Risk. *Proceedings Workshop on Information Theoretic Methods in Science and Engineering, Tampere University of Technology, Tampere, Finland, August 18-20*. http://sp.cs.tut.fi/WITMSE08/Proceedings/PlenaryPapers/plenary_Barron.pdf
- 16 AR Barron, C Huang, JQ Li and **X Luo**[¶](2008). MDL, Penalized Likelihood and Statistical Risk. *Proceedings IEEE Information Theory Workshop, Porto, Portugal, May 4-9*. <http://www.academia.edu/download/44552946/MDLpenalizedLikelihoodStatisticalRiskITW.pdf>
- 15 AR Barron, C Huang, JQ Li, and **X Luo**[¶](2008). MDL Principle, Penalized Likelihood, and Statistical Risk. *Festschrift in Honor of Jorma Rissanen on the Occasion of his 75th Birthday. Edited by Peter Grunwald, Petri Myllymaki, Ioan Tabus, Marcelo Weinberger and Bin Yu. Tampere International Center for Signal Processing*. 33-62. <https://pdfs.semanticscholar.org/f60a/53719dbb41f4eda61303c23e25e491c.pdf>
- 14 AR Barron and **X Luo**[¶](2007). Adaptive Annealing. *Proceedings 45th Annual Allerton Conference on Communication, Control and Computing. Allerton House, UIUC, Illinois, September 26-28*. 665-673. <http://toc.proceedings.com/02590webtoc.pdf> from <http://www.proceedings.com/02590.html>

Articles under Review

- 13 T Wray, **X Luo**, **J Ke**, C Kahler, A Perez, D Carr, P Monti. Identifying Situational and Contextual Risk Factors for HIV Risk Behavior among Men who have Sex with Men (MSM) using Smartphone Survey Data and Machine Learning. *Submitted*.
- 12 **Y Zhao**, B Wang, S Mostofsky, B Caffo, **X Luo**. Covariate Assisted Principal Regression for Covariance Matrix Outcomes. *Under review for JASA*. Open Science manuscript DOI link: <https://doi.org/10.1101/425033>

- 11 [X Cao](#), [J Ke](#), B Sandstede, [X Luo](#). Time-dependent Canonical Correlation Analysis of Multilevel Time Series. *Submitted to conference*.
- 10 [J Ke](#), [X Cao](#), [X Luo](#). Spatial and Temporal Correlation Analysis with an Application to functional MRI. *Submitted to conference*.
- 9 [J Katz](#), [X Luo](#). How to Get Hired as a Data Scientist: A Comprehensive Analysis of Glassdoor Job Postings. *Submitted*.
- 8 [Y Zhao](#), [X Luo](#), M Lindquist, B Caffo. Functional Mediation Analysis with an Application to Functional Magnetic Resonance Imaging Data. *Under review for JASA*. arXiv:1805.06923.

CRAN R pkg **cord** (<https://CRAN.R-project.org/package=cfma>):

downloads 466

- 7 [X Cao](#), [X Luo](#), B Sandstede. Causal Dynamic Network Modeling of fMRI. *Under review for Frontiers in Neuroscience*. Open Science manuscript DOI link: <https://doi.org/10.17605/OSF.IO/DGVYN>

Honorable Mention for the student paper competition from the Mental Health Section of the American Statistical Association (ASA), 2018.

- 6 J Moher, D McCarthy, M Machizawa, P Yan, [X Luo](#), J Song. Noisy neural evidence leads to conflict and delayed attentional deployment during changes of mind in decision-making. *Submitted*.
- 5 KH Chan, J Li, H Xu, [X Luo](#), J Wilson, A Correa, D Levy, S Liu. Genetic evaluation of potential therapeutic targets in insulin signaling and adipogenic pathways associated with obesity and type 2 diabetes. *Submitted*.
- 4 [Y Zhao](#), [X Luo](#)[†]. Granger Mediation Analysis of Functional Magnetic Resonance Imaging Time Series. *Revision for Biometrics*. arXiv:1709.05328. Open Science manuscript DOI link: <https://doi.org/10.17605/OSF.IO/9A3XQ>

Student Paper Award from the Mental Health Section of the American Statistical Association (ASA), 2017.

Student Paper Award (declined) following ASA's one award policy) from the Statistics in Imaging Section of the American Statistical Association, 2017.

CRAN R pkg **gma** (<https://cran.r-project.org/web/packages/gma/>):

downloads 1302

- 3 [Y Zhao](#), [X Luo](#)[†]. Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators. *Under review for Journal of Machine Learning Research*. arXiv:1603.07749. Open Science manuscript DOI link: <https://doi.org/10.17605/OSF.IO/VZSR4>

Student Paper Award for the 2nd Annual Conference on Statistical Methods in Imaging, American Statistical Association, 2016.

Travel Award for the conference on Challenges and Advances on Big Data in Neuroimaging, Cleveland Clinic, 2016.

Travel Award for the Women in Machine Learning Workshop, Barcelona, Spain, 2016.

- 2 **Y Zhao, X Luo[†]**. Estimating Mediation Effects under Correlated Errors with An Application to fMRI. *Revision for Journal of Royal Statistical Society, Series B*. arXiv:1410.7217. Open Science manuscript DOI link: <https://doi.org/10.17605/OSF.IO/DA6UF>

2015 ENAR Distinguished Student Paper Award.

CRAN R pkg **macc** (<https://cran.r-project.org/web/packages/macc/>):

downloads 3099

- 1 **X Luo**. A Hierarchical Graphical Model for Big Inverse Covariance Estimation with an Application to fMRI. *Revision for Biostatistics* arXiv: 1403.4698. Open Science manuscript DOI link: <https://doi.org/10.17605/OSF.IO/3VU8Z>

Contributed Abstracts

- 36 (invited) **Y Zhao, X Luo**, M Lindquist, B Caffo. Functional Mediation Analysis with an Application to FunctionalMagnetic Resonance Imaging Data. The 2018 ICSC China Conference with the Focus on Data Science, July 2 – 5, 2018.

- 35 (peer-reviewed) **X Cao, X Luo**, B Sandstede. Large-scale Causal Dynamic Network Modeling of fMRI. The Organization of the Human Brain Mapping, June 17 – 21, 2018.

Poster available from bit.ly/2018ohbm.

- 34 **Y Zhao, X Luo**, Martin Lindquist, Brian Caffo. Causal Mediation Analysis in Neuroimaging. ENAR, Atlanta, Georgia, March 25 – 28, 2018.

- 33 **Y Zhao, X Luo**. *Granger Mediation Analysis of Functional Magnetic Resonance Imaging Time Series*. The Joint Statistical Meetings, Baltimore, Maryland, USA, July 29 – August 3, 2017.

- 32 **Y Zhao, X Luo**, E Uptal, P Bedard, J Sanes. *Identifying "Hot" Local Brain Subnetworks during Motor Sequence Learning*. The Organization for Human Brain Mapping, Vancouver Convention Centre, California, Vancouver, CANADA, June 25 – 29, 2017.

