

# Barnabas Sng Ren Le

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## EDUCATION

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### National University of Singapore

*B.Sc. (Hons) Double Major in Mathematics and Computer Science*

*Expected Graduation, May 2026*

- **GPA:** 4.35
- **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

## EXPERIENCE

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### 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

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### 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

### 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

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### 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

## AWARDS & CERTIFICATES

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- A\*STAR Research Internship Award
- High-Distinction for UNSW English ICAS, Distinction for UNSW Mathematics ICAS

## SKILLS

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**Programming:** Python, Java, C, SQL, PyTorch, Scikit-Learn