

Department of Mathematics
Washington University in St. Louis
1 Brookings Drive
Saint Louis, Missouri 63130

Email: nlin@wustl.edu
Tel: (314) 935-5703 (office)
Fax: (314) 935-6839
URL: <http://www.math.wustl.edu/~nlin>

Education

2003 Ph.D., Department of Statistics, University of Illinois at Urbana-Champaign
2003 M.S., Department of Finance, University of Illinois at Urbana-Champaign
2000 M.S., Department of Statistics, University of Illinois at Urbana-Champaign
1999 B.S. in Computer Science, the Special Class for Gifted Young, University of Science and Technology of China

Appointments

2011- **Associate Professor** (with tenure), Department of Mathematics, Washington University in St. Louis
2011- **Associate Professor**, Division of Biostatistics, Washington University in St. Louis, School of Medicine
2011-2014 **Special-Term Visiting Professor**, School of Mathematics and Statistics, Northeast Normal University, Changchun, China
2004-2011 **Assistant Professor**, Department of Mathematics, Washington University in St. Louis
2006-2011 **Assistant Professor**, Division of Biostatistics, Washington University in St. Louis, School of Medicine
2003-2004 **Postdoctoral Associate**, Yale Center for Statistical Genomics and Proteomics, Department of Epidemiology and Public Health, Yale University School of Medicine

Research Interests

Statistical computing in massive data, bioinformatics, Bayesian regularization, longitudinal and functional data analysis, and statistical applications in anesthesiology and cognition

Honors

Special-Term Visiting Professor, School of Mathematics and Statistics, Northeast Normal University, Changchun, China, 2011-2014
Special Recognition for Outstanding Mentors, College of Arts and Sciences, Washington University in St. Louis, Spring 2007
Technometrics Invited Paper Presentation at Spring Research Conference 2004

Professional Services

Editorial Services

Associate Editor, *Computational Statistics and Data Analysis*, 2011-present
Reviewer, *Mathematical Reviews*, 2012-present

Data Safety and Monitoring Boards (DSMBs)

Member, DSMB of Randomized Clinical Trial to Evaluate Guidelines for Acute Rhinosinusitis, NIH, 2006-2009.

Conference Program Committee

The 20th Annual Meetings of the Midwest Econometrics Group, 2010

International Association for Statistical Computing for the 2013 ISI World Statistics Congress

Conference Session Chair

International Conference on Statistics and Society, Beijing, China, 2010

The 20th Annual Meetings of the Midwest Econometrics Group, 2010

Conference Reviewer

The 14th International Conference on Artificial Intelligence and Statistics (AISTAT), 2011

Grant proposal reviewer

National Science Foundation, Division of Mathematics Sciences, 2005

National Security Agency, Mathematical Sciences Grants Program, 2012

Journal Referee

Bioinformatics

Biometrical Journal

BMC Bioinformatics

Canadian Journal of Statistics

Computational Statistics and Data Analysis

FEBS Letters

Functional and Integrative Genomics

IEEE/ACM Transactions on Computational Biology and Bioinformatics

IEEE Transactions on Signal Processing

IEEE Transactions on Systems, Man and Cybernetics

Journal of the American Statistical Association

Journal of Biopharmaceutical Statistics

Journal of Computational and Graphical Statistics

Journal of Machine Learning Research

Journal of Mathematical Inequalities

Journal of Nonparametric Statistics

Journal of the Royal Statistical Society, Series B

Journal of Statistical Planning and Inference

Metron: International Journal of Statistics

Physica A

Psychometrika

Statistical Analysis and Data Mining

Statistical Methods and Applications

Statistics and Its Interface

Statistics and Probability Letters

Statistics in Medicine

Book reviewer

Elsevier Publisher

SAGE Publications

Springer Publisher

Professional Society Membership

International Chinese Statistical Association

Advising

Ph.D. Students

1. Ruibin Xi (2009), *Statistical Aggregation: Theory and Applications*
 - First job: Postdoc at the Center for Biomedical Informatics, Harvard Medical School
 - Current job: faculty at Peking University
2. Qing Li (2010), *On Bayesian Regression Regularization Methods*
 - Current job: Biometrician at Merck & Co., Inc.
3. Chao Chang (since 2011), in process

Master Students

4. Haeri Lee, M. A. (expected May 2012), *On Bayesian Inference of Bidimensional Regression*
 - in process
5. Jia Wang, M. A. (2009), *Interval Estimation of Excess Risk Related Effective Doses in Tobit Models*
 - First job: statistical data analyst at Washington University, School of Medicine
 - Current job: statistical data analyst at Baidu.com
6. Zhiyong Huang, M. A. (2008), *Interval Estimation of Effective Doses*
 - Current job: consumer behavior analyst at Department of Industry and Market Research, China Mobile Research Institute
7. Xiaoqiong Yu, M. A. (2006) (Co-advised with Professor Stanley Sawyer)
 - Current job: analyst at Health Benchmarks Inc.

