

Contact Info	<p>Institute of Statistics and Big Data Renmin University of China 708 West Chongde Building Beijing, China 100872</p> <p>Email: qiong.zhang@ruc.edu.cn</p> <p>Homepage: https://sarahqiong.github.io/</p>
Research Interests	Distributed learning, federated learning, mixture models
Employment	<p>Renmin University of China <i>Beijing, China</i> Tenure Track Assistant Professor Institute of Statistics and Big Data</p> <p>09/2022-present</p>
Education	<p>University of British Columbia <i>Vancouver, British Columbia, Canada</i> Ph.D. in Statistics. Supervisor: Professor Jiahua Chen Thesis: Inference under finite mixture models: distributed learning and approximate inference</p> <p>09/2017-05/2022</p> <p>University of British Columbia <i>Vancouver, British Columbia, Canada</i> M.Sc. in Statistics. Supervisor: Professor Jiahua Chen Thesis: Small area quantile estimation under unit-level models</p> <p>09/2015-09/2017</p> <p>University of Science and Technology of China <i>Hefei, Anhui, China</i> B.Sc. in Statistics, School of the Gifted Young.</p> <p>09/2011-06/2015</p>
Publications	<p>† denotes corresponding author * denotes equal contribution or alphabetical order ◇ denotes student author that I supervised/co-supervised for the project</p> <p>Preprints</p> <ol style="list-style-type: none"> 1. Ruinan Jin, Gexin Huang, Xinwei Shen, Qiong Zhang, Yan Shuo Tan, and Xiaoxiao Li. "Reference image-guided comparative vision-language models for medical diagnosis." (<i>Under review at NeurIPS</i>). 2. Tao Wang^{*,◇}, Mengyu Li^{*,◇}, Geduo Zeng[◇], Cheng Meng[†], and Qiong Zhang[†]. "Gaussian herding across pens: an optimal transport perspective on global Gaussian reduction for 3DGS." (<i>Under review at NeurIPS</i>). 3. Qiong Zhang[*], Yan Shuo Tan[*], Qinglong Tian[*], and Pengfei Li. "TabPFN: one model to rule them all?" Available at arXiv:2505.20003. (<i>Under review at JASA</i>).

4. [Qiong Zhang*](#), Yan Shuo Tan*, and Jiahua Chen. "Byzantine-tolerant distributed learning of finite mixture models." Available at [arXiv:2407.13980](#). (*Under review at JRSSB*).
5. Ruinan Jin[◇], Minghui Chen[◇], [Qiong Zhang†](#), and Xiaoxiao Li. "Forgettable federated linear learning with certified data removal." Available at [arXiv:2306.02216](#). (*R&R IEEE TNNLS*).
6. [Qiong Zhang](#), Jing Peng^{*,◇}, Xin Zhang*, Aline Talhouk, Gang Niu, and Xiaoxiao Li. "FedMT: Federated learning with mixed-type labels." Available at [arXiv:2210.02042](#). (*In preparation to submit to TMLR*).

Refereed Papers

7. Jing Peng[◇], Meiqi Yang, [Qiong Zhang†](#), Xiaoxiao Li. "S4M: S4 for multivariate time series forecasting with Missing values." In the 13th *International Conference on Learning Representations (ICLR)*, 2025 (32.1% acceptance).
8. [Qiong Zhang](#), Archer Gong Zhang, and Jiahua Chen. "Gaussian mixture reduction with composite transportation divergence." *IEEE Transactions on Information Theory (TIT)* 70(7), 5191-5212, 2024.
9. [Qiong Zhang](#) and Jiahua Chen. "Distributed learning of finite Gaussian mixtures." *Journal of Machine Learning Research (JMLR)* 23(1), 4265-4304, 2022.
10. [Qiong Zhang](#) and Jiahua Chen. "Minimum Wasserstein distance estimator under finite Location-scale mixtures." In *Advances and Innovations in Statistics and Data Science*, pp. 69-98. Springer, Cham, 2022.
11. [Qiong Zhang](#) and Jihua Chen. "Robustness of Gaussian mixture reduction for split-and-conquer learning of finite Gaussian mixtures." 3rd *International Conference on Statistics: Theory and Applications (ICSTA)*, 2021.
12. Hanwen Liang*, [Qiong Zhang*](#), Peng Dai, and Juwei Lu. "Boosting the generalization capability in cross-domain few-shot learning via noise-enhanced supervised autoencoder." *International Conference on Computer Vision (ICCV)*, 2021 (25.9% acceptance).
13. Xin Ding*, [Qiong Zhang*](#), and William J. Welch. "Classification beats regression: counting of cells from greyscale microscopic images based on annotation-free training samples." *CAAI International Conference on Artificial Intelligence*, 2021 (34.5% acceptance).
14. Zhanshou Chen, Jiahua Chen, and [Qiong Zhang](#). "Small area quantile estimation via spline regression and empirical likelihood." *Survey Methodology* 45(1), 81-99, 2019.
15. Philippe Phan, Brandon Budhram, [Qiong Zhang](#), Carly S. Rivers, Vanessa K. Noonan, Tova Plashkes, Eugene K. Wai, Jérôme Paquet, Darren M. Roffey, Eve Tsai, and Nader Fallah. "Highlighting discrepancies in walking prediction accuracy for patients with traumatic spinal cord injury: an evaluation of validated prediction models using a Canadian multicenter spinal cord injury registry." *The Spine Journal*, 19(4), 703-710, 2019.
16. Bo Chang*, [Qiong Zhang*](#), Shenyi Pan, and Lili Meng. "Generating handwritten Chinese characters using CycleGAN." In 2018 *IEEE Winter Conference on Applications of Computer Vision (WACV)*, pp. 199-207. IEEE, 2018 (45.9% acceptance).

