Xi (Rossi) **Luo**

Curriculum Vita

Information

Associate Professor
The University of Texas
Health Science Center at Houston
School of Public Health
Department of Biostatistics and Data Science

Address: 1200 Pressler St, Houston, TX 77030
Email: xi.rossi.luo@gmail.com Phone: (713) 500-9589 Fax: (713) 500-9525

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–pres, Associate Professor, Department of Biostatistics and Data Science, School of Public Health, The University of Texas Health Science Center at Houston.
- 2019–pres, Associate Professor (Adjunct), Department of Biostatistics, School of Public Health, Brown University.
- 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. † marks me as the senior corresponding author. Student authors of my primary advisees are shown in red.

47 X Cao, B Sandstede, **X Luo**†[corresponding author] (In Press). A Functional Data Method for Causal Dynamic Network Modeling of Task-related fMRI. *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.
PyPI pkg **cdn-fmri** (https://pypi.org/project/cdn-fmri/): 

46 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/): 

45 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

44 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

43 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 Sickle 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

42 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

41 **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/): 

40 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

39 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

38 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

37 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

36 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/): 

35 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

34 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

33 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

32 D Matuskey, **X Luo**, S Zhang, P Morgan, O Abdelghany, R Malison, CS Li (2013). Methylphenidate Remediates 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

31 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

30 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

29 **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

28 **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/): 

27 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

26 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

25 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

24 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

23 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/): 

22 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

21 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

20 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

19 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

18 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

17 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

16 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

15 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

14 AR Barron, C Huang, JQ Li, and **X Luo**¶(2008). MDL Principle, Penalized Likelihood, and Statistical Risk. *Feschrift 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

13 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

12 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*.

11 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

10 X Cao, J Ke, B Sandstede, **X Luo**. Time-dependent Canonical Correlation Analysis of Multilevel Time Series. *Submitted to conference*.

9 J Ke, X Cao, **X Luo**. Spatial and Temporal Correlation Analysis with an Application to functional MRI. *Submitted to conference*.

8 J Katz, **X Luo**. How to Get Hired as a Data Scientist: A Comprehensive Analysis of Glassdoor Job Postings. *Submitted*.

7 Y Zhao, **X Luo**, M Lindquist, B Caffo. Functional Mediation Analysis with an Application to FunctionalMagnetic Resonance Imaging Data. *Under review for JASA*. arXiv:1805.06923.

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

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/): 

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/): 

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 ICSA 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 Upfal, 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 Sickle 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 February 4, 2019. 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.

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.

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 **macc** Mediation Analysis of Causality under Confounding. CRAN R package.

Web: https://CRAN.R-project.org/package=macc
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/macc
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.

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.

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.

2 **lorec**: LOw Rank and sparsE Covariance matrix estimation. CRAN R package.

Web: https://CRAN.R-project.org/package=lorec
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/lorec
Most recent update on February 20, 2014 .
First public release on November 7, 2011.

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.

Talks

Conference Presentations

63 (**Invited speaker**) *Covariate Assisted Principal (CAP) Regression for Matrix Outcomes*. The 4th International Conference on Big Data and Information Analytics, Houston, Texas, USA, December 17 - 19, 2018.
Slides available at http://bit.ly/bigdia18

62 (**Invited speaker**) *Causal Dynamic Networks: : ODE Network Modeling of fMRI*. The 11th International Conference of Computational and Methodological Statistics, Pisa, Italy, December 14 - 16, 2018.
Slides available at http://bit.ly/cmstat18

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 International 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/xlSAMSI16

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/xlNESS16

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/xlENAR16

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/rtSAMSI1602

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, Providence, 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 Applica-*

tions. 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 *Uncovering New Patterns* PI: Liu
Title: Uncovering Patterns of Gene-diet Interaction for Cardiometabolic Health
Period: 4/2/2018 - 3/31/2020
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, 2013-1014.

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-organizor, 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.

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

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.

2 2011–2012. Ye Xu — Role: research advisor

Best Graduate Research Poster Award, Public Health Program, Brown University.
Poster title: *HIV-1 Mutation Networks Predict Subtype Drug Resistance*, 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

5 2017–pres. Brendan Le — Role: research advisor

Brown Undergraduate Teaching and Research Award for implementing a research 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)

Academic Advising: PhD

1 2012–2015. Youdan Wang — Role: academic advisor

Academic Advising: Masters

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

Academic Advising: Undergraduate

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