CURRICULUM VITAE

Tonghui (Tony) Wang

Department of Mathematical Sciences

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Education

Spring 1993:	Ph.D. in Statistics, University of Windsor,
	Windsor, Ontario, Canada.
Aug. 1988:	M. Sc. in Statistics, University of Windsor,
	Windsor, Ontario, Canada.
Jan. 1982:	B. Sc. in Mathematics, Northwest University,
	Xian, Shaanxi, China.

Positions

September 2010	Visiting Chair Professor and Houji Scholar,
	Northwest A and F University, China.
August 2007 - Present	Professor, Department of Mathematical
	Sciences, New Mexico State University.
Summer 2009	Visiting Chair Professor, Faculty of Applied Statistics,
	King Mongkut University of Technology, Thailand
Summer 2009	Visiting Professor, College of Science,
	Northwest A and F University, China.
Summer 2009	Visiting Professor, Department of Mathematics,
	Chinese University of Hong Kong, Hong Kong.
Fall 2007	Chair Professor, School of Statistics, Southwestern
	University of Finance and Economics, China.
Fall 2007	Visiting Professor, College of Science,
	Northwest A and F University, China.
Fall 2007	Visiting Professor, Department of Mathematics,
	Chinese University of Hong Kong, Hong Kong.
Summer, 2002	Visiting Associate Professor, Department of Mathematics,
	Tsinghua University, China.
Summer, 2001	Visiting Associate Professor, Academia Sinica, Taiwan.
Summer, 2001	Visiting Associate Professor, Department of Mathematics,
	National Chengchi University, Taiwan.

Aug. 2000 - July 2007	Associate Professor, Department of Mathematical
	Sciences, New Mexico State University.
Fall 2000	Visiting Associate Professor, Department of Electrical and
	Computer Engineering, Duke University.
Aug. 1994 - June 2000	Assistant Professor, Department of Mathematical
	Sciences, New Mexico State University.
Aug. 1992 - July 1994	Visiting Assistant Professor, Department of Mathematical
	Sciences, New Mexico State University.
Aug. 1986 - Aug. 1987	Visiting Fellow, Queen's University and University
	Windsor, Ontario, Canada.
Feb. 1982 - Aug. 1986	Lecturer, Department of Forestry, Northwest
_	Forest College, Shaanxi, China.

Academic Awards and Grants

- Houji's Scholar grant: 570,000(RMB) funded from Northwest A and F University, China (fund to be used in the summers(May-August) from 2011 to 2013).
- Mathematically Connected Communities-Leadership Institute for Teachers / Morandi, Bulger-Tamez, Sanchez: 4,984,564 dollars funded(Feb. 2009) from National Science Foundation for a duration of 5 years.
- Mathematically Connected Communities, Co-PI's Professors Kurtz, Tamez, and Gruzska: 4, 532, 000 dollars funded (October 2009) from New Mexico Public Education Department for a duration of 3 years.
- Mathematically Connected Communities Expanded/ Bulger-Tamez, Kinzer: 500,000 dollars from New Mexico Public Education Department (April 2009) for a duration of one year.
- Research Minigrant (Summer 2009), Chinese University of Hong Kong, Hong Kong.
- Research and Teaching Grant (Summer 2009), Faculty of Applied Statistics, King Mongkut University of Technology, Thailand.
- Mathematically Connected Communities Expanded/ Bulger-Tamez, Kinzer: 500,000 dollars from New Mexico Public Education Department (April 2008) for a duration of one year.
- Research Minigrant(Fall 2007), Chinese University of Hong Kong, Hong Kong.
- Research Minigrant(Fall 2007), Southwest University of Finance and Economics, China.

- Mathematically Connected Communities, Co-PI's Professors Kurtz, Tamez, and Wiburg: 2, 925, 000 dollars from New Mexico Public Education Department starting from Summer 2007 for a duration of 3 years.
- Mathematically Connected Communities(Expansion), Co-PI's Professors Bulger, Tamez, and Kinzer, 500, 000 dollars from New Mexico Public Education Department starting from April 2007 for a duration of one year.
- Mathematically Connected Communities, Co-PI's Professors Kurtz, Scott, and Wiburg: 1,600,000 dollars from New Mexico Public Education Department starting from Summer 2004 for a duration of 3 years.

