# Lijian YANG

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| **Contact Information** | Department of Statistics & Probability<br>Michigan State University<br>East Lansing, MI 48824 | Fax: 517-432-1405<br>E-mail: yang@stt.msu.edu<br>Phone: 517-353-6369 |

## Education

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|---|---|---|
| University of North Carolina, Chapel Hill | Statistics | M.S., 1993, Ph.D., 1995 |
| Peking University, China | Mathematics | B.S., 1987 |

## Research Interests

Inference & forecasting of nonlinear time series & functional/longitudinal data, dimension reduction, econometrics, agronomy, food science, geography (Erdös Number 3: Yao → Chen → Erdös)

## Appointments

| | |
|---|---|
| August 2007- | Graduate Director, Department of Statistics & Probability, Michigan State University |
| 1997-2001/2001-2006/July 2006- | Assistant/Associate/Full Professor of Statistics & Probability, Michigan State University |
| 2005-2006/July 2006- | Adjunct Associate Professor/Adjunct Professor, Center for Global Change & Earth Observations, Michigan State University |
| January-July 2005 | Visiting Associate Professor, National University of Singapore |
| September-December 2004 | Visiting Professor, School of Management, Peking University |
| 2001-2002 | Judith C. & William G. Bollinger Visiting Professor, the Wharton School, University of Pennsylvania |
| October 1995-July 1997 | Research Associate, Humboldt University |

## Honors and Awards

- The Tjalling C. Koopmans Econometric Theory Prize, 2000-2002 (with S. Sperlich and D. Tjøstheim) "Nonparametric estimation and testing of interaction in additive models"$1,000.
- National Science Foundation DMS 0706518, 2007-2010 "Reduction of infinite data dimension via B spline smoothing"$221,525, sole P.I.
- National Science Foundation DMS 0405330, 2004-2007 "Monte-Carlo multi-step ahead forecasting for nonlinear time series"$192,053, sole P.I.
- ASA/NSF/BLS Research Fellowship, 2003-2004 "Non- and semi- parametric analysis of multivariate seasonal time series data" $59,009, sole P.I, from National Science Foundation SES 0127722.
- National Science Foundation DMS 9971186, 1999-2002 "Non- and semi- parametric identification and prediction of autoregressive models, with applications to econometrics" $77,508, sole P.I.
- Deutsche Forschungsgemeinschaft Sonderforschungsbereich 373, 1998-2002 "Quantifikation und Simulation Ökonomischer Prozesse" A1, A2 $25,000 (22,560 Euro).

**Membership in Professional Societies**

Elected Member, International Statistical Institute
Elected Fellow, Royal Statistical Society
Life Member, American Statistical Association
Life Member, Institute of Mathematical Statistics
Life Member, International Chinese Statistical Association

**Editorial Responsibilities**

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|---|---|
| Associate Editor | Journal of Nonparametric Statistics 2007- |
| Associate Editor | Journal of Data Science 2007- |
| Associate Editor | Statistica Sinica, 2006- |
| Associate Editor | Computational Statistics, 2000-2006 |

