Qingping Zhou

Lecturer
Central South University

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Education

2015-2019 Shanghai Jiao Tong University, Shanghai, China
PhD in Mathematics (Supervisors: Jinglai Li and Xiaoqun Zhang)
Thesis: "Bayesian inference and Uncertainty Quantification for Medical Image Reconstruction"

2012-2015 Lanzhou University, Gansu, China
MSc in Probability and Mathematical Statistics (Supervisor: Jianzhou Wang)

2008-2012 Lanzhou University, Gansu, China
BSc in Mathematics and Applied Mathmatics

Research Interests

New computational methods for uncertainty quantification and scientific computing:

- Research: Bayesian inference, uncertainty quantification, inverse problems
- Applications: medical imaging, bioinformatics

Research Experience

Central South University

Lecturer, School of Mathematics and Statistics *07/2019–Present*

Meituan

Machine Learning Researcher *07/2019–05/2020*

Grants

Principle Investigator

01/2022–12/2024 Bayesian Inference and Uncertainty Quantification for Medical Image Reconstruction with Deep Generative Prior, National Natural Science Foundation of China (No. 12101614)

01/2021–12/2023 Deep Bayesian inverse problems, Natural Science Foundation of Hunan (No. 2021JJ40715)

Co-investigator

01/2024–12/2027 Trustworthy regression models under complex uncertainty, National Natural Science Foundation of China (No. 62376289)

Professional Services

Reviewers Journal of Computational and Applied Mathematics, Statistics and Computing

IEEE Transactions on Signal Processing

Teaching Experience

Central South University, Principal Lecturer

Advanced Mathematical Statistics *Fall 2023–Present*

Nonparametric statistics *Fall 2020–Present*

Shanghai Jiao Tong University, Teaching Assistant

Probability and Mathematical Statistics *2017–2019*

Selected Publications

- A MCMC Method Based on Surrogate Model and Gaussian Process Parameterization for Infinite Bayesian PDE Inversion, Zheng Hu, Hongqiao Wang, and Qingping Zhou, *Journal of Computational Physics*, 2024.

- Deep unrolling networks with recurrent momentum acceleration for nonlinear inverse problems, Qingping Zhou, Jiayu Qian, Junqi Tang, and Jinglai Li, *Inverse Problems*, 2024.

- Bayesian imaging inverse problem with SA-Roundtrip prior via HMC-pCN sampler, Guixian Xu, Huihui Wang, and Qingping Zhou, *Journal of Scientific Computing*, 2024.

- Enhancing electrical impedance tomography reconstruction using learned half-quadratic splitting networks with Anderson acceleration, Jiayu Qian, Yuanyuan Liu, Jingya Yang, Qingping Zhou, *Computational Statistics & Data Analysis*, 2024.

- A comparative study of variational autoencoders, normalizing flows, and score-based diffusion models for electrical impedance tomography, Huihui Wang, Guixian Xu, Qingping Zhou, *Journal of Inverse and Ill-posed Problems*, 2024.

- An Uncertainty-Guided Deep Learning Method Facilitates Rapid Screening of CYP3A4 Inhibitors, Ruixuan Wang , Zhikang Liu , Jiahao Gong , Qingping Zhou, Xiaoqing Guan , and Guangbo Ge, *Journal of Chemical Information and Modeling*, 2023.

- Nonlocal TV-Gaussian prior for Bayesian inverse problems with applications to limited CT reconstruction, Didi Lv, Qingping Zhou, Jae Kyu Choi, Jinglai Li, and Xiaoqun Zhang, *Inverse Problems & Imaging*, 2020.

- Bayesian Inference and Uncertainty Quantification for Medical Image Reconstruction with Poisson Data, Qingping Zhou, Tengchao Yu, Xiaoqun Zhang, and Jinglai Li, *SIAM Journal on Imaging Sciences*, 2020.

- An approximate empirical Bayesian method for large-scale linear-Gaussian inverse problems, Qingping Zhou, Wenqing Liu, Jinglai Li, and Youssef M Marzouk, *Inverse Problems*, 2018.

- A Hybrid Adaptive MCMC Algorithm in Function Spaces, Qingping Zhou, Zixi Hu , Zhewei Yao , and Jinglai Li, *SIAM/ASA Journal on Uncertainty Quantification*, 2017.

- A hybrid model for $\mathrm{PM}_{2.5}$ forecasting based on ensemble empirical mode decomposition and a general regression neural network, Qingping Zhou, Haiyan Jiang, Jianzhou Wang, Jianling Zhou, *Science of the Total Environment* , 2014.