- 31 (Oral) **Y Zhao, X Luo**. *Granger Mediation Analysis of Functional Magnetic Resonance Imaging Time Series*. Time and Causality in the Sciences, Hoboken, New Jersey, June 7 – 9, 2017.

- 30 **Y Zhao, X Luo**. *Granger Mediation Analysis of Functional Magnetic Resonance Imaging Time Series*. Brown-NUWC Research Exchange. Providence, Rhode Island, USA, March 31, 2017.

- 29 **Y Zhao, X Luo**. *Granger Mediation Analysis of Functional Magnetic Resonance Imaging Time Series*. The 4rd Annual Mind Brain Research Day, Brown University, Providence, Rhode Island, USA, March 25, 2017.

- 28 (Oral) **Y Zhao, X Luo**. *Granger Mediation Analysis of Functional Magnetic Resonance Imaging Time Series*. ENAR, Washington DC, March 12 – 15, 2017.

- 27 ME Lacy, GA Wellenius, A Correa, MR Carnethon, RI Leim, **X Luo**, JG Wilson, A Gjelsvik, AP Carson, DR Jacobs, CB Eaton, WC Wu. *Diabetes Risk Prediction and Sick Cell Trait in African Americans From CARDIA and the Jackson Heart Study*. Circulation 135 (Suppl 1), AP053-AP053,

2017.

- 26 **X Luo**, B Caffo, CS Li. *Big Networks: Inferring Large-scale Brain Networks and Pathways*. The Third Annual BRAIN Initiative Investigators Meeting, Washington DC, December 11 – 14, 2016.
- 25 **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*. The Women in Machine Learning workshop, December 5, Barcelona, Spain, 2016.
Travel Award for the Women in Machine Learning workshop, Barcelona, Spain, 2016.
- 24 **Y Zhao**, **X Luo**, E Upfal, P Bedard, J Sanes. *Identifying "Hot" Local Brain Subnetworks during Motor Sequence Learning*. Society for Neuroscience, San Diego, California, November 12 – 16, 2016.
- 23 **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, Challenges and Advances on Big Data in Neuroimaging, Cleveland, Ohio, USA, August 25 - 26, 2016.
Travel Award for the conference on Challenges and Advances on Big Data in Neuroimaging, Cleveland Clinic, 2016.
- 22 (Oral) **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, The XXVIIIth International Biometric Conference, Victoria, CANADA, July 10 - 15, 2016.
- 21 (Oral) **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, Joint Statistical Meetings, Chicago, Illinois, USA, July 30 - August 4, 2016.
- 20 **Y Zhao**, **X Luo**, E Upfal, J Sanes. *Identifying "Hot" Brain Subnetworks using Task-related fMRI*. The NIH Sixth Biennial National IDEa Symposium, Washington DC, June 26-28, 2016.
- 19 KH Chan, H Xu, **X Luo**, S Liu. *Assessment of the Genetic Role of Potential Metabolic Therapeutic Targets Along Insulin Signaling and Adipogenesis Pathways*. Circulation. The American Heart Association. 2016.
- 18 **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, Conference on Statistical Learning and Data Science, University of North Carolina at Chapel Hill, North Carolina, USA, June 6 - 8, 2016.
- 17 (Oral) **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, The 2nd Annual Conference on Statistical Methods in Imaging, American Statistical Association, Denver, Colorado, USA, June 1-3, 2016.
Student Paper Award for the 2nd Annual Conference on Statistical Methods in Imaging, American Statistical Association, 2016.
- 16 (Oral) **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, The 2016 Atlantic Causal Inference Conference, New York, New

York, USA, May 26 - 27, 2016.

- 15 D McCarthy, J Moher, P Yan, **X Luo**, J-H Song *Decoding Changes of Mind in Perceptual Decision-making*. RI NIH IDeA Symposium, Providence, Rhode Island, USA, March 17, 2016.
- 14 **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, The 3rd Annual Mind Brain Research Day, Brown University, Providence, Rhode Island, USA, March 30, 2016.
- 13 **(Oral)** **Y Zhao**, **X Luo**. *Pathway Lasso: Estimate and Select Sparse Mediation Pathways with High Dimensional Mediators*, ENAR, Austin, Texas, USA, March 6 - 9, 2016.
- 12 **(Invited)** **X Luo**. *Big Data and Neuroimaging: Large-scale Models for Brain Networks*, ENAR, Austin, Texas, USA, March 6 - 9, 2016.
- 11 **X Luo**. *Big Networks: Large-scale Graphical Models for Understanding the Mechanisms*, National Institute of Health, Big Data to Knowledge (BD2K) All Hands Down Meeting, Bethesda, Maryland, USA, November 12 - 13, 2015.
- 10 ME Lacy, GA Wellenius, A Correa, AE Sumner, S Liu, **X Luo**, JG Wilson, A Gjelsvik, CB Eaton, MR Carnethon, WC Wu. *The Influence of Sickle Cell Trait on the Relationship between A1c and Fasting Glucose: The Jackson Heart Study*. DIABETES, American Diabetes Association, June 1, 2015.
- 9 **Y Zhao**, **X Luo**. *Estimating Causal Mediation Effect in Big fMRI Data*, Public Health Research Day, School of Public Health, Brown University, Providence, Rhode Island, USA, April 16, 2015.
Runner-up for Best Research Poster Award among PhDs, postdoctorals, and trainees.
- 8 **Y Zhao**, **X Luo**. *Estimating Causal Mediation Effect of preSMA on PMC in an fMRI Experiment*. RI NIH IDeA Symposium, Providence, Rhode Island, USA, April 2, 2015.
- 7 **Y Zhao**, **X Luo**. *Estimating Causal Mediation Effect of preSMA on PMC in an fMRI Experiment*. Mind Brain Research Day, Department of Psychiatry and Human Behavior, Brown University, Providence, Rhode Island, USA, March 24, 2015.
- 6 **(Invited, Oral)** **Y Zhao**, **X Luo**. *Estimating Mediation Effects under Correlated Errors with An Application to fMRI*, ENAR, Miami, Florida, USA, March 15 - 18, 2015.
2015 ENAR Distinguished Student Paper Award.
- 5 ME Lacy, GA Wellenius, A Correa, A Summer, S Liu, **X Luo**, JG Wilson, A Gjelsvik, CB Eaton, MR Carnethon, W-C Wu. *The Influence of Sickle Cell Trait on the Relationship between A1C and Fasting Glucose: The Jackson Heart Study*. American Diabetes Association 75th Anniversary Scientific Sessions. Boston, Massachusetts, USA, June 5 - 9, 2015.
- 4 **X Cheng**, **X Luo**, J Sanes. *Network Based Discriminant Analysis with Applications to fMRI*. Mind Brain Research Day, Department of Psychiatry and Human Behavior, Brown University, Providence, Rhode Island, USA, March 25, 2014.