**Recent Professional Activities**

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|---|---|
| Invited Session Organizer | ICSA Applied Statistics Symposium, Indianapolis, IN, 2010 |
| Invited Session Speaker | Semiparametric Modelling of Multivariate Economic Time Series With Changing Dynamics, Oberwolfach, 2010 |
| Invited Session Organizer | Joint Statistics Meeting, Washington, D.C., 2009 |
| Dean's Representative | College of Social Science, MSU, July, 2009 |
| Invited Session Organizer | ICSA Applied Statistics Symposium, San Fransisco, CA, 2009 |
| Proposal Reviewer | National Security Agency, 2009 |
| Invited Session Speaker | Symposium on "New Directions in Asymptotic Statistics", Athens GA, 2009 |
| Reviewer | Mathematical Review, 2008- |
| Invited Session Organizer/Chair | Joint Statistics Meeting, Denver, CO, 2008 |
| Invited Session Speaker | Spring Meeting of ENAR, Washington, D.C., 2008 |
| Statistics Program Quality Survey | National Research Council, May 2007 |
| Dean's Representative | College of Social Science, MSU, April, 2007 |
| Scholarship & Awards Committee | College of Natural Science, MSU, 2007-2010 |
| Invited Session Organizer/Chair | ICSA Applied Statistics Symposium, Raleigh, NC, 2007 |
| Proposal Reviewer | National Science Foundation, 2006 |
| Advisory Panelist | National Science Foundation, 2006 |
| Invited Session Organizer | ICSA Applied Statistics Symposium, Storr, CT, 2006 |
| Invited Session Speaker | International Conference on Statistics in Honor of Professor Kai-Tai Fang's 65th Birthday, Hong Kong, 2005 |
| Invited Session Speaker | Semi-parametric Methods for Survival and Longitudinal Data, Institute for Mathematical Sciences at the National University of Singapore, Singapore, 2005 |
| Invited Session Organizer/Chair | Joint Statistics Meeting, Minneapolis, 2005 |
| Invited Session Organizer | ICSA Applied Statistics Symposium, D. C., 2005 |
| Invited Session Organizer | ICSA International Conference, Singapore, 2004 |
| Invited Session Speaker | International Symposium on Forecasting, Sydney, 2004 |
| Invited Session Organizer | ISI 54th Session, Berlin, 2003 |
| Invited Session Speaker | International Conference on Current Advances and Trends in Nonparametric Statistics, Crete, 2002 |

**Publications in Referred Journals**

1. Mishra, D. K., Dolan, K. D. and Yang, L. (2009+) Bootstrap confidence intervals for the kinetic parameters for degradation of anthocyanins in grape pomace. *Journal of Food Process Engineering*, in press.
2. Liu, R. and Yang, L. (2009+) Spline-backfitted kernel smoothing of additive coefficient model. *Econometric Theory*, in press 30 pages.
3. Wang, J. and Yang, L. (2009) Efficient and fast spline-backfitted kernel smoothing of additive regression model. *Annals of the Institute of Statistical Mathematics*, 61 (3), 663-690.
4. Song, Q. and Yang, L. (2009) Spline confidence bands for variance function. *Journal of Nonparametric Statistics* 21 (5), 589-609.
5. Wang, L. and Yang, L. (2009) Spline estimation of single index model. *Statistica Sinica* 19 (2), 765-783 + 15 pages of supplement.
6. Wang, J. and Yang, L. (2009) Polynomial spline confidence bands for regression curves. *Statistica Sinica* 19 (1), 325-342 + 11 pages of supplement.
7. Liu, R. and Yang, L. (2008) Kernel estimation of multivariate cumulative distribution function. *Journal of Nonparametric Statistics* 20 (8), 661-677.
8. Huang, X., Wang, L., Yang, L. and Kravchenko, A. N. (2008) Management practice effects on relationships of grain yields with topography and precipitation. *Agronomy Journal* 100 (5), 1463-1471.
9. Yang, L. (2008) Confidence band for additive regression model. *Journal of Data Science* 6 (2), 207-217.
10. Mishra D. K., Dolan, K. D. and Yang, L. (2008) Confidence intervals for modeling anthocyanin retention in grape pomace during non-isothermal heating. *Journal of Food Science* 73 (1), E9-E15.
11. Wang, L. and Yang, L. (2007) Spline-backfitted kernel smoothing of nonlinear additive autoregression model. *Annals of Statistics* 35 (6), 2474-2503.
12. Yang, L. (2007) Nonparametric modelling of quarterly unemployment rates. *Journal of Data Science* 5 (1), 85-101.
13. Dolan, K. D., Yang, L. and Trampel, C. P. (2007) Nonlinear regression technique to estimate kinetic parameters and confidence intervals in unsteady-state conduction-heated foods. *Journal of Food Engineering* 80 (2), 581-593.
14. Xue, L. and Yang, L. (2006) Additive coefficient modelling via polynomial spline. *Statistica Sinica* 16 (4), 1423-1446.
15. Yang, L., Park, B. U., Xue, L. and Härdle, W. (2006) Estimation and testing of varying coefficients in additive models with marginal integration. *Journal of the American Statistical Association* 101 (475), 1212-1227.
16. Xue, L. and Yang, L. (2006) Estimation of semiparametric additive coefficient model. *Journal of Statistical Planning and Inference* 136 (8), 2506-2534. ICSA 2004 Student Award.
17. Yang, L. (2006) Semiparametric GARCH model and foreign exchange volatility. *Journal of Econometrics* 130 (2), 365-384.

