Curriculum Vitae

(updated Oct-2009)

General

Name: Song Xi CHEN

Current Employment: Professor
Department of Statistics
Iowa State University

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Academic History

Ph.D. in Statistics, 1993, Australian National University.

M.Sc. in Statistics and Operations Research, 1990, Victoria University of Wellington.

M.Sc. in Mathematical Statistics, 1988, Beijing Normal University.

B.Sc. in Mathematics, 1983, Beijing Normal University.

Employment History

May 2006—Present: Professor of Statistics, Department of Statistics, Iowa State University

June 2008—Present: Professor, Department of Business Statistics and Econometrics, Guanghua School of Management, Peking University

Nov 2003 – May 2006: Associate Professor, Iowa State University

July 2000- Dec. 2005 : Associate Professor, National University of Singapore

Jan. 1995 – June 2000: Senior Lecturer/Lecturer, La Trobe University.

Nov. 1992 - Jan. 1995: Statistician, CSIRO Marine Science and Biometrics Unit.

July 1983 – Aug. 1985: Lecturer, Beijing Institute of Economics.

Current Research Support:

1. China-US Exchange Grant in Mathematical Sciences, National Science Foundation, $40,000, August 2007-August 2009.

2. Statistical Inference for Continuous-Time Stochastic Processes,

National Science Foundation: DMS-0604563, **$165,018**, 08. 2006 -- 08. 2009 ,

Co-PI: Liang Peng of GA Tech.

3. A Nonparametric Approach to Population Size Estimation for Multiple Systems Capture-Recapture surveys,

National Science Foundation: SES-0518904, 09.2005 - 08. 2008, **$280,416**,

Co-PIs: S. Nusser and J. Opsomer.

4. A Supplement to NSF SES 0650938 : A Nonparametric Approach to Population Size Estimation for Multiple System Capture-Recapture Surveys

US Census Bureau via NSF $19,080.00

5. NSF DMS-NIH, Mathematical Biology: Development of High-Dimensional Data Analysis Methods for the Identification of Differentially Expressed Gene Sets.
Principal Investigator: Dan Nettleton; **Co-PIs:** Song Chen, Jack Dekkers Peng Liu, Christopher Tuggle. $177.000 per year for three years.

Past Research Support:

1. Empirical Likelihood and Computation, **Australian Research Council** Large Grant, 1994-1996; $10,000, jointly with B. M. Brown

2. Non-parametric Curve Estimation, **Australian Research Council** International Exchange grant, 1998-1999, $13,000.

3. Applications of Empirical Likelihood in Semi- and Non-parametric Statistical Inference, **National University of Singapore Academic Research Grant**, Nov 2002-Nov 2003, $46,306.

4. Computer-Intensive Statistical Methods for Testing Specifications of Financial Market Models, **National University of Singapore Academic Research Grant**, 17-Dec. 2001 - 31-Dec. 2004, $88,300.

Award and Service

1989, Telecom New Zealand Scholarship;

1990-1992: Australian National University Ph.D Award.

Elected Board Member of the International Chinese Statistical Association 2008-2009.

Faculty Research Excellence Award, Iowa State University 2008.

Fellow of the Institute of Mathematical Statistics, 2009

Fellow of the American Statistical Association, 2009.

Research Interests

Inference for High Dimensional Data; Analysis on Missing data; Multiple System Surveys for US Census. Inference for stochastic processes.

Empirical likelihood: Second order properties and various applications.

Publications

[1] Chen, S.X., Smith, P.J., Shafi, M. and Vere-Jones, D. (1990). Some improvements to conventional importance sampling techniques for coded system using Viterbi decoding. *Electronics Letters*, 26, 802-806.

[2] Chen, S.X. (1993). On the coverage accuracy of empirical likelihood confidence regions for linear regression model. *Annals of Institute of Statistical Mathematics*, 45, 621-637.

[3] Chen, S.X. and Hall, P. (1993). Smoothed empirical likelihood confidence intervals for quantiles. *Annals of Statistics*, 21, 1166-1181.

[4] Chen, S.X. and Hall, P. (1994). On the calculation of standard error for quotation in confidence statements. *Statistics and Probability Letters,* 19 147-151.

