

Lexin Li

CONTACT

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RESEARCH INTERESTS

- ▷ Dimension reduction, variable selection, and high-dimensional regressions
- ▷ Neuroimaging, functional data, complex networks, internet data analysis
- ▷ Statistical machine learning, data mining, computational statistics
- ▷ Bioinformatics, computational biology

EDUCATION

- ▷ Ph.D. Statistics University of Minnesota, Twin Cities 2003
Advisers: R. Dennis Cook, Christopher J. Nachtsheim
- ▷ M.S. Statistics University of Minnesota, Twin Cities 2002
- ▷ B.E. Electrical Engineering Zhejiang University, China 1998

POSITIONS

- ▷ Visiting Faculty Department of Statistics, Stanford University
08/2011 - present
- ▷ Visiting Faculty Yahoo! Labs
08/2011 - present
- ▷ Associate Professor Department of Statistics, North Carolina State University
07/2011 - present
- ▷ Assistant Professor Department of Statistics, North Carolina State University
08/2005 - 06/2011
- ▷ Post-Doctoral Scholar School of Medicine, University of California, Davis
09/2003 - 08/2005

PUBLICATIONS

► Statistical Methodology Papers

- [1] Zhu, L.P., Li, L., Li, R., and Zhu, L.X. (2011). Model-free feature screening for ultrahigh dimensional data. *Journal of the American Statistical Association*. In press.

- [2] Li, B., Artemiou, A., and Li, L. (2011). Principal support vector machines for linear and nonlinear sufficient dimension reduction. *The Annals of Statistics*. In press.
- [3] Sun, W., and Li, L. (2011). Multiple loci mapping via model-free variable selection. *Biometrics*. In press.
- [4] Reich, B.J., Bondell, H.D., and Li, L. (2011). Sufficient dimension reduction via Bayesian mixture modeling. *Biometrics*. In press.
- [5] Lu, W., and Li, L. (2011). Sufficient dimension reduction for censored regressions. *Biometrics*. **67**, 513-523.
- [6] Zhu, H., and Li, L. (2011). Biological pathway selection through nonlinear dimension reduction. *Biostatistics*. **12**, 429-444.
- [7] Wu, Y., and Li, L. (2011). Asymptotic properties of sufficient dimension reduction with a diverging number of predictors. *Statistica Sinica*. **21**, 707-730.
- [8] Li, L., Zhu, L.P., and Zhu, L.X. (2011). Inference on the primary parameter of interest with the aid of dimension reduction estimation. *Journal of the Royal Statistical Society, Series B*. **73**, 59-80.
- [9] Li, L., Li, B., and Zhu, L.X. (2010). Groupwise dimension reduction. *Journal of the American Statistical Association*. **105**, 1188-1201.
- [10] Cook, R.D., and Li, L. (2009). Dimension reduction in regressions with exponential family predictors. *Journal of Computational and Graphical Statistics*. **18**, 774-791.
- [11] Setodji, C.M., and Li, L. (2009). Model free multivariate reduced-rank regression with categorical predictors. *Statistica Sinica*. **19**, 1119-1136.
- [12] Li, L., and Yin, X. (2009). Longitudinal data analysis using sufficient dimension reduction method. *Computational Statistics and Data Analysis*. **53**, 4106-4115.
- [13] Li, L. (2009). Exploiting predictor domain information in sufficient dimension reduction. *Computational Statistics and Data Analysis*. **53**, 2665-2672.
- [14] Bondell, H.D., and Li, L. (2009). Shrinkage inverse regression estimation for model free variable selection. *Journal of the Royal Statistical Society, Series B*. **71**, 287-299.
- [15] Lu, W., and Li, L. (2008). Boosting methods for nonlinear transformation models with censored survival data. *Biostatistics*. **9**, 658-677.
- [16] Li, L., and Tsai, C.L. (2008). Constrained regression model selection. *Journal of Statistical Planning and Inference*. **138**, 3939-3949.
- [17] Li, L., and Yin, X. (2008). Rejoinder to "A note on sliced inverse regression with regularizations". *Biometrics*. **64**, 984-986.
- [18] Li, L., and Lu, W. (2008). Sufficient dimension reduction with missing predictors. *Journal of the American Statistical Association*. **103**, 822-831.
- [19] Li, L. (2008). Comments on "Augmenting the bootstrap to analyze high dimensional genomic data" by S. Tyekucheva and F. Chiaromonte. *Test*. **17**, 22-24.
- [20] Li, L., and Yin, X. (2008). Sliced inverse regression with regularizations. *Biometrics*. **64**,

124-131.

