Michael Minyi Zhang
Curriculum Vitae

Department of Statistics and Actuarial Science
University of Hong Kong
Room 224, Run Run Shaw Building
Pok Fu Lam, Hong Kong

Last updated: December 6, 2023
mzhang18@hku.hk
michaelzhang01.github.io

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 and Pre-prints

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[◇], L. Cheng, F. Yin, **M. M. Zhang**, and Z.-Q. Luo. Multi-cell robust beamforming based on the meta conditional variational auto-encoder. 2023. In preparation.

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. Accepted for oral presentation.

Y. Li[◇], Y. Jia, Y. Zeng, **M. M. Zhang**, and L. Cheng. Analytical stochastic weighted minimum mean square error. 2023. 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, 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. arxiv:1905.10003.

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.

Y. Li[◇] and **M. M. Zhang**. Auto-encoding random feature latent variable modeling. 2022. In review.

Y. Li[◇], Y. Zeng, Y. Jia, J. Wang, L. Kong, Z. Huang, L. Cheng, **M. M. Zhang**, and J. Xiao. Non-parametric Bayesian based channel state information clustering. 2022. In review.

L. Lin, B. Saparbayeva, **M. M. Zhang**, and D. B. Dunson. Accelerated algorithms for convex and non-convex optimization on manifolds. 2022. arxiv:2010.08908. In review, revise and resubmit.

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

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. 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.

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. 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.

B. Saparbayeva, **M. M. Zhang**, and L. Lin. Communication efficient parallel algorithms for optimization on manifolds. *Advances in Neural Information Processing Systems 31*, pages 3578–3588, 2018. 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.

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.

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

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

Presentations and Posters

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 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 2021 ISBA World Meeting.
Jan. 2020 Contributed talk at 2020 Bayes Comp, ISBA.
Jul. 2019 Contributed talk at 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.

A New Class of Time-dependent Latent Factor Models with Applications.

Jun. 2019 Contributed talk at 12th Conference on Bayesian Nonparametrics, ISBA.

Communication Efficient Parallel Algorithms for Optimization on Manifolds.

Dec. 2018 Poster at 32nd Conference on Neural Information Processing Systems.

Parallel MCMC Recombination for Big Data Analysis.

Apr. 2018 Invited talk at the Department of Applied and Computational Mathematics and Statistics, Notre Dame University.

Robust and Parallel Bayesian Model Selection.

Aug. 2016 Poster at Boston University/Keio University Workshop in Probability and Statistics.

Parallel Markov Chain Monte Carlo for the Indian Buffet Process.

Dec. 2015 Contributed talk and poster at "Bayesian Nonparametrics: The Next Generation" workshop at NeurIPS.

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–*current* **Forough FAZELI-ASL**.

Doctoral Supervision

2022–*current* | **DUAN Xiuwen**. "Sparse Data Imputation with Latent Variable Models". *Co-Advisor: Eddy K.F. LAM.*
2022–*current* | **LI Ying**. *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".

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

Sinead Williamson
Associate Professor
Department of Statistics and Data Science
The University of Texas at Austin
sinead.williamson@mccombs.utexas.edu

Barbara Engelhardt
Professor
Department of Biomedical Data Science
Stanford University
bengelhardt@stanford.edu

Lizhen Lin
Professor
Department of Mathematics
University of Maryland
lizhen01@umd.edu