[5] Chen, S.X. (1994). Empirical likelihood confidence intervals for linear regression coefficients. *Journal of Multivariate Analysis,* 49, 24-40.

[6] Chen, S.X. (1994) Comparing empirical likelihood and bootstrap hypothesis tests. *Journal of Multivariate Analysis,* 51, 277-293.

[7] Chen, S.X. (1996a) A kernel estimate for density of a biological population using line transect sampling. *Royal Statistical Society Ser. C: Applied Statistics* 45, 135-150.

[8] Chen, S.X. (1996b) Studying school size effects in line transect sampling using the kernel method. *Biometrics* 52, 1283-94.

[9] Chen, S.X. (1996c) Empirical likelihood confidence intervals for nonparametric density estimation. *Biometrika,* 83 , 329-341.

[10] Chen, S.X. and Polacheck, T. (1996) Kernel estimates of mean school size for IWC minke whale data. *Report of International Whaling Commission,* 46 , 341-348.

[11] Chen, S.X. (1997). Empirical likelihood based kernel density estimation. *Australian Journal of Statistics,* 39, 47-56

[12] Chen, S.X. (1998). Measurement errors in line transect surveys. *Biometrics,* 54, 899-908.

[13] Brown, B. M. and Chen, S. X. (1998) Combined Empirical Likelihood. *Annals of Institute of Statistical Mathematic,* 50 , 697-714.

[14] Brown, B. M. and Chen, S. X. (1999) Beta-Bernstein smoothing for regression curves with compact support. *Scandinavian Journal of Statist*ics, 26 , 47-59.

[15] Chen, S. X. (1999a) Estimation in independent observer line transect surveys for clustered populations. *Biometrics* 55 , No. 3, 754-759.

[16] Chen, S. X. and Woolcock, J. (1999) A condition for designing bus-route type access site surveys to estimate recreational fishing effort. *Biometrics,* 55, No. 3, 799-804.

[17] Chen, S. X. (1999b) Beta kernel estimators for density functions. *Computational Statistics and Data Analysis,* 31 , 131-145.

[18] Chen, S. X. (2000a) Beta kernel smoothers for regression curves. *Statistica Sinica,* 10, 73-91.

[19] Chen, S. X. (2000b) Animal abundance estimation for independent observer line transect surveys. Special Issue of *Environmental and Ecological Statistics: Statistical Ecology and Forest Biometry* 7 , No. 3, 285-299.

[20] Chen, S. X. (2000c) Gamma kernel estimators for density functions. *Annals of Institute of Statistical Mathematics,* 52, 471-480.

[21] Chen, S. X. and Lloyd, C. J. (2000). A non-parametric approach to the analysis of two stage mark-recapture experiments. *Biometrika*, 87, 633-649.

[22] Chen, S. X. and Qin, Yong Song (2000). Empirical Likelihood confidence interval for a local linear smoother. *Biometrika* , 87, 946-953.

[23] Chen, S. X. and Cowling, A. (2001). Measurement Errors in Line Transect Surveys where Detection varies with Distance and Size. *Biometrics,* 57, 732-742.

[24] Chen, S. X. and Qin, Yong Song (2002). Confidence interval based on a local linear smoother. *Scandinavian Journal of Statist*ics, 29, 89-99.

[25] Chen, S. X. and Lloyd, C. J.(2002). Estimation of population size based on biased samples using nonparametric binary regression. *Statistica Sinica,* 12, 505-518.

[26] Chen, S. X. (2002). Local linear smoothers using asymmetric kernels. *Annals of Institute of Statistical Mathematics*, 54, 312-323.

[27] Chen, S. X, Yip, P. and Zhou, Y. (2002). Sequential line transect surveys. *Biometrics*, 58, 263-269.

[28] Chen, S. X., Hardle, W. and Kleinow, T. (2002). An empirical likelihood goodness-of-fit test for diffusions. *Applied quantitative finance,* 259--281, *Springer, Berlin*.

[29] Chen, S. X. and Hall, P. (2003). EFFECTS OF BAGGING AND BIAS CORRECTION ON ESTIMATORS DEFINED BY ESTIMATING EQUATIONS, *Statistica Sinica*, 13, 97-109.

[30] Chen, S. X and Cui, H-J. (2003). An extended empirical likelihood for generalized linear models. *Statistica Sinica*, 13, 69-81.