- 3 BN Navia, **X Luo**, PY Yan, JH Harezlak, GS Schifitto, MJ Taylor, ES Daar, TC Campbell, ES Singer, CT Yiannoutsos, RC Cohen (2014). *Plasma IP-10 and CSF MIP 1beta Contribute to Progressive Brain Injury in Chronic HIV Infection*. Conference on Retroviruses and Opportunistic Infections. Boston, Massachusetts, USA, March 3 - 6, 2014.
- 2 D Matuskey, **X Luo**, S Zhang, P Morgana, O Abdelghany, RT Malisona, CS Li (2013). *Methylphenidate remediates error-preceding activation of the default mode brain regions in cocaine addicted individuals*. Emotional, All Too Emotional: Neuroscientific Views on Affect and its Regulation in Humans, March 19-21, 2013, Tel Aviv University, Isreal.
- 1 **X Luo**, AR Barron (2009). ℓ_1 Penalized Likelihood: Fast Algorithms and Risk Bounds. Innovation and Inventiveness in Statistics Methodologies, in honor of John Hartigan, Yale University, May 15-17, New Haven, CT, USA.

Software Publications

These software publications intend to supplement my method publications for the goals of reproducible research and method dissemination.

Student authors of my primary advisees are shown in [red](#).

Software download counts reflect only the period between October 2012 and December 10, 2018. These numbers are likely to reflect only *small* fractions of the actual downloads worldwide, because the counts from only **one** software distribution server (<http://cran-logs.rstudio.com/>) are available and reported here. Downloads from *hundreds* of other distribution servers in the Comprehensive R Archive Network (CRAN) are not included.

- 11 **cap** Covariate Assisted Principal regression. CRAN R package.

Web: <https://CRAN.R-project.org/package=cap>

Programming language: R

Author: [Y Zhao](#), Bingkai Wang, Stewart Mostofsky, Brian Caffo, **X Luo**

Creator and Maintainer: [Y Zhao](#)

Download counts (from one server only, out of hundreds):

<https://cranlogs.r-pkg.org/badges/grand-total/cap>

Most recent update on October 1, 2018.

First public release on October 1, 2018.

downloads 493

- 10 **cdn-fmri** Causal Dynamic Network modeling of fMRI. PyPI package.

Web: <https://pypi.org/project/cdn-fmri>

Web: <https://github.com/xuefeicao/CDN.git>

Programming language: Python

Author: [X Cao](#), **X Luo**, Bjorn Sandstede

Creator and Maintainer: [X Cao](#)





Download counts:

<http://pepy.tech/badge/cdn-fmri>

Most recent update on June 13, 2018.

First public release on June 13, 2018.

downloads 396

- 9 **cfma** Causal Functional Mediation Analysis. CRAN R package.
Web: <https://CRAN.R-project.org/package=cfma>
Programming language: R
Author: [Y Zhao](#), **X Luo**, Martin Lindquist, Brian Caffo
Creator and Maintainer: [Y Zhao](#)
Download counts (from one server only, out of hundreds): 
<https://cranlogs.r-pkg.org/badges/grand-total/cfma>
Most recent update on May 24, 2018.
First public release on May 24, 2018.
- 8 **gma** Granger Mediation Analysis. CRAN R package.
Web: <https://CRAN.R-project.org/package=gma>
Programming language: R
Author: [Y Zhao](#), **X Luo**
Creator and Maintainer: [Y Zhao](#)
Download counts (from one server only, out of hundreds): 
<https://cranlogs.r-pkg.org/badges/grand-total/gma>
Most recent update on September 19, 2017.
First public release on September 19, 2017.
- 7 **maccc** Mediation Analysis of Causality under Confounding. CRAN R package.
Web: <https://CRAN.R-project.org/package=maccc>
Programming language: R
Author: [Y Zhao](#), **X Luo**
Creator and Maintainer: [Y Zhao](#)
Download counts (from one server only, out of hundreds): 
<https://cranlogs.r-pkg.org/badges/grand-total/maccc>
Most recent update on November 3, 2016.
First public release on November 3, 2016.
- 6 **cord**: Community Estimation in G-Models via CORD. CRAN R package.
Web: <https://CRAN.R-project.org/package=cord>
Programming languages: R, C++
Author: **X Luo**, F Bunea, C Giraud
Creator and Maintainer: **X Luo**
Download counts (from one server only, out of hundreds): 
<https://cranlogs.r-pkg.org/badges/grand-total/cord>
Most recent update on September 20, 2015.
First public release on September 20, 2015.
- 5 **pro**: Point-process Response model for Optogenetics. CRAN R package.

Web: <https://CRAN.R-project.org/package=pro>

Programming language: R

Author: **X Luo**

Contributor: D Small, V Sohal

Creator and Maintainer: **X Luo**

Download counts (from one server only, out of hundreds):

<https://cranlogs.r-pkg.org/badges/grand-total/pro>

Most recent update on September 17, 2015.

First public release on September 17, 2015.

downloads 4769

- 4 **scio**: Sparse Columnwise Inverse Operator for precision matrix estimation. CRAN R package.

Web: <https://CRAN.R-project.org/package=scio>

Programming languages: R, Fortran

Author: **X Luo**, W Liu

Creator and Maintainer: **X Luo**

Download counts (from one server only, out of hundreds):

<https://cranlogs.r-pkg.org/badges/grand-total/scio>

Most recent update on April 15, 2014.

First public release on May 6, 2012.

downloads 10K

- 3 **cin**: Causal Inference for Neuroscience. CRAN R package.

Web: <https://CRAN.R-project.org/package=cin>

Programming language: R

Author: **X Luo**

Contributor: D Small, CS Li, P Rosenbaum

Creator and Maintainer: **X Luo**

Download counts (from one server only, out of hundreds):

<https://cranlogs.r-pkg.org/badges/grand-total/cin>

Most recent update on December 28, 2011.

First public release on December 28, 2011.

downloads 13K

- 2 **lore**: LOw Rank and sparseE Covariance matrix estimation. CRAN R package.

Web: <https://CRAN.R-project.org/package=lore>

Programming languages: R, Fortran

Author: **X Luo**

Creator and Maintainer: **X Luo**

Download counts (from one server only, out of hundreds):

<https://cranlogs.r-pkg.org/badges/grand-total/lore>

Most recent update on February 20, 2014 .

First public release on November 7, 2011.

downloads 12K

- 1 **clime**: Constrained ℓ_1 -minimization for Inverse (covariance) Matrix Estimation. CRAN R package.

