Ziwei Ma

Curriculum Vitae

University of Tennessee at Chattanooga
Chattanooga, TN
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Google Scholar

(updated September 12, 2020)

Education

2015–2020 **Ph. D.**, *New Mexico State University*, Las Cruses, *Mathematics*.
Concentration: Mathematical Statistics

2014–2015 **Master**, *New Mexico State University*, Las Cruses, *Mathematics*.

2004–2007 **Master**, *Northwest University*, Xi'an, China, *Mathematics*.

2000–2004 **Bachelor**, *Northwest University*, Xi'an, China, *Mathematics*.

Research Interests

Statistics: Linear Model, Skew normal distribution, Inferential Models, Statistical Methodology, Machine learning

Applied Statistics: Machine learning in engineering, Applications of Stochastic Differentiation Equations in biology

Employment

August 2020 – **Assistant Professor**, *University of Tennessee at Chattanooga*.

January 2014 – May 2020 **Teaching Assistant**, *New Mexico State University*.

Publications

Statistical Methodology

1. **Ma, Ziwei**, Wang, Tonghui. "The Plausibility Regions for Shape Parameter under Multivariate Skew-Normal (MSN) Settings Based on Inferential Models (IMs)" , International Journal of Intelligent Technologies and Applied Statistics, vol. 12, no. 1, (2019), 31-47. DOI:10.6148/IJITAS.201903_12(1).0003
2. Wang, Liang, Wang, Tonghui, Yan, Li, **Ma, Ziwei**. Inference on the Exponentiated Uniform Distribution Under Records, International Journal of Intelligent Technologies and Applied Statistics, vol. 12, no. 1, (2019), 67-98. DOI 10.6148/IJITAS.201903_12(1).0005
3. **Ma, Ziwei**, Chen, Ying-ju, Wang, Tonghui, Peng, Wuzhen. " Inferences on location parameters under skew normal settings", in "Beyond Traditional Probabilistic Methods in Economics" (V. Kreinovich, N. Trung, and N. Thach Eds.). Springer Nature Switzerland, pp.146-162, (2019). DOI:10.1007/978-3-030-04200-4_11
4. **Ma, Ziwei**, Zhu, Xiaonan, Wang, Tonghui, and Autchariyapanitkul, Kittawit."Joint Plausibility Regions for Parameters of Skew Normal Family." In International Conference of the Thailand

Econometrics Society, pp. 233-245. Springer, Cham, (2018) DOI:10.1007/978-3-319-70942-0_16

5. Zhu, Xiaonan, **Ma, Ziwei** , Wang, Tonghui, and Teetranont, Teerawut. "Plausibility regions on the skewness parameter of skew normal distributions based on inferential models." In Robustness in Econometrics, pp. 267-286. Springer, Cham, (2017). DOI:10.1007/978-3-319-50742-2_16

Distribution Theory

1. **Ma, Ziwei**, Tian, Weizhong,Li, Baokun, and Wang, Tonghui ."The Decomposition of Quadratic Forms Under Skew Normal Settings." In International Conference of the Thailand Econometrics Society, pp. 222-232. Springer, Cham, (2018). DOI:10.1007/978-3-319-70942-0_15

Applied Math/Statistics

1. **Ma, Ziwei**, Ben Niu, Tuan Phan, Anne Stensjoen, Chibawanye Ene, Timothy Woodiwiss, Tonghui Wang, Philip Maini, Eric Hollan and Tian, Jianjun "Stochastic growth pattern of untreated human glioblastomas predicts the optimal time for surgery", Scientific Reports 10.1 (2020): 1-13.
2. Mu, Lei, Jia, Zhe, **Ma, Ziwei**, Shen, Fuhui, Sun, Yuekuo, and Zang, Yong . "A theoretical prediction framework for the construction of a fracture forming limit curve accounting for fracture pattern transition." International Journal of Plasticity (2020): 102706.
3. Tang, Xiaochen, **Ma, Ziwei**, Hu, Qisong, Tang, Wei. "A Real-time Arrhythmia Heartbeats Classification Algorithm using Parallel Delta Modulations and Rotated Linear-Kernel Support Vector Machines", in IEEE Transactions on Biomedical Engineering, vol. 67, no. 4, pp. 978-986, (2020). DOI: 10.1109/TBME.2019.2926104
4. Du, Junli, Yuan, Zhifa, **Ma, Ziwei** , Song, Jiuzhou, Xie, Xiaoli, and Chen, Yulin. "KEGG-PATH: Kyoto encyclopedia of genes and genomes-based pathway analysis using a path analysis model." Molecular bioSystems 10, no. 9 (2014): 2441-2447. DOI:10.1039/c4mb00287c.