[31] Cui, H-J and Chen, S.X. (2003). Empirical likelihood confidence regions for parameter in the error-in-variable models, *Journal of Multivariate Analysis*, 84 (1), 101-115.

[32] Chen, S. X. and Qin, J. (2003) Empirical likelihood based confidence intervals for data with possible zero observations. *Statistics and Probability Letters*, **65**, 29--37.

[33] Chen, S. X., Haredle, W. and Li, M. (2003). An empirical likelihood goodness-of-fit test for time series. *Journal of The Royal Statistical Society*, Series B, 65, 663-678.

[34] Chen, S. X., D. H. Y. Leung and Qin, J. (2003) Information Recovery in a Study with Surrogate Endpoints. *Journal of the American Statistical Association, 98, 1052-1062.*

[35] Chen, S. X. and Qin, Y-S. (2003). Coverage accuracy of confidence intervals in nonparametric regression. *Acta Math. Appl. Sin. Engl. Ser.* 19, 387--396.

[36] Chen, S. X. and Tang, C. (2005). Nonparametric Estimation of Value at Risk and the Standard Errors for Financial Returns. *Journal of Financial Econometrics, 3, 227-255*.

[37] Chen, S.X. and Cui, H. J. (2006) On Bartlett Correction of Empirical Likelihood in the Presence of Nuisance Parameters. *Biometrika*, 93, 215-220.

[38] Chen, S. X. and Qin, J. (2006) An Empirical likelihood Method in Mixture Models with Incomplete Classifications, *Statistica Sinica* 16, 1101-1115 .

[39] Chen, S.X. and Cui, H. J. (2007) On the Second Order Properties of Empirical Likelihood for Generalized Estimation Equations. *Journal of Econometrics*, 141, 492-516.

[40] Chen, S.X. and J. Gao (2007) An Adaptive Empirical Likelihood Test for Time Series Models. *Journal of Econometrics*, 141, 950-972.

[41] Chen, S. X. and T. Huang (2007) Nonparametric Estimation of Copula Functions. *Canadian Journal of Statistics*, 35, 265-282.

[42] Chen, S.X., J. Gao and Tang, C. Y. (2008) A test for model specification of diffusion processes, *The Annals of Statistics*, 36, 167-198

[43] Chen, S.X (2008) Nonparametric Estimation of Expected Shortfall, *Journal of Financial Econometrics*, 6, 87-107.

[44] Chen, S. X., Leung, D. Y. H. and J. Qin. (2008) Improved Semiparametric Estimation Using Surrogate Data, *Journal of the Royal Statistical Society, Series B,* 803-823.

[45] Wang, D. and S.X. Chen (2009), Empirical Likelihood for Estimating Equation with Missing Values, *The Annals of Statistics*, 37, 490-517.

[46] Chen, Song Xi and Chiu Min Wong (2009) Smoothed Block Empirical Likelihood for Quantiles of Weakly Dependent Processes, *Statistica Sinica,* 19, 71-82.

[47] Wang, D. and Chen, S. X. (2009): Combining quantitative trait loci analyses and microarray data, an empirical likelihood approach, *Computational Statistics and Data Analysis to appear*

[48] C. Yong Tang and Chen, S. X. (2009), Parameter estimation and bias correction of diffusion processes, *Journal of Econometrics*, 149, 65—81.

[49] Chen, S. X., L. Peng and Y-L, Qin (2009) Effects of Dimensionality on empirical likelihood, *Biometrika*, , 96, 711–722.

[50] Chen, S. X. , C. Y. Tang and V. T. Mule, jr. (2009) Local post-stratification and diagnostics in Dual System Accuracy and Coverage Evaluation for US Census, *Journal of the American Statistical Associatio*n, *Application and Case Study Section*. To appear

[51] Chen, S. X. and I. Van Keilegom (2009) Empirical Likelihood Test for a Class of Regression Models, *Bernoulli*, to appear.

[52] Chan, N-H, Chen, S.X., Peng, L. and C. L. Yu (2009), Empirical Likelihood Methods Based on Characteristic Functions with Applications to L\'evy Processes. *Journal of the American Statistical Associatio*n, to appear.

[53] Chen, S. X. and Y-L Qin (2009) A Two Sample Test for Ultra High Dimensional Data with Applications to Gene Sets Testing. *the Annals of Statistics* to appear.

