Keyan **Miao**

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Education

D.Phil. University of Oxford

Oxford, UK

Department of Engineering Science: Control Group

2021.10 - 2025.10

- Supervised by **Prof. Antonis Papachristodoulou** and **Dr. Konstantinos Gatsis**
- Funded by EPSRC DTP& Univeristy of Oxford (Oxford-Ashton Memorial Graduate Scholarship)
- Visiting researcher at ETH Zurich, Switerland (2025.02 - 2025.07): hosted by **Prof. Andreas Krause** at AI center, funded by **NCCR Automation Exchange Fellowship**

M.Sc. Imperial College London

London, UK

Department of Electrical and Electronic Engineering: Control Systems

2019.09 - 2020.09

- Supervised by **Prof. Richard Vinter**
- Overall GPA: 83.02/100 Graduation Project: 84.90/100 Distinction
- Ranking: 1
- Main Courses: Game Theory, Design of Linear Multivariable System, Optimization, System Identification, Discrete-time System and Computer Control

B.Eng. Northwestern Polytechnical University

Xi'an, Shaanxi

Control Engineering

2015.09 - 2019.06

- Overall GPA: 89.8/100 Major GPA: 92.88/100 Graduation Project: 96.8/100
- Ranking: 2
- Main Courses: Automatic Control Theory, Modern Control Theory, Complex Analysis, Linear Algebra, Discrete Mathematics

Publications

[1] Han Wang*, **Keyan Miao***, Diego de S. Madeira, and Antonis Papachristodoulou. Designing neural controllers with optimality and stability guarantees by learning input-output dissipativity. *to be submitted to Automatica*, 2025

[2] **Keyan Miao**, Liqun Zhao, Han Wang, Konstantinos Gatsis, and Antonis Papachristodoulou. Opt-ODENet: Neural ode controller design with differentiable optimization layers for safety and stability. In *Learning for Dynamics and Control Conference (L4DC)*. PMLR, 2025

[3] Liqun Zhao, **Keyan Miao**, Hongpeng Cao, Konstantinos Gatsis, and Antonis Papachristodoulou. Nlbac: A neural ode-based algorithm for state-wise stable and safe reinforcement learning. *Neurocomputing*, 2025

[4] **Keyan Miao** and Konstantinos Gatsis. How deep do we need: Accelerating training and inference of Neural ODEs via control perspective. In *Proceedings of the 41st International Conference on Machine Learning (ICML)*, 2024

[5] **Keyan Miao** and Konstantinos Gatsis. Towards optimal network depths: Control-inspired acceleration of training and inference in Neural ODEs. In *The Symbiosis of Deep Learning and Differential Equations III, Neurips*, 2023

[6] **Keyan Miao** and Konstantinos Gatsis. Learning robust state observers using Neural ODEs. In *Learning for Dynamics and Control Conference (L4DC)*, pages 208–219. PMLR, 2023

[7] **Keyan Miao** and Richard Vinter. Optimal control of a growth/consumption model. *Optimal Control Applications and Methods*, 42(6):1672–1688, 2021

Honors & Awards

2025	**NCCR Automation Fellowship**, NCCR Automation	*Zurich, Switzerland*
2023	**NeurIPs Travel Grant (G-Research November 2023 Grant Winners)**, G-Research	*Oxford, UK*
2021	**Research Studentship & Oxford-Ashton Memorial Graduate Scholarship**, University of Oxford	*Oxford, UK*
2020	**Prize for Outstanding Achievement in the Control Systems Master of Science**, Department of Electrical and Electronic Engineering, Imperial College London	*London, UK*
2020	**Hertha Ayrton Centenary Prize (Best Project)**, Department of Electrical and Electronic Engineering, Imperial College London	*London, UK*
2019	**Outstanding Graduation Thesis**, Northwestern Polytechnical University	*Xi'an, Shaanxi*
2018	**First Prize Scholarship** , Northwestern Polytechnical University	*Xi'an, Shaanxi*
2017	**Provincial Second Prize (String Quintets <Spring>)**, The 5th China Undergraduate Art Exhibition	*Xi'an, Shaanxi*

Work Experience

Department of Engineering, University of Oxford

Oxford, UK

Lab Demonstrator

2023 - 2024

- Served as a lab demonstrator for B15 Lab and control coursework module, guiding undergraduate students through course labs, reports and presentations for controller design and practice.

Advanced Institute of Information Technology, Peking University

Hangzhou, Zhejiang

Research Intern

2021.04 - 2021.07

- Learned the forward and inverse kinematics of manipulators, especially inverse kinematics, including the pieper method, Cyclic Coordinate Descent, Forward and Backward Reach Inverse Kinematics.

Extracurricular Activity

Oxford Women in Computer Science Society

Oxford, UK

Member

2022.09 - now

Hertford College Music Society - Orchestra

Oxford, UK

Member / Violinist

2022.09 - now

Symphony Orchestra of Northwestern Polytechnical University

Xi'an, Shaanxi

Assistant Concertmaster

2015.09 - 2019.06