

HAIPENG XING

School Address

Math Tower 1-102
Department of Applied Mathematics & Statistics
State University of New York, at Stony Brook
Stony Brook, NY 11794
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EDUCATION

Ph.D. in Statistics, M.S. in Financial Mathematics, Stanford University	2001–2005
Ph.D. candidate in Mathematics, University of California, Davis	2000–2001
M.Phil. in Mathematics, Hong Kong University of Science & Technology, Hong Kong	1998–2000
B.S. in Mathematics, Nankai University, P.R. China	1994–1998

PROFESSIONAL EXPERIENCE

Associate Professor with tenure, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook	09/2012–present
Assistant Professor, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook	01/2008–08/2012
Assistant Professor, Department of Statistics, Columbia University	07/2006–12/2007
Lecturer, Department of Statistics, Columbia University	07/2005–06/2006

VISITING APPOINTMENTS

Visiting Associate Professor, Department of Statistics, Columbia University	01/2014–12/2014
Short-Term Consultant in the Office of Chief Economist and Senior Vice President, the World Bank	05/2010–06/2012
Visiting Research Fellow, Development Economics, the World Bank	05/2010–06/2010

UNIVERSITY AND DEPARTMENT SERVICE

Graduate Admission Committee, Department of Applied Mathematics and Statistics State University of New York at Stony Brook	09/2016–present
Department Executive Committee, Department of Applied Mathematics and Statistics State University of New York at Stony Brook	09/2012–09/2013

PROFESSIONAL ACTIVITY

Associate Editor, Journal of Statistical Planning and Inference	01/2012–present
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BOOKS

1. Chatfield, C. and Xing, H. (2018). *The Analysis of Time Series: An Introduction*. (The 7th edition) Chapman & Hall/CRC, New York.
2. Lai, T.L. and Xing, H. (2018). *Risk Analytics and Management in Finance and Insurance*. Chapman & Hall/CRC, New York.
3. Lai, T.L. and Xing, H. (2008). *Statistical Models and Methods for Financial Markets*. Springer-Verlag, New York. (The Chinese translation is published by China High Education Press in 2009.)

PAST AND CURRENT GRANTS

- National Science Foundation, DMS-1612501 \$180,000
Title: Abrupt structural changes in complex stochastic systems with applications to economics, finance, and genetics
PI: **Haipeng Xing**. 09/2016-08/2019.
- National Science Foundation, CMMI-1538102 \$83,999.00
Title: Collaborative Research: Perfect Simulation of Stochastic Networks
PI: **Haipeng Xing**. 09/2015-08/2018.
- National Science Foundation, DMS-1206321 \$254,734.00
Title: Statistical methodology for stochastic systems with parameters jumps and applications to economics, genetics and engineering.
PI: **Haipeng Xing**. 09/2012-08/2016.
- National Science Foundation, DMS-0906593 \$110,000.00
Title: Estimation, detection and control of multiple change-point stochastic systems with applications to economics, engineering, biology and climate science.
PI: **Haipeng Xing**. 09/2009-08/2012.
- National Science Foundation, BCS-0940822 \$602,058.00
Title: CDI-Type II: Collaborative Proposal: The political and security impacts of abrupt climate change on modern populations: An integrated computational model.
PI: Oleg Smirnov. Co-PIs: **Haipeng Xing** (25% effort), Minghua Zhang. 06/2010-05/2014.
- SUNY Stony Brook, Multidisciplinary research initiation grant \$25,000.00
Title: Statistical analysis and modeling of heterogeneous climate data to advance severe weather forecasting and abrupt climate change prediction.
PI: **Haipeng Xing**. Co-PIs: Minghua Zhang, Wei Zhu. 07/2008-06/2009.

