Michael Minyi Zhang
Curriculum Vitae

Department of Statistics and Actuarial Science
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Academic Positions

2021–*current* **Assistant Professor**. Department of Statistics and Actuarial Science, University of Hong Kong.

2018–2020 **Post-doctoral Researcher**. Department of Computer Science, Princeton University.
Advisors: Barbara Engelhardt, Brandon Stewart.

Education

2018 **Ph.D. Statistics**. The University of Texas at Austin.
Advisor: Sinead Williamson.

2016 **M.S. Statistics**. The University of Texas at Austin.
Advisor: Sinead Williamson.

2013 **B.S. Statistics** (Honors); **B.A. Political Science** (Honors and Distinction in Major); **Minor in Russian**. University of California, Santa Barbara.
Advisor: Cynthia Kaplan.

Publications

L. Lin, B. Saparbayeva, **M. M. Zhang**, and D. B. Dunson. "Accelerated algorithms for convex and non-convex optimization on manifolds." 2024. arXiv: 2010.08908. To appear in Machine Learning.

Y. Li$^{\diamond}$, L. Cheng, F. Yin, **M. M. Zhang**, and S. Theodoridis. "Overcoming posterior collapse in variational autoencoders via EM-style training." *IEEE International Conference on Acoustics, Speech and Signal Processing*, 2023. ISSN: 1520-6149. Accepted for oral presentation.

M. M. Zhang, B. Dumitrascu, S. A. Williamson, and B. E. Engelhardt. "Sequential Gaussian processes for online learning of nonstationary functions." *IEEE Transactions on Signal Processing*, 71:1539–1550, 2023. ISSN: 1941-0476. arXiv: 1905.10003.

M. M. Zhang, S. A. Williamson, and F. Pérez-Cruz. "Accelerated parallel non-conjugate sampling for Bayesian non-parametric models." *Statistics & Computing*, 32(50):1–25, 2022. ISSN: 1573-1375. arXiv: 1705.07178.

G. W. Gundersen, **M. M. Zhang**, and B. E. Engelhardt. "Latent variable modeling with random features." *Artificial Intelligence and Statistics*, 130:1333–1341, 2021. arXiv: 2006.11145. Joint first author.

L.-F. Cheng, B. Dumitrascu, **M. M. Zhang**, C. Chivers, K. Li, and B. E. Engelhardt. "Personalized effects of medication on patients using latent force models with Gaussian processes." *Artificial Intelligence and Statistics*, 108:4045–4055, 2020. arXiv: 1906.00226.

A. Dubey, **M. M. Zhang**, E. P. Xing, and S. A. Williamson. "Distributed, partially collapsed MCMC for Bayesian nonparametrics." *Artificial Intelligence and Statistics*, 108:3685–3695, 2020. arXiv: 2001.05591. Joint first author.

S. A. Williamson, **M. M. Zhang**, and P. Damien. "A new class of time dependent latent factor models with applications." *Journal of Machine Learning Research*, 21(27):1–24, 2020. arXiv: 1904.08548.

F. Pérez-Cruz, P. M. Olmos, **M. M. Zhang**, and H. Huang. "Probabilistic time of arrival localization." *IEEE Signal Processing Letters*, 26(11):1683–1687, 2019. ISSN: 1070-9908. arXiv: 1910.06569.

M. M. Zhang and S. A. Williamson. "Embarrassingly parallel inference for Gaussian processes." *Journal of Machine Learning Research*, 20(169):1–26, 2019. arXiv: 1702.08420.

B. Saparbayeva, **M. M. Zhang**, and L. Lin. "Communication efficient parallel algorithms for optimization on manifolds." *Advances in Neural Information Processing Systems*, 31:3578–3588, 2018. arXiv: 1810.11155. Accepted as poster.

M. M. Zhang, H. Lam, and L. Lin. "Robust and parallel Bayesian model selection." *Computational Statistics and Data Analysis*, 127:229 –247, 2018. ISSN: 0167-9473. arXiv: 1610.06194.

Z. I. Phillips, **M. M. Zhang**, and U. G. Müller. "Dispersal of *Attaphila fungicola* (Blattodea: Ectobiidae), a symbiotic cockroach of leafcutter ants (Hymenoptera: Formicidae)." *Insectes Sociaux*, 64(2):277–284, 2017. ISSN: 1420-9098.

M. M. Zhang, A. Dubey, and S. A. Williamson. "Parallel Markov chain Monte Carlo for the Indian buffet process." 2015. arXiv: 1703.03457. "Bayesian Nonparametrics: The Next Generation" workshop paper.

Papers In Review

Y. Li[◇], Z. Lin, F. Yin, and **M. M. Zhang**. "Preventing model collapse in Gaussian process latent variable models." 2024. In review.

F. Fazeli-Asl[‡] and **M. M. Zhang**. "A Bayesian non-parametric approach to generative models: Integrating variational autoencoder and generative adversarial networks using Wasserstein and maximum mean discrepancy." 2023. arXiv: 2308.14048. In review.

F. Fazeli-Asl[‡], **M. M. Zhang**, and L. Lin. "A semi-Bayesian nonparametric estimator of the maximum mean discrepancy measure: Applications in goodness-of-fit testing and generative adversarial networks." 2023. arXiv: 2303.02637. In review.

Y. Li[◇], Z. Lin, K. Li, and **M. M. Zhang**. "Online/offline learning to enable robust beamforming: Limited feedback meets deep generative models." 2023. In review.

T. Sha[†] and **M. M. Zhang**. "Online student-t processes with an overall-local scale structure for modelling non-stationary data." 2023. arXiv: 2311.00564. In review.

