Winsome Huei-Wen Teng 鄧惠文

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EDUCATION

The Pennsylvania State University: Ph.D. Statistics — 2010
Supervisor: Professor John Liechty
Dissertation: Bayesian nonparametric approaches for financial option pricing

National Taiwan University: MBA Finance — 2004
Supervisor: Professor Yuh-Dauh Lyuu
Thesis: On pricing rainbow options

National Taiwan University: BS Mathematics — 2001

ACADEMIC POSITIONS

Associate Professor (Joint Appointment) — August 2016–Present
Department of Finance, National Central University

Associate Professor — August 2016–Present
Graduate Institute of Statistics, National Central University

Assistant Professor — August 2010–July 2016
Graduate Institute of Statistics, National Central University

OTHER ACADEMIC POSITIONS

Visiting Scholar, Department of Statistics, The Chinese University of Hong Kong, Hong Kong, China — Summer, 2012

Visiting Scholar, C.A.S.E. at Humboldt-Universität zu Berlin, Berlin, Germany — Summer, 2011, 2012

Visiting Scholar, College of Statistical Management, Shanghai University of Finance and Economics, Shanghai, China — October 2010

RESEARCH INTERESTS

Monte Carlo methods with Applications in Finance, Bayesian Modeling, Financial Risk Management, Financial Engineering

PUBLICATIONS

The asterisk denotes corresponding author.

Articles in Refereed Journals

1. Huei-Wen Teng*, Cheng-Der Fuh, and Chun-Chieh Chen (2016). On an automatic and optimal importance sampling approach with applications in finance, *Quantitative Finance*, 16(8), 1259–1271.
2. Sanford Luo, Huei-Wen Teng*, and Yu-Hsuan Lee (2016). Forecasting mortality using imputed data: The case of Taiwan, *Asia-Pacific Journal of Risk and Insurance*, 10(1), 1–20.
3. Huei-Wen Teng*, Ming-Hsuan Kang, and Cheng-Der Fuh (2015). On spherical Monte Carlo simulations for multivariate normal probabilities, *Advances in Applied Probability*, 47 (3), 817–836.
4. Wolfgang Karl Härdle, Brenda López-Cabrera, and Huei-Wen Teng* (2015). State Price Densities implied from weather derivatives, *Insurance: Mathematics and Economics*, 64, 106–125.
5. Huei-Wen Teng, Wen-Liang Hung*, and Yen-Ju Chao (2015). Bayesian Markov chain Monte Carlo imputation for the transiting exoplanets with an application in clustering analysis, *Journal of Applied Statistics*, 42 (5), 1120–1132.
6. Cheng-Der Fuh* and Huei-Wen Teng (2014). Discussion of "Multiscale change point inference" by Frick, Munk and Sieling, *Journal of the Royal Statistical Society: Series B*, 76 (3), 554–555.
7. Chun-Cheih Chen, Cheng-Der Fuh, and Huei-Wen Teng* (2013). Efficient Option Pricing with Importance Sampling, *Journal of the Chinese Statistical Association*, 51 (3), 253–273.
8. Yuh-Dauh Lyuu and Huei-Wen Teng* (2011). Unbiased and efficient Greeks of financial Options, *Finance and Stochastics*, 15 (1), 141–181.
9. Cheng-Der Fuh*, Huei-Wen Teng, and Ren-Her Wang (2010). On-Line VWAP trading strategies, *Sequential Analysis*, 29 (3), 292–310.
10. Tze-Chuan Yang*, Huei-Wen Teng, and Murali Haran (2009). The impacts of social capital on infant mortality in The U.S.: A spatial investigation, *Applied Spatial Analysis and Policy*, 2 (3), 211–227.

PATENTS

1. 鄧惠文，康明軒，傅承德，國立中央大學。金融商品定價系統以及金融商品定價方法, 中華民國經濟部智慧財產局，發明第 I534737 號, 2016/5/21-2035/3/26。

COMPLETED WORKING PAPERS

1. Yuh-Dauh Lyuu, Huei-Wen Teng*, Yao-Te Tseng, and Sheng-Xiang Wang. A pathwise method for the Greeks of financial derivatives with the Dirac delta function.
2. Cheng-Der Fuh and Huei-Wen Teng*. Efficient Importance Sampling for False Alarm Probability under K-Distributed Sea Clutter and Noise.
3. Cheng-Der Fuh, Huei-Wen Teng, and Ren-Her Wang*. Efficient Simulation of Value-at-Risk under A Jump Diffusion Model.

4. John Liechty and Huei-Wen Teng*. A Bayesian Quadrature Approach to State Price Density Estimation.

SELECTED WORKS IN PROGRESS

1. Huei-Wen Teng*. A spherical Monte Carlo method with applications in finance.
2. Huei-Wen Teng, Ming-Hsuan Kang*, and Runze Li. On a novel spherical Monte Carlo simulation using group representation.