Publications and Manuscripts

Book chapters

- [1] **Lin, N.**, Noe, D. and He, X. (2006), Tree-based methods and their applications, in H. Pham (eds), *Springer Handbook of Engineering Statistics*, 551-569, Springer.

Peer-reviewed journal publications

- [2] **Lin, N.**, Bailey, B. A., He, X. and Buttlar, W. G. (2004), Adjustment of measuring devices with linear models, *Technometrics*, **46**(2), 127-134.
- [3] **Lin, N.**, Wu, B., Jansen, R., Gerstein, M. and Zhao, H. (2004), Information assessment on predicting protein-protein interactions, *BMC Bioinformatics*, **5**: 154.
- [4] **Lin, N.** and Zhao, H. (2005), Are scale-free networks robust to measurement errors?, *BMC Bioinformatics*, **6**: 119.
- [5] **Lin, N.** and He, X. (2006), Robust and efficient estimation under data grouping, *Biometrika*, **93** (1), 99-112.
- [6] McDunn, J. E., Husain, K. D., Polpitiya, A. D., Burykin A., Ruan, J., Li, Q., Schierding, W., **Lin, N.**, Dixon, D., Zhang W., Coopersmith, C. M., Dunne, M. W., Colonna, M., Ghosh, B., Cobb, J. P. (2008),

Plasticity of the systemic inflammatory response to acute infection during critical illness: Development of the Riboleukogram, *PLoS ONE*, **3**, e1564.

- [7] Woods, C. and **Lin, N.** (2009), Item response theory with estimation of the latent density using Davidian curves, *Applied Psychological Measurement*, **33**, 102-117.
- [8] Xi, R., **Lin, N.**, and Chen, Y. (2009), Compression and aggregation for logistic regression analysis in data cubes, *IEEE Transactions on Knowledge and Data Engineering*, **21**(4), 479-492.
- [9] Liu, T., **Lin, N.** and Zhang, B. (2009), Empirical likelihood for balanced ranked-set sampled data, *Science in China Series A: Mathematics*, **52**(6), 1351-1365. (special issue in honor of Prof. Zhidong Bai of his 65th birthday)
- [10] Liu, T., **Lin, N.**, Shi, N. and Zhang, B. (2009), Information criterion-based clustering with order-restricted candidate profiles in short time-course microarray experiments, *BMC Bioinformatics*, **10**: 146.
- [11] Cobb, J. P., Moore, E. E., Hayden, D. L., Minei, J. P., Cuschieri, J., Yang, J., Li, Q., **Lin, N.**, Brownstein, B. L., Hennessy, L., Mason, P. H., Schierding, W. S., Dixon, D. J., Tompkins, R. G., Warren, H.S., Schoenfeld, A. D. and Maier, R. V. (2009), Validation of the Riboleukogram to detect ventilator-associated Pneumonia after severe injury, *Annals of Surgery*, **250**, 531-539..
- [12] **Lin, N.** and Xi, R. (2010), Fast surrogates of U-statistics, *Computational Statistics and Data Analysis*, **54**, 16-24.
- [13] Li, Q. and **Lin, N.** (2010), The Bayesian elastic net, *Bayesian Analysis*, **5**, 151-170.
- [14] Kertai, M.D., Pal, N., Palanca, B. J. A., **Lin, N.**, Searleman, S. A., Zhang, L., Burnside, B.A., Finkel, K. J., Avidan, M. S. (2010), Association of perioperative risk factors and cumulative duration of low bispectral index with intermediate-term mortality following cardiac surgery, *Anesthesiology*, **112**, 1116-1127.
- [15] Shen, H., Buchowski, J. M., Yeom, J. S., Liu, G., **Lin, N.** and Riew, K. D. (2010), Pseudarthrosis in multilevel anterior cervical fusion with rhBMP-2 and allograft: Analysis of one hundred twenty-seven cases with minimum two-year follow-up, *Spine*, **35**(7):747-753.
- [16] Muenzer, J.T., Jaffe, D.M., Schwulst, S.J., Dixon, D. J., Schierding, W. S., Li, Q., Macmillan, S. K., Oppedal, D., Warner, B.W., Dillon, P. A., **Lin, N.**, Checchia, P. A., Cobb, J. P. (2010), Evidence for a novel blood RNA diagnostic for pediatric appendicitis: the Riboleukogram, *Pediatric Emergency Care*, **26**(5): 333-338.
- [17] Yan, X., Liu, T., **Lin, N.** and Zhang, B. (2010), Combining conditional and unconditional moment restrictions with missing responses using empirical likelihood, *Journal of Multivariate Analysis*, **101**, 2420-2433.
- [18] Li, Q., Xi, R. and **Lin, N.** (2010), Bayesian regularized quantile regression, *Bayesian Analysis*, **5**, 533-556.
- [19] **Lin, N.** and Xi, R. (2011), Aggregated estimating equation estimation, *Statistics and Its Interface*, **4**, 73-84.
- [20] Bottros, M. M., Palanca, B. J. A., Mashour, G. A., Patel, A., Butler, C., Taylor, A., **Lin, N.** and Avidan, M. S. (2011), Estimation of the bispectral index by anesthesiologists: An inverse Turing test, *Anesthesiology*, **114**, 1093-1101.