[54] Chen, S. X. and I. Van Keilegom (2009) A review on empirical likelihood for regressions (with discussions), *Test,* to appear.

Papers under review

C. L. Yu, S. X. Chen, L. Peng, Parameter Estimation and Model Testing for Markov Processes via Conditional Characteristic Functions.

Chen, S. X. Delaigle, A. and Hall, P. Nonparametric estimation for levy-type processes.

Chen, S. X. and C. Y. Tang: Nonparametric Regression with Discrete Covariates and Missing Value.

Chen, S. X. and P-S Zhong, ANOVA for longitudinal data with missing values.

Chen, S.X., Zhang, L-X. and P-S Zhong, Testing high dimensional covariance matrices.

Invited Presentations

Nonparametric Estimation for a Class of Levy Processes, INFORMS meeting, Oct 2009.

A two sample test for high dimensional data with application to geneset testing, IMS-Pacific Rim meeting, July 2009, Seoul, Korea.

Nonparametric Estimation for a Class of Levy Processes, IMS-China meeting, July 2009, Weihai, China.

Parameter Estimation and Model Testing for Markov Processes via Conditional Characteristic Functions, Joint Statistical Meeting 2009, Washington DC.

Empirical likelihood ANOVA for longitunidal data with missing values, November 2008, Department of Statistics, University of Iowa.

A two sample test for high dimensional data with application to geneset testing, October 2008, Department of Statistics, Penn State

Conditional Characteristic Function Based Parameter Estimation and Model Testing Using Empirical Likelihood. ***Modeling and managing Ultra High Frequency Data, An International Conference***, Perth, Autsralia, Feb 13-15 2008.

Conditional Characteristic Function Based Parameter Estimation and Model Testing Using Empirical Likelihood. ***Likelihood Methods in Finance conference,*** **the Bendheim Center for Finance at Princeton University**, October 12-13, 2007.

Parameter Estimation and Bias Correction for Diffusion Processes, (With C. Y. Tang) ***Likelihood Methods in Finance conference,*** **the Bendheim Center for Finance at Princeton University**, October 12-13, 2007.

Empirical Likelihood Test for a Class of Regression Models, ***2007 Joint Statistical Meeting***, Salt Lake City, with I. Van Keilegom.

Improved Semiparametric Estimation with surrogate data, Department of Statistics, University of Minnesota, Sept 12, 2007.

Improved Estimation for Surrogate Outcome Data, **the *35th Annual meeting of the Statistical Society of Canada***, St John's, New Foundland, 10-13 June 2007.

Two Lectures on Statistical Inference for Stochastic Processes. ***The conference "Inverse Problems in Stochastic Differential Equations ",*** *University of Southern California,* May 22-26, 2007.

Semiparametric Estimation With Missing Values via Empirical Likelihood, ***Department of Statistics, University of Wisconsin at Madison***, Oct. 11, 2006.

Estimating equation, missing values and empirical likelihood, (with Dong Wang), An invited talk in 2006 *JSM in Seattle*.

Nonparametric Estimation of Copula Function, ***The 2006 International Symposium on Financial Engineering and Risk Management,*** Xiamen,China, July 05-06 2006

On bias correction in parameter estimation of diffusion processes**, an invited talk and a member of the *International Program Committee of the International Conference on Time Series Econometrics, Finance and Risk,* at University of Western Australia, June 30- July 01 2006.**

A short course on Empirical Likelihood, Institute of Statistique, Univerisite Catholique de Louvain, June-July 2005.

Nonparametric Estimation in Biased Sampling, 2005 Applied Statistics Symposium, June, Washington DC.

Nonparametric Estimation of Expected Shortfalls, Mathematical Forschungsinstitut Oberwolfach, Nov 14-20th 2004, Oberwolfach, Germany.

On Nonparametric Specification Test for Continuous Time diffusion Models, ICSA International Statistical Conference, July 2004, NUS, Singapore.

Information Recovery in a Study with Surrogate Endpoints. 2004 Applied Statistics Symposium, June, San Diego.

An Empirical Likelihood Goodness-of-fit test for Time Series, Quantitative Methods in Finance 2000, Syndey, Australia, December 8-12.