Mathematically Connected Communities(expansion), Co-PI's Professors Kurtz, Scott, and Wiburg: 600,000 dollars from New Mexico Public Education Department starting April 2006 for a duration of one year.

- Research Minigrant (Summer 2002), Tsinghua University, China.
- Research Minigrant (Summer 2001), Academia Sinica, Taiwan.
- Research Minigrant(Summer 2001), National Research Council, Taiwan.
- Summer Research Award (Summer 2000), New Mexico State University.
- New Mexico State University Research Minigrant(Jan. 1995).

Professional Societies and Other Activities:

- Member: International Program Committee of INTECH 2003 2010.
- **President**: Chihuahua Desert Chapter of American Statistical Association (1998 2000).
- Advisor: Journal of Management and Statistical Decision.
- **Expert Consultant**: Business Data Mining Center of Southwestern University of Finance and Economics, China.
- Member: American Statistical Association.
- Member: International Chinese Statistical Association.
- Member: Mathematical Association of America.
- **Reviewer**: Mathematical Reviews.

Research Interests

(i) Multivariate linear models and distributions of quadratic forms with applications in growth curve models, multivariate analysis of variance models, and the class of skew distributions including skew normal, skew elliptical distributions. (ii) Statistics of random sets with applications in coarsing data and fuzzy data.

(iii) Applications of statistics and probability.

(iv) Statistical inference of stochastic dominance and poverty measures with applications.

Refereed Publications

- 1. Computing reasonable allocations in coalition games (with B. Li and H. T. Nguyen). To appear at "Proceedings of The 11th international Conference on Intelligent Technologies", Bangkok, Thailand, December 14 -16, 2010.
- 2. Probability transforms with stable generators (with W. Tian and W. Panichkitkosolkul). To appear at "Proceedings of The 11th international Conference on Intelligent Technologies", Bangkok, Thailand, December 14 -16, 2010.
- 3. T. Wang, B. Li, and A. K. Gupta, *Distribution of quadratic forms under skew* normal settings. Journal Multivariate Analysis, **100**, 533-545 (2009).
- 4. B. Li, D. Shi, and T. Wang, *Some applications of one-sided skew distributions*, Journal of Taiwan Intelligent Technologies and Applied Statistics, March (2009).
- T. Wang, B. Li, and A. K. Gupta, A simplified version of Cochran's theorem in mixed linear models, Journal of Random Operators and Stochastic Equation, 16(3), 225-244 (2008).
- B. Li and T. Wang, Some Applications of one-sided skew distributions "Proceedings of The 9th international Conference on Intelligent Technologies, Samui, Thailand, October 7-9, 2008, pp 21-27.
- B. Li, D. Shi, and T. Wang, *Data Mining and Statistical Analysis of Human Interactions* (with B. Li and D. Shi), "Proceedings of the 9th international Conference on Intelligent Technologies", Samui, Thailand, October 7-9, 2008, pp 153-158.
- 8. T. Wang and B. Li, Wishartness of quadratic forms in multivariate components of variance models, Journal of Taiwan Intelligent Technology and Applied Statistics, 5, 1-14 (2007).
- 9. T. Wang and B. Li, *Quadratic forms in skew normal distributions*, "Proceedings of the sixth International Conference on Information and Management Sciences", Lhasa, China, 2007, pp. 828-838.
- B. Li and T. Wang, The construction of minimum error tree with perturbation method, "Proceedings of the sixth International Conference on Information and Management Sciences", Lhasa, China, 2007, pp. 694-702.
- 11. B. Li and T. Wang, *Computational aspects of CAR model and the Shapley value*, Information Sciences, **177**, pp. 3260-3270 (2007).