Web: <https://CRAN.R-project.org/package=clime>
Programming language: R
Author: TT Cai, W Liu, **X Luo**(alphabetic order)
Creator and Maintainer: **X Luo**
Download counts (from one server only, out of hundreds):
<https://cranlogs.r-pkg.org/badges/grand-total/clime>
Most recent update on May 6, 2012.
First public release on February 1, 2011.

downloads 16K

Talks

Conference Presentations

- 61 **(Invited panel speaker)** *Modern Statistical Developments in Big Data*. NextGen: Data Science Day, New England Statistical Society, Yale University, New Haven, USA, October 27, 2018.
- 60 **(Invited)** *Pathway Lasso: Estimate and Select Multiple Mediation Pathways*. The XXIX International Biometric Conference, Barcelona, Spain, July 8 - 13, 2018.
Slides available at <http://bit.ly/ibc1807>
- 59 **(Invited)** *Granger Mediation Analysis for Multiple Time Series*. The 2018 ICSA China Conference with the Focus on Data Science, Qingdao, China, July 2 - 5, 2018.
Slides available at <http://bit.ly/icsa18>
- 58 **(Invited)** *Inferring Big Graphs using "Network of Networks" with an Application to fMRI*. Conference on Frontiers of Big Data and Statistical Sciences, Vancouver, British Columbia, CANADA, August 18 - 20, 2017.
Slides available at <http://bit.ly/canadabd>
- 57 **(Invited)** *Estimating Brain Pathways Using Large-scale Multilevel Models*. The 2017 ICSA Applied Statistics Symposium, Chicago, Illinois, USA, June 25 - 28, 2017.
Slides available at <http://bit.ly/icsa17>
- 56 **(Invited)** *Network Clustering with an Application to fMRI*. The 1st International Conference on Econometrics and Statistics, Hong Kong University of Science and Technology, Hong Kong, June 15 - 17, 2017.
Slides available at <http://bit.ly/ecosta17>
- 55 **(Invited)** *Multilevel Causal Mediation Analysis for Big Functional MRI Data*. The Mathematics and Statistics in Medical Imaging Applications and Big Data Integration Workshop, Sanya, CHINA, December 26 - 30, 2016.
Slides available at <http://bit.ly/sanya16>
- 54 **(Invited)** *Variable Clustering via G-Models of Large Covariance Matrices*. The 10th ICSA International Conference, Shanghai, CHINA, December 19 - 22, 2016.
Slides available at <http://bit.ly/ICSA2016>
- 53 **(Invited)** *Estimating Information Flow in Large Brain Networks via Pathway Lasso*. The 9th Inter-

national Conference of the ERCIM WG on Computational and Methodological Statistics, Seville, Spain, December 9 - 11, 2016.

Slides available at <http://bit.ly/CMStat16>

- 52 **(Invited)** *Community Detection and Clustering via G-models with an Application to fMRI*. The International Chinese Statistical Association, Atlanta, Georgia, USA, June 12 - 15, 2016.

Slides available at <http://bit.ly/XLICSA16>

- 51 **(Invited)** *Network Communities and Variable Clustering: A Covariance Matrix Approach*. The 2016 Conference on Statistical Learning and Data Science, Chapel Hill, North Carolina, USA, June 6 - 8, 2016.

Slides available at <http://bit.ly/SLDS16>

- 50 **(Invited)** *Estimating Brain Pathway Effects Using Large-scale Multilevel Models*. SAMSI CCNS Transition Workshop, Research Triangle Park, North Carolina, USA, May 4 - 6, 2016.

Slides available at <http://bit.ly/xISAMSI16>

- 49 **(Invited)** *Pathway Lasso: Estimate Brain Information Flow Pathways*. New England Statistics Symposium, New Haven, Connecticut, USA, April 22, 2016.

Slides available at <http://bit.ly/xINESS16>

- 48 **(Invited)** *Estimating Information Flow in Large Brain Networks via Convex Optimization*. ENAR, Austin, Texas, USA, March 6 - 9, 2016.

Slides available at <http://bit.ly/xIENAR16>

- 47 **(Invited)** *Estimation of Information Flow in Brain Networks*. Joint Statistical Meetings, Seattle, Washington, USA, August 8 - 13, 2015.

- 46 **(Invited)** *Variable Partitioning via Large Covariance Matrix Fusion*. European Meeting of Statisticians, Amsterdam, Netherland, July 6 - 10, 2015.

- 45 **(Invited)** *Covariance Matrix Estimation in Big Data: Approaches Based on Algebraic Properties*. The 29th New England Statistical Symposium, University of Connecticut, April 24 - 25, 2015.

- 44 **(Invited Topic-contributed)** *Algebraic Methods and Brain Networks*. Joint Statistical Meetings, Boston, Massachusetts, USA, August 3 - 6, 2014.

- 43 **(Invited)** *Network Based Discriminant Analysis with Applications to fMRI*. The International Society for Business and Industrial Statistics 2014 and Statistical Learning and Data Mining Joint Meeting, Duke University, Durham, North Carolina, USA. June 9 - 11, 2014.

- 42 **(Invited)** *Algebraic Properties and Fast Large Covariance Estimation*. ENAR, Baltimore, Maryland, USA, March 16 - 19, 2014.

- 41 **(Invited)** *A Simple Probabilistic Model for Predicting Every Spike in Optogenetics Data*. The Annual Meeting of the Statistical Society of Canada, Edmonton, Alberta, CANADA, May 26 -29, 2013.

- 40 **(Invited)** *Inference with interference in an fMRI experiment*. ENAR, Orlando, Florida, USA, March 10 - 13, 2013.
- 39 **(Invited Topic-contributed)** *Inference with interference between units in an fMRI experiment of motor inhibition*. Joint Statistical Meetings, San Diego, California, USA, July 28 - August 2, 2012.
- 38 **(Invited)** *Sparse Inverse Covariance Estimation with Applications in Recovering Brain Networks*. Conference on Statistical Learning and Data Mining, University of Michigan, Ann Arbor, Michigan, USA, June 5-7, 2012.
- 37 **(Conference travel award)** *A Simple Probabilistic Model for Predicting Every Spike in Optogenetics Data*. Sixth International Workshop Statistical Analysis of Neuronal Data (SAND6), University of Pittsburgh and Carnegie Mellon University, Pittsburgh, Pennsylvania, USA, May 31 - June 2, 2012.
- 36 *High Dimensional Sparse and Low Rank Covariance Matrix Estimation via Convex Optimization*. Joint Statistical Meetings, Miami, Florida, USA, August 3, 2011.
- 35 *CLIME: A Constrained ℓ_1 Minimization Approach to Sparse Precision Matrix Estimation*. The Eighth International Chinese Statistical Association Conference, Guangzhou, China, December 19-22, 2010.
- 34 *Average Case Analysis of Sparse Multivariate Regression under Noise*. Joint Statistical Meetings, Vancouver, British Columbia, Canada, July 31-August 5, 2010.
- 33 *Average Case Analysis of Sparse Multivariate Regression under Noise*. International Conference on Statistics and Society, Beijing, China, July 10-12, 2010.
- 32 *ℓ_1 Penalized Likelihood: Fast Algorithms and Risk Bounds*. Workshop on Innovation and Inventiveness in Statistical Methodologies in Honor of John Hartigan, Yale University, New Haven, Connecticut, May 15–17, 2009.
- 31 *Relaxed Greedy Pursuit*. IMS-China International Conference on Statistics and Probability, Hangzhou, China, June 11–13, 2008.
- 30 *Penalized Squared Error and Likelihood: Risk Bounds and Fast Algorithms*. Workshop on Sparsity in High Dimensional Statistics and Learning Theory. Georgia Institute of Technology, Atlanta, Georgia, March 22–24, 2008.