Empirical Likelihood Confidence Intervals for Local Linear Smoothers, 2000 International Chinese Statistical Conference Applied Statistics Symposium, June 1-3, 2000, Embassy Suites, Hotel, Piscataway, NJ, USA.

Empirical Likelihood for Local Linear Smoothers, Weierstrasse Institute for Applied Analysis and Stochastics, Berlin, 11th November, 1999.

Mark Recapture and Biased Sampling, Royal Statistical Society, East Midlands Branch, 14th Oct 1999.

Statistical Application in Fisheries, Australian Statistical Society, Victoria Branch, September, 1995.

Professional Service

Elected Board Member of the International Chinese Statistical Association.

Journal Service

Have acted as referees for various academic journals including Annals of Institute of Statistical Mathematics (3), Annals of Statistics (8), Australian and New Zealand Journal of Statistics (3), Biometrika (10), Biometrics (3), Communication in Statistics—theory and method (2), Computational Statistics and Data Analysis (1) , Econometrica (4) , Environmental and Ecological Statistics (2), Journal of American Statistical Association (4), Journal of Statistical Planning and Inference (1), Journal of Multivariate Analysis (2), Journal of Time Series Analysis (1) , Sankya (2), Scandinavian Journal of Statistics (3), Statistical Sinica (6), Journal of the Royal Statistical Society, Series B (2), Journal of Ecomometrics (2), Ecomometric Theory (2),

Have been acted as examiners of Ph.D theses from Australian National University (2),
MSc theses from University of Tasmania (1), La Trobe University (1) and National University of Sinagpore (6).

Departmental Service

Ph.D Prelim. Exam Committee, Fall 2004 to present.

Strategic Planning Committee, Fall 2004- Spring 2005.
Memorial Lecture Committee, 2006-now.

Curriculum Committee, 2006.

Seminar Chair, Fall 2007.

Graduate Students

Current Ph.D students at ISU:

Ying-li Qin, Statistical Inference for high dimensional data.

Shan Yang, Statistical Inference for Stochastic Processes and Applications.

Pingshou Zhong, Empirical likelihood method

Zheng Xu, Statistical Finance.

Past Ph.D Students:

Chengyong Tang, Parameter estimation for diffusion processes and Nonparametric Approach for Census Undercount Estimation. Completed summer 2008, Now Assistant Professor at National University of Singapore.

Dong Wang, Nonparametric Imputation of Missing values and empirical likelihood. Completed in 2006, Now Assistant Professor at University of Nebraska.

Graduate Students supervised at NUS:

Kong Efang Ph. D. joint with Xia, Yingcun ``On Semiparametric Model and Subset Selection". Completed 2006.

Jianfei Cao, MSc ``Nonparametric Estimator of Copula Functions", completed 2003.

Longhui Yang, MSc, ``Goodness-of-fit Tests for Financial Market Models", completed 2003

ChengYong Tang, Msc, ``Nonparametric Estimation of Value at Risk", completed 2003

Ming Li, MSc ``Specification Tests for Financial Market Models" , completed in 2002.

Chiu Min Wong, MSc, "Empirical likelihood for dependent processes with applications to Value at Risk", completed in 2002.

Supervised honours projects: Lin Ping Ping "Line transect survey for cluster populations", 2001
Joli: Kernel Density Estimation, 2001

Teaching Activities

ST690A Computer-Intensive Statistical Methods, Spring 2007

ST647 Multivariate Analysis, Fall 2006

ST643 Advanced Theory of Statistical Inference (Ph.D Core), Spring 2006

ST546 Nonparametric Statistical Models, Fall 2005.

ST643 Advanced Theory of Statistical Inference (Ph.D Core), Spring 2005

ST647 Multivariate Analysis, Fall 2004

ST543 Theory of Probability and Statistics II (MS Core), Spring 2004

Teaching at National University of Singapore:

ST4232: Nonparametric Statistics, Fall 2003;

ST5207: Nonparametric Regression, Spring 2003

ST4232: Nonparametric Statistics, Fall 2002

ST5207: Nonparametric Regression, Spring 2002

ST4232: Nonparametric Statistics, Fall 2001

ST5207: Nonparametric Regression, Spring 2001

MA 4243/ ST4207: Nonparametric and Robust Statistics, Fall 2000