18. Chen, R., Yang, L. and Hafner, C. (2004) Nonparametric multi-step ahead prediction in time series analysis. *Journal of the Royal Statistical Society Series B* 66 (3), 669-686.

19. Huang, J. and Yang, L. (2004) Identification of nonlinear additive autoregressive models. *Journal of the Royal Statistical Society Series B* 66 (2), 463-477.

20. Yang, L., Sperlich, S. and Härdle, W. (2003) Derivative estimation and testing in generalized additive models. *Journal of Statistical Planning and Inference* 115 (2), 521-542.

21. Simons, G., Yao, Y. and Yang, L. (2002) Doob, Ignatov and optional skipping. *Annals of Probability* 30 (4), 1933-1958.

22. Yang, L. and Tschernig, R. (2002) Non- and semiparametric identification of seasonal nonlinear autoregression models. *Econometric Theory* 18 (6), 1408-1448.

23. Sperlich, S., Tjøstheim, D. and Yang, L. (2002) Nonparametric estimation and testing of interaction in additive models. *Econometric Theory* 18 (2), 197-251. Tjalling C. Koopmans Econometric Theory Prize.

24. Yang, L. (2002) Direct estimation in an additive model when the components are proportional. *Statistica Sinica* 12 (3), 801-821.

25. Tschernig, R. and Yang, L. (2000) Nonparametric lag selection for time series. *Journal of Time Series Analysis* 21 (4), 457-487.

26. Yang, L. (2000) Finite nonparametric GARCH model for foreign exchange volatility. *Communications in Statistics-Theory and Methods* 29 (5 & 6), 1347-1365.

27. Yang, L. (2000) Root-n convergent transformation-kernel density estimation. *Journal of Nonparametric Statistics* 12 (4), 447-474.

28. Yang, L., Härdle, W. and Nielsen, J. P. (1999) Nonparametric autoregression with multiplicative volatility and additive mean. *Journal of Time Series Analysis* 20 (5), 579-604.

29. Yang, L. and Marron, J. S. (1999) Iterated transformation-kernel density estimation. *Journal of the American Statistical Association* 94 (446), 580-589.

30. Yang, L. and Tschernig, R. (1999) Multivariate bandwidth selection for local linear regression. *Journal of the Royal Statistical Society Series B* 61 (4), 793-815.

31. Härdle, W., Tsybakov, A. B. and Yang, L. (1998) Nonparametric vector autoregression. *Journal of Statistical Planning and Inference* 68 (2), 221-245.

**Working Papers:**

i Wang, J. and Yang, L. (2009+) Polynomial spline confidence regions for multivariate regression. *Annals of Statistics*, revision invited.

ii Tschernig, R. and Yang, L. (2009+) Nonparametric estimation of generalized impulse response functions. *Econometric Theory*, tentatively accepted.

iii Liu, R. and Yang, L. (2009) Oracally efficient inference of a semiparametric GARCH model via cubic spline.

iv Song, Q. and Yang, L. (2009) Simultaneous confidence band for nonlinear additive autoregression model via spline-backfitted spline smoothing.

v Ma, S. and Yang, L. (2009) Spline-backfitted kernel smoothing of partially linear additive model.

vi Mishra, D. K., Dolan, K. D. and Yang, L. (2009) Multi-parameter estimation and parameter confidence regions for thermal degradation of anthocyanins.

vii Dolan, K. D., Yang, L. and Trampel, C. P. (2009) Bootstrap method to calculate confidence intervals for nonisothermal microbial inactivation processes.

viii Ma, S. and Yang, L. (2009) A jump-detecting procedure based on spline estimation.

ix Shao, Q. and Yang, L. (2009) Autoregressive coefficient estimation in nonparametric analysis.

x Wang, L. and Yang, L. (2009) Simultaneous confidence bands for time series prediction function.

**Other Publications**

I Tschernig, R. and Yang, L. (2003) Multiple index identification of nonlinear vector autoregression. *Bulletin of the International Statistical Institute 54th Session: Proceedings*, 326-329.

II Härdle, W., Cizek, P. and Yang, L. (2002) Comments on "An adaptive estimation of dimension reduction space" by Xia et. al. *Journal of the Royal Statistical Society, Series B* 64 (3), 363-410.

