Michael Minyi Zhang
Curriculum Vitae

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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

Y. Li⋄, Z. Lin, F. Yin, and **M. M. Zhang**. "Preventing model collapse in Gaussian process latent variable models." 2024. arXiv: 2404.01697. To appear in the International Conference on Machine Learning.

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⋄, 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

X. Duan$^\diamond$ and **M. M. Zhang**. "Sparse data imputation with Bayesian non-linear factor analysis." 2024. In submission.

F. Fazeli-Asl‡ and **M. M. Zhang**. "A deep Bayesian nonparametric estimator of mutual information." 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$^\diamond$, Z. Lin, K. Li, and **M. M. Zhang**. "Online/offline learning to enable robust beamforming: Limited feedback meets deep generative models." 2023. arXiv: 2404.06055. In review, revise and resubmit.

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. $^\diamond$ denotes a PhD student co-author. ‡ denotes a post-doctoral researcher co-author.

Funding

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

	A Semi-Bayesian Nonparametric Estimator of the Maximum Mean Discrepancy Measure.
Aug. 2024	Contributed talk at the Bayesian Nonparametrics Networking Workshop, ISBA.
Aug. 2024	Invited talk at the Bernoulli-IMS 11th World Congress.
	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.
May 2024	Invited talk at the Department of Mathematics, University of Maryland, College Park.
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

Fall 2024	**STAT2604 Introduction to R/Python Programming.** University of Hong Kong.
Spring 2021-24	**STAT4609 Big Data Analytics.** University of Hong Kong.
Spring 2023-24	**STAT4904 Statistical Learning for Risk Modeling.** University of Hong Kong.
Fall 2022-23	**STAT4710 Senior Capstone Project.** 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

2024–*current*	**Associate Editor**. Statistics & Computing.
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.