

Huiming Zhang

PhD in Statistics

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Education

- 2020 **Ph.D** in Statistics, Peking University, Beijing, China
(Supervisor: **Fang Yao**; Co-supervisor: Jinzhu Jia, Songxi Chen)
- 2016 **M.S.** in Probability and Statistics, Central China Normal University, Wuhan, China
- 2013 **B.S.** in Mathematics & **B.S.** in Economics, Central China Normal University, Wuhan, China

Research Interests

- **High-dimensional Statistics, Functional Data Analysis** ;
- **Probability Theory** (Concentration inequalities, Limit theory, Infinitely divisible distributions);
- **Others**: Models of count data and counting process, Subsampled estimation, Measurement error.

Selected Publications/Manuscripts

Peer-reviewed papers (*corresponding author, #co-first author)

1. **Zhang H.**, Jia, J. (2020). Elastic-net Regularized High-dimensional Negative Binomial Regression: Consistency and Weak Signals Detection. *Statistica Sinica*, <https://doi.org/10.5705/ss.202019.0315>. **Q3**
2. Yu, J., Wang, H., Ai, M., **Zhang H.** (2020). Optimal Distributed Subsampling for Maximum Quasi-Likelihood Estimators with Massive Data. *Journal of the American Statistical Association*, <https://doi.org/10.1080/01621459.2020.1773832>. **Q1**
3. Ai, M., Yu, J., **Zhang H.**, & Wang, H. (2020). Optimal Subsampling for Big Data Regressions. *Statistica Sinica*, <https://doi.org/10.5705/ss.202018.0439>. **Q3**
4. Fan, Y., **Zhang, H.***, Yan, T. (2020). Asymptotic Theory for Differentially Private Generalized β -models with Parameters Increasing. *Statistics and its interface*, 13(3), 385-398. doi:10.4310/SII.2020.v13.n3.a8 **Q4**
5. **Zhang, H.**, Tan, K., & Li, B. (2018). The COM-negative binomial distribution: modeling overdispersion and ultrahigh zero-inflated count data. *Frontiers of Mathematics in China*, 13(4), 967-998. doi:10.1007/s11464-018-0714-z **Q2**
6. **Zhang, H.**, Li, B., & Kerns, G. J. (2017). A characterization of signed discrete infinitely divisible distributions. *Studia Scientiarum Mathematicarum Hungarica*, 54(4), 446-470. doi:10.1556/012.2017.54.4.1377 **Q4**
7. **Zhang, H.**, Liu, Y., & Li, B. (2014). Notes on discrete compound Poisson model with applications to risk theory. *Insurance: Mathematics and Economics*, 59, 325-336. doi:10.1016/j.insmatheco.2014.09.012 **Q2**

Papers submitted/under revision

1. Ai, M., Fei, W., Yu, J., **Zhang H.** (2019). Optimal Subsampling for Large-scale Quantile Regression. *Journal of Complexity*, in revision. (In alphabetical order)
2. Yang, X., Song, S., **Zhang H.** (2020). Law of the Iterated Logarithm and Model Selection Consistency for Independent and Dependent GLMs. *Frontiers of Mathematics in China*, in revision. (Corresponding author)
3. Yang, X., **Zhang H.**, Wei, H., Zhang, S. (2020). Sparse Density Estimation with Measurement Errors. Prepare to submit to *Electronic Journal of Statistics*. (Corresponding author)
4. **Zhang H.**, Chen, S. (2020). User-friendly Concentration Inequalities in High-dimensional Statistics. 80pages. Prepare to submit to *Communications in Mathematical Research*. (Invited Review Paper).

Papers in Preparation

1. **Zhang H.**, Zhou, H., Yao, F. Optimal Estimation for FPCA-based Functional Cox Models.
2. Zhou, H., **Zhang H.**, Yao, F. Estimation and Prediction in Functional Linear Regressions with Discretely Observed and Noise-Contained Data.
3. Cui, C., **Zhang H.**, Jia, J. Programming Estimators in High-dimensional Error-in-variables GLMs: Non-asymptotic and Minimax results.
4. **Zhang H.**, Li, X., Jia, J. Data-driven ℓ_1 -penalization for Inverse Problems with Overdispersed Count Data: Oracle Inequalities and Minimax Rates.
5. Concentration Inequalities for Sum of Dependent Variables with Random Weights, in preparation.
6. Non-asymptotic Bai-Yin's Law for Sub-Weibull Random Matrices, in preparation.