Seminars

- 29 *Statistical Methods for Unraveling Large-scale Brain Dynamics*. Department of Biostatistics and Data Science, University of Texas Health Science Center, Houston, Texas, June 7, 2018.
- 28 *A Covariance Matrix Approach to Variable Clustering*. Center for Statistical Research, Southwestern University of Finance and Economics, Chengdu, CHINA, June 20, 2017.
- 27 *Complex Modeling of Brain Dynamics*. RI NIH IDeA Symposium, Providence, Rhode Island, USA,

June 2, 2017.

- 26 *"Network Modeling" of Big Data: Promises and Challenges*. Brown Data Science Initiative Retreat, Providence, Rhode Island, USA, January 20, 2017.
- 25 *Inferring Brain networks via Big Covariance Matrix Estimation*. Department of Biostatistics, Columbia University, New York, NY, USA, April 14, 2016.
- 24 *Graphical Models for Brain Connectivity: Algebraic (Non-likelihood) Methods*. Webinar: Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC, USA, February 23, 2016.
Slides available at <http://bit.ly/rtSAMS1602>
- 23 *Large-scale Methods for Brain Networks: Connectivity and Information Flow*. Department of Biostatistics and Bioinformatics, Emory University, Atlanta, GA, USA, February 9, 2016.
- 22 *Clustering "Far-Apart" Data Points Together: A Covariance Matrix Approach*. Department of Mathematical Sciences, Worcester Polytechnic Institute, Worcester, Massachusetts, USA, November 9, 2015.
- 21 *Understand the Brain: Causal Inference and Machine Learning*. Department of Human Development, College of Human Ecology, Cornell University, Ithaca, NY, USA, May 7, 2015.
- 20 *Estimating Networks from Big Neuroimaging Data*. School of Public Health, Yale University, New Haven, Connecticut, USA, February 18, 2014.
- 19 *Algebraic Properties and Large Covariance Estimation*. Department of Statistical Sciences, Cornell University, Ithaca, New York, USA, February 13, 2013.
- 18 *Inference with Interference in fMRI*. Department of Public Health, Weill Medical College, Cornell University, New York, USA, December 14, 2012.
- 17 *Recovering Large Networks via Optimizing Non-likelihood Functions*. Division of Applied Mathematics, Brown University, Rhode Island, USA, October 3, 2012.
- 16 *Causality 101*. Alcohol Research Center on HIV (ARCH), Brown University, Rhode Island, USA, July 13, 2012.
- 15 *Graphical Models for Gene Networks and Their Use in Classification*. Center for Computational and Molecular Biology, Brown University, Rhode Island, USA, February 22, 2012.
- 14 *Understanding the Brain Statistics*. Brown Institute of Brain Sciences, Brown University, Rhode Island, USA, December 8, 2011.
- 13 *LOREC: Low Rank and Sparse Covariance Matrix Estimation*. Department of Mathematics, Georgia Institute of Technology, Atlanta, Georgia, USA, October 27, 2011.
- 12 *Connectivity, Causal Inference and Graphical Models*. Brown Institute of Brain Sciences, Provi-

dence, Rhode Island, USA, September 12, 2011.

- 11 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Department of Biostatistics, Brown University, Providence, Rhode Island, USA, April 7, 2011.
- 10 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Schools of Management, Fordham University, New York, New York, USA, March 24, 2011.
- 9 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Department of Statistical Sciences and Operations Research, Virginia Commonwealth University, Richmond, Virginia, USA, March 21, 2011.
- 8 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Department of Mathematics and Computer Sciences, Saint Louis University, Saint Louis, Missouri, USA, March 14, 2011.
- 7 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Department of Statistics and Applied Probability, National University of Singapore, Singapore, March 10, 2011.
- 6 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Department of Statistics, University of Pittsburgh, Pittsburgh, Pennsylvania, USA, March 1, 2011.
- 5 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Department of Biostatistics, Johns Hopkins University, Baltimore, Maryland, USA, February 16, 2011.
- 4 *Covariance Matrix Estimation via Convex Optimization: Theory, Methods, Algorithms and Applications*. Bell Labs, Murray Hill, New Jersey, USA, February 4, 2011.
- 3 ℓ_1 *Penalized Least Likelihood: Fast Algorithms and Risk Bounds*. Department of Statistics and Actuarial Science, University of Waterloo, Canada, March 30, 2009.
- 2 ℓ_1 *Penalized Least Likelihood: Fast Algorithms and Risk Bounds*. Department of Statistics, University of California at Riverside, March 19, 2009.
- 1 ℓ_1 *Penalized Least Likelihood: Fast Algorithms and Risk Bounds*. Division of Statistics, Northern Illinois University, February 26, 2009.

Grants

Current Grants

- | | | |
|----|---|---------|
| 23 | AHA/17UNPG33750001 <i>Uncovering New Patterns</i>
Title: Uncovering Patterns of Gene-diet Interaction for Cardiometabolic Health
Period: 4/2/2018 - 3/31/2020 | PI: Liu |
|----|---|---------|

Role: Co-I

- 22 NIH *R01EB022911 Big Brain Networks* PI: **X Luo**
Title: Large-scale Network Modeling for Brain Dynamics: Statistical Learning and Optimization
https://projectreporter.nih.gov/project_info_description.cfm?aid=9170649
Period: 09/31/2016 – 06/30/2019
Role: PI
Total award: \$1,212,178
- 21 NIH *R01MH110449 OCD* PI: S Rasmussen
https://projectreporter.nih.gov/project_info_description.cfm?aid=9157002
Period: 09/15/2016 – 06/30/2021
Role: Co-I
- 20 NIH *P20 GM103645 COBRE* PI: J Sanes
Title: COBRE Center for Central Nervous System Function
http://projectreporter.nih.gov/project_info_description.cfm?aid=8914005
Period: 8/12/2013 – 7/31/2018
Role: Co-I
- 19 NIH *S10 OD016366 BIBS Cluster Instrument* PI: J Donohue
Title: Brain Science Computer Cluster
http://projectreporter.nih.gov/project_info_description.cfm?aid=8447697
Role: Major User Core (Statistical Neuroimaging) and Advisory Board
- 18 NIH *P01 AA019072 Alcohol Research Center on HIV* PI: P Monti
Title: Alcohol and HIV Biobehavioral Interactions and Interventions
http://projectreporter.nih.gov/project_info_description.cfm?aid=8838915
Period: 09/01/2011 – 05/31/2020
Role: Co-I

