Yuan Chen

Contact Information

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Education

Expected 2026	**The Ohio State University** Ph.D. in Mathematics, **Advisor**: Prof. Dongbin Xiu
June 2021	**The George Washington University** M.S. in Statistics, **GPA**: 4.0/4.0
June 2019	**Hohai University** B.E. in Environmental Science, **GPA Rank**: $1^{\text{st}}/82$

Research Interests

- Data-driven modeling of stochastic dynamics
- Generative models and applications in scientific computing
- Design and analysis of Finite Element Method and discontinuous Galerkin Method

Publications

Preprints

16. **Y. Chen**, W. Mao, and D. Xiu. Effective Modeling of Stochastic Chemical Reaction Network., (**2025+**), *submitted.*

15. **Y. Chen**, and X. Zhang. A High-Order Immersed C^0 Interior Penalty Method for Biharmonic Interface Problems., (**2025+**), *submitted.*

14. **Y. Chen**, and D. Xiu. Modeling Unknown Stochastic Dynamical System Subject to External Excitation., (**2025+**), *submitted.*

Refereed Journal Publications

13. Y. Liu, **Y. Chen**, D. Xiu, and G. Zhang. A Training-Free Conditional Diffusion Model for Learning Stochastic Dynamical Systems., *SIAM Journal on Scientific Computing*, (**2025**), in press.

12. **Y. Chen**, D. Xiu and X. Zhang. On Enforcing Non-negativity in Polynomial Approximations in High Dimensions., *SIAM Journal on Scientific Computing*, 47(**2025**), A866-A888.

11. Z. Xu, **Y. Chen**, and D. Xiu. Chebyshev Feature Neural Network for Accurate Function Approximation., *Journal of Machine Learning for Modeling and Computing*, 5(**2025**), 1-14.

10. **Y. Chen**, and Y. Xing. Optimal Error Estimates of Ultra-weak Discontinuous Galerkin Methods with Generalized Numerical Fluxes for Multi-dimensional Convection-Diffusion and Biharmonic Equations., *Mathematics of Computation*, 93(**2024**), 2135-2183.

9. Z. Xu, **Y. Chen**, Q. Chen and D. Xiu. Modeling Unknown Stochastic Dynamical System via Autoencoder., *Journal of Machine Learning for Modeling and Computing*, 5(**2024**), 87-112.

8. **Y. Chen**, and D. Xiu. Data-driven Effective Modeling of Multiscale Stochastic Dynamical Systems., *Applied Mathematics for Modern Challenges*, 2(**2024**), 348-364.

7. **Y. Chen**, and D. Xiu. Learning Stochastic Dynamical System via Flow Map Operator., *Journal of Computational Physics*, 508(**2024**), 112984.

6. **Y. Chen**, and X. Zhang. Solving Navier-Stokes Interface Problems with Fixed/Moving Interfaces on Unfitted Meshes, *Journal of Scientific Computing*, 98(**2024**), 19.

5. V. Churchill, **Y. Chen**, Z. Xu, and D. Xiu. DNN Modeling of Partial Differential Equations with Incomplete Data, *Journal of Computational Physics*, 493(**2023**), 112502.

4. **Y. Chen**, S. Hou, and X. Zhang. Semi and Fully Discrete Analysis for An Immersed Finite Element Method for Elastodynamic Interface Problems, *Computers and Mathematics with Applications*, 147(**2023**), 92-110.

3. **Y. Chen** and X. Zhang. A $\mathcal{P}_2$-$\mathcal{P}_1$ Partially Penalized Immersed Finite Element Method for Stokes Interface Problems, *International Journal of Numerical Analysis and Modeling*, 18(**2021**), no. 1, 120-141.

2. **Y. Chen**, S. Hou, and X. Zhang. A Bilinear Partially Penalized Immersed Finite Element Method for Elliptic Interface Problems with Multi-domains and Triple Junction Points, *Results in Applied Mathematics*, 8(**2020**), 100100.

1. **Y. Chen**, S. Hou, and X. Zhang. An Immersed Finite Element Method for Elliptic Interface Problems with Multi-domain and Triple Junction Points, *Advances in Applied Mathematics and Mechanics*, 11(**2019**), no. 5, 1005-1021.

Conferences and Seminars

- 18th U. S. National Congress on Computational Mechanics, Chicago, July 2025
- 2025 SIAM Conference on Computational Science and Engineering, Fort Worth, March 2025
- 2024 SIAM Conference on Mathematics of Data Science, Atlanta, October 2024
- The 9th Annual Meeting of SIAM Central States Section, University of Missouri - Kansas City, October 2024
- 2024 SIAM Conference on Imaging Science, Atlanta, May 2024
- Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference 2024, Chicago, May 2024
- 2024 SIAM Conference on Uncertainty Quantification, Trieste, Italy, Feb 2024
- The 8th Annual Meeting of SIAM Central States Section, University of Nebraska Lincoln, October 2023
- 17th U. S. National Congress on Computational Mechanics, Albuquerque, Jul 2023
- The 7th Annual Meeting of SIAM Central States Section, Oklahoma State University, October 2022
- 2022 SIAM Annual Meeting, Pittsburgh, July 2022

- The 6th Annual Meeting of SIAM Central States Section, University of Kansas, October 2021

Teaching Experiences

Ohio State University

Spring 2023	Recitation	MATH 1151 (Calculus I)
Fall 2022	Recitation	MATH 1151 (Calculus I)

George Washington University

Fall 2020	Recitation	MATH 1051 (Finite Math for the Social and Management Sciences)

Professional Services

Seminar Series Organization

- OSU Student Computational Mathematics Seminar, 2022-present

Referee Services

- Reviewer for Applied Numerical Mathematics
- Reviewer for Communications in Computational Physics
- Reviewer for International Journal of Numerical Analysis and Modeling
- Reviewer for Journal of Computational Physics
- Reviewer for Journal of Scientific Computing
- Reviewer for Physica D: Nonlinear Phenomena

Scholarships & Certificates

- SIAM Travel Award   2022-2024
- OSU Distinguished University Fellowship   2021
- GWU Award of Graduate Assistantship   2020

Skills

MATLAB, Python (PyTorch, TensorFlow)