

"To harden the mind."

Education

Degree D.Phil. Univeristy of Oxford

Oxford, UK

DEPARTMENT OF ENGINEERING SCIENCE: CONTROL GROUP

2021.09 - 2025.04

- Supervised by Dr. Konstantinos Gatsis
- Funded by EPSRC & Univeristy of Oxford (Oxford-Ashton Memorial Graduate Scholarship)

Degree M.S. Imperial College London

London, UK

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING: CONTROL SYSTEMS

2019.09 - 2020.09

- Award: Outstanding Achievement: Control Systems MSc & Hertha Ayrton Centenary Prize(Best Project)
- Overall GPA: 83.02/100 Graduation Project: 84.90/100 Distinction
- Ranking: 1

Degree B.E. Northwestern Polytechnical University (Project 985, 211)

Xi'an, Shaanxi

DEPARTMENT OF COMPUTER SCIENCE: COMPUTER SCIENCE AND TECHNOLOGY (2015.09 - 2016.09)

2015.09 - 2019.06

DEPARTMENT OF ASTRONAUTICS: DETECTION, GUIDANCE AND CONTROL (2016.09 - 2019.06)

- Award: Outstanding Graduation Thesis
- Overall GPA: 89.8/100 Major GPA: 92.88/100 Graduation Project: 96.8/100
- Ranking: 2

Publications

- 2023 K. MIAO AND K. GATSI, *Towards optimal network depths: Control-inspired acceleration of training and inference in neural ODEs*, in The Symbiosis of Deep Learning and Differential Equations III, 2023
- 2023 K. MIAO AND K. GATSI, *Learning robust state observers using neural odes*, in Learning for Dynamics and Control Conference, PMLR, 2023, pp. 208–219
- 2021 K. MIAO AND R. VINTER, *Optimal control of a growth/consumption model*, Optimal Control Applications and Methods, 42 (2021), pp. 1672–1688

Research and Project Experience

Master's Graduation Project - Optimal Control and Economics: Consumption Versus

London, UK

Investment

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, IMPERIAL COLLEGE LONDON

2020.05 - 2020.09

- Publication: Miao, Keyan, and Richard Vinter. "Optimal control of a growth/consumption model." Optimal Control Applications and Methods 42.6 (2021): 1672-1688.
- Learned the analytical methods for solving optimal control problems (Pontryakin Maximum Principle, bang-bang principle, Dynamic Programming)
- Discussed the "consumption-investment" problem by using the Maximum Principle and Dynamic Programming
- Interpreted the optimal solution derived by optimal control theory in terms of economics and verified some economic conclusions by using optimal control theory

Undergraduate Graduation Project - Research on Dehaze Methods Based on Visible Light

Xi'an, Shaanxi

Images (Outstanding Graduation Thesis)

DEPARTMENT OF ASTRONAUTICS, NORTHWESTERN POLYTECHNICAL UNIVERSITY

2019.02 - 2019.06

- Implemented image defogging by using dark channel prior (DCP) algorithm with C++ language
- Improved the DCP algorithm by adding thresholds, transforming the color space, and using Gamma correction
- Discussed a machine learning method of image dehazing using convolutional neural network (CNN-Dehaze) and its neural network architecture
- Analyzed the effects of various defogging algorithms from qualitative and quantitative perspectives, and completed the video defogging

Working Experience

Department of Engineering, University of Oxford

Oxford, UK

LAB DEMONSTRATOR

2023 - 2024

- Served as a lab demonstrator for B15 and Lego coursework, guiding undergraduate students through course labs, reports and presentations.

Jiangsu Zhongshe Group Co., Ltd

Nanjing, Jiangsu

COMPUTER VISION INTERN

2020.10 - 2021.02

- Focusing on a computer vision based quick analysis system for road maintenance, created the road defects datasets using videos and pictures which contained geography information, including training datasets and testing datasets, to improve the recognition accuracy

Advanced Institute of Information Technology, Peking University

Hangzhou, Zhejiang

RESEARCH INTERN

2021.04 - 2021.07

- Learning the forward and inverse kinematics of manipulators, especially inverse kinematics, including the pieper method, Cyclic Coordinate Descent, Forward and Backward Reach Inverse Kinematics, etc, and helping build a reinforcement learning framework to learn inverse kinematics.

Honors & Awards

INTERNATIONAL

- | | | |
|------|--|-------------------|
| 2021 | Research Studentship & Oxford-Ashton Memorial Graduate Scholarship , 2021 - 2025 University of Oxford | <i>Oxford, UK</i> |
| 2020 | Prize for Outstanding Achievement in the Control Systems Master of Science , 2019 - 2020 Department of Electrical and Electronic Engineering, Imperial College London | <i>London, UK</i> |
| 2020 | Hertha Ayrton Centenary Prize (Best Project) , 2019 - 2020 Department of Electrical and Electronic Engineering, Imperial College London | <i>London, UK</i> |

DOMESTIC

- | | | |
|------|--|-----------------------|
| 2019 | Outstanding Graduation Thesis , Northwestern Polytechnical University | <i>Xi'an, Shaanxi</i> |
| 2018 | First Prize Scholarship , Northwestern Polytechnical University | <i>Xi'an, Shaanxi</i> |
| 2017 | Provincial Second Prize (String Quintets <Spring>) , The 5th China Undergraduate Art Exhibition | <i>Xi'an, Shaanxi</i> |

Extracurricular Activity

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

Northwestern Polytechnical University Model United Nations

Xi'an, Shaanxi

MEMBER

2016.12 - 2017.03