Completed Grants

- 17 AHA/17IFUNP33730001 *Gene/Physical Activity* PI: Lin
Title: Genetic Architecture of Physical Activity and Its Relation with Cardio-metabolic Health in Multiethnic Populations
Period: 4/2/2018 - 7/13/2019
Role: Co-I
- 16 NSF *DMS 1557467 Methods for Big Biomedical Data: CVD/T2D* PI: **X Luo**
Title: QuBBD: Large Scale Modeling of Big Multi-cohort Data for Cardiovascular Diseases and Type 2 Diabetes
http://www.nsf.gov/awardsearch/showAward?AWD_ID=1557467
Period: 09/15/2015 – 08/31/2017
Role: PI
Total award: \$93,653

- 15 Brown/SPH *Gene-Environment Networks* PI: **X Luo**
 Title: Systematic Methods for Discovering Gene-Environment Networks from Big Biomedical Data
 Period: 07/01/2014 – 06/31/2017
 Role: PI
 Total award: \$50,000.
- 14 NIH *P30 AI042853* Center for AIDS Research PI: S Cu-Uvn
 Title: Lifespan/Tufts/Brown Center for AIDS Research
http://projectreporter.nih.gov/project_info_description.cfm?aid=8977058
 Period: 07/01/2012 – 06/30/2017
 Role: Co-I
- 13 CFAR Dev *HIV-Metabolic* PI: Ingalls
 Title: Role of Complement Activation in the Development of HIV-associated Metabolic Syndrome
 Period: 07/01/2016 – 06/30/2017
 Role: Co-I
- 12 AHA 15CVGPS23670000 *Networks in T2D/CVD* PI: Liu
 Title: Integrative Genomics of Gene-Diet Interactions in Vascular Outcomes across Ethnicities
 Period: 02/01/2015 – 01/31/2017
 Role: Co-I
- 11 BIBS *Brain Networks* PI: J Sanes, **X Luo**, E Upfal
 Title: Advanced Neuroimaging of Functional Connectivity and Networks
<http://www.brown.edu/academics/brain-science/news/2015-10/bibs-awards-five-innovation-grants>
 Period: 07/01/2015 – 06/31/2016
 Role: CO-PI
 Total award: \$100,000
- 10 CFAR *Integrated Imaging Method* PI: **X Luo**
 Title: Integrated Analytics to Unravel the Complex Effects of HIV and Alcoholism on the Brain
 Period: 07/01/2014 – 06/30/2016
 Role: PI
 Total award: \$40,000.
- 9 Brown *seed* Covariance Estimation for Phylogenetics PIs: C Dunn, **X Luo**, J Wu
 Title: Making Sense of the Data Windfall: New Statistical Approaches to Evolutionary Analyses of Gene Expression
 Period: 09/01/2013 – 08/31/2015
 Role: Co-PI
 Total award: \$80,000.
- 8 NIH *R01 NS05247* Neuromarkers for Aging PI: R Paul
 Title: Neuromarkers of Age-related Cognitive Decline
http://projectreporter.nih.gov/project_info_description.cfm?aid=7658686
 Period: 09/01/2012 – 08/31/2014
 Role: Faculty statistician

- 7 Lifespan *Colorectal Cancer* PI: K Perez
 Title: Colorectal Cancer Study using MALDI-IMS Imaging Data
 Period: 04/01/2013 – 03/31/2014
 Role: Consultant
- 6 BIBS *Pilot Imaging Pharmacogenetics* PI: White, McGeary, Leite-Morris, **X Luo**
 Title: Collaboration on Imaging Pharmacogenetics and Monoamines
 Period: 05/01/2013 – 04/30/2014
 Role: Co-PI
 Total award: \$29,976.
- Training and Mentoring Grants*
- 5 NIH *D43TW010050 HIV Fogarty Training* PI: J Hogan
 Title: Brown Moi Partnership for Biostatistics Training in HIV
https://projectreporter.nih.gov/project_info_description.cfm?aid=8897807
 Period: 06/24/2015 – 05/31/2020
 Role: Trainer
- 4 NSF *SBE 1514246 Computational Neuroscience* Trainee: Dan McCarthy
 Title: Changes-of mind in target selection for action
http://www.nsf.gov/awardsearch/showAward?AWD_ID=1514246
 Period: 07/01/2015 – 06/30/2017
 Role: Faculty co-sponsor
- 3 NIH *F31 Predictive Models for CVD* Trainee: Beth Lacy
 Role: Faculty co-sponsor
 Status: Completed.
- 2 NIH *K23 OCD fMRI* Trainee: Nicole McLaughlin
 Title: Neuroanatomical Changes After Ventral Capsulotomy for Intractable OCD
 Role: Statistics mentor
 Status: Completed
- 1 NIDDK *K01 Obesity fMRI* Trainee: Kathryn Demos
 Title: The Neural Correlates OF Food Choice Decision-Making in Obesity and Weight Loss
 Role: Statistics mentor
 Status: Completed

Professional Activities

University-wide

Member of Diversity and Inclusion Committee, Department of Biostatistics and Center for Statistical Sciences, Brown University, 2017–pres.

Member of Biostatistics Master Admission Committee, Department of Biostatistics, Brown University, 2017–2018.

Organizer for the Charles K. Colver Lectureship Series "Interdisciplinary Perspectives on the Frontiers of Data Science Research", 2017–2018.

Member of Biostatistics Master Admission Committee, Department of Biostatistics, Brown University, 2016–2017.

Brown Seed Grant Reviewer, Office of the Vice-President for Research, Brown University, 2016–2017.

Data science curriculum committee member for Department of Biostatistics, Brown University, 2015–2016.

Advisory Committee for Brain Science Compute Cluster, Brown University, 2013–present.

Advisory committee member for the Sheridan Center for Teaching and Learning, Brown University, 2014–present.

Member of Biostatistics Master Admission Committee, Department of Biostatistics, Brown University, 2015–2016.

Member of Biostatistics Master Admission Committee, Department of Biostatistics, Brown University, 2014–2015.

ALANA Faculty Network member, Brown University, 2012–present.

Faculty search committee member for Department of Biostatistics, Brown University, 2014–2015.

Co-organizer for the Colver Lectureship Series "Inference and Decision Making Based on Large Networks", 2013–2014.

Co-organizer for the seminar series of Department of Biostatistics and Center for Statistical Sciences, 2013–2014.

Public Health Genetic Working Group, Brown University, 2013–2014.

Member of Best Masters Thesis Award Committee, Department of Biostatistics, Brown University, 2013.

Organizer of working group *Statistical Analysis of Big Data (SABD)*, 2012–2014.

Member of Biostatistics Curriculum Committee, Department of Biostatistics, Brown University, 2013–2014.

Member of Biostatistics PhD Admission Committee, Department of Biostatistics, Brown University, 2013–2014.

Member of Biostatistics PhD Admission Committee, Department of Biostatistics, Brown University, 2012–2013.

Member of Biostatistics PhD Program Committee, Department of Biostatistics, Brown University, 2011–2014.

