

Ruijian Han

Department of Applied Mathematics
Faculty of Science
The Hong Kong Polytechnic University
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Education

2016 - 2020 THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY Hong Kong
Ph.D. in Mathematics (Supervisor: Kani Chen)

2012 - 2016 SICHUAN UNIVERSITY Chengdu, Sichuan
B.S. in Pure Mathematics and Applied Mathematics

Research Experience

2022 - Present **Assistant Professor**
Department of Applied Mathematics
Faculty of Science
The Hong Kong Polytechnic University Hong Kong

2020 - 2022 **Research Assistant Professor**
Department of Statistics
Faculty of Science
The Chinese University of Hong Kong Hong Kong

Research Interests

- Statistical machine learning; Network analysis; Graphical model;
- Online inference; High-dimensional inference; Causal inference;
- Deep learning; Reinforcement learning.

Publications

In the author list, * represents co-first author; and † represents the corresponding author.

1. **Han, R.**, Luo, L., Lin, Y. and Huang, J. (2024). Online Inference with Debiased Stochastic Gradient Descent. *Biometrika*, **111**(1).
2. Luo, L., **Han, R.***, Lin, Y. and Huang, J. (2023). Online Inference in High-Dimensional Generalized Linear Models with Streaming Data. *Electronic Journal of Statistics*, **17**(2).
3. **Han, R.†**, Xu, Y. and Chen, K. (2023). A General Pairwise Comparison Model for Extremely Sparse Networks. *Journal of the American Statistical Association (Theory & Methods)*, **118**(544).
4. Lin, Y., Xie, J., **Han, R.*** and Tang, N. (2023). Post-selection Inference of High-dimensional Logistic Regression under Case-control Design. *Journal of Business and Economic Statistics*, **41**(2).

5. **Han, R.**, Osting, B., Wang, D. and Xu, Y. (2022). Probabilistic Methods for Approximate Archetypal Analysis. *Information and Inference-A Journal of the IMA*, **12**(1).
6. **Han, R.**, Ye, R., Tan, C. and Chen, K. (2020). Asymptotic Theory of Sparse Bradley-Terry Model. *Annals of Applied Probability*, **30**(5).
7. **Han, R.**, Chen, K. and Tan, C. (2020). Curiosity-Driven Recommendation Strategy for Adaptive Learning via Deep Reinforcement Learning. *British Journal of Mathematical and Statistical Psychology*, **73**(3).
8. **Han, R.**, Chen, K. and Tan, C. (2020). Bivariate Gamma Model. *Journal of Multivariate Analysis*, **180**, 104666.
9. Tan, C., **Han, R.**, Ye, R., and Chen, K. (2020). Adaptive Learning Recommendation Strategy Based on Deep Q-learning. *Applied Psychological Measurements*, **44**(4).

Teaching Experience

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| 2022-Present | Course Instructor, The Hong Kong Polytechnic University.
<i>AMA 2691: Probability and its Distributions.</i> Spring 2023; Spring 2024.
<i>AMA 546: Statistical Data Mining.</i> Fall 2023.
<i>BSE 2610: Data Science and Programming for Buildings.</i> Spring 2024. |
| 2020-2022 | Course Instructor, The Chinese University of Hong Kong.
<i>STAT 1011: Introduction to Statistics.</i> Spring 2021, Spring 2022.
<i>STAT 4011: Statistics Projects.</i> Fall 2021. |
| 2016-2020 | Teaching Assistant, Hong Kong University of Science and Technology.
<i>MATH 2421: Probability.</i> Spring 2017, Fall 2017, Spring 2019.
<i>MATH 2011: Matrix Algebra and Applications.</i> Fall 2018.
<i>MATH 2411: Applied Statistics.</i> Spring 2018, Fall 2019. |

Honors and Awards

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| 2016-2020 | Hong Kong PhD Fellowship |
| 2019 | Din-Yu Hsieh “Best Teaching Assistant” Award |
| 2018 | Din-Yu Hsieh “Best Teaching Assistant” Award |
| 2017 | Din-Yu Hsieh “Best Teaching Assistant” Award |
| 2012-2016 | Plan for Cultivating Top-notch Students of Basic Disciplines |
| 2013 | China National Scholarship |

Presentations

- 2023 *Online Inference with Debiased Stochastic Gradient Descent*, International Chinese Statistical Association 2023 International Conference.
- 2023 *Statistical Inference in High-Dimensional Regression with Streaming Data*, International Chinese Statistical Association 2023 China Conference.
- 2023 *General Pairwise Comparison Models*, Center of Statistical Research, Southwestern University of Finance and Economics.
- 2022 *General Pairwise Comparison Models*, International Chinese Statistical Association 2022 China Conference.
- 2020 *Asymptotic Theory of Sparse Bradley-Terry Model*, Seminar on Statistics, Department of Statistics, The Chinese University of Hong Kong.
- 2019 *Asymptotic Theory of Sparse Bradley-Terry Model*, The 3rd National Conference of Young Researchers of Probability and Statistics.
- 2019 *Bivariate Gamma Model*, Student Seminar Series, Department of Mathematics, The Hong Kong University of Science and Technology.
- 2018 *Adaptive Learning Recommendation Strategy Based on DQN*, Conference of Statistical Methods for Educational Testing and Learning.
- 2018 *Deep Accelerated Failure Time Model*, Student Seminar Series, Department of Mathematics, The Hong Kong University of Science and Technology.