Submitted Manuscripts

1. **Ziwei Ma**, Ying-Ju Chen and Tonghui Wang "Statistical Inference on location parameter under multivariate skew-normal setting". (20 pages, submitted to Communication in Statistics: Simulation and Computation, under review)
2. Hanwan Jiang, Hanyu Zhan, Jinquan Zhang, **Ziwei Ma**, and Ruinian Jiang "Comparative Study of Three-dimensional Stress and Crack Imaging in Concrete by Application of Inverse Algorithms to Coda Wave Measurements" (12 pages, submitted to Journal of NDT & International)

In preparation

1. (With Tonghui Wang)"The decomposition of quadratic forms under matrix variate skew normal setting"
2. (With Tonghui Wang) "Inference on the difference of the location parameter under multivariate skew-normal setting"

Teaching Experiences

- Fall 2020 – Present , *@UTC, Chattanooga, TN.*
  - Math 2100 - Introduction to Statistics — Fall 2020
- Fall 2015– Spring 2020 , *@NMSU, Las Cruces, NM.*

- Stat 251 - Statistics for Business and Behavior Sciences — Spring 2020
- Math 192 - Calculus II — Fall 2019
- Math 191 - Calculus I — Summer 2019
- Math 190 - Pre-Calculus and Trigonometry — Spring 2019
- Stat 251 - Statistics for Business and Behavior Sciences — Fall 2018
- Stat 251 - Statistics for Business and Behavior Sciences — Spring 2018
- Stat 251 - Statistics for Business and Behavior Sciences — Fall 2017
- Math 191 - Calculus I — Spring 2017
- Math 192 - Calculus II — Fall 2016
- Stat 371 - Probability and Statistics for Engineers — Summer 2016
- Math 120 - Intermediate Algebra — Spring 2016
- Math 120 - Intermediate Algebra — Fall 2015

2014–2017 **Teaching Assistant**, *@NMSU, Las Cruces, NM.*

- Math 377 - Introduction to numerical analysis — Spring 2017
- Math 191 - Calculus I — Fall 2017
- Stat 371 - Probability and Statistics for Engineers — Spring 2017
- Math 191 - Calculus I — Spring 2017
- Math 190 - Pre - calculus — Spring 2016
- Math 142 - Calculus for Business — Fall 2015
- Math 142 - Calculus for Business — Spring 2015
- Math 190 - Pre - calculus — Fall 2014

Research Experiences

June 2017 – Aug. 2017 **Research Assistant**, *New Mexico State University*.

May 2018 – Aug. 2018 **Research Assistant**, *New Mexico State University*.

Honors and Scholarship

2019 **Dean's Graduate Award for Excellence of College of Arts and Sciences**, *The highest award to graduate student from College of Arts and Sciences*, NMSU.

2018–2019 **Mathematical Science Scholarship**, *NMSU*.

2018–2019 **Outstanding Graduate Student**, *NMSU*.

2018 **JRC Student Travel Award**, *Joint Research Conference*, ASA.

2018 **JRC Student Scholarship**, *Joint Research Conference*, ASA.

2015–2018 **Graduate Assistant Tuition Fellowship**, *NMSU*.

2007 **Excellent Graduate Nominee**, *Northwest University*, Xi'an, China.

2007 **Excellent Graduate Monitor**, *Northwest University*, Xi'an, China.

2003 **Second Rank Major Scholarship**, *Northwest University*, Xi'an, China.

2002 **Third Rank Major Scholarship**, *Northwest University*, Xi'an, China.

Invited Talks

2020 **Job Interview Research Talk**, *Inference on Shape and Location Parameters in Multivariate Skew-Normal Family*, Rollins College, Winter Park, Florida.

2020 **Job Interview Research Talk**, *Inference on Shape and Location Parameters in Multivariate Skew-Normal Family*, University of Tennessee at Chattanooga, Chattanooga, Tennessee.

2019 **Joint NMSU/UTEP Workshop**, *Inference on the difference of location parameters under skew-normal settings*, UTEP, El Paso, TX.

2019 **Joint NMSU/UTEP Workshop**, *The Decomposition of Quadratic Forms Under Matrix Variate Skew Normal Distribution*, NMSU, Las Cruces, NM.

2018 **Joint NMSU/UTEP Workshop**, *The Plausibility Regions for Shape Parameters under Multivariate Skew Normal Settings Based on Inferential Model*, UTEP, El Paso, TX.

2018 **New Mexico Tech Seminar**, *The Decomposition of Quadratic Forms under Skew Normal Setting*, NMT, Socorro, NM.