- [21] Li, L. (2007). Sparse sufficient dimension reduction. *Biometrika*. **94**, 603-613.
- [22] Li, L., Cook, R.D., and Tsai, C.L. (2007). Partial inverse regression method. *Biometrika*. **94**, 615-625.
- [23] Li, L., and Nachtsheim, C.J. (2007). Comment on “Fisher lecture: dimension reduction in regression” by R. D. Cook. *Statistical Science*. **22**, 36-39.
- [24] Li, L., Simonoff, J.S., and Tsai, C.L. (2007). Tobit model estimation and sliced inverse regression. *Statistical Modelling*. **7**, 107-123.
- [25] Li, L., and Nachtsheim, C.J. (2006). Sparse sliced inverse regression. *Technometrics*. **48**, 503-510.
- [26] Azari, R., Li, L., and Tsai, C.L. (2006). Longitudinal data model selection. *Computational Statistics and Data Analysis*. **50**, 3053-3066.
- [27] Li, L. (2006). Survival prediction of diffuse large-B-cell lymphoma based on both clinical and gene expression information. *Bioinformatics*. **22**, 466-471.
- [28] Li, L., Cook, R.D., and Nachtsheim, C.J. (2005). Model-free variable selection. *Journal of the Royal Statistical Society, Series B*. **67**, 285-299.
- [29] Li, L., and Li, W. (2005). Tabu search and perturbation methods in the construction of supersaturated designs. *American Journal of Mathematical and Management Sciences*. **25**, 189-205.
- [30] Li, L., Cook, R.D., and Nachtsheim, C.J. (2004). Cluster-based estimation for sufficient dimension reduction. *Computational Statistics and Data Analysis*. **47**, 175-193.
- [31] Li, L., and Li, H. (2004). Dimension reduction methods for microarrays with application to censored survival data. *Bioinformatics*. **20**, 3406-3412.
- [32] Li, L., and Nachtsheim, C.J. (2004). Discussion of “A goodness-of-fit test for single-index models” by Y. Xia, et al. *Statistica Sinica*. **14**, 28-34.
- [33] Cook, R.D., and Li, L. (2003). Discussion of “The focused information criterion” by G. Claeskens and N.L. Hjort. *Journal of the American Statistical Association*. **98**, 925-928.
- [34] Li, L. (2002). Comment on “An adaptive estimation of dimension reduction space” by Y. Xia, et al. *Journal of the Royal Statistical Society, Series B*. **64**, 399-400.

► Interdisciplinary Collaboration Papers

- [35] Shao, X., and Li, L. (2011). Data-driven multi-touch attribution models. *Proceedings of the 17th ACM SIGKDD international conference on knowledge discovery and data mining*, San Diego, CA. In press.
- [36] Cai, Y., Chow, M.Y., Lu, W., and Li, L. (2010). Statistical feature selection from massive data in distribution fault diagnosis. *IEEE Transactions on Power Systems*. **25**, 642-648.
- [37] Cai, Y., Chow, M.Y., Lu, W., and Li, L. (2010). Evaluation of distribution fault diagnosis algorithms using ROC curves. *Proceedings of Power and Energy Society General Meeting*,

Minneapolis, MN. 1-6.

- [38] Cornish, K.M., Kogan, C.S., Li, L., Turk, J., Jacquemont, S., and Hagerman, R.J. (2009). Lifespan changes in working memory in fragile X premutation males. *Brain and Cognition*. **69**, 551-558.
- [39] Leehey, M.A., Berry-Kravis, E., Goetz, C.G., Zhang, L., Hall, D.A., Li, L., Rice, C.D., Lara, R., Cogswell, J., Reynolds, A., Gane, L., Jacquemont, S., Tassone, F., Grigsby, J., Hagerman, R.J., and Hagerman, P.J. (2008). FMR1 CGG repeat length predicts motor dysfunction in premutation carriers. *Neurology*. **70**, 1397-1402.
- [40] Cornish, K.M., Li, L., Kogan, C.S., Jacquemont, S., Turk, J., Dalton, A., Hagerman, R.J., and Hagerman, P.J. (2008). Age-dependent cognitive changes in carriers of the Fragile X Syndrome. *Cortex*. **44**, 628-636.
- [41] Tassone, F., Beilina, A., Carosi, C., Albertosi, S., Bagni, C., Li, L., Glover, K., Bentley, D., and Hagerman, P.J. (2007). Elevated FMR1 mRNA in premutation carriers is due to increased transcription. *RNA*. **13**, 555-562.
- [42] Tassone, F., Adams, J., Berry-Kravis, E.M., Cohen, S.S., Brusco, A., Leehey, M.A., Li, L., Hagerman, R.J., and Hagerman, P.J. (2007). CGG correlates with age of onset of motor signs of the Fragile X-associated Tremor/Ataxia Syndrome (FXTAS). *American Journal of Medical Genetics, Part B: Neuropsychiatric Genetics*. **144**, 566-569.
- [43] Berry-Kravis, E., Goetz, C., Leehey, M.A., Hagerman, R.J., Zhang, L., Li, L., Nguyen, D., Hall, D.A., Tartaglia, N., Cogswell, J., Tassone, F., and Hagerman, P.J. (2007). Neuro-pathic features in fragile X premutation carriers. *American Journal of Medical Genetics, Part A*. **143**, 19-26.