Book manuscripts

Translated books

1. Chinese Edition of "**Chung, K. L., AitSahlia, F. (2003). Elementary probability theory: with stochastic processes and an introduction to mathematical finance. Springer**". Beijing World Publishing Corporation, 2012. Translated by **Huiming Zhang** and Guangqiang Teng with Emendations by Chenmin Sun.
2. Chinese Edition of "**A. W. van der Vaart (2000). Asymptotic statistics. Cambridge University Press**". In preparation (Key member, Chapter1-5,18-19,24-25).

Notes for books publishing

1. Songxi Chen, Huiming Zhang. **A Course in Fixed and High-dimensional Multivariate Analysis**, Draft, 250+pages. [This is lecture notes based on Prof. Chen Songxi's course Advanced Multivariate Statistical Analysis (2 times TA in 2018,2017)]
2. Huiming Zhang. **Exercises and Solutions in Large Sample Theory: with Solved Exercises in vdv's Asymptotic Statistics**, Draft,100+pages.

Reviewers

Annals of Statistics (2); Journal of the American Statistical Association (1); IEEE Transactions on Signal Processing (1); Statistica Sinica (2);Computational Statistics(1);The Canadian Journal of Statistics (1); Statistics and Probability Letters (1); Statistics and Its Interface(2); Acta Mathematica Scientia (2); Communications in Statistics (4). Pakistan Journal of Statistics and Operation Research (1).

Awards & Honors

- 2019 Beijing International Center for Mathematical Research Mathematical Scholarship for Graduate Students, **110000 RMB**.
- 2019 Peking University President Scholarship, **70000 RMB**.
- 2018 National Scholarship for Graduate Students of China (PhD), **30000 RMB**.
- 2014 National Scholarship for Graduate Students of China (Master), **20000 RMB**.
- 2013 The Excellent thesis for bachelor's degree of Hubei Province of China.

Talks & Academic Visits

Academic Visits

1. ULM University, German, Dec, 2017. [Visit Prof. Alexander Lindner.]

Talks&Posters

1. *Random Matrices and Complex Data Analysis Workshop*, Shanghai U. of Finance and Economics, Shanghai, Dec. 10 - 12, 2019.
(Poster Title: **Elastic-net regularized High-dimensional Negative Binomial Regression**)

2. *Seminar on Higher Education Textbook (STM) Publishing from International Perspective*, Beijing, China. Aug. 2019.
(Talk Title: **World Publishing Corp. and Cambridge University Press in My Point of Views [invited]**)
3. *Lilac International Conference on Application of Statistics*, HIT, Harbin, Jun. 2019.
(Talk Title: **Optimal Subsampling Inference in the Big Data Era: Asymptotic and Non-asymptotic Results [invited]**)
4. *Statistics conference in honour of Aad van der Vaart's 60th birthday*, Leiden U., The Netherlands, Jun. 2019.
(Poster Title: **Elastic-net regularized High-dimensional Negative Binomial Regression**)
5. *The 5th Institute of Mathematical Statistics Asia Pacific Rim Meeting*, NUS, Singapore, Jun. 2018.
(Title: **Discrete Signed-infinitely Divisible Distributions and Jorgensen Set: with Applications to Fit Any Count Data**)
6. *The 10th Annual Meeting of Chinese Society of Probability and Statistics*, Shandong U., Jinan, Oct. 2014.
(Title: **From Feller's characterization of discrete ID to discrete quasi ID**)

Teaching Assistant

PhD courses of PKU

- School of Mathematical Sciences: **Advanced Theory of Statistics**
(2 times TA in 2018 and 2017; Course by Prof. Wei Lin and Prof. Ruibin Xi);
- Guanghai School of Management: **Advanced Multivariate Statistical Analysis**
(2 times TA in 2018, 2017; Course by Prof. Songxi Chen);
- Guanghai School of Management: **Large Sample Theory**
(3 times TA in 2020, 2019, 2018; Course by Prof. Songxi Chen);
- School of Mathematical Sciences: **Modern Statistical Models**
(2019; Course by Prof. Fang Yao).

Undergraduate courses of PKU

- School of Mathematical Sciences: **Probability and Statistics B, Linear Algebra B, Applied Regression Analysis.**

Undergraduate courses of CCNU

- **Mathematical Statistics** (2 times TA in 2014 and 2015), **Functions of Real Variable.**