BOOK CHAPTERS

1. Lai, T.L. and Xing, H. (2014). Stochastic change-point models of asset returns and their volatilities. *Handbook of Financial Econometrics and Risk* (C.F. Lee, A.C. Lee and J. Lee, eds.), 1417-1426. Springer-Verlag, New York.
2. Lai, T.L. and Xing, H. (2010). Time series modeling and forecasting of volatilities of asset returns. *Handbook of Quantitative Finance and Risk Management* (C.F. Lee, A.C. Lee and J. Lee, eds.). 1417-1426. Springer-Verlag, New York.

PEER REVIEWED PAPERS

1. Xing, H. and Chen, Y. (2018). Dependence of structural breaks in rating transition dynamics on economic and market variations. *Review of Economics and Finance*. Vol. 11, 1-18.
2. Zhang, S., Li, S., Hu, J., Xing, H. and Zhu, W. (2018). An Iterative Algorithm for Optimal Variable Weighting in K-means Clustering. *Communications in Statistics, Simulation and Computation*. Doi: 10.1080/03610918.2017.1414244.
3. Xing, H., Yuan, H. and Zhou, S. (2017). A mixture localized likelihood method for GARCH models with multiple change-points. *Review of Economics and Finance*. Vol 8. 44-60.
4. Xing, H., Yu, Y., and Lim, T. W. (2017). European option pricing under jump diffusion with proportional transaction costs. *Journal of Computational Finance*. Vol. 21, 101-127.
5. Yang, J., Li, Z., Chen, X., and Xing, H. (2016). Modeling inter-trade durations in the limit order market. *2016 Symposium of the International Chinese Statistical Association Series: Springer Proceedings in Mathematics & Statistics*, Vol. 57. Springer-Verlag, New York.
6. Xing, H., Sun, N., and Chen, Y. (2015). A Markov Switching Model with Stochastic Regimes with Application to Business Cycle Analysis. *2014 Symposium of the International Chinese Statistical Association Series: Springer Proceedings in Mathematics & Statistics*, Vol. 56. Springer-Verlag, New York.
7. Xing, H. and Cai, Y. (2015). A stochastic segmentation model for recurrent copy number alteration analysis. *Journal of Biometrics and Biostatistics*. 6:221. doi: 10.4172/2155-6180.1000221.
8. Xing, H., Mo, Y., Liao, W., Cai, Y., and Zhang, M. (2014). A stochastic segmentation model for the identification of histone modification and DNase I hypersensitive sites in chromatin. *2013 Symposium of the International Chinese Statistical Association Series: Springer Proceedings in Mathematics & Statistics*, Vol. 55. Springer-Verlag, New York.
9. Lai, T. L. and Xing, H. (2013). Stochastic change-point ARX-GARCH models and their applications to econometric time series. *Statistica Sinica*. Vol 23, 1573-1594.
10. Xing, H., Liao, W., Mo, Y. and Zhang, M. (2012). A novel Bayesian change-point algorithm for genome-wide analysis of diverse ChIPseq data types. *Journal of Visualized Experiment*. Dec 10; 70. Doi:10.3791/4273.
11. Xing, H., Mo, Y., Liao, W. and Zhang, M. (2012). Genomewide localization of protein-DNA binding and histone modification by BCP with ChIP-seq data. *PLoS Computational Biology*. Vol 8(7): e1002613. doi:10.1371/journal.pcbi.1002613.
12. Xing, H. and Ying, Z. (2012). Semiparametric regression analysis of longitudinal data with piecewise constant regression coefficients. *Journal of American Statistical Association*. Vol 107, 1625-1637.
13. Xing, H., Sun, N. and Chen, Y. (2012). Credit rating dynamics in the presence of unknown structural breaks. *Journal of Banking and Finance*. Vol 36, 78-89.
14. Lai, T.L. and Xing, H. (2011). A simple Bayesian approach to multiple change-points. *Statistica Sinica*, Vol 21, 539-569.
15. Lai, T.L., Xing, H. and Chen, Z. (2011). Mean-variance portfolio optimization when means and covariances of asset returns are unknown. *The Annals of Applied Statistics*. Vol 5, 798-823.
16. Chen, N., Xing, H. and Zhang, N. (2011). Estimation of parent specific DNA copy number in tumors using high-density genotyping arrays. *PLoS Computational Biology*, Vol 7(1): e1001060. doi:10.1371/journal.pcbi.1001060.
17. Lai, T.L. and Xing, H. (2010). Sequential change-point detection when the pre- and post-change parameters are unknown. *Sequential Analysis*, Vol 29, 162-175.
18. Lai, T.L. and Xing, H. (2009). Discussion on "Optimal sequential surveillance for finance, public health and other areas" by Marianne Frisén. *Sequential Analysis*, Vol. 28, 360-364.