► **Book Chapters**

- [44] Li, L. (2010). Dimension reduction for high dimensional data. In *Statistical Methods in Molecular Biology*, Ed. Bang, H., Zhou, X., Van Epps, H.L. and Mazumdar, M. Humana Press.

► **Non-Refereed Technical Reports**

- [45] Li, L., and Li, H. (2005). A local polynomial method for detection of gene copy number changes in human cancer. *Proceedings of the Joint Statistical Meetings*, Minneapolis, MN.
- [46] Li, L., Cook, R. D., Nachtsheim, D. J. (2004). SIR³: dimension reduction in the presence of linearly or nonlinearly related predictors. Institute of Statistics Mimeo Series No. 2607.
- [47] Li, L., and Weisberg, S. (2003). Additional functionality in R for nonlinear regression analysis. Technical report. School of Statistics, University of Minnesota.

GRANTS

- ▷ *New dimension reduction approaches for modern scientific data with high dimensionality and complex structure.* 07/2011 - 06/2014
National Science Foundation (DMS), Sole Principle Investigator

- ▷ *On inference and variable selection for semiparametric models with high dimensional predictors.* 01/2010 - 12/2011
Research Grants Council of Hong Kong, Co-Principle Investigator
- ▷ *Sufficient dimension reduction for missing, censored, and correlated data.* 09/2007 - 09/2010
National Science Foundation (DMS), Sole Principle Investigator
- ▷ *Comparative and web-enabled virtual screening.* 09/2007 - 09/2008
National Institute of Health, Co-Investigator
- ▷ *Sufficient Dimension Reduction in High-dimensional Data.* 01/2006 - 12/2006
NCSU Faculty Research and Professional Development Fund, Sole Principal Investigator

PRESENTATIONS

► Invited Conference Talks

- ▷ Joint Statistical Meetings, Miami, FL 08/2011
- ▷ ICSA Applied Statistics Symposium, New York, NY 06/2011
- ▷ First Joint Biostatistics Symposium, Beijing, China 07/2010
- ▷ International Conference on Statistical Analysis of Complex Data, Kunming, China 07/2010
- ▷ ENAR, New Orleans, LA 03/2010
- ▷ Summer Research Conference, Jekyll Island, GA 06/2009
- ▷ Joint Statistical Meetings, Denver, CO 08/2008
- ▷ Workshop on Future Directions in High-Dimensional Analysis, Cambridge, UK 06/2008
- ▷ ICSA Applied Statistics Symposium, Piscataway, NJ 06/2008
- ▷ Current and Future Trends in Nonparametrics Conference, Columbia, SC 10/2007
- ▷ International Conference on Bioinformatics, Hangzhou, China 06/2007
- ▷ ICSA Applied Statistics Symposium, Raleigh, NC 06/2007
- ▷ Spring Research Conference, Technometrics Invited Session, Ames, IA 05/2007
- ▷ ENAR, IMS Invited Session, Tampa, FL 03/2006
- ▷ Quality and Productivity Research Conference, Minneapolis, MN 05/2005

► Invited Seminar Talks

- ▷ Division of Biostatistics, Stanford University 10/2011
- ▷ Center for Imaging and Neurodegenerative Diseases 09/2011
- ▷ Department of Biostatistics, Columbia University 04/2011
- ▷ Department of Environmental Medicine, New York University 04/2011

