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**: $1^{st}/82$

Research Interests

- Data-driven modeling of systems driven by (stochastic) differential equations
- Numerical simulation of stochastic differential equations and rare events
- Finite Element Method, discontinuous Galerkin Method, Virtual Element Method
- Interface problems and coupling mathematical models arising from applications

Publications

11. **Y. Chen**, D. Xiu and X. Zhang. On Enforcing Non-negativity in Polynomial Approximations in High Dimensions., (**2024**+), *submitted*.
10. Z. Xu, **Y. Chen**, Q. Chen and D. Xiu. Modeling Unknown Stochastic Dynamical System via Autoencoder., (**2024**+), *submitted*.
9. **Y. Chen**, and X. Zhang. A High-Order Immersed C^0 Interior Penalty Method for Biharmonic Interface Problems., (**2024**+), *preprint*.
8. **Y. Chen**, and D. Xiu. Learning Stochastic Dynamical System via Flow Map Operator., *Journal of Computational Physics*, 508(**2024**), 112984.
7. **Y. Chen**, and X. Zhang. Solving Navier-Stokes Interface Problems with Fixed/Moving Interfaces on Unfitted Meshes, *Journal of Scientific Computing*, 98(**2024**), 19.
6. **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*, (**2024**+), to appear.
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. emi 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

- 2024 SIAM Conference on Mathematics of Data Science, Atlanta, 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
- University of California San Diego CCoM Seminar, University of California San Diego, May 2023
- Oklahoma State University Numerical Analysis Seminar, Oklahoma State University, October 2022
- 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 Organized

- OSU Student Computational Mathematics Seminar, 2022-present (co-organized with Qifan Chen)

Referee Services

- Reviewer for Applied Numerical Mathematics
- Reviewer for BMC Public Health
- Reviewer for International Journal of Numerical Analysis and Modeling

- Reviewer for Journal of Computational Physics
- Reviewer for Journal of Scientific Computing

Scholarships & Certificates

- SIAM Travel Award 2022-2023
- OSU Distinguished University Fellowship 2021
- GWU Award of Graduate Assistantship 2020

Skills

Programming	C/C++, Python, R, MySQL, LaTeX, VB, Matlab
Vectorization	Python(NumPy), Matlab
Data Analysis	Python (pandas, matplotlib, geopy), R (ggplot, dplyr, tidyr), Qgis, Echarts, D_3, sas
Sci. Computing	Python (NumPy, SciPy, SymPy, multiprocessing), Matlab, Mathematica
Deep Learning	Python (Numpy, PyTorch, TensorFlow)