Grants and Awards **Grants**

- 2025-2029 National Key R&D Program of China – Young Scientists Project (Co-PI)
- 2024-2026 Key Laboratory of Advanced Theory and Application in Statistics and Data Science open research fund (PI)
- 2024-2026 National Natural Science Foundation of China young scientists fund (PI)
- 2023-2025 Renmin University of China (RUC) startup research grant (PI)
- 2023-2024 RUC early development research grant (PI)

Awards

- 2021 Honorable mentions for the presentation award of 2nd Waterloo student conference in statistics, actuarial science and finance
 - 2019 Winner of SSC (Statistical Society of Canada) annual meeting case study
 - 2017 Margaret Wylie memorial scholarship in statistics
 - 2017–2021 University of British Columbia (UBC) international doctoral fellowship
 - 2017–2021 UBC faculty of science graduate award
 - 2016 CANSSI (Canadian Statistical Sciences Institute) scholarship
 - 2015–2021 UBC international tuition award
 - 2013, 2014 University of Science and Technology of China (USTC) outstanding undergraduate scholarship
 - 2011 USTC outstanding freshman scholarship
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Teaching

Instructor, Renmin University of China

PhD level courses

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|---|---|
| ▪ Bayesian modeling and inference | 02/2025–06/2025
02/2024–06/2024
02/2023–06/2023 |
| ▪ Special topics in big data (with a focus on distributed learning) | 02/2025–06/2025
02/2024–06/2024
02/2023–06/2023 |
| ▪ Advanced statistical computing | 09/2024–12/2024
09/2023–12/2023
09/2022–12/2022 |

Teaching Assistant, University of British Columbia

Held weekly labs and office hours, created and marked assignments and exams

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| ▪ STAT 201: Statistical inference for data science | 01/2022–04/2022 |
| ▪ STAT 404: Design and analysis of experiments | 09/2021–12/2021 |
| ▪ STAT 305: Introduction to statistical inference | 07/2021–08/2021 |
| ▪ STAT 251: Elementary statistics | 05/2021–06/2021 |
| ▪ STAT 300: Intermediate statistics for applications | 01/2021–04/2021 |
| ▪ STAT 344: Sample surveys | 09/2020–12/2020 |
| ▪ STAT 302: Introduction to probability | 01/2020–04/2020
09/2019–12/2019 |
| ▪ STAT 461/561: Statistical theory II | 01/2019–04/2019 |
| ▪ STAT 306: Finding relationships in data | 09/2018–12/2018 |
| ▪ STAT 200: Elementary statistics for applications | 01/2018–04/2018
09/2017–12/2017
01/2017–04/2017
09/2016–12/2016
01/2016–04/2016 |

Teaching Assistant, University of Science and Technology of China*Held weekly TA office hours, marked assignments and exams*

- Linear algebra (B1) 02/2015–06/2015
- Linear algebra (B2) 09/2014–01/2015

Other

- Trainer for teaching assistant program (@ UBC Statistics) 09/2019–09/2021
- UBC instructional skills workshops 11/2019