19. Lai, T.L. and Xing, H. (2009). A Bayesian approach to sequential surveillance in exponential families. *Communications in Statistics, Theory and Methods*, Vol 38, 2958-2968, 2009. (With T.L. Lai).
20. Lai, T.L., Xing, H. and Zhang, N. (2008). Stochastic segmentation models for array-based comparative genomic hybridization data analysis. *Biostatistics*, Vol. 9, 290-307.
21. Lai, T.L. and Xing, H. (2008). A hidden Markov filtering approach to multiple change-point models. *Proceedings of the 47th Conference on Decision and Control*, 1914-1919.
22. Lai, T.L. and Xing, H. (2007). Nonparametric functionals of spectral distribution and their applications to time series analysis. *Journal of Statistical Planning and Inference*, Vol. 137, 1066-1075.
23. Lai, T.L. and Xing, H. (2006). Structural change as an alternative to long memory in financial time series. In *Advances in Econometrics* (H. Carter and T. Fomby, eds.), Vol 20 (Econometric Analysis of Economic and Financial Time Series - Part B), 205-224. Elsevier, Amsterdam.
24. Lai, T.L., Liu, H. and Xing, H. (2005). Autoregressive models with piecewise constant volatility and regression parameters. *Statistica Sinica*, Vol. 15, 279-301.

WORKING PAPERS

1. Xing, H., Yu, Y., Chen, Y., and Ying, Z. (2016). A marginal regression model for stocks' exceedance rates under market structural breaks.
2. Xing, H. and Zhang, X. (2016). The logic of adaptive sequential experimentation in policy design. IFPRI Discussion Paper.
3. Xing, H. (2018). An optimal strategy for pairs trading with proportional transaction costs.

ONGOING RESEARCH PROJECTS

1. Li, Z., Xing, H., and Chen, X. (2017). A regime switching inter-trade duration model in high frequency limit order equity market.
2. Xing, H. and Wang, Z. (2017). The spillover effects of information arrivals in security trading.
3. Wu, Y. and Xing, H. (2017). A two dimensional segmentation method for HiC data based on Brownian sheet.
4. Li, D. and Xing, H. (2017). A growth model with initial distortion.
5. Xing, H. and Li, S. (2017). A time-varying partial correlation network analysis of price change in intraday stock market.
6. Xing, H. and Wang, K. (2017). A multivariate log-linear Poisson autoregressive model.
7. Xing, H. and Wang, K. (2017). Sequential surveillance of structural changes of credit market.
8. Xing, H. and Yu, Y. (2017). Firms' default risk in the presence of economic structural breaks.
9. Xing, H. (2016). An early warning system for structural breaks in credit market and its implications for the regulatory agency.
10. Xing, H. (2016). Learning and control in DSGE models and its applications to monetary policy analysis.
11. Xing, H. and Song, Y. (2016). Structural changes in the term structure of interest rates.
12. Xing, H. and Dong, X. (2016). A Markov switching model with stochastic regimes for economic cycles.