- B. Li and T. Wang, Core and allocation functions of random sets. "Proceedings of the Fifth International Conference on Information and Management Sciences", Chengdu, China, 2006, pp. 550-554.
- 13. J. Zhang, J.M. Stewart, and T. Wang, Linkage analysis between gametophytix restorer Rf_2 gene and genetic markers in cotton in "Crop Science", **45**, pp. 147-156 (2005).
- B. Li and T. Wang, On consistency of estimators based on random set observations, "Proceedings of Fifth International Conference on Intelligent Technologies", Houston, 2004.
- 15. H. T. Nguyen, T. Wang, and B. Wu, On probabilistic methods in fuzzy theory, International Journal of Intelligent Systems, **19**, 99 - 109 (2004).
- T. Wang and B. Li, *Inferences in growth curve models under elliptical settings*, Proceedings of Fourth International Conference on Intelligent Technologies, Chiang Mai, Thailand, 2003, pp. 400 - 506.
- 17. H. T. Nguyen and T. Wang, On convergence of possibility measures, Proceedings of International Conference on "Fuzzy Information processing"— Theories and Applications, Vol.1, 43 47 (2003). Tsinghua University Press and Springer.
- H. T. Nguyen, T. Wang, and V. Kreinovich, Towards foundations of processing imprecise data: from traditional statistical techniques of processing crisp data to statistical processing of fuzzy data, Proceedings of International Conference on "Fuzzy Information processing"— Theories and Applications, Vol.2, 895 -900 (2003). Tsinghua University Press and Springer.
- D. Feng, N. T. Nguyen, and T. Wang, Convolutions of equicontractive selfsimilar measures on the line, Illinois Journal of Mathematics, 46(4), (2002), 1339-1351.
- 20. Q. Liu, Z.Q. Zhang, T. Wang, W. T. Jones, G. Yabbara, L.W. Nolte and J. A. Bryan, Active microwave imaging I: 2-D forward and inverse scattering methods, IEEE Trans. Microwave Theory Tech.", 50, No. 1, (2002), 123-133.
- T. Wang and R. He, An alternative proof of a version of Cochran's Theorem under elliptical settings, Communications in Statistics, Theory Methods, 28(5), (1999), 1133-1144.
- T. Wang, Wishartness of quadratic forms under elliptically contoured settings, Pub. Inst. Stat. Univ. Paris, XXXXI, fasc. 3 (1997), 31-45.
- H. T. Nguyen and T. Wang, *Belief functions and random sets* in "Random Sets — Theory and Applications", J. Goutsias, R. P. S. Mahler and H. T. Nguyen (Eds.). The IMA Volumes in Mathematics and Its Applications, Vol. 97, 243 -255 (1997).

- H. T. Nguyen, N. T. Nguyen and T. Wang, On Capacity functionals in interval probabilities, International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, 5 (1997), 359-377.
- J. Harding, M. Marinacci, N. T. Nguyen, and T. Wang, *Local Radon-Nikodym derivatives of set functions*, International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, 5 (1997), 379-394.
- T. Wang, Versions of Cochran's theorem for general quadratic expressions in normal matrices, J. of Statistical Planning and Inference, 58 (1997), 283-297.
- 27. T. Wang, *Estimation in multivariate elliptically contoured linear models II*, Proceedings of the Sixth Eugene Lukacs Symposium, 293-306 (1996).
- T. Wang, Estimation in multivariate elliptically contoured linear models, Pub. Inst. Stat. Paris. XXXX, fasc. 2 (1996), 75-92.
- T. Wang, R. Fu, and C. S. Wong, Cochran theorems for multivariate components of variance models, Sankhya Ser. A, 58 (1996), 328-342.
- T. Wang, Moments for elliptically contoured random matrices II, Sankhya, Ser. A, 58 (1996), 115-125.
- C. S. Wong and T. Wang, Laplace-Wishart distributions and Cochran theorems, Sankhya, Ser. A, 57 (1995), 342-359.
- T. Wang and C. S. Wong, Cochran theorems for a multivariate elliptically contoured model, Journal of Statistical Planning and Inferences, 43 (1995), 257-270.
- C. S. Wong and T. Wang, Multivariate versions of Cochran's theorems II, J. Multivariate Anal. 44 (1993), 146-159.
- C. S. Wong and T. Wang, Moments for elliptically contoured random matrices, Sankhya Ser B, 54 (1992), 265-277.
- C. S. Wong, J. Masaro, and T. Wang, Multivariate versions of Cochran's theorems, J. Multivariate Anal. 39 (1991), 154-174.

Books

- 1. A Graduate Course in Probability and Statistics, Volume I: Essentials of Probability for Statistics. Co-authored with H. T. Nguyen. Tsinghua University Press, Beijing (2008).
- 2. A Graduate Course in Probability and Statistics, Volume II : *Essentials* of *Statistics*. Co-authored with H. T. Nguyen. Tsinghua University Press, Beijing (2009).