III Smith, H., Mutka, M. and Yang, L. (2001) Feedback scalability for multicast videoconferencing. *Proceedings of the International Conference on Networks*, 640-648.

IV Yang, L. and Tschernig, R.(2000) Non- and semiparametric identification of seasonal nonlinear autoregression models. *Statistical Modelling: Proceedings of the 15th International Workshop on Statistical Modelling* (Núñez-Antón, Ferreira Ed), 288-293.

V Grund, B. and Yang, L. (2000) Hazard regression. *XploRe: Applications Guide* (Härdle, Hlávka, Klinke Ed.), Springer-Verlag, 115-144.

VI Härdle, W. and Yang, L. (1997) Nonparametric time series model selection. *Interface 96, Computing Science and Statistics*, 407-412.

VII Härdle, W., Marron, J. S. and Yang, L. (1997) Discussion of "Polynomial splines and their tensor products in extended linear modelling", by Stone et. al. *Annals of Statistics* 25 (4), 1443-1450.

VIII Yang, L. (1995) Transformation-density estimation. Ph.D. dissertation, University of North Carolina, Institute of Statistics Mimeo Series #2337.

**Conference and Seminar Talks**

1 Simultaneous confidence band for sparse longitudinal regression curve. Georgia State University, November, 2009.

2 Simultaneous confidence band for sparse longitudinal regression curve. Georgia Institute of Technology, November, 2009.

3 Simultaneous confidence band for sparse longitudinal regression curve. University of Michigan, October, 2009.

4 Spline confidence bands for variance function. Inverse Problems Symposium, Michigan State University, May 2009.

5 Spline-backfitted kernel smoothing of additive models in time series. Universität Göttingen, Göttingen, Germany, July 2008.

6 Spline-backfitted kernel smoothing of additive models in time series. Universität München (Munich), Munich, Germany, July 2008.

7 Spline-backfitted kernel smoothing of additive models in time series. Universität Regensburg, Regensburg, Germany, July 2008.

8 Spline-backfitted kernel smoothing of additive models in time series. Kazakh National University, Almaty, Kazakhstan, June 2008.

9 Spline single index prediction model. Spring Meeting of ENAR, Washington, D.C., March 2008.

10 Spline-backfitted kernel smoothing of additive models in time series. University of Central Florida, November 2007.

11 Spline-backfitted kernel smoothing of additive models in time series. Clemson University, October 2007.

12 Polynomial Spline confidence bands for regression curves, University of Georgia, October 2007.

13 Polynomial Spline confidence bands for regression curves. Georgia Institute of Technology, October 2007.

14 Spline-backfitted kernel smoothing of additive models in time series. Joint Statistical Meeting, Salt Lake City, August 2007.

15 Spline-backfitted kernel smoothing of additive models in time series. Oregon State University, May 2007.

16 Spline-backfitted kernel smoothing of additive models in time series. University of Manitoba, April 2007.

17 Spline single index prediction model. University of Illinois at Chicago, March 2007.

18 Spline-backfitted kernel smoothing of additive models in time series. Purdue University, March 2007.

19 Spline confidence band and hypothesis testing of leaf area index trend in East Africa. Michigan State University, February 2006.

20 Confidence band and hypothesis testing of leaf area index trend. International Conference on Statistics in Honor of Professor Kai-Tai Fang's 65th Birthday, Hong Kong, June 2005.

21 Efficient and fast spline-backfitted kernel smoothing of additive regression model. National Tsing Hua University, Taiwan, June 2005.

22 Spline confidence band and hypothesis testing of leaf area index trend in East Africa. National Taiwan University, Taiwan, June 2005.

23 Efficient and fast spline-backfitted kernel smoothing of additive regression model. National University of Singapore, Singapore, May 2005.

24 Spline confidence band and hypothesis testing of leaf area index trend in East Africa. Colorado State University, March 2005.

25 Spline confidence band and hypothesis testing of leaf area index trend in East Africa. Institute for Mathematical Sciences, National University of Singapore, Singapore, March 2005.

26 Nonparametric modelling of quarterly unemployment rates. Zhongnan University of Economics and Law, Wuhan, China, December 2004.