INVITED TALKS AND PRESENTATIONS

1. Predictive effect of economic and market variations on structural breaks in the credit market. Department of Statistics, Columbia University. September 10, 2018.
2. Predictive effect of economic and market variations on structural breaks in the credit market. Department of Economics, Fudan University. June 8, 2018.
3. Predictive effect of economic and market variations on structural breaks in the credit market. Forum on *Change-point Detection and Diagnosis, Quality Data Analytics, and Applications to Finance, Health and Manufacturing*. Shenzhen Research Institute of Bid Data. The Chinese University of Hong Kong at Shenzhen (CUHKSZ). Shenzhen. June 7, 2018.
4. Predictive effect of economic and market variations on structural breaks in the credit market. Bank of New York Mellon. New York. April 4, 2018.
5. Predictive effect of economic and market variations on structural breaks in the credit market. Frontiers in Forecasting (Spatio-temporal Data Science), Institute for Mathematics and its Applications, University of Minnesota. Minneapolis, Minnesota. February 21-23, 2018.
6. **Plenary talk:** Stochastic analysis of endowment structure and optimal switching in industrial dynamics. The Third Symposium on New Structural Economics. Peking University. Beijing, China. December 18-23, 2017.
7. Spillover effects of information arrivals in security trading. Department of Economics, Fudan University, Shanghai, China. July 10, 2017.
8. Spillover effects of information arrivals in security trading. Department of Statistics and Computer Information Systems, Baruch College, City University of New York, New York, USA. March 9, 2017.
9. Predictive effect of economic and market fundamentals on structural breaks in credit market. Conference on Quantitative Methods for Financial Regulation. Stony Brook University, Stony Brook, USA. September 10-11, 2016.
10. Sequential surveillance of structural breaks in firms credit rating migrations. ICSA 2016 Applied Statistics Symposium. Atlanta, Georgia, USA. June 12-15, 2016.
11. The logic of adaptive sequential experimentation in policy design. The First Symposium on New Structural Economics. Peking University. Beijing, China. December 16-19, 2015.
12. Firms' credit risk and economic structural breaks. The 5th Institute for Mathematical Statistics — Finance, Probability and Statistics (IMS-FIPS) Workshop. Rutgers University. New Jersey, USA. June 25-27, 2015.
13. Predictive effect of economic and market fundamentals on structural breaks in credit rating dynamics. The 5th International Workshop in Sequential Methodologies. Columbia University. New York, USA. June 22-24, 2015.
14. Predictive effect of economic and market variations on structural breaks in credit rating dynamics. China Center of Mathematics at Fudan University, Shanghai, China. May 18, 2015.
15. Prediction of structural breaks in credit rating dynamics by economic and market fundamentals. PKU-Tsinghua-Stanford Conference in Quantitative Finance. Tsinghua University. Beijing, China. May 15-16, 2015.
16. A stochastic mixture model for economic cycles. ICSA 2014 Applied Statistics Symposium. Portland, Oregon, USA. June 15-18, 2014.
17. Corporate credit risk and the risk of economic structural changes. Pacific Rim Statistics Workshop. Shanghai Center for Mathematical Science, Shanghai, China. May 12, 2014
18. Predictive effect of economic and market variations on structural breaks in credit rating dynamics. The International Workshop on Change-Point and Related Topics. Shanghai Jiao Tong University, Shanghai, China. May 9-10, 2014.