- [21] Fu, Z., Tao, J., Shi, N., Zhang, M. and **Lin, N.** (2011), Analyzing longitudinal item response data via the pairwise fitting method, *Multivariate Behavioral Research*, **46**(4), 669-690.
- [22] Avidan, M. S., Jacobsohn, E., Glick, D., Burnside, B. A., Zhang, L., Villafranca, A., Karl, L., Kamal, S., Torres, B., O'Connor, M., Evers, A. S., Gradwohl, S., **Lin, N.**, Palanca, B. J. and Mashour, G. A. (2011), Prevention of intraoperative awareness in a high-risk surgical population, *The New England Journal of Medicine*, **365**, 591-600.
- [23] Whitlock, E., Villafranca, A., **Lin, N.**, Palanca, B. J., Searleman, A. C., Jacobsohn, E., Finkel, K. J., Zhang, L., Burnside, B. A., Evers, A. S. and Avidan, M. S. (2011), The relationship between bispectral index values and volatile anesthetic concentrations during the maintenance phase of anesthesia in the B-Unaware trial, *Anesthesiology*, **115** (6), 1209-1218.
- [24] Wang, G., **Lin, N.** and Zhang, B. (2012), Functional linear regression after spline transformation, *Computational Statistics and Data Analysis*, **56**, 587-601.
- [25] Liu, T., Yuan, X., **Lin, N.** and Zhang B. (2012), Rank-based empirical likelihood inference on medians of k populations, *Journal of Statistical Planning and Inference*, **142**(4), 1009-1026.
- [26] Ji, Y., **Lin, N.** and Zhang, B. (2012), Model selection in binary and tobit quantile regression using the Gibbs sampler, *Computational Statistics and Data Analysis*, **56**, 827-839. (special issue on quantile regression and semiparametric methods)
- [27] Xu, L., **Lin, N.**, Zhang, B. and Shi, N. (2012), A finite mixture model for working correlation matrices in generalized estimating equations, *Statistica Sinica*, **22**(2), in press.
- [28] Xi, R., **Lin, N.**, Chen, Y. and Kim, Y. (2012) Compression and aggregation of Bayesian estimates for data intensive computing, *Knowledge and Information Systems*, in press.
- [29] Lin, N. and Chang, C. (2012) Comment on Article by Lum and Gelfand, *Bayesian Analysis*, in press.
Paper submitted
- [30] Wang, G., **Lin, N.** and Zhang, B. (2011), Functional contour regression, *Journal of Multivariate Analysis*, under review.
- [31] Whitlock, E. L., Torres, B. A., **Lin, N.**, Helsten, D. and Avidan, M. S. (2012), Predictors of and associations with postoperative delirium in the cardiothoracic intensive care unit, *British Journal of Anesthesia*, under revision.
- [32] Mashour, G. A., Shanks, A., Tremper, K., Kheterpal, S., Turner, C., Ramachandran, S., Picton, P., Schueller, C., Morris, M., Vandervest, J., **Lin, N.** and Avidan, M. S. (2011), Prevention of Intraoperative Awareness in an Unselected Surgical Population: A Randomised Comparative Effectiveness Trial of Bispectral Index and Anesthetic Concentration Protocols, *Anesthesiology*, under revision.
- [33] Wang, G., **Lin, N.** and Zhang, B. (2012), Dimension reduction in functional regression using mixed data canonical correlation analysis, *Statistics and Its Interface*, under revision.
- Technical reports
- [34] Xi, R.*, Kim, Y., **Lin, N.** and Chen, Y. (2009), Bayesian analysis in data cubes, Technical Report WUCSE-2009-81, Washington University in St. Louis, Department of Computer Science and Engineering.