Conferences and Invited Addresses

- Methods of computing reasonable allocations in coalition games (with B. Li and H. T. Nguyen). To be presented at INFORMS Annual Meeting, Austin, Texas, Nov. 7-10, 2010.
- 2. Statistical inference of poverty measures using U-statistics approach (with N. Albehery), presented in "The 8th Jopint UTEP/NMSU Workshop International Conference", November 13, 2010.
- 3. Estimation of linear regression model with skew normal errors (with B. Li), presented in "The 8th Jopint UTEP/NMSU Workshop International Conference", Novermber 13, 2010.
- 4. Probability transforms with stable generators (with W. Tian and W. Panichkitkosolkul), presented in "The 8th Jopint UTEP/NMSU Workshop International Conference", November 13, 2010.
- An Overview of quadratic forms under skew normal settings, presented in "The 8th Jopint UTEP/NMSU Workshop International Conference", Novermber 13, 2010.
- 6. Colloquium Speaker on Inferences of parameters in skew normal distributions, Department of Mathematical Sciences, University of Texas at El Paso, October, 2010.
- 7. Colloquium Speaker on *The distribution of quadratic forms in skew distributions*, Department of Mathematics, Chinese University of Hong Kong, Hong Kong, May 2009.
- 8. Colloquium Speaker on *Estimation in skew normal distributions*, Faculty of Applied Statistics, King Mongkut University, Thailand, June 2009.
- 9. Lecture series on *Econometric Analysis*(graduate level, 10 hours), College of Science, Northwest A and F University, China, May-June 2009.
- 10. Lecture series on *The non-parametric statistics and Regression analysis* (undergraduate level, 10 hours), New College, Northwest A and F University, China, June 2009.
- 11. Lecture series on *Linear and nonlinear statistical models* (graduate level, 45 hours), Faculty of Applied Statistics, King Mongkut University, Thailand, June 2009.
- 12. Some Applications of one-sided skew distributions (with B. Li), presented in "The 9th International Conference on Intelligent Technologies", Samui, Thailand, October 7-9, 2008.
- Data Mining and Statistical Analysis of Human Interactions (with B. Li and D. Shi), presented in "The 9th International Conference on Intelligent Technologies", Samui, Thailand, October 7-9, 2008.

- 14. Colloquium Speaker on An introduction to data mining procedures, College of Science, Northwest A and F University, Xian, China, November, 2007.
- 15. Colloquium Speaker on A brief introduction to skew normal and other distributions, Department of Mathematics, Northwestern University, Xian, China, November, 2007.
- Colloquium Speaker on *The skew normal distribution and its applications*, Department of Mathematics, The Chinese University of Hong Kong, Hong Kong, November, 2007.
- 17. Colloquium Speaker on *The skew normal distribution and its quadratic forms*, Department of Mathematics, The Sichuan University, Chengdu, China, October, 2007.
- Colloquium Speaker on Versions of Cochran's theorems, Department of Mathematics and Statistics, Bowling Green State University, Ohio, September, 2007.
- 19. Colloquium Speaker on *The skew normal distribution and its applications*, College of Science, The Northwest A and F University, Yangling, China, July, 2007.
- 20. Quadratic forms in skew normal distributions (with B. Li), presented in "The sixth International Conference on Information and Management Sciences", Lhasa, China, July, 2007.
- The construction of minimum error tree with perturbation method (with B. Li), presented in "The sixth International Conference on Information and Management Sciences", Lhasa, China, July, 2007.
- 22. Core and allocation functions of random sets (with B. Li), Statistics and Decision Analysis Session of "The Fifth International Conference on Information and Management Sciences", Chengdu, China, July 2006
- 23. On consistency of estimators based on random set observations, (with Li). Presented at *Statistics and Decision Analysis* section of "Fifth International Conference on Intelligent Technologies", Houston, December, 2004.
- 24. Colloquium Speaker on *Linear models with applications using SAS*, Department of Mathematics and Computer Sciences, Shaanxi Polytechnic University, Xianyang, China, August, 2004.
- 25. On the convergence of Choquet capacity functionals(with D. Feng), Presented at Joint Mathematics Meetings of AMS and MAA, Phoenix, January, 2004.
- 26. Inferences in Growth Curve Models under Elliptical Settings (with Li). Presented at "Fourth International Conference on Intelligent Technologies", Chiang Mai, Thailand, December, 2003.
- 27. Colloquium Speaker on *Wishartness of quadratic forms in normal settings*, Department of Mathematics, Northwest University, Xian, China, March 2003.

