Barnabas Sng Ren Le

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EDUCATION

National University of Singapore

B.Sc. (Hons) Double Major in Mathematics and Computer Science *Expected Graduation, May 2026*

- **GPA:** 4.34
- **Courses:** Design & Analysis of Algorithms, Data Structures and Algorithms, Foundations of Machine Learning, Probability, Linear Optimisation, Non-Linear Optimisation, Stochastic Processes, Regression Analysis

Anglo Chinese Junior College

GCE 'A'-Levels *2018-2019*

- **Rank Points: 88.75/90**

SKILLS

Python, AI, Machine Learning, Claude Code, Statistics, Linux, Java, C, SQL, PyTorch, Scikit-Learn

EXPERIENCE

A*STAR

Research Intern *May 2024 – Aug 2024*

- Developed a discrete-event simulator to model EV battery swapping stations in Singapore and implemented genetic algorithms to allocate resources efficiently
- Conducted research on various methods such as deep probabilistic models to derive a probability distribution from a set of demand forecasts
- Optimised an industry project by using parallel processing to reduce application initialisation time by 70%

National University of Singapore

Communications Peer Tutor *Aug 2023 – Dec 2024*

- Coached undergraduate students on technical and academic presentation skills, improving clarity and structure of communication
- Facilitated group sessions to develop interview and professional communication skills for graduate students
- Designed and delivered workshops on effective workplace communication

PROJECTS

Monte Carlo Methods and their Applications to Finance

- Capstone project implementing Monte Carlo simulation framework to price European-style derivatives under stochastic asset models
- Applied variance reduction techniques (e.g. control variates, importance sampling) to improve computational efficiency
- Benchmarked simulation outputs against closed-form solutions (e.g. Black–Scholes model) to validate accuracy and quantify error bounds

Aurora Calendar

- Built a self-hosted privacy-first calendar (React/TypeScript/PostgreSQL) using an agentic AI coding workflow for end-to-end feature development, debugging, and release
- Created an email-to-event pipeline powered by a local LLM that parses inbox content into calendar proposals
- Used an autonomous agent-driven development pipeline, focusing on practising AI-native engineering workflows

SoCCer Manager

- Developed a Java-based application for managing players, staff, and events across multiple teams, integrating both command-line efficiency and graphical visualisation
- Designed and implemented complex query features including filtering, sorting, and conditional selection across multiple attributes (e.g. team, performance stats, roles)
- Modelled and maintained structured data with validation constraints, ensuring consistency across player attributes and event participation

ACTIVITIES AND LEADERSHIP

Anglo-Chinese Junior College Basketball Team

Vice-Captain *Aug 2019 – 2020*

- Achieved bronze medal at Inter-School FIRE Tournament, leading ACJC to its first medal since the team was formed