Software Development

R package `ORIClust`, <http://cran.r-project.org/web/packages/ORIClust/>

Co-developer: Tianqing Liu and Baoxue Zhang

`ORIClust` is a user-friendly R-based software package for gene clustering. Clusters are given by genes matched to prespecified profiles across various ordered treatment groups. It is particularly useful for analyzing data obtained from short time-course or dose-response microarray experiments.

Invited Presentations

2012

- The 2nd Institute of Mathematical Statistics Asia Pacific Rim Meeting, Tsukuba, Japan

2011

- School of Mathematics and Statistics, Northeast Normal University, Changchun, China
- School of Information Sciences, University of Science and Technology of China, Hefei, China
- Department of Statistics, Fudan University, Shanghai, China
- The 2011 IMS-China International Conference on Statistics and Probability, XiAn, China
- The 2011 Seminar on Bayesian Inference in Econometrics and Statistics (SBIES), St. Louis, Missouri
- The 2011 China National Statistics Workshop, Beijing, China

2010

- Microsoft Research Asia (MSRA), Beijing, China
- The Graduate University of Chinese Academy of Sciences, Beijing, China
- The ICSA 2010 Applied Statistics Symposium, Indianapolis, Indiana
- The 20th Annual Meetings of the Midwest Econometrics Group, St. Louis, Missouri

2009

- Division of Biostatistics, School of Medicine, Washington University in St. Louis
- Department of Mathematics and Statistics, Bowling Green State University
- Department of Electrical and System Engineering, Washington University in St. Louis
- The First Seminar in Applied Probability and Statistics, Changchun, China
- The Graduate University of Chinese Academy of Sciences, Beijing, China

2008

- The Annual Meeting of the Classification Society of North America, St. Louis, Missouri
- The 17th annual International Chinese Statistical Association Applied Statistics Symposium, Piscataway, New Jersey
- International Meeting of the Psychometric Society, Durham, New Hampshire

2007

- Department of Statistics, University of Hong Kong
- Institute of System Sciences, Chinese Academy of Sciences, Beijing, China
- Department of Statistics and Finance, University of Science and Technology of China, Hefei, China

- The 15th International Conference of Forum for Interdisciplinary Mathematics on Interdisciplinary Mathematical and Statistical Techniques, Shanghai, China
- Department of Statistics, University of Missouri at Columbia
- Department of Statistics, University of Virginia

2006

- Division of Biostatistics, Washington University of St. Louis, School of Medicine
- Department of Biostatistics, Columbia University

2005

- Pacific Northwestern National Laboratory, Richland, Washington
- Frontiers in Integrative Biological Research (FIBR) Workshop, Washington University in St. Louis
- Department of Genetics, Washington University in St. Louis, School of Medicine

2004

- Department of Statistics, University of North Carolina at Chapel Hill
- Department of Mathematics, Washington University in St. Louis
- Department of Statistics, University of Kentucky
- Department of Internal Medicine, University of New Mexico
- Department of Mathematics and Statistics, Arizona State University
- Department of Mathematics and Statistics, Utah State University
- Department of Mathematics and Statistics, University of Maryland at Baltimore County
- The Eleventh Annual Spring Research Conference (SRC04) on Statistics in Industry and Technology, Gaithersburg, Maryland

Contributed Presentations

2010

- The 2010 Joint Statistical Meeting, Vancouver, Canada
- International Conference on Statistics and Society, Beijing, China

2007

- The 2007 Taipei International Statistical Symposium and ICSA International Conference, Taipei, Taiwan

2006

- The Joint Statistical Meeting, Seattle, Washington
- The University of Florida Winter Workshop: Frontiers in Theoretical Statistics, Gainesville, Florida

2005

- The Joint Statistical Meetings, Minneapolis, Minnesota
- The WNAR/IMS Meeting, Fairbanks, Alaska
- The Joint Annual Meetings of the Interface and the Classification Society of North America, Saint Louis, Missouri

2004

- The Seventh North American New Researchers Conference (NRC04) at York University, Toronto, Canada