- 28. Colloquium Speaker on Versions of Cochran's theorem with applications, College of Science, Beijing Polytechnic University, Beijing, China, March, 2003.
- 29. Colloquium Speaker on *Reviews of generalized linear models*, Department of Mathematics, Tsinghua Unversity, Beijing, China, March, 2003.
- On convergence of possibility measures (with Nguyen). Presented at International Conference on Fuzzy Information Processing Theories and Applications, Beijing, China, March 2003.
- 31. Towards fundations of processing imprecise data: from traditional statistical techniques of processing crisp data to statistical processing of fuzzy data (with Nguyen and Kreinovich). Presented at International Conference on Fuzzy Information Processing Theories and Applications, Beijing, China, March 2003.
- 32. Colloquium Speaker on *Mixed linear models with applications*, Department of Mathematics, Tsinghua Unversity, Beijing, China, July, 2002.
- Colloquium Speaker on Multivariate linear models under elliptical settings, College of Life Science, Northwest Sci-Tech University of Agriculture and Forestry, Yangling, Shaanxi, China, June 2002.
- 34. Colloquium Speaker on *Inverse problems with solution methods*, College of Arts and Sciences, Shaanxi Polytechnic University, Hanzhong, China, June 2002.
- 35. Colloquium Speaker on *Random sets for statistics*, College of Science, Beijing Polytechnic University, Beijing, China, May, 2002.
- 36. Colloquium Speaker on Inferences in growth curve models under elliptical settings, Institute of Statistics, Academia Sinica, Taiwan, May 2001.
- 37. Colloquium Speaker on Singular elliptically contoured distributions with applications, Statistical Institute, National Chengchi University, Taiwan, May 2001.
- 38. Colloquium Speaker on *Estimations in multivariate mixed linear models*, Department of Statistics, Fu Jen Catholic University, Taiwan, may 2001.
- 39. Colloquium Speaker on *Inverse problems and their resolutions*, Department of Applied Mathematics, National Chengchi University, Taiwan, May 2001.
- 40. *Inverse problems with applications*. Presented at MAA Southwest Section Meeting, Las Cruces, New Mexico, April, 2001.
- 41. Second International Conference on Intelligent Technologies, Bangkok, Thailand, Dec. 13-15, 2000. Present the invited paper On probabilistic methods in fuzzy theory.
- 42. IMS Workshop on "Fractals and Dynamical Systems", Chinese University of Hong Kong, Hong Kong, Dec. 4-8, 2000. Presented invited paper Local dimensions of fractal probability measures associated with the (0, 1, 3)-problem.

