Shuigen Liu

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Education

2021 – Present	PH.D. IN MATHEMATICS, National University of Singapore
	Advisors: Prof. Xin T. Tong and Prof. Weizhu Bao
2017 – 2021	B.S. IN MATHEMATICS, Peking University

Research Interests

Uncertainty quantification, dimension reduction, data assimilation, sampling, localization method.

Publications

[5] Localized diffusion models for high dimensional distributions generation
with Georg A. Gottwald, Youssef Marzouk, Sebastian Reich, and Xin T. Tong, arXiv:2505.04417 (2025).

[4] Stein's method for marginals on large graphical models
with Tiangan Cui, and Xin T. Tong, arXiv:2410.11771 (2025).

[3] Estimate of Koopman modes and eigenvalues with Kalman filter
with Ningxin Liu, Xin T. Tong, and Lijian Jiang, arXiv:2410.02815 (2024).

[2] Local MALA-within-Gibbs for Bayesian image deblurring with total variation prior
with Rafael Flock, Yiqiu Dong, and Xin T. Tong, to appear in SIAM J. Sci. Comput. (2025).

[1] Dropout ensemble Kalman inversion for high dimensional inverse problems
with Sebastian Reich and Xin T. Tong, *SIAM J. Numer. Anal.*, 63 (2025), pp. 685–715.

Teaching

National University of Singapore

TA	Finite Element Method, Spring 2025
TA	Essential Data Analytics Tools: Numerical Computation, Spring 2024
TA	Calculus for Computing, Spring 2023 and Fall 2023

Honors and Awards

2024	Faculty of Science PhD Conference Award, National University of Singapore
	Overseas Research Immersion Award, National University of Singapore
2021	President's Graduate Fellowship, National University of Singapore
	Outstanding Undergraduate, Peking University

Conferences

June 2025	MATRIX Research Program: Bayesian Learning of Very High-Dimensional Physical Process Models.
May 2025	14th Symposium of SIAM Student Chapter at NUS, National University of Singapore, Singapore.

May 2025	2025 STU-NUS PhD Forum, Shanghai Jiao Tong University, Shanghai, China.
Oct 2024	FDS Conference: Recent Advances and Future Directions for Sampling, Yale University, New Haven, U.S..
Feb 2024	2024 SIAM Conference on Uncertainty Quantification (UQ24), Trieste, Italy.
Aug 2023	2023 International Congress on Industrial and Applied Mathematics (ICIAM 2023), Waseda University, Tokyo, Japan.
Jun 2023	Foundations of Computational Mathematics 2023 Conference (FoCM 2023), Sorbonne University, Paris, France.
Jul 2022	2022 International Conference on Scientific Computation and Differential Equations (SciCADE 2022), University of Iceland, Reykjavík, Iceland.

Service

Reviewer for: SIAM/ASA Journal on Uncertainty Quantification, Journal of Machine Learning Research, Statistics and Computing.