27 Additive coefficient modelling. Huazhong University of Science and Technology, Wuhan, China, December 2004.

28 Nonparametric modelling of quarterly unemployment rates. Huazhong University of Science and Technology, Wuhan, China, December 2004.

29 Nonparametric regression. Huazhong University of Science and Technology, Wuhan, China, November 2004.

30 Additive coefficient modelling. Beijing Normal University, Beijing, China, November 2004.

31 Additive coefficient modelling. Peking University, Beijing, China, November 2004.

32 Additive coefficient modelling. Chinese Academy of Sciences, Beijing, China, October 2004.

33 Nonparametric modelling of quarterly unemployment rates. Bureau of Labor Statistics, Washington D. C., July 2004.

34 Nonparametric modelling of quarterly unemployment rates. Twenty-fourth International Symposium on Forecasting, Sydney, Australia, July 2004.

35 Nonparametric multi-step ahead prediction in time series analysis. Bureau of Labor Statistics, Washington D. C., June 2003.

36 Non- and semiparametric identification of seasonal nonlinear autoregression models. Bureau of Labor Statistics, Washington D. C., April 2003.

37 Identification of additive nonlinear time series: selecting significant lags. Michigan State University, September 2002.

38 Nonparametric estimation of generalized impulse response functions. International Conference on Current Advances and Trends in Nonparametric Statistics, July 2002.

39 Identification of additive nonlinear time series: selecting significant lags. Universität Konstanz, Germany, July 2002.

40 Identification of additive nonlinear time series: selecting significant lags. Econometrics Seminar, Humboldt Universität, July 2002.

41 Identification of additive nonlinear time series: selecting significant lags. University of North Carolina-Charlotte, May 2002.

42 Direct estimation in an additive model when the components are proportional. Statistics Colloquium, Wharton School, University of Pennsylvania, September 2001.

43 Direct estimation in an additive model when the components are proportional. Statistik-Kolloquium, Universität Giessen, Germany, July 2001.

44 Direct estimation in an additive model when the components are proportional. ICSA 2001 Applied Statistics Symposium, Chicago, June 2001.

45 Nonparametric estimation of generalized impulse response functions. Statistics Colloquium, Wharton School, University of Pennsylvania, November 2000.

46 Nonparametric estimation and testing of interaction in additive models. Joint Statistical Meeting, Indianapolis, August 2000.

47 Non- and semiparametric identification of seasonal nonlinear autoregression models. Fifteenth International Workshop on Statistical Modelling, Bilbao, Spain, July 2000.

48 Nonparametric multi-step ahead prediction in time series analysis. Twentieth International Symposium on Forecasting, Lisbon, Portugal, June 2000.

49 Non- and semiparametric identification of seasonal nonlinear autoregression models. Fifth Congress of Bernoulli Society, Guanajuato, Mexico, May 2000.

50 Finite nonparametric GARCH model for foreign exchange volatility. ICSA 1999 Applied Statistics Symposium, Georgetown University, June 1999.

51 Multivariate bandwidth selection for local linear regression. Weierstrass Institute of Applied Analysis and Stochastics, July 1998.

52 Transformation-kernel density estimation. University of Michigan, April 1998.

53 Nonparametric time series model selection. Chinese Academy of Sciences, Beijing, China, June 1997.

54 Nonparametric time series model selection. Peking University, Beijing, China, June 1997.

55 Nonparametric time series model selection. University of California, Santa Barbara, March 1997.

56 Nonparametric time series model selection. Michigan State University, February 1997.

57 Nonparametric time series model selection. Georgia Institute of Technology, January 1997.

58 Nonparametric time series model selection. Charles University, Czech Republic, December 1996.

59 Nonparametric time series model selection. Tilburg University, Netherland, November 1996.

60 Nonparametric time series model selection. Weierstrass Institute of Applied Analysis and Stochastics, October 1996.

61 Nonparametric time series model selection. Sydney International Statistical Congress, Sydney, Australia, July 1996.

62 Nonparametric time series analysis. Sixteenth Meeting of the French-Belgian Statisticians: Nonlinear Time Series Models, Brussels, Belgium, November 23-24, 1995.