2002

- The International Conference on Robust Statistics (ICORS02), Vancouver, Canada

Teaching

Classroom Teaching at Washington University in St. Louis

| | |
|------------------------------|--|
| Spring 2008 | Mathematics 2200 (Elementary Statistics) (two sections) |
| Spring 2007 | Mathematics 320 (Elementary Statistics) |
| Spring 2009, 2012, Fall 2010 | Mathematics 3200 (Elementary to Intermediate Statistics) |
| Spring 2011 | Mathematics 408 (Nonparametric Statistics) |
| Spring 2010, 2012 | Mathematics 420 (Experimental Design) |
| Fall, 2012 | Mathematics 439 (Linear Models) |
| Spring 2008-2012 | Mathematics 459 (Bayesian Statistics) |
| Fall, 2009 | Mathematics 475 (Statistical Computation) |
| Fall 2004 | Mathematics 493 (Probability) |
| Spring 2005 | Mathematics 494 (Mathematical Statistics) |
| Fall 2005, 2006 | Mathematics 5061 (Theory of Statistics I) |
| Spring 2006, 2007 | Mathematics 5062 (Theory of Statistics II) |

Invited Short Courses

| | |
|-----------|---|
| June 2005 | Systems Biology (invited for the NSF Frontiers In Biological Research summer school at Washington University) |
| June 2009 | Bayesian Statistics and Its Applications (at Northeastern Normal University, Changchun, China) |
| May 2010 | Modern Classification Methods (at Center of Statistical Sciences, Brown University) |
| June 2010 | Bayesian Statistics with Applications in Bioinformatics and Data Mining (at Chinese Academy of Science, Beijing, China) |
| July 2010 | Bayesian Statistics with Applications in Bioinformatics and Data Mining (at Lanzhou University, Lanzhou, China) |

Course Development at Washington University

1. Math5061-5062 (Theory of Statistics I-II), since fall 2005

A two-semester series course on fundamental theory of mathematical statistics for Ph.D. students. This course is one of the qualifying exam core courses for Department of Mathematics, Washington University.

2. Math459 (Bayesian Statistics), since spring 2008

A one-semester course on fundamental theory of Bayesian statistics for senior undergraduates and first-year graduate students.

University and Department Services

Member, Search Committee of Department of ESE, WashU (2011-2012)

Member, Program Committee of Master in Biostatistics, Division of Biostatistics, WashU (2010-present)

Chair, Department Statistics Committee (2006-2007, 2009-2011)

Member, Department Statistics Committee (2004-2009, 2012)

Member, Department Computing Committee (2004-2005)

Member, Department Graduate Committee (2005-2006, 2010-2011)

Member, Department Library Committee (2008-2010)

Member, Department Search Committee (2005-2006)

Member, Department Calculus Lab Reformation Committee (2005-2006)

Graduate Student Committees (*thesis advisor):

Liana Jacobi, Ph.D., Economics, 2005

Tom King, Ph.D., Economics, 2005

Gang Shi, Ph.D., Electrical Engineering, 2006

Tong Zhao, Ph.D., Electrical Engineering, 2006

*Xiaoqiong Yu, M. A., Statistics, 2006

Jian Wang, Ph.D., Electrical Engineering, 2006

Haochen Li, Ph.D., Physics, 2006

Zhi Liu, Ph.D., Electrical Engineering, 2007

Amei Amei, Ph.D., Mathematics, 2007

Martin Hurtado, Ph. D., Electrical Engineering, 2007

Zhao Xing, Ph. D., Computer Science, 2008

Long Chen, Ph. D., Business Administration, 2008

Yanni Sun, Ph. D., Computer Science, 2008

Yu Tang, Ph.D., Business Administration, 2008

*Zhiyong Huang, M.A., Statistics, 2008

Haley J. Abel, Ph.D., Mathematics, 2009

*Ruibin Xi, Ph.D., Mathematics, 2009

Haiyan Wang, Ph.D., Business Administration, 2009

*Jia Wang, M.A., Statistics, 2009

Adam Hafdahl, M.A., Statistics, 2009

Xun Pang, Ph.D., Political Science, 2010

Patricio S. La Rosa, Ph.D., Electrical Engineering, 2010

Michael Malecki, Ph.D., Political Science, 2010

Satyabrata Sen, Ph.D., Electrical Engineering, 2010

Murat Akcakaya, Ph.D., Electrical Engineering, 2010

*Qing Li, Ph.D., Mathematics, 2010

Xiao Huang, Ph.D., Mathematics, 2011

Andrew Womack, Ph. D., Mathematics, 2011

Sandeep Gogineni, Ph.D., Electrical Engineering, 2012

Tao Li, Ph.D., Electrical Engineering, 2012
*Haeri Lee, M.A., Statistics, 2012