SUBMITTED PATENTS

1. Huei-Wen Teng, Ming-Hsuan Kang, Cheng-Der Fuh, Financial derivatives pricing method and pricing systems, submitted to U.S. Patent and Trademark Office (申請案號：14/740,271), submission date 2015/6/26.

PROFESSIONAL ACTIVITIES

Presentations

International Conference/Workshop

1. "A spherical Monte Carlo method for financial option pricing", the Fifth Institute for Mathematical Statistics - Finance, Probability and Statistics Workshop, Rutgers University, New Brunswick, NJ, USA 6/26/2015
2. Invited Speaker, "Efficient importance sampling for false alarm probability under K-distributed sea clutter", the Fifth International Workshop in Sequential Methodologies 2015, University of Columbia, New York, NY, USA 6/23/2015
3. Invited speaker, "On spherical Monte Carlo simulations for multivariate normal probabilities", the Fourth Institute of Mathematical Statistics - Finance, Probability, and Statistics Workshop, University of Technology Sydney, Sydney, Australia 7/3/2014
4. "A direct method for calculating Greeks under Lévy processes", the 8th World Congress of the Bachelier Finance Society, Brussels, Belgium 6/1/2014
5. Invited speaker, "State Price Densities implied from weather derivatives", The 14th Frontier Science Symposium 第十四屆尖端科學研討會, Nanjing, China 10/21/2013
6. Invited speaker, "SPDs implied from weather options", the Pricing Kernel Puzzle Workshop, The Konstanz University, Konstanz, Germany 7/12/2011

Domestic Conference/Workshop

1. Invited speaker, "Optimal exponentially tilted importance sampling in pricing financial derivatives", 2014 財務數學與財務統計研討會, National Taipei University, Taipei 8/29/2014
2. Invited speaker, ''蒙地卡羅方法與統計應用", 第五屆聯電 (夏令) 數資, National Kaoshiung Normal University, Kaohsiung 8/24/2014

3. Invited speaker, "A direct method for calculating Greeks under Lévy processes", The 3rd Institute of Mathematical Statistics Asia Pacific Rim Meeting, Taipei 7/1/2014
4. Invited speaker, "Optimal exponentially tilted importance sampling for event simulation with applications", The 7th NCTU International Finance Conference and Celebration for Professor Cheng-Few Lee's Forty-year Teaching Career, Hsinchu 1/10/2014
5. Invited speaker, "Bayesian analysis and application", 第二十二屆南區統計研討會暨 2013 年中華機率統計學會年會及學術研討會, National University of Kaohsiung, Kaohsiung 6/29/2013
6. Invited speaker, "Efficient option pricing with importance sampling", the 4th Conference on Financial Engineering Theory and Practice 第四屆財務工程理論與實務研討會, Providence University, Taichung 5/17/2013
7. Invited speaker, "Experience sharing (mathematics)", 聯電數學資優營, National Central University, Zhongli 8/26/2011
8. Invited speaker, "Greeks of financial options", 第二十屆南區統計研討會暨 2011 年中華機率統計學會年會及學術研討會, National Chung Cheng University, Chiayi 6/24/2011
9. Invited speaker, "Bayesian nonparametric approaches for financial option pricing", the 2nd Conference on Financial Engineering Theory and Practice 第二屆財務工程理論與實務研討會, Providence University, Taichung 5/16/2011
10. Invited speaker, "Greeks of financial options", 2010 開南大學「金融市場與風險管理」研討會, Kainan University, Taoyuan 12/23/2010
11. Invited speaker, "Bayesian nonparametric approaches for financial option pricing", 2010 中國統計學社社員大會暨國際統計學術研討會, National Central University, Zhongli 12/17/2010
12. Invited speaker, "Implied state price densities", Workshop on Pricing Weather And Temperature, National Central University, Zhongli 12/6/2010

International Colloquium/Seminar

1. Invited speaker, "Implied state price densities of weather derivatives", Am Weierstrass-Institut fuer Angewandte Analysis und Stochastik sprechen im Rahmen des Forschungsseminars Mathematische Statistik, Humboldt University, Berlin, Germany 7/11/2012
2. Invited speaker, "Implied state price densities: Nonparametric Bayesian approaches", Center for Applied Statistics and Economic, Humboldt University, Berlin, Germany 6/30/2011
3. Invited speaker, "Implied state price densities: Nonparametric Bayesian approaches", Department of Mathematics, the Pennsylvania State University, University Park, PA, USA 2/1/2011
4. Invited speaker, "Bayesian nonparametric approaches for financial option pricing", College of Statistical Management, Shanghai University of Finance and Economics, Shanghai, China 10/14/2010

Domestic Colloquium/Seminar

1. Invited speaker, "A novel spherical Monte Carlo method via group representation", Department of Applied Mathematics, National Sun Yat-Sen University, Kaohsiung 9/25/2015
2. Invited speaker, "Optimal exponentially tilted importance sampling in pricing financial derivatives", Department of Applied Mathematics, National Chiao-Tung University, Hsinchu 10/21/2014

