JINGCHENG LU

School of Mathematics, University of Minnesota

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EDUCATION

Ph.D. in Applied Mathematics   *May 2023*
Department of Mathematics, University of Maryland, College Park
Advisor: Eitan Tadmor

M.Sc. in Aerospace Engineering   *August 2022*
Department of Aerospace Engineering, University of Maryland, College Park
Advisor: James D.Baeder

B.Sc. in Mathematics   *June 2017*
Shiing-Shen Chern's Class, School of Mathematical Science
Nankai University, Tianjin, China

Xiamen NO.1 Middle School, Fujian, China   *August 2007 - June 2013*

AFFILIATION

University of Minnesota, Twin Cities
Postdoctoral Associate, School of Mathematics   *August 2023 - present*
Mentor: Jeff Calder
Co-Mentor: Li Wang

AREAS OF INTERESTS

Numerical Methods for Partial Differential Equations, Self-Organized Dynamics, Numerical Optimization, Multiscale Modeling, Optimal Control

PUBLICATIONS

- Jingcheng Lu, Li Wang, Jeff Calder, *Dynamical feedback control with operator learning for the Vlasov-Poisson system*, preprint.

- Jingcheng Lu, Li Wang, Jeff Calder, *Controlling instability in the Vlasov-Poisson system through moment-based optimization*, preprint.

- Jingcheng Lu, Kunlun Qi, Li Wang, Jeff Calder, *Continuous data assimilation for hydrodynamics: consistent discretization and application to moment recovery*, Journal of Computational Physics, page 114199, 2025.

- Jingcheng Lu, Jeff Calder, *Attraction-Repulsion Swarming: A Generalized Framework of t-SNE via Force Normalization and Tunable Interactions*, Philosophical Transactions of the Royal Society A, 383(2298):20240234, 2025.

- Jingcheng Lu, Eitan Tadmor, Anil Zenginoglu, *Swarm-Based Gradient Descent Method for Non-Convex Optimization*, Communications of the American Mathematical Society, 2024, 4(17): 787-822.

- Jingcheng Lu, Eitan Tadmor *Revisiting High-Resolution Schemes with van-Albada Slope Limiter*, Communications on Applied Mathematics and Computation (2024): 1-30.

- Jingcheng Lu, Eitan Tadmor, *Hydrodynamic Alignment with Pressure II. Multi-species*, Quarterly of Applied Mathematics, 81(2):259279, 2023.

- Jingcheng Lu, James D.Baeder, *The High Resolution L-DIRK3 Scheme for Conservation Laws*, AIAA SCITECH 2022 Forum, 2022, p. 1075.

SEMINARS AND TALKS

2025/05	SIAM Conference on Applications of Dynamical Systems, Denver, CO
2024/05	Conference on Nonlocal Models: Analysis and Applications, University of South Carolina
2023/10	The 8th Annual SIAM Central States Meeting, University of Nebraska
2022/10	RIT on Applied PDE, University of Maryland, College Park
2022/01	2022 AIAA Scitech Forum, San Diego, CA
2021/10	RIT on Applied PDE, University of Maryland, College Park

ACADEMIC SERVICE

Manuscript reviewer for Journal of Computational Physics

HONORS AND AWARDS

2025/03	SIAM Early Career Travel Award, U.S. National Science Foundation.
2021/05	Monroe H. Martin Graduate Research Fellowship. University of Maryland, College Park
2021/05	Outstanding Graduate Assistant Award. Univeristy of Maryland, College Park
2021/05	Aziz Osborn Gold Medal in Teaching Excellence. University of Maryland, College Park
2017/09-2019/08	Dean's Fellowship. University of Maryland, College Park
2016/06	University-Level GongNeng Scholarship. Nankai University
2015/06	University-Level GongNeng Scholarship. Nankai University

TEACHING EXPERIENCE

University of Minnesota

2025/09 - 2025/12	Instructor for MATH2243 Linear Algebra & Differential Equations
2025/05 - 2025/07	Postdoctoral Mentor for REU program (topic: equivariant neural networks)
	Project paper: Equivariant neural networks and equivarification (in preparation)
2024/09 - 2025/05	Instructor for MATH2142 Elementary Linear Algebra
2023/09 - 2024/05	Instructor & course supervisor (Spring 2024) for MATH1272 Calculus II

University of Maryland

2021/02 - 2023/05	Teaching Assistant for MATH120 Elementary Calculus
2020/09 - 2020/12	Teaching Assistant for AMSC666 Numerical Analysis
2018/09 - 2020/05	Teaching Assistant for MATH120 Elementary Calculus
2018/02 - 2018/05	Teaching Assistant for MATH140 Calculus I
2017/09 - 2017/12	Teaching Assistant for MATH141 Calculus II

SKILLS

Matlab, Python, C++, Latex