

Yue GUO

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EDUCATION

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

EXPERIENCE

Data Science Intern	<i>Global Decision Science, American Express, Singapore</i>	<i>May - Jul 2025</i>
<ul style="list-style-type: none">Analyzed fraud data and identified patterns using SQL and PySpark. Developed XGBoost models and engineered new features for POS fraud detection on Google Cloud Platform.		
Research Assistant	<i>Department of Mathematics, National University of Singapore, Singapore</i>	<i>2020 - 2021</i>
<ul style="list-style-type: none">Developed and maintained codebase for OnsagerNet using TensorFlow 2, integrating model reduction techniques. Built weather forecasting models and evaluated against baselines.		

PROJECTS

Learning-Based ODE Solver	<i>TensorFlow 2</i>	<i>2021 - 2022</i>
<ul style="list-style-type: none">Developed a machine learning-based ordinary differential equation solver (Runge-Kutta scheme) that outperforms classical methods in accuracy.		
Parametric Koopman Decomposition	<i>TensorFlow 2, PyTorch</i>	<i>2022 - 2024</i>
<ul style="list-style-type: none">Implemented Koopman-type decompositions for dynamic systems with static or time-varying parameters and achieved improvements on forward predictions control problems for high-dimensional, non-linear systems.		

PUBLICATIONS

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

TALKS & PRESENTATIONS

The 14th AIMS Conference	<i>hosted by the American Institute of Mathematical Sciences and NYU Abu Dhabi, Abu Dhabi, United Arab Emirates</i>	<i>Dec 2025</i>
The 13th SIAM Student Chapter Symposium	<i>National University of Singapore, Singapore</i>	<i>May 2024</i>
SINFRA workshop 2023	<i>hosted by the international IPAL laboratory (CNRS, NUS, A*STAR, Univ Toulouse 3, Toulouse INP, CYU), Toulouse, France</i>	<i>Jun 2023</i>

AWARDS

First Place, Citadel APAC Datathon	<i>Mathematical modelling for traffice police resource allocation</i>	<i>Apr 2023</i>
NRF Research Scholarship	<i>National University of Singapore, Singapore</i>	<i>Aug 2021 - Aug 2025</i>

SKILLS

Programming & Tools: Python (PyTorch, TensorFlow 2, PySpark, Pandas, Scikit-learn, etc.), Matlab, SQL, Git, Google Cloud Platform (Cloud Storage, BigQuery), Langchain
Expertise: Deep Learning, Dynamics, Control, LLMs **Languages:** Mandarin (native), English (professional)