19. Credit rating dynamics in the presence of unknown structural breaks. Department of Statistics, Fudan University, Shanghai, China. June 25, 2013.
20. **Plenary talk:** Firms' credit rating dynamics in the presence of unobserved market structural changes. 2013 IMS Finance, Probability and Statistics. Singapore, June 20, 2013.
21. Stochastic segmentation model for recurrent copy number variations in grouped array-CGH data. ICSA 2013 Applied Statistics Symposium. Boston, Massachusetts, USA. June 10, 2013.
22. Credit rating dynamics in the presence of unknown structural breaks. Department of Statistics, Nankai University, Tianjin, China. June 4, 2013.
23. Firms' credit rating dynamics in the presence of unobserved market structural changes. China Center for Economic Research, Peking University, China. May 28, 2013.
24. European option pricing under jump diffusion with proportional transaction costs. ICSA 2012 Applied Statistics Symposium. Boston, Massachusetts, USA. June 23, 2012.
25. Semiparametric change-point regression models for longitudinal and recurrent event data. Department of Statistics, Fudan University. Shanghai, China. May 22, 2012.
26. A hidden Markov approach to estimation and detection problems for multiple change-points. Department of Mathematics, Tsinghua University. Beijing, China. May 18, 2012.
27. A hidden Markov approach to estimation and detection problems for multiple change-points. Department of Statistics, Nankai University. Tianjin, China. May 17, 2012.
28. Fixed income markets: An overview. Stanford Conference in Quantitative Finance: Fixed Income Markets and Related Topics. March 31, 2012.
29. A simple Bayesian approach to multiple change-points. ICSA 2011 Applied Statistics Symposium. New York, June 27, 2011.
30. A hidden Markov approach to sequential surveillance. Third International Workshop in Sequential Methodologies 2011. Stanford University, June 15, 2011.
31. A novel Bayesian Change-point model (BCP) for better ChIP-Seq data analysis (Poster presentation). *Biology of Genome*, Cold Spring Harbor Laboratory. May 13, 2011.
32. Hidden Markov models and multiple change-points problem. Department of Statistics, Peking University, China. June 1, 2011.
33. The information content of market structural breaks in firms' credit ratings. China Center for Economic Research, Peking University, China. May 25, 2011.
34. Credit rating dynamics in the presence of unknown structural breaks. School of Finance and Statistics, East China Normal University, China. May 17, 2011.
35. Statistical analysis in market risk management. Stanford-Fudan-SJTU Conference on Financial Econometrics. Shanghai Jiaotong University, China. May 15, 2011.
36. A novel Bayesian segmentation model for ChIP-Seq data analysis (Poster presentation). *Systems Biology: Global Regulation of Gene Expression*, Cold Spring Harbor Laboratory. March 23-27, 2010.
37. Mean-variance portfolio optimization when means and covariances are unknown. Quantitative & Computational Finance Program, School of Industrial and Systems Engineering, Georgia Institute of Technology. February 26, 2010.
38. A hidden Markov framework for multiple change-point problems. Neural Information Processing Systems Foundation. Vancouver, B.C., Canada, December 12, 2009.
39. Mean-variance portfolio optimization when means and covariances are unknown. The 1st IMS-APRM (Institute of Mathematical Statistics - Asia Pacific Rim Meeting). Seoul, Korea, June 28, 2009.
40. A hidden Markov filtering approach to multiple change-point models. ICSA 2009 Applied Statistics Symposium. San Francisco, June 24, 2009.
41. Stochastic segmentation models for array-CGH data analysis. Cold Spring Harbor Laboratory, April 1, 2009.

42. A hidden Markov modeling approach to multiple change points. HP Laboratories, Hewlett-Packard Company, July 23, 2008.
43. Mean-variance portfolio optimization when means and covariances are unknown. Department of Statistics, Stanford University. July 22, 2008.
44. A hidden Markov modeling approach to multiple change points. Academy of Mathematics and Systems Science, the Chinese Academy of Sciences. June 23, 2008.
45. Mean-variance portfolio optimization when means and covariances are unknown. Institute of Applied Mathematics, the Chinese Academy of Sciences. June 19, 2008.
46. Mean-variance portfolio optimization when means and covariances are unknown. Department of Applied Probability and Statistics, National University of Singapore. June 11, 2008.
47. Mean-variance portfolio optimization when means and covariances are unknown. The Laurence Baxter Memorial Lectures. New York State University at Stony Brook. May 9, 2008.
48. Stochastic regime switching models of business cycles. The Greater New York Metropolitan Area Econometrics Colloquium. University of Pennsylvania. December 1, 2007.
49. Stochastic change-point ARX-GARCH models and their applications to econometric time series. Department of Statistics, Harvard University. October 22, 2007.
50. A hidden Markov modeling approach to multiple change points. Department of Statistics, Stanford University. July 17, 2007.
51. Stochastic change-point ARX-GARCH models and their applications to econometric time series. Department of Economics, Columbia University, February 22, 2007.
52. Stochastic segmentation models for array-based comparative genomic hybridization data analysis. Department of Biostatistics, Columbia University. January 30, 2007.
53. A hidden Markov modeling approach to multiple change points. Department of Statistics, Columbia University. January 22, 2007.
54. Stochastic change-point ARX-GARCH models. The Greater New York Metropolitan Area Econometrics Colloquium. Yale University, December 2, 2006;
55. Volatility jumps and change-point autoregressive models. ICASA (International Chinese Statistical Association) 2005 Applied Statistics Symposium. Washington D.C., June 2005.
56. Volatility jumps and change-point autoregressive models. The Stanford Statistics Industry Affiliates, Stanford University, April 2005.
57. Structural change as an alternative to long memory in financial time series (Poster presentation). *The 3rd Annual Advances in Econometrics Conference*, November 5-7, 2004.

