

Updated Spring 2024

Li, Xingjian

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I am a graduating Ph.D. student majoring in computational mathematics at Emory University. My general field of interest is numerical methods for math and data science problems, my current research involves deep learning, numerical optimization, numerical methods for partial differential equations and high dimensional optimal control problems with applications including generative modeling.

EDUCATION

EMORY UNIVERSITY

expected 2024

Ph.D. candidate in Computational Mathematics

Cumulative GPA: 3.95/4.0

Advisor: Lars Ruthotto

Main Courses: Analysis I&II, Numerical Analysis I&II, Data Assimilation, Numerical Methods for Deep Learning, Numerical Partial Differential Equations, Iterative Methods for Linear Systems. Numerical Optimization, Machine Learning.

Research: Neural Ordinary Differential Equations.

Continuous Normalizing Flows (Generative AI).

Deep Learning based Methods for Solving High-Dimensional PDEs.

Physics Informed Neural Networks.

Deep Learning Methods for Deterministic and Stochastic Optimal Control Problems.

XIAMEN UNIVERSITY

09/2015-06/2019

Bachelor of Science, Major in Information and Computational Science

GPA: 3.74/4.0 (Overall), 3.83/4.0 (Major)

Main Courses: Mathematical Analysis, Advanced Linear Algebra, Abstract Algebra, Computational Method, Numerical Analysis, Numerical Linear Algebra, Ordinary Differential Equations, Partial Differential Equation, Numerical Analysis of Differential Equations, Probability, Stochastic Process, Graph Theory, Operations Research and Optimization, Python and Deep Learning.

Research: Deep Learning Techniques in Finite Element Method and Application in Reservoir Simulation.

STANFORD UNIVERSITY

06/2017-08/2017

Summer Session

GPA: 4.0/4.0 | *Courses:* Convex Optimization, Introduction to Statistical Methods, Data Mining and Analysis.

COMPUTATIONAL SKILLS

Comfortable In PYTHON, PYTORCH, MATLAB, R, SQL ([certificate](#)), MS Office, Linux

Familiar With Julia, C++, FreeFEM++, Tensorflow, FEniCS, Scikit-learn, Git, Cloud Computing

WORK EXPERIENCE

Oak Ridge National Laboratory

05/2021-08/2021

Summer Research Intern

Advisor: Dr. Massimiliano Lupo Pasini

Worked on project "Data driven Anderson acceleration to solve high-dimensional scalar partial differential equations with deep learning" during the internship.

Argonne National Laboratory

05/2022-08/2022

Givens Associate

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Advisor: Dr. Hong Zhang

Worked on project “PNODE based neural DAE solver” during the internship. The project aims to extend PNODE to a more general class of differential algebraic equations.

Department of Math, Emory University

2021-2022

Primary Instructor

MATH111 Calculus I(Fall 2021)

MATH111 Calculus I(Spring 2022)

Department of Math, Emory University

2020-2021

Teaching Assistant

MATH221 Linear Algebra(Fall 2020, Spring 2021)

School of Mathematical Sciences, Xiamen University

2018-2019

Undergraduate Researcher

Advisor: Prof. Chen, Huangxin

Department of Mathematics, HKUST

2018

Undergraduate Researcher

Advisor: Prof. GAN, Jian-Ping

PUBLICATIONS

- D. Onken, S. W. Fung, X. Li, L. Ruthotto. OT-Flow: Fast and Accurate Continuous Normalizing Flows via Optimal Transport. [preprint](#) [Accepted, AAAI 2021]
- D. Onken, L. Nurbekyan, X. Li, S. W. Fung, S. Osher, L. Ruthotto. A Neural Network Approach Applied to Multi-Agent Optimal Control. [preprint](#) [Accepted, European Control Conference 2021]
- D Onken, L Nurbekyan, X Li, S Wu Fung, S Osher, L Ruthotto. A Neural Network Approach for High-Dimensional Optimal Control. [preprint](#) [Accepted, IEEE TCST 2022]
- X Li, D Verma, L Ruthotto, A Neural Network Approach for Stochastic Optimal Control. [preprint](#)

PRESENTATIONS

- Poster: X Li, D Verma, L Ruthotto. “A Neural Network Approach For High-Dim Stochastic Optimal Control” in *SIAM MDS22*. [link](#)

ACTIVITIES

Emory SIAM Chapter Student Organization

Vice President

Fall 2022 - Summer 2023

Treasurer

Fall 2023 -

HONORS

- 2016-2017 Academic Year Scholarship (second class), School of Mathematical Science, Xiamen University **2017**
- Third Prize, Mathematical Contest, the 13th Jing Run Cup Mathematics Competition of Xiamen University **2016**
- Honorable Mention at 2018 Mathematical Contest in Modeling **2018**