- 43. Colloquium Speaker on *Generalized linear models under elliptical settings*, Department of Mathematics, City University of Hong Kong, Hong Kong, December, 2000.
- 44. Short Course on *Statistical Inverse Problems with Applications* (two hours/week for nine weeks from August to October, 2000), Department of Electrical and Computer Engineering, Duke University.
- 45. Lecture Series (12 hours in September, 2000) on the "Linear Algebra, Probability, and Statistics" parts in the graduate course *Inverse Problems in Electromagnetics and Acoustics*, Department of Electrical and Computer Engineering, Duke University.
- 46. Estimation in random effect models under elliptical settings. Presented in "The 1999 Joint Statistical Meetings" (ASA-ENAR-WNAR-IMS-SSC) in Baltimore, Maryland, August 8-12.
- Linear models under elliptical settings. Presented at MAA Southwest Section Meeting, Silver City, New Mexico, April, 1999.
- 48. Detections and Classifications. Lecture Series (5 lectures) given in Detection Group of Klipsch School of Electrical and Computing Engineering, New Mexico State University, Las Cruces, NM, Feb.- March, 1999.
- 49. Estimation in multivariate elliptically contoured linear models. Colloquium, Department of Mathematics, New Mexico State University, Las Cruces, NM, March, 1999.
- 50. An Alternative proof of a version of Cochran's Theorem under elliptical settings. Presented in Seventh International Workshop on Matrices and Statistics in Celebration of T. W. Anderson's 80th Birthday, Fort Lauderdale, Florida, December, 1998.
- 51. Linear models and Cochran's theorem. Colloquium, Department of Mathematics, Shaanxi Institute of Technology, Xian, China, July, 1997.
- 52. Review of various versions of Cochran's theorem. Colloquium, Department of Mathematics, Northwest University, Xian, China, July, 1997
- 53. Random sets on a finite space with application to the theory of evidence. Presented at MAA Southwest Section Meeting, Grants, New Mexico, April, 1997.
- 54. Random sets and belief measures. Invited paper presented at IMA Workshop: Applications and Theory of Random Sets, University of Minnesota, Minneapolis, Minnesota, August, 1996.
- 55. Estimation in multivariate elliptically contoured models II. Presented at Sixth Eugene Lukacs Symposium (on Multivariate Statistical Analysis and Theory of Random Matrices), Bowling Green State University, Bowling Green, Ohio, March, 1996.

- 56. Estimation in multivariate elliptically contoured models. Colloquium, University of Windsor, Windsor, Ontario, Canada, January, 1995.
- Some mathematical aspects of multivariate statistical analysis —- Cochran theorems. Colloquium, New Mexico State University, Las Cruces, NM, February, 1994.
- 58. multivariate moments and Cochran theorems. Colloquium, University of Windsor, Windsor, Ontario, Canada, October, 1992.
- 59. Moments of a random matrix and its quadratic forms. Colloquium, New Mexico State University, Las Cruces, NM, October, 1992.
- 60. *Higher order moments and their applications*. Colloquium, University of Okanangan, Kelowna, BC, Canada, May, 1992.
- 61. Moments of a random matrix and its quadratic forms for multivariate elliptically contoured distributions. Presented at CSS Annual Meeting, Edmonton, Alberta, Canada, June, 1992.
- 62. Best Quadratic unbiased estimator of population covariance Σ in a multivariate elliptically contoured model. Presented at CSS Annual Meeting, Toronto, Ontario, Canada, June, 1991.
- 63. General multivariate versions of Cochran theorems. Presented at Statistics' 91 Canada Conference, Montreal, Quebec, Canada, May, 1991.
- 64. On the orthogonal Procrustes problem in factor analysis. Colloquium, University of Windsor, Windsor, Ontario, Canada, June, 1988.

Professional Service

- Organizer(with Professor Ray Mines) of MAA Southwest Section Meeting at Las Cruces, USA, April 2001.
- Chairing a session in The Second International Conference on Intelligent Technologies, Bangkok, Thailand, December 2000.
- Chairing a session in The Fourth International Conference on Intelligent Technologies, Chiang Mai, Thailand, December, 2002.
- Chairing a session in The International Conference on Fuzzy Information Processing Theories and Applications, Beijing, China, March 2003.
- Chairing a session in The Fifth International Conference on Intelligent Technologies, Houston, USA, December 2003.
- Chairing a session in The Sixth International Conference on Information and Management Sciences, Lhasa, China, July, 2007.

Referee for:

- Annals of Operations Research.
- Canadian Journal of Statistics.
- Communication in Statistics- Theory Methods.
- IEEE Transactions of Geoscience and Remote Sensing.
- IEEE Transactions of Fuzzy Systems.
- Journal of Applied Mathematics.
- Journal of Applied Probability and Statistics.
- Journal of Multivariate Analysis.
- Journal of Statistical Planning and Inference.
- Linear Algebra and Its Applications.
- Mathematical and Computer Modeling.
- Journal of the Institute of Statistical Mathematics.

Reviewer for Mathematical Reviews.

Statistical Consultant: In the past 18 years, I have done statistical consulting work voluntarily for the faculty members and graduate students from Dept. of Computer Science, Industrial Engineering, Electric Engineering, Biology, chemistry, Home Economics, Psychology, Astronomy, and Agricultural Economics. Usually I provide some statistical methods and the necessary statistical computing packages for them to analyze their collected real data.