

CONTACT

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EDUCATION

2021 - **PhD in Mathematics:** *National University of Singapore, Singapore.*
Supervisor: Qianxiao Li (<https://blog.nus.edu.sg/qianxiaoli>)
2019 - 2020 **MSc in Mathematics:** *National University of Singapore, Singapore.*
2015 - 2019 **BSc in Pure and Applied Mathematics:** *Jilin University, China.*

EXPERIENCE

2020 - 2021 **Research Assistant** | *Department of Mathematics, National University of Singapore*

- Developed and maintained codebase for OnsagerNet using TensorFlow 2, combining model reduction approaches.
- Built predictive models for weather forecasting, compared with baseline models.
- Conducted data analysis on large-scale datasets to evaluate model performance and refine hyperparameters.

PROJECTS

2021-2022 **Learning-Based ODE Solver** | *Python (TensorFlow 2)*

- Developed a machine learning-based ordinary differential equation solver (Runge-Kutta scheme) that outperforms classical methods in accuracy.
- Integrated TensorFlow models to adapt solver parameters based on input data.

2021-2023 **Parametric Koopman Decompositions for Dynamical Systems with Control** | *Python (PyTorch)*

- Implemented Koopman-type decompositions for dynamic systems with static or time-varying parameters.
- Used neural networks to construct invariant subspaces and parametric families of projected Koopman operators.
- Achieved improved predictive accuracy on forward predictions and increased efficiency in solving control problems over baseline models for high-dimensional, non-linear systems.

PUBLICATIONS

- 2025 **Learning Parametric Koopman Decompositions for Prediction and Control.** *SIAM Journal on Applied Dynamical Systems*. <https://doi.org/10.1137/23M1604576>
- 2024 **A Recursively Recurrent Neural Network (R2N2) Architecture for Learning Iterative Algorithms.** *SIAM Journal on Scientific Computing*. <https://doi.org/10.1137/22M1535310>
- 2022 **Personalized Algorithm Generation: A Case Study in Learning ODE Integrators.** *SIAM Journal on Scientific Computing*. <https://doi.org/10.1137/21M1418629>

COMPETITIONS

- 2023 **APAC Datathon Spring 2023** — First Place
Project: Mathematical Modelling for Traffic Police Resource Allocation
- Created data-driven strategies for optimizing police resource allocation, resulting in measurable efficiency improvements.
 - Utilized Python for data cleaning, mathematical modeling, and visualization.

TALKS & PRESENTATIONS

- 2024 The 14th AIMS Conference, co-hosted by the American Institute of Mathematical Sciences (AIMS) and NYU Abu Dhabi (NYUAD), Abu Dhabi, United Arab Emirates.
- 2023 The 13th SIAM Student Chapter Symposium, National University of Singapore, Singapore.
- 2023 SINFRA workshop 2023, hosted by the international IPAL laboratory (CNRS, NUS, A*STAR, Univ Toulouse 3, Toulouse INP, CYU), Toulouse, France.

SKILLS

Programming: Python (NumPy, Pandas, Scikit-learn, PyTorch, TensorFlow 2), Matlab, Git
Techniques: Machine Learning, Deep Learning, Data Analysis, Dynamical Systems
Languages: Mandarin Chinese (native), English (professional)

AWARDS

- 2023 First Place, APAC Datathon Spring 2023.
- 2021-2025 Research Scholarship, National University of Singapore, under National Research Foundation (NRF) Fellowship.

Last updated: Mar 2025