Chair of Department Website Committee, Department of Biostatistics and Center for Statistical Sciences, Brown University, 2011–2012.

Member of Biostatistics Graduate Committee, Department of Biostatistics and Center for Statistical Sciences, Brown University, 2011–2014.

Member of Dean's Committee on International Students, Yale Graduate School, 2006.

Systems Administrator, Yale Statistics Department, 2005–2006.

Program Coordinator, Statistics Graduate Student Colloquium, Yale University, 2005–2006.

Representative of Statistics Department in Graduate Student Assembly, Yale University, 2005–2006.

Referee Work

Academic Editor (AE) for PLOS ONE.

Regular Reviewer for the following journals: Neurology, Annals of Applied Statistics, Annals of Statistics, Biometrics, Circulation: Cardiovascular Quality and Outcomes, Frontiers in Neuroscience, Linear Algebra and its Applications, Neuroscience, Nature Scientific Reports, Journal of Biomedical Informatics, Journal of Computational Neuroscience, Journal of Computational and Graphical Statistics, Journal of Machine Learning Research, Journal of the American Heart Association, Journal of the American Statistical Association, Journal of the Royal Statistical Society, Quantitative Finance, Statistica Sinica, Statistics in Medicine, Statistics and Computing, TEST, The Canadian Journal of Statistics.

Review Panels

- ◇ Panel member for National Institute of Health, panel review and site visit, 2016.
- ◇ Ad hoc reviewers for National Science Foundation, 2014–present.
- ◇ Program committee for Statistical Learning for Data Science, 2016 IEEE conference on Data Science and Advanced Analytics, 2016.
- ◇ Student award panel, the Statistics in Imaging section of the American Statistical Association, 2016.
- ◇ Student award panel, the Statistical Learning and Data Mining section of the American Statistical Association, 2015.
- ◇ Student award panel, the Statistical Learning and Data Mining section of the American Statistical Association, 2014.
- ◇ Student paper competition award committee, the Statistics in Imaging Section of the American Statistical Association, 2013.

Other National or International Activities

Program committee member, the 2018 International Chinese Statistician Association Meeting, 2018.

Organizer, topic-contributed session *Evolving Statistical Methods for the Evolving Brain Networks*, Joint Statistical Meeting, 2014.

Co-organizer, topic-contributed session *New Developments in Neuroscience and Neuroepidemiology Statistics*, Joint Statistical Meeting, 2012.

Session Chair, International Conference on Statistics and Society, Beijing, China, 2010.

Memberships in Professional Societies

Members or past members of

The International Chinese Statistician Association

The International Biometric Society

The American Statistical Association
The Institute of Mathematical Statistics

Honors and Awards

- ◇ Course Development Award, Brown University, 2016
- ◇ Annie G K Garland Fellowship, Yale University, 2008
- ◇ Francis J. Anscombe Award for Academic Excellence, Yale Statistics Department, 2005
- ◇ Yale University Fellowship, 2003–2009
- ◇ Bateman Fellowship, Yale Geology&Geophysics Department, 2003
- ◇ Academic Excellence Award, Peking University, 2000–2002
- ◇ Peking University Freshman Scholarship, 1999
- ◇ Bronze Medal, China National Physics Olympiad, 1998
- ◇ Gold Medal, Sichuan Provincial Physics Olympiad, China, 1998

Awards to My Students

- ◇ Xuefei Cao (PhD student): **Honorable Mention** for the student paper competition from the Mental Health Section of the American Statistical Association (ASA), 2018.
- ◇ Brendan Le (Undergraduate): **Brown Undergraduate Teaching and Research Award** for implementing a research project of my group, 2017.
- ◇ Yi Zhao (PhD student): **Student Paper Award** for our paper from the Mental Health Section of the American Statistical Association, 2017. **Student Paper Award (declined)** following ASA's one award policy) from the Statistics in Imaging Section of the American Statistical Association, 2017.
- ◇ Yi Zhao (PhD student): **Travel Award** for our paper from the Women in Machine Learning Workshop, Barcelona, Spain, 2016.
- ◇ Yi Zhao (PhD student): **Travel Award** for our paper from the conference on Challenges and Advances on Big Data in Neuroimaging, Cleveland Clinic, 2016.
- ◇ Yi Zhao (PhD student): **Student Paper Award** to our paper from the 2nd Annual Conference on Statistical Methods in Imaging, American Statistical Association, 2016.
- ◇ Obinna Ekekezie (MD student, summer intern): **Summer Assistantship** award for implementing a method/tool development project of my group, Alpert Medical School, Brown University, 2015.
- ◇ Yi Zhao (PhD student): **Runner-up for Best Research Poster Award** for our poster, Public Health Research Day, School of Public Health, Brown University, 2015.
- ◇ Yi Zhao (PhD student): **ENAR Distinguished Student Paper Award** for our paper, the Eastern North American Region of The International Biometric Society, 2015.
- ◇ Abi Kulshreshtha (Undergraduate, summer intern): **CFAR Undergraduate Research Intern Award** for implementing a data science project of my group, from Brown/Tufts/Lifespan CFAR, 2014.
- ◇ Xiaoxing Chen (Masters student): **Brain Science Research Award** for our research project, from Brown Institute for Brain Science at Brown University, 2013.
- ◇ Ye Xu (Masters student): **Best Graduate Research Poster Award** for our poster, from Public

Health Program of Brown University, 2012.

Teaching

Regular Courses

- 15 PHP 2650 *Statistical Learning and Big Data*, Department of Biostatistics, Brown University, Spring 2018.

Google Cloud Platform Education Grant for supporting the students, teaching staff, and instructor to purchase Google cloud computing services.

- 14 PHP 2602 *Analysis of Lifetime Data*, Department of Biostatistics, Brown University, Fall 2017.

- 13 PHP 2650 *Statistical Learning and Big Data*, Department of Biostatistics, Brown University, Spring 2017.

Course Development Award from Brown Provost's office for developing this new course and new pedagogical techniques (e.g. video labs), with collaboration from Brown School of Professional Studies and Brown's Harriet W. Sheridan Center for Teaching and Learning.

Google Cloud Platform Education Grant for supporting the students, teaching staff, and instructor to purchase Google cloud computing services.

- 12 PHP 2602 *Analysis of Lifetime Data*, Department of Biostatistics, Brown University, Fall 2016.

- 11 PHP 2605 *Generalized Linear Models*, Department of Biostatistics, Brown University, Spring 2016.

- 10 PHP 2650 *Statistical Methods for Big Data*, Department of Biostatistics, Brown University, Spring 2015.

Microsoft Education Award of \$15,000 for supporting the students and instructor to purchase services from Azure cloud computing.

- 9 PHP 2602 *Analysis of Lifetime Data*, Department of Biostatistics, Brown University, Fall 2014.

- 8 PHP 2602 *Analysis of Lifetime Data*, Department of Biostatistics, Brown University, Spring 2014.