- ▷ Department of Statistics, University of Missouri 03/2011
- ▷ Department of Statistics and Applied Probability, National University of Singapore 06/2010
- ▷ Department of Statistics and Probability, Michigan State University 03/2010
- ▷ Department of Statistics, University of Illinois, Urbana Champaign 02/2010
- ▷ Department of Statistics, University of Toronto 11/2009
- ▷ School of Statistics, University of Minnesota 09/2009
- ▷ Department of Statistics, Stanford University 07/2009
- ▷ Booth School of Business, University of Chicago 05/2009
- ▷ The Methodology Center, Penn State University 02/2009
- ▷ Biostatistics Branch, National Institute of Environmental Health Sciences 10/2008
- ▷ School of Public Health, Biostatistics Program, Yale University 09/2008
- ▷ Department of Statistics, University of Virginia 04/2008
- ▷ Department of Statistical Science, Duke University 03/2008
- ▷ Department of Mathematics, Hong Kong Baptist University 12/2007
- ▷ Department of Statistics, University of North Carolina, Chapel Hill 12/2007
- ▷ Department of Statistics, Penn State University 11/2007
- ▷ Department of Statistics, Oregon State University 05/2007
- ▷ Department of Bioinformatics and Biostatistics, University of Louisville 04/2006
- ▷ Department of Statistics, University of Georgia 11/2005
- ▷ Department of Biostatistics, University of Minnesota 02/2005
- ▷ Department of Biostatistics, Johns Hopkins University 02/2005
- ▷ Department of Biostatistics, University of Washington 02/2005
- ▷ Department of Statistics, North Carolina State University 02/2005
- ▷ Department of Biostatistics, Emory University 02/2005
- ▷ Department of Mathematics and Statistics, University of Massachusetts, Amherst 01/2005
- ▷ Center for Statistical Sciences, Brown University 01/2005
- ▷ Department of Statistics, University of Illinois, Urbana Champaign 01/2005
- ▷ Department of Statistics, Northwestern University 01/2005
- ▷ Institute for Data Analysis and Visualization, University of California, Davis 11/2003

- ▶ **Invited Short Courses**
 - ▷ SAS Institute, JMP Group 05/2007

- ▶ **Contributed Conference Talks**

- ▷ Workshop on Model Selection and Related Areas, Vienna, Austria 07/2008
- ▷ Joint Statistical Meetings, Salt Lake City, UT 08/2007
- ▷ ENAR, Atlanta, GA 03/2007
- ▷ Joint Statistical Meetings, Seattle, WA 08/2006
- ▷ International Conference on Robust Statistics, Lisbon, Portugal 07/2006
- ▷ Joint Statistical Meetings, Minneapolis, MN 08/2005
- ▷ Joint Statistical Meetings, San Francisco, CA 08/2003
- ▷ INFORMS Annual Meeting, San Jose, CA 11/2002

HONORS

- ▷ NSF Young Researcher Travel Award. Current and Future Trends in Nonparametrics Conference 10/2007
- ▷ *Technometrics* Invited Paper Presentation at Spring Research Conference 05/2007
- ▷ NCSU Faculty Research and Development Award 01/2006 - 12/2006
- ▷ Alumni Fellowship School of Statistics, University of Minnesota 09/2000 - 06/2001
- ▷ Melton Fellowship Zhejiang University and Melton Foundation 09/1995 - 06/1998

TEACHING EXPERIENCE

- ▷ Nonlinear Models for Univariate and Multivariate Response. NCSU Fall, 2010
- ▷ Statistical Multivariate Analysis. NCSU Spring, 2011, 2010, 2009
- ▷ Advanced Topic: Introduction to Dimension Reduction for Regression. NCSU Fall, 2009, 2007
- ▷ Introduction to Probability and Distribution Theory. NCSU Spring, 2008, 2007
- ▷ Introduction to Statistical Inference and Regression. NCSU Fall, 2009, Fall, 2008, Spring, 2006, Fall, 2005
- ▷ Introduction to Statistical Analysis. University of Minnesota Fall, 2002

CONSULTING EXPERIENCE

- ▷ Statistical Consulting Center, University of Minnesota Spring, 2001, Summer, 2002
- ▷ Statistical Consulting Center, 3M St Paul, MN (Intern) Summer 1999, Summer, 2000

PROFESSIONAL ACTIVITIES

- ▷ Refereed for *The Annals of Statistics*, *Biometrika*, *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society, Series B.*, *Annals of Applied Statistics*, *Annals of Institute of Statistical Mathematics*, *Bioinformatics*, *Computational Statistics and Data Analysis*, *Electronic Journal of Statistics*, *Journal of Business and Economic Statistics*, *Journal of Computational and*

Graphical Statistics, Journal of Multivariate Analysis, Journal of Statistical Planning and Inference, Statistica Sinica, Statistics in Medicine, BMC Bioinformatics, ESAIM: Probability and Statistics, Journal of Nonparametric Statistics, Journal of Statistical Computation and Simulation, Journal of Statistical Software, Journal of Statistical Theory and Practice, Journal of the Korean Statistical Association, Statistical Analysis and Data Mining, Statistics Surveys

- ▷ Member of ASA, IBS (ENAR), ICSA, IMS
- ▷ Session organizer for the Joint Statistical Meeting, 2012, 2011, 2007, Applied Statistics Symposium, 2007, the Quality and Productivity Research Conference, 2005