3. Invited speaker, "A direct method for calculating Greeks under Lévy processes", Institute of Statistics at National Chiao-Tung University, Hsinchu 5/23/2014
4. Invited speaker, "On spherical Monte Carlo simulations for multivariate normal probabilities", Department of Statistics, National Cheng-Kung University, Tainan 11/14/2013
5. Invited speaker, "Overview on weather derivatives", Department of Atmospheric Sciences, National Taiwan University, Taipei 11/7/2013
6. Invited speaker, "Ideas of kernel functions and applications to asset pricing", Colloquium of Shih-Hsin University Center for Computation and Empirical Statistical Studies, Taipei 9/26/2013
7. Invited speaker, "Implied state price densities", Department of Finance, National Central University, Taoyuan 3/2/2012
8. Invited speaker, "Bayesian random trees for calibrating State Price Densities of financial options", Department of Statistics, National University of Kaohsiung, Kaohsiung 9/21/2011
9. Invited speaker, "Bayesian nonparametric approaches for financial option pricing", Institute of Statistics, National Chiao-Tung University, Hsinchu 5/20/2011
10. Invited speaker, "金融危機後，統計學家能做什麼?" Department of Finance, Kainan University, Taoyuan 4/20/2011
11. Invited speaker, "Bayesian nonparametric approaches for financial option pricing" Department of Statistics, Tamkang University, New Taipei City 4/14/2011
12. Invited speaker, "Greeks of financial options", Seminars in Financial Mathematics and Financial Statistics, Institute of Statistical Science, Academia Sinica, Taipei 9/3/2010

Conference Organizer

1. Organizer, "Workshop on statistics and risk," June 2012, organized by the Committee of the Graduate Institute of Statistics at National Central University, sponsored by Mathematics Research Promotion Center.
2. Organizer, "Workshop on Pricing Weather and Temperature," December 2010, organized by the Committee of the Graduate Institute of Statistics at National Central University and C.A.S.E. at Humboldt-Universität zu Berlin, sponsored by Mathematics Research Promotion Center and G5 Capital Management, Ltd.

Editorial Roles

Reviewer for *Management Science*

Reviewer for *Operations Research*

Reviewer for *Journal of Chinese Statistical Association*

Reviewer for *Asia-Pacific Journal of Risk and Insurance*

Reviewer for *International Review of Economics and Finance*

TEACHING

Courses Lectured at The Pennsylvania State University

Probability

Courses Lectured at The National Central University

Statistical Computing

Financial Time Series

Statistical Methods for Finance

Financial Stochastic Process

Applied Statistical Topics

Probability Models

Supervised Master Students

1. Po-Chen Wu 吳柏辰 7/2016
   Simulating average run lengths of a copula-based control chart with the use of control variates
2. Arron Chiang 江厚德 7/2016
   An empirical comparison of various approaches in calculating Value at Risk
3. Wei-Hung Lin 林煒紘 6/2015
   Asset allocation based on the Black-Litterman and GARCH models
4. Rui-Qian Shen 沈睿謙 6/2015
   Comparisons of dynamic hedging of financial options using different volatility estimators under the Black-Scholes model
5. Shu Yuang Yang 楊舒媛 6/2015
   Modelling the VIX index and hedging the S&P 500 futures using VIX options
6. Sheng-Xiang Wang 王聖翔 6/2014
   A direct method for calculating Greeks under some L'evy processes
7. Yao-Te Tseng 曾耀德 6/2014
   Sensitivity analysis of credit derivatives
8. Yu-Hsuan Lee 李宥萱 6/2014
   Improved mortality forecasting using Augmented Data
9. Yen-Hsun Chen 陳彥勳 6/2013
   Structure learning for hierarchical Archimedean copulas
10. Chih-tai Shen 沈志泰 6/2013
    Estimating intensity processes from credit default swaps
11. Yu-Hsin Wu 吳諭昕 6/2013
    Calibrating the state price densities using TAIEX options

12. Chun-Chieh Chen 陳醇潔 6/2012
    Efficient option pricing with importance sampling
13. Chia-Chi Liu 劉家齊 6/2012
    On pricing credit default swaps
14. Yen-ju Chao 趙彥茹 6/2012
    Bayesian imputation with an application to mass-period functions of extrasolar planets
15. Yen-Chun Chen 陳彥鈞 6/2012
    Copula-based weather data forecasting
16. You-Sheng Liu 劉佑聖 6/2011
    Portfolio selection based on copula models with applications in Taiwan stock market
17. Jia-Yang Wu 吳嘉洋 6/2011
    Copula-based time series with applications to unemployment rates modeling

Current Master Students

1. 李宛柔, 葉惠暄, 應紹玄 Expected to graduate in 6/2017

Last updated: October 5, 2016