- 7 PHP 2601 *Linear and Generalized Linear Models*, Department of Biostatistics, Brown University, Fall 2013.

- 6 PHP 2602 *Analysis of Lifetime Data*, Department of Biostatistics, Brown University, Spring 2013.

- 5 PHP 2520 *Statistical Inference I*, Department of Biostatistics, Brown University, Fall 2012.

- 4 PHP 2602 *Analysis of Lifetime Data*, Department of Biostatistics, Brown University, Spring 2012.

- 3 STAT 102 *Introduction to Business Statistics*, Department of Statistics, The Wharton School, University of Pennsylvania, Fall 2010.

- 2 STAT 431 *Statistical Inference*, Department of Statistics, The Wharton School, University of Pennsylvania, Fall 2009.
- 1 STAT 107 *Introduction to Statistics*, Department of Statistics, Yale University, Summer 2007.

Research Courses

- 12 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Spring 2018.
- 11 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Fall 2017.
- 10 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Spring 2017.
- 9 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Fall 2016.
- 8 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Spring 2016.
- 7 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Fall 2015.
- 6 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Spring 2015.
- 5 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Fall 2014.
- 4 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Spring 2014.
- 3 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Fall 2013.
- 2 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Spring 2013.
- 1 PHP 2980 S84 *Graduate Independent Study*, Department of Biostatistics, Brown University, Fall 2012.

Guest Lectures

- 3 PHP 2018 *Epidemiology of Cardio-Metabolic Health*, Department of Epidemiology, Brown University, Spring 2016. Lecture title: *Big Data Methods for T2D and CVD*,
- 2 PHP 2180 *Interpretation and Application of Epidemiology*, Department of Epidemiology, Brown University, Spring 2015. Lecture title: *Missing Data and Imputation: A Non-Statistical Introduction*,

- 1 PHP 2030 *Clinical Trials Methodology*, Department of Epidemiology, Brown University, Fall 2014.
Lecture title: *Survival Analysis*,

Student Advising

Research Advising: PhD

- 12 2017–pres. Ke Jun Role: thesis advisor
- 11 2017–pres. Xuefei Cao Role: research advisor
Honorable Mention for the student paper competition from the Mental Health Section of the American Statistical Association (ASA), 2018.
- 10 2017–2018. Stephannie Shih Role: thesis committee member
- 9 2017–pres. Qing Liu Role: thesis committee member
- 8 2017–2018. Mengna Huang Role: thesis committee member
- 7 2013–2017. Beth Lacy Role: thesis committee member
- 6 2013–2017. Yi Zhao Role: thesis advisor
Dissertation title: *Causal Mediation Analysis of Big Data*
Student Paper Award from the Mental Health Section of the American Statistical Association, 2017. **Student Paper Award (declined)** following ASA's one award policy) from the Statistics in Imaging Section of the American Statistical Association, 2017.
Travel Award for the Women in Machine Learning Workshop, Barcelona, Spain, 2016.
Travel Award for the conference on Challenges and Advances on Big Data in Neuroimaging, Cleveland Clinic, 2016.
Student Paper Award for the 2nd Annual Conference on Statistical Methods in Imaging, American Statistical Association, 2016.
Brain Science Graduate Research Award, Brown University.
Support period: 09/01/2016 – 12/31/2016.
2015 ENAR Distinguished Student Paper Award,
the Eastern North American Region of The International Biometric Society.
Runner-up for Best Research Poster Award by PhD students, postdocs, and trainees, Public Health Research Day, School of Public Health, Brown University, 2015.
- 5 2015. Obinna Ekekezie (MD student) Role: Faculty Sponsor
Summer Assistantship award for implementing a research project of my group.

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| 4 | 2015–2016. Xiaochen Lin | Role: thesis committee member |
| 3 | 2013–2015. Lingyuan Hu | Role: thesis committee member |
| 2 | 2011–2013. Stavroula Chrysanthopoulou | Role: thesis committee member |
| 1 | 2011–2013. Andrea Austin | Role: thesis committee member |

Research Advising: Masters

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| 11 | 2018–2019. Bernard Chu | Role: thesis advisor |
| 10 | 2018–2019. Yiquan Xu | Role: thesis advisor |
| 9 | 2017–2018. Yifu Liu | Role: thesis advisor |
| 8 | 2016–2017. Yuxi Liu | Role: thesis advisor |
| 7 | 2017. Seoung Won Lim | Role: reader |
| 6 | 2017. Ruiting Guo | Role: reader |
| 5 | 2016. Jinjie Liu | Role: reader |
| 4 | 2016. Yidan Zhang | Role: reader |
| 3 | 2012–2014. Xiaoxing Chen | Role: thesis advisor |

Brain Science Graduate Research Award, Brown University.
Support period: 01/01/2013 – 05/31/2013.

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| 2 | 2011–2012. Ye Xu | Role: research advisor |
| | Best Graduate Research Poster Award , Public Health Program, Brown University.
Poster title: <i>HIV-1 Mutation Networks Predict Subtype Drug Resistance</i> , by Ye Xu, Xi Luo, Austin Huang, Joseph Hogan, and Rami Kantor, April 19, 2012. | |
| 1 | 2011–2012. Nuo Xu | Role: thesis reader |

Research Advising: Undergraduate

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| 5 | 2017–pres. Brendan Le | Role: research advisor |
| | Brown Undergraduate Teaching and Research Award for implementing a re-
search project of my group.
Support period: 09/01/2017 – 05/20/2018. | |
| 4 | 2015–pres. Ian Pan | Role: honor thesis advisor |
| 3 | 2014 Abi Kulshreshtha | Role: research intern advisor |
| | CFAR Undergraduate Research Intern Award for implementing a research
project of my group.
Support period: 06/16/2014 – 08/01/2014. | |

2	2013 Eleanor Batty (research project)	Role: statistics advisor (not thesis advisor)
1	2013 Rohan Katpally (honor thesis)	Role: statistics advisor (not thesis advisor)
<u><i>Academic Advising: PhD</i></u>		
1	2012–2015. Youdan Wang	Role: academic advisor
<u><i>Academic Advising: Masters</i></u>		
7	2016–2018. Ludan Zhang	Role: academic advisor
6	2016–2018. Yifu Liu	Role: academic advisor
5	2013–2015. Zhongli Zhang	Role: academic advisor
4	2013–2015. Zhisheng Zhang	Role: academic advisor
3	2013–2014. Yang (Amy) Liu	Role: academic advisor
2	2012–2014. Lizhe Xu	Role: academic advisor
1	2011–2013. Tianyuan Cui	Role: academic advisor
<u><i>Academic Advising: Undergraduate</i></u>		
4	2013–2015. Amanda Zajac	Role: first-year advisor
3	2013–2015. Lingxiao Han	Role: first-year advisor
2	2013–2015. Ekaterina Kryuchkova	Role: first-year advisor
1	2013–2014. Fatima Husain	Role: first-year advisor