2018 **Joint NMSU/UTEP Workshop**, *Estimation of location and shape parameters Under multivariate skew normal settings*, NMSU, Las Cruces, NM.

2017 **Joint NMSU/UTEP Workshop**, *Inferences on the location parameter under multivariate skew normal settings*, UTEP, El Paso, TX.

2017 **Joint NMSU/UTEP Workshop**, *Decomposition of Quadratic Forms under Skew Normal Setting*, NMSU, Las Cruces, NM.

2016 **Joint NMSU/UTEP Workshop**, *Estimation of location and shape parameters Under multivariate skew normal settings*, UTEP, El Paso, TX.

2016 **Joint NMSU/UTEP Workshop**, *Confidence Intervals for the Normal Mean with Known Coefficient of Variation Based on Inferential Models*, NMSU, Las Cruces, NM.

2015 **Joint NMSU/UTEP Workshop**, *Shape Mixture of the Matrix Variate Skew Normal Distribution*, UTEP, El Paso, TX.

2014 **Joint NMSU/UTEP Workshop**, *KEGG-PATH: Kyoto encyclopedia of genes and genomes-based pathway analysis using a path analysis model* , UTEP, El Paso, TX.

Contributed Talks

2020 **Joint Mathematics Meeting**, *Inference on the difference of location parameters underMultivariate skew-normal setting*, Denver, CO.

2019 **Graduate Research & Arts Symposium (GRAS)**, *The Plausibility Regions for Shape Parameters under Multivariate Skew Normal Settings Based on Inferential Model*, NMSU, Las Cruces, NM.

2018 **Joint Research Conference on statistics in Quality, industry, and technology**, *Inferences on the location parameter under multivariate skew normal settings*, Sante Fe, NM.

2018 **Joint Mathematics Meeting**, *Inferences on the location parameter under multivariate skew normal settings*, San Degio, CA.

Poster Presentation

2019 **Joint Statistics Meeting**, *The Decomposition of Quadratic Forms Under Matrix Variate Skew Normal Distribution*, Denver, CO.

Seminar Talks

2019 **Math department: Machine Learning Seminar**, *Prototype Methods and Nearest-Neighbors*, NMSU.

2018 **Math department: Statistics Seminar**, *Skew normality test*, NMSU.

2018 **Math department: Bio-math Seminar**, *Summer research presentation, Building an SDE model for breast cancer*, NMSU.

2017 **Math department: Bio-math Seminar**, *Stochastic Differential Equations – Stochastic growth pattern of untreated human glioblastomas predicts the optimal time for surgery*, NMSU.

2016 **Math department: Statistics Seminar**, *Skew symmetric distributions*, NMSU.

Programming Languages

R	Advanced	*Built up package, and shiny app in research and teaching*
Python	Advanced	*Familiar data mining package, like pandas, numpy, sklearn, scipy, scikit-learn*
Mathematica	Advanced	*Build up package for research and teaching*
Java	Beginner	*Took data structure and algorithm course with Java*

Computer skills

Software	JMP, SPSS, SAS
Operation system	Windows, Linux

Professional Association

2016 – present **Student Member**, *American Mathematical Society (AMS)*.

2018 – present **Student Member**, *American Statistical Association (ASA), International Chinese Statistical Association (ICSA), Institute for Operations Research and the Management Sciences (INFORMS)* .

Organization Leadership

2019 – 2020 **Treasure**, *Math Graduate Student Organization*, NMSU.

2017 – 2020 **Secretary**, *NMSU Badminton Club* , NMSU.

2015 – 2017 **President**, *NMSU Badminton Club*, NMSU.

2014 – 2015 **Treasure**, *NMSU Badminton Club*, NMSU.

Community Services

- Keep State Great Project (The most on campus activities, cleaning, painting, picking up trash on NMSU campus), 2014, 2015, 2017, 2018, 2019

References

- Dr. Tonghui Wang (Ph. D. Advisor)
  Department of Mathematical Sciences, New Mexico State University, NM
  E-Mail: twang@nmsu.edu
- Dr. Mary Ballyk
  Department of Mathematical Science, New Mexico State University, NM
  E-Mail: mballyk@nmsu.edu
- Dr. Wei Tang,
  Paul W. and Valerie Klipsch Distinguished Professorship in Electrical and Computer Engineering, New Mexico State University, NM
  E-mail: wtang@nmsu.edu
- Dr. Ying-Ju Tessa Chen
  Department of Mathematics, University of Dayton, OH
  E-mail: ychen4@udayton.edu
- Dr. Dante DeBlassie
  Department of Mathematical Science, New Mexico State University, NM
  E-Mail: deblass@nmsu.edu

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