TEACHING AWARDS

1. Outstanding Teacher Award. **Fall 2016, Fall 2015, Spring 2011.**
Department of Applied Math and Statistics, Stony Brook University
2. Excellence in Teaching Award, **Spring 2018, Fall 2017, Spring 2017, Spring 2016, Spring 2012, Fall 2011.**
Department of Applied Math and Statistics, Stony Brook University

REFEREES FOR JOURNALS

Advances in Econometrics. Annals of Applied Statistics. Annals of Operation Research. Annals of Statistics. Bernoulli. Communications in Statistics: Theory and Methods. Emerging Markets Finance and Trade. European Actuarial Journal. IEEE Transactions on Information Theory. International Journal of Financial Studies. Journal of Agricultural, Biological, and Environmental Statistics. Journal of Applied Statistics. Journal of American Statistical Association. Journal of Banking and Finance. Journal of Business and Economic Statistics. Journal of Computational and Graphical Statistics. Journal of Data Mining. Journal of Multivariate Analysis. Journal of Risk and Financial Management. Journal of Time Series Analysis. Mathematics of Operations Research. Quantitative Finance. Review of Quantitative Finance and Accounting. Statistica Sinica. Technometrics.

PH.D. STUDENT ADVISEES, DISSERTATIONS, AND PLACEMENTS

1. Zhicheng Li (2018). Essays on order arrivals and inter-trade durations in the limit order book. *Hunan University, China.*
2. Shanshan Li (2016). Estimation and detection of network variation in intraday stock market. *J.P.Morgan.*
3. Xiaojin Dong (2016). A new stochastic regime switching model with time-varying regression coefficients and error variances.
4. Ke Wang (2016). Two Essays in Quantitative Finance. *Nomura Group.*
5. Zhenning Wang (2016). The spillover effects of information arrivals in security trading. *Amazon*
6. Huan Qi (2015). High-resolution detection of breaking point with low coverage single-cell sequencing data. *Amazon*
7. Sichen Zhou (2015). Multiple change-points estimation in GARCH models. *Quant LLC at Shanghai.*
8. Yuzhou Song (2014). Structural breaks in PCA with applications in finance. *Amazon.*
9. Yang Yu (2013). Two essays in financial econometrics. *Morgan Stanley.*
10. Ying Cai (2013). A stochastic segmentation model for recurrent copy number alterations in grouped array-CGH data. *Discovery Bank.*
11. Will Liao (2013). A novel Bayesian segmentation model for ChIP-seq data analysis and its practical applications. *New York Genome Center.*
12. Yifan Mo (2012). A stochastic segmentation model for categorical and continuous features of various biological sequential data. *Memorial Sloan Kettering Cancer Center.*
13. Ning Sun (2011). A new regime switching model for econometric time series. *IBM-China Research Laboratory, China.*