Yixuan Wang (Roy)

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Applied and Comput. Math., Caltech, Pasadena, CA 91125

EDUCATION BACKGROUND

Peking University	
B.S., School of Mathematics, Peking University, Beijing, China	2016—2020
Elite Undergraduate Training Program in Applied Math and in Pure Math, Excellent Graduate	
Overall GPA: 3.84 /4, Rank: 7/200, Major GPA: 3.91 /4, GRE (166+170+4.5), IOEFL (112)	
Graduation Date: 2020.07 Summa Cum Laude in Beijing	
Summer Intern at Caltech on multiscale problems, supervised by Prof. Thomas Hou	2019
California Institute of Technology	
Graduate Student, Applied + Computational Mathematics, supervised by Prof. Thomas Hou	2020—
Department of Computing + Mathematical Sciences, Caltech, Pasadena, California	
PROFESSIONAL EXPERIENCE	
Janestreet	

Quant Trader Intern, Hong Kong

2020.6-2020.9

PUBLICATIONS

- R. Li, Y. Wang and Y. Wang. Approximation to Singular Quadratic Collision Model in Fokker-Planck-Landau Equation, SIAM Journal on Scientific Computing, 42(3), 2020, pp. B792-B815.
- Y. Chen, T.Y. Hou and **Y. Wang**. Exponential Convergence for Multiscale Linear Elliptic PDEs via Adaptive Edge Basis Functions, Multiscale Modeling and Simulation, 19(2), 2021, pp. 980–1010.
- Z. Liu, S. Qian, **Y. Wang**, Y. Yan and T Yang. Schrödinger Principal-component Analysis: On the Duality between Principal-component Analysis and the Schrödinger Equation, Physics Review E, 104(2), 2021, 025307.
- Y. Chen, T.Y. Hou and Y. Wang. Exponentially Convergent Multiscale Methods for 2D High Frequency Heterogeneous Helmholtz Equations, Multiscale Modeling and Simulation, 21(3), 2023, pp. 849–883.
- Z. Liu, A. Stuart and Y. Wang. (2022) Second Order Ensemble Langevin Method for Sampling and Inverse Problems.
- H. Maust, Z. Li, Y. Wang, D. Leibovici, O. Bruno, T.Y. Hou and A. Anandkumar. Fourier Continuation for Exact Derivative Computation in Physics-Informed Neural Operators, NeurIPS 2022, 3rd AI for Science workshop.
- Y. Chen, T.Y. Hou and Y. Wang. Exponentially Convergent Multiscale Finite Element Method, Communications on Applied Mathematics and Computation, 6(2), 2024, 862-878.
- T.Y. Hou and Y. Wang. Blowup Analysis for a Quasi-exact 1D Model of 3D Euler and Navier-Stokes, Nonlinearity, 37(3), 2024, 035001.
- T.Y. Hou, V.T. Nguyen and Y. Wang. (2024) L^2-based Stability of Blowup with Log Correction for Semilinear Heat Equation.
- Z. Liu, Y. Wang, S. Vaidya, F. Ruehle, J. Halverson, M. Soljacic, T.Y. Hou and M. Tegmark. (2024) KAN: Kolmogorov-Arnold Networks.
- J. Chen, T.Y. Hou, V.T. Nguyen and Y. Wang. (2024) On the stability of blowup solutions to the complex Ginzburg-Landau equation in R^d.
- Z. Liu, P. Ma, Y. Wang, W. Matusik and M. Tegmark. (2024) KAN 2.0: Kolmogorov-Arnold Networks Meet Science.

INVITED TALKS

- Model reduction for FPL equation, Forum of elite Ph. D. program, Peking University, Nov. 2018
- Hermite spectral method for kinetic equations, CSAIM's students' forum, Tsinghua University, Dec. 2018
- Oversampling edge basis for Helmholtz equations, CSAIM's annual meeting, Foshan, Sep. 2019
- Multiscale basis for Helmholtz equation, Workshop on Complex Fluids, CSRC, Nov. 2019
- Exponential convergence for Helmholtz equations, ACM lunch seminar, Peking University, May. 2021
- Ensemble Hamiltonian Monte Carlo, EnKF workshop, Balestrand, Norway, May. 2022

- ExpMsFEM, Numerical Analysis seminar, University of Hong Kong, Sep. 2022
- Blowup for a quasi-exact 1D model of 3D Euler, Workshop on Fluids, Duke University, May. 2023
- ExpMsFEM, Minisymposium on rough PDEs, ICIAM at Waseda University, Tokyo, Japan, Aug. 2023
- ExpMsFEM, Siam Chapter, Ohio State University, Nov. 2023
- KAN, Math seminar, National University of Singapore, Aug. 2024
- Stable type-I blowup by local normalization conditions: NLH and CGL, Math seminar, NUS, Aug. 2024
- KAN, Machine learning seminar, Peking University, Sep. 2024
- Stable type-I blowup by local normalization conditions: NLH and CGL, Math seminar, PKU, Sep. 2024

MATHEMATICAL ENGAGEMENT

- Founding President of the SIAM Student Chapter at Caltech
- Member of DEI committee at Caltech

TEACHING EXPERIENCE

- ACM 106a (Numerical linear algebra) 22/23/24 Fall
- ACM 107a (Linear analysis) 21 Fall
- ACM 127 (Calculus of variations) 22 Spring
- ACM 180a (Multiscale modeling) 23 Spring
- ACM 270 (Machine learning for inverse problems and data assimilation) 24 Spring

AWARDS AND HONORS

- Silver Award at 56th International Mathematical Olympiad, 2016
- All Three 2nd Places in Analysis, Applied Math, and Overall Individual Competitions, S.-T. Yau College Mathematics Contests, 2019
- 1st Place in Team Competition, S.-T. Yau College Mathematics Contests, 2019
- 1st Prize in National University Math Competition, 2017
- 1st Prize in National University Math Modeling Competition, 2017
- 1st Place in Citadel Datathon, China, 2018
- National Scholarship, 2018, 2019
- Representative of PKU for National Scholarship, 2019
- PKU Person of the Year, 2019
- PKU May 4th-Award, 2020

2021-2023

ACM 106b (Numerical analysis) 23/24 Winter

- ACM 107b (Real and functional analysis) 22 Winter