Talks

Invited Talks

- 12/2024 NENU seminar: Distributed learning of finite mixture models with and without Byzantine failures.
- 06/2024 USTC seminar: Distributed learning of finite mixture models with and without Byzantine failures.
- 06/2024 East China Normal University seminar: Distributed learning of finite mixture models with and without Byzantine failures.
- 12/2023 Banff International Research Station(BIRS)-Institut for Advanced Study in Mathematics (IASM) workshop on harnessing the power of latent structure models and modern big data: Distributed learning of finite mixture models.
- 12/2023 East China Normal University colloquium: Gaussian mixture reduction with composite transportation divergence.
- 11/2023 Nankai University seminar: Distributed learning of finite Gaussian mixtures.
- 08/2023 [1st International Conference on Machine Learning and Statistics](#): Gaussian mixture reduction with composite transportation divergence.
- 05/2023 USTC seminar: Distributed learning of finite Gaussian mixtures.
- 12/2022 Xiamen University conference: Gaussian mixture reduction with composite transportation divergence.
- 11/2022 Shanghai Jiao Tong University seminar: Distributed learning of finite Gaussian mixtures.
- 10/2022 Renmin University of China conference: Federated learning with mixed-type labels.

Contributed Talks

- 08/2024 JSM: Byzantine tolerant distributed learning of finite mixture models.
- 07/2023 Joint conference on statistics and data science in China (JCSDS): Gaussian mixture reduction with composite transportation divergence.
- 2021 Waterloo student conference of statistics, actuarial science and finance: Distributed learning of finite Gaussian mixtures.
- 2021 JSM: Distributed learning of finite Gaussian mixtures.
- 2021 ICSTA: Robustness of Gaussian mixture reduction for split-and-conquer learning of finite Gaussian mixtures.

- 2021 UBC/SFU joint student seminar: Distributed learning of finite Gaussian mixtures.
- 2018 UBC/SFU joint student seminar: Generating handwritten Chinese characters using CycleGAN.
- 08/2016 Statistics Canada: Estimation of small area means and quantiles using EBLUP, Pseudo-EBLUP and M-quantile approaches.

Poster Presentation

- 2023 IMS New Researcher Conference: Distributed learning of finite Gaussian mixtures.
- 2022 NeurIPS journal to conference track: Distributed learning of finite Gaussian mixtures.
- 2021 CANSSI showcase: Distributed learning of finite Gaussian mixtures.
- 2019 SSC (Statistical Society of Canada) case study: Classification beats regression in cell counting from microscopic images.
- 2018 JSM data expo: Do I really need a jacket?
- 2018 WACV: Generating handwritten Chinese characters using CycleGAN.

Professional Experience & Activities

Student supervision

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| ▪ Yimei Zhang (Ph.D.) | 2024-present |
| ▪ Jing Peng (MSc.) → Georgia Institute of Technology (CS Ph.D.) | 2023-2025 |
| ▪ Jianhuang Gan (MSc.) → Fuwai Hospital | 2022-2024 |
| ▪ Pengcheng Kong (MSc.) → Shanghai Stock Exchange | 2022-2024 |
| ▪ Cong Ye (MSc.) → Iowa State University (Stat Ph.D.) | 2022-2024 |

Service

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| ▪ Graduate committee, Institute of Statistics and Big Data, RUC | 2023-present |
| ▪ Faculty search committee, Department of Statistics, UBC | 2022 |

Reviewer

- Statistics: Statistica Sinica, Journal of Multivariate Analysis, Electronic Journal of Statistics
- Machine Learning: IEEE Transactions on Neural Networks and Learning Systems (TNNLS), Journal of Machine Learning Research (JMLR), International Conference on Machine Learning (ICML), International Conference on Learning Representations (ICLR), Neural Information Processing Systems (NeurIPS)
- Computer Vision: IEEE Transactions on Image Processing

Organizer & Conference Volunteer

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| ▪ RUC ISBD department seminar organizer | 2023-2024 |
| ▪ UBC Constance van Eeden lecture organizer | 2019-2020 |
| ▪ UBC/SFU joint student seminar organizer | 2017-2019 |
| ▪ 2018 JSM-ICSA volunteer | 08/2018 |
| ▪ ICSA-Canada chapter 2017 symposium volunteer | 08/2017 |

Internship

- Huawei Noah's Ark Lab, Markham, ON, Canada 05/2020-09/2020
Computer Vision Team
 - Rick Hansen Institute, Vancouver, BC, Canada 05/2017-08/2017
 - Statistics Canada, Ottawa, ON, Canada 06/2016-08/2016
International Cooperation and Corporate Statistical Methods Division
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Hardware and Software Skills

Programming: Proficient with Python, R; some experience with C, Matlab, SAS
Deep Learning API: Pytorch
Office & Publishing: Microsoft office, \LaTeX