63 The use of transformation in kernel smoothing. The Annual IMS meeting, Chapel Hill, North Carolina, June 1994.

**Guidance of MSU Statistics and Probability Ph. D. students as Major Professor**

Lan Xue Fall 2002-Summer 2005,
**Assistant Professor**, Department of Statistics, Oregon State University, 2005-

Jing Wang Spring 2003-Spring 2006,
**Assistant Professor**, Department of Mathematics, Statistics, and Computer Science, University of Illinois at Chicago, 2006-

Li Wang Fall 2004-Spring 2007,
**Assistant Professor**, Department of Statistics, University of Georgia, 2007-

Rong Liu Fall 2005-Fall 2009,
**Assistant Professor**, Department of Mathematics, University of Toledo, 2009-

Qiongxia Song Fall 2007-

Shujie Ma Fall 2007-

Shuzhuan Zheng Spring 2009-
(co-advisor, Xiaohong Chen, Department of Economics, Yale University)

Guanqun Cao Spring 2009-
(co-advisor, David Todem, Department of Epidemiology, Michigan State University)

**Guidance of Other MSU Statistics and Probability Ph. D. students**

| | |
|---|---|
| Hao Ren | Spring 2009- |
| Wei-Wen Hsu | Spring 2009- |
| Xiaoqin Tang | Spring 2008- |
| Shaoyu Li | Fall 2007- |
| Wenmei Huang | Fall 2005- |
| Yongfang Zhu | Fall 2003-Fall 2008 |
| Jun Luo | Spring 2004-Fall 2006 |
| Hongwen Guo | Spring 2006-Spring 2006 |
| Mingxin Wu | Fall 2004-Spring 2006 |
| Tingting Yi | Spring 2003-Summer 2005 |
| Fang Li | Fall 2000-Spring 2004 |
| Pingping Ni | Fall 1999-Spring 2002 |

**Guidance of Other MSU Ph. D. students**

| | | |
|---|---|---|
| Jingjing Yang | Economics | Fall 2007- |
| Qi Diao | Measurement and Quantitative Methods | Fall 2006- |
| Hamed Valizadegan | Computer Science | Fall 2005- |
| Dharmendra Kumar Mishra | Biosystems Engineering | Summer 2005- |
| Panutat Satchachai | Economics | Fall 2006- Summer 2009 |
| Zhiying Xu | Agricultural Economics | Fall 2005-Fall 07 |
| Jianjun Ge | Geography | Fall 2005-Spring 2007 |
| Xianchun Liao | Forestry | Summer 2005-Fall 2005 |
| Deping Li | Education | Spring 2004-Summer 2005 |
| Yilu Zhang | Computer Science | Spring 1999-Fall 2002 |
| Wey Shiuan Hwang | Computer Science | Fall 1998-Fall 1999 |
| Ruihua Tao | Civil Engineering | Spring 1999-Fall 2002 |

**Tenure Evaluation for Colleagues at**

| | |
|---|---|
| Georgia State, Illinois State, University of New Hampshire | 2008, all successes |
| Colorado State, Purdue, University of Central Florida | 2009, all successes |
| Indiana University Purdue University Indianapolis | 2010 |

**Referee Service (* refereeing more than once)**

1 Advances in Water Resources

2 American Statistician

3 Annals of the Institute of Statistical Mathematics

4 Annals of Statistics*

5 Applied Stochastic Models in Business and Industry

6 Australian and New Zealand Journal of Statistics/Australian Journal of Statistics*

7 Biometrika*

8 Canadian Journal of Statistics*

9 Computational Statistics and Data Analysis*

10 Econometric Theory*

11 Electronic Journal of Statistics

12 IEEE Transactions on Automatic Control*

13 International Journal of Environmental Studies*

14 Journal of Applied Econometrics

15 Journal of Business and Economic Statistics*

16 Journal of Computational and Graphical Statistics*

17 Journal of Empirical Finance*

18 Journal of the Royal Statistical Society, Series B*

19 Journal of Statistical Planning and Inference*

20 Journal of the American Statistical Association*

21 Journal of Time Series Analysis*

22 Journal of Nonparametric Statistics*

23 Probability Theory and Related Fields*

24 Sankhya

25 Scandinavian Journal of Statistics

26 Statistica Sinica*

27 Statistics*

28 Statistics and Computing*

29 Statistics and Decisions

30 Statistics and Probability Letters*