M. M. Zhang, G. W. Gundersen, and B. E. Engelhardt. "Bayesian non-linear latent variable modeling via random Fourier features." 2023. arXiv: 2306.08352. Joint first author. In review, revise and resubmit.

M. M. Zhang. "Sparse infinite random feature latent variable modeling." 2022. arXiv: 2205.09909. In review.

[†] denotes an undergraduate student co-author. [◇] denotes a PhD student co-author. [‡] denotes a post-doctoral researcher co-author.

Funding

2021–*current* | **Massively Scalable Computation for Artificial Intelligence.**
Seed Fund for Basic Research for New Staff #104006118, University of Hong Kong. HKD $150,000.

Post-doctoral Supervision

2022–2024 | **Forough FAZELI-ASL**.
Placement: Post-doctoral Researcher at the University of Alberta.

Doctoral Supervision

2024–*current* | **YANG Zi**.
2022–*current* | **DUAN Xiuwen**. "Sparse Data Imputation with Latent Variable Models". *Co-Advisor: Eddy K.F. LAM.*
2022–*current* | **LI Ying**. "Variational Random Feature Latent Variable Models". *Co-Advisor: YIN Guosheng.*

Doctoral Thesis Examiner

2021 | **YANG Zebin**. "Intrinsically Interpretable Machine Learning Models and Automated Hyperparameter Optimization".

Masters Thesis Examiner

2023 | **WANG Wenliang**. "Two-dimensional Calibration-free Odds (2dCFO) Design for Phase I Drug-combination Trials".

Presentations and Posters

Bayesian Non-linear Latent Variable Modeling via Random Fourier Features.

Jul. 2024 | Invited talk at the 2024 Joint Statistical Meeting.
Jul. 2024 | Invited talk at the 2024 ISBA World Meeting.
Jan. 2024 | Invited talk at the Institute for Mathematical Statistics – Asia-Pacific Rim Meeting.
Dec. 2023 | Invited talk at the Bayesian Nonparametrics Networking Workshop, ISBA.

Latent Variable Modeling with Random Features.

Jun. 2023 | Invited talk at the Swiss Data Science Center, ETH Zürich.
Jun. 2023 | Invited talk at the Signal Processing Group, Charles III University of Madrid.
Jun. 2023 | Invited talk at the Department of Data Science, EURECOM.
Mar. 2023 | Invited talk at the Department of Statistics and Applied Probability, University of California, Santa Barbara.
Jan. 2023 | Invited talk at the Approximate Bayesian Inference Team, RIKEN AIP.
Jan. 2023 | Invited talk at the Institute of Statistical Mathematics.
Nov. 2022 | Invited talk at the Department of Statistics, Pontificia Universidad Católica de Chile.
Sep. 2022 | Invited talk at the Department of Statistics and Data Science, University of Texas at Austin.
Apr. 2021 | Poster at the 24th International Conference on Artificial Intelligence and Statistics.

Scalable Inference for Bayesian Non-parametrics.

Oct. 2022 | Contributed talk at the 13th Conference on Bayesian Nonparametrics, ISBA.
May 2021 | Invited talk at the Workshop for HKU-TCL Joint Research Center for AI.
Sep. 2020 | Poster at the 23rd International Conference on Artificial Intelligence and Statistics.
Mar. 2020 | Invited talk at the Department of Statistics, National Cheng Kung University.
Mar. 2020 | Invited talk at the Institute of Statistical Science, Academica Sinica.
Feb. 2020 | Invited talk at the Department of Industrial Engineering and Data Analytics, Hong Kong University of Science and Technology.

Embarrassingly Parallel Inference for Gaussian Processes.

Jun. 2021 | Contributed talk at the 2021 ISBA World Meeting.
Jan. 2020 | Contributed talk at the 2020 Bayes Comp Meeting, ISBA.
Jul. 2019 | Contributed talk at the 2019 Joint Statistical Meetings.
Oct. 2017 | Invited talk at the Department of Statistics and Data Sciences, University of Texas at Austin.
Jun. 2017 | Contributed talk at 11th Conference on Bayesian Nonparametrics, ISBA.

Teaching

Spring 2023-24 | **STAT4904 Statistical Learning for Risk Modeling.** University of Hong Kong.
Fall 2022-23 | **STAT4710 Senior Capstone Project.** University of Hong Kong.
Spring 2021-24 | **STAT4609 Big Data Analytics.** University of Hong Kong.
Summer 2019 | **Intro to Python and NLP.** Princeton AI4ALL.

Honors and Awards

2023	**Travel Award**. Bayesian Nonparametrics Networking Workshop 2023, ISBA.
2020	**Travel Award**. Bayes Comp 2020, ISBA.
2019	**Travel Award**. The 12th Conference on Bayesian Nonparametrics, ISBA.
2018	**Travel Award**. The 32nd Annual Conference on Neural Information Processing Systems.
2017	**Travel Award**. The 11th Conference on Bayesian Nonparametrics, ISBA.
2015	**Bonus Fellowship for Continuing Students**. The University of Texas at Austin.

Academic Service

2022–*current*	**Associate Director**. Master of A.I. Program, University of Hong Kong.
2020–*current*	**Editorial Board of Reviewers**. Journal of Machine Learning Research.

Professional Positions

2016	**Summer Research Intern**. Wireless Research for the Internet of Things, Nokia Bell Labs. *Supervisors: Fernando Pérez-Cruz, Howard Huang.*
2013–2014	**Analyst**. Rule14 LLC.

Personal Information and Skills

Technical	Python, Matlab, R.
Citizenship	United States.

References

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