Zhang Guo Yun

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Education

National University of Singapore, Singapore   08/2025 - 05/2029
Doctor of Philosophy in Operations Research and Analytics

National University of Singapore, Singapore   08/2021 - 05/2025
Bachelor of Engineering in Industrial Systems and Management, Honours with Distinction
- **Specialization**: Data Analytics, Minor in Statistics
- **Special Programme**: University Town College Programme at Residential College 4(RC 4)
- **Coursework**: Operations Research, Financial Engineering, Markov Chain, Simulation, System Dynamics

Georgia Institute of Technology, USA   01/2024 – 05/2024
BS Industrial and Systems Engineering (Exchange Student)
- **Special Programme**: International House
- **Coursework**: Statistical Machine Learning, Data Structure and Algorithms, Regression and Forecasting

Skills

Languages: Python, Java, R, Excel VBA, SQL, HTML, CSS, JavaScript
Technical Skills: Tableau, MATLAB, GitHub, Flask, Hadoop, PyTorch, scikit-learn, React.js, AutoCAD, Flexim, Simio

Experience

Student Researcher, Singhealth Group and Duke-NUS, Singapore   08/2024 - 05/2025
- Researched **population models** in Singapore using System Dynamics methodology
- Led a team of four in analyzing **Hospital at Home** and **Telemedicine** concepts; developed a robust Stock and Flow Diagram to model stakeholder interactions **100** years into the future
- Produced a population model **exhibiting trend alignment** with projections from Singapore's Ministry of Health
- Advisor: Professor Sean Lam Shao Wei, Dr Ashish, Dr Wang Zhi Guo

Research Assistant, A*STAR, Singapore   08/2024 – 12/2024
- Identified **limitations** in the existing demand forecasting approach at A*STAR's Advanced Manufacturing Department, which relied on a **simple linear regression model**
- Implemented **NIXTLA** and advanced **Time series algorithms** to forecast annual production demand with **85%** accuracy
- **Analysed** forecasted data and integrated market indicators to enhance inventory optimization for clients
- Advisor: Professor Yang Shan Shan, Dr Liu Ning

Student Researcher, A*STAR and NUS, Singapore   05/2024 – 05/2025
- Explore the **nature of Large Language models(LLMs)** applications and the **intersection** with Operations Research (OR) to address inefficiency among engineers and managers
- Evaluated multiple LLMs on real-world OR problems; **identified and validated** Deepseek-R1 as the most effective model for OR-related tasks

Finance Intern, Bank of Communications, China   05/2024 – 07/2025
- Calculated key metrics, including **Debt Service Coverage Ratio** to evaluate loan repayment capacity
- Analyzed **profitability, liquidity, and solvency ratios** to assess borrowers' financial health

Industrial Engineer Intern, Applied Materials, Singapore   07/2023 – 12/2023
- Planned and evaluated machinery assembly processes; used **SQL** and **Python** to **trace cleanroom inefficiency**, identifying over **132** hours/day of machhinery idle time and transitioning workflows from Excel to SQL
- **Developed** a space management plan, and analyzed area utilization using **AutoCAD and Excel**
- **Developed a dashboard** incorporated HTML, CSS and Flask to visualize the quarterly demands for the **Worldwide Operations team** in the Singapore branch

Research Assistant, NUS, Singapore   05/2023 – 07/2024
- Developed **mixed regression models** to assess the Early Warning Financial Risks for 1161 Tech Companies in China
- Identified **Return on Equity** as the most significant predictor and achieved a **70%** prediction accuracy

- Advisor: Professor Poh Kim Leng

Supply Chain Intern, DHL, Singapore   05/2022 – 07/2022
- **Analysed** and **optimized the layout** and efficiency of worker allocation and time allocation for material replenishment in the Singapore Airport Terminal Services using **Excel and AutoCAD**
- Achieved a **15%** improvement in operational efficiency

Teaching Assistant, NUS, Singapore
- 2023, 2025: IE2111 Engineering Principles & Practice II
- Delivered tutorials on **Financial Engineering** and risk forecasting methods for a cohort of **120** students
- **Independently** prepared curated materials for weekly tutorials and lab sessions using **Excel VBA and Python**
- **Nominated** for the **NUS Teaching Awards** for **excellence** in instruction and support

Projects

ML Student Researcher, Georgia Institute of Technology, USA   01/2024 - 05/2024
- Investigated **non-Gaussian** noise distributions in regression models, including **Beta and Laplace distributions**, using **Mean Squared Error**(MSE) as the evaluation metric
- **Demonstrated** that uniformly distributed noise yields the lowest MSE of **2.01**, outperforming Gaussian assumptions in specific cases

Student Researcher for Operations Research I, NUS, Singapore   08/2022 - 12/2022
- **Led** a **7-member** team to evaluate NUS's module allocation system using linear programming
- Simulated the allocation process with **85%** accuracy compared to the actual system

Independent Software Development Project(Orbital), NUS, Singapore   05/2022 - 08/2022
- Developed a web application using **React** architecture to assist Chinese students in purchasing air tickets during the COVID-19 pandemic
- Achieved project certification at **Level Gemini**, demonstrating advanced proficiency

Student Researcher for Financial Engineering, NUS, Singapore   01/2022 - 05/2022
- Analyzed **job placement strategies** for NUS Bachelor of Business Administration graduates using Python, Excel, and @Risk
- Performed in-depth **financial analysis**, including cash flow modeling, sensitivity analysis, and stochastic dominance evaluation

Leadership, Extra-Curricular And Volunteering Activities

Peer Supporter, RC4, NUS   08/2021 - 05/2023
- Provided **counseling services** to support the **well-being** of **250** students residing in RC4
- **Organized** mental health events aimed at **stress relief and promoting student wellness**

Systems Design Competition Third Place, NUS   12/2022 - 12/2022
- Customized **simulation models** for container depots using **Flexsim** in collaboration with Eng Kong Logistics
- Achieved **Third Place** among competing teams

Beach Cleaning Day Project Director, NUS   03/2022 - 09/2022
- **Led** a team of **20** members and coordinated with the **National Parks Board** to organize a beach clean-up involving **60** participants
- Collected over **50** kg of waste as part of **environmental sustainability efforts**

ISE Freshmen Orientation Camp Vice Project Director, NUS   08/2021 - 06/2022
- **Led** a team of **40** members to plan and execute orientation activities for **120** incoming students
- **Managed logistics**, developed games, **wrote grant proposals** and **coordinated** with university departments and stakeholders

Awards

A*STAR Graduate Scholarship, A*STAR, Singapore   2024
- **Awarded** four years of **full funding** for graduate studies in Singapore based on **academic excellence and research potential**