

SUMARTO

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Indonesian citizen — actively pursuing New Zealand Accredited Employer Work Visa (AEWV) sponsorship

PROFILE

Quantitative Engineer with a Master of Professional Engineering (Software) from the University of Sydney and 10+ years' software engineering experience spanning quantitative finance, trading systems, and full-stack development. Currently building portfolio optimisation tools and trading system integrations (SimCorp/Heron via Python FastAPI) at Ardea Investment Management. Seeking to bring this background in algorithmic optimisation and financial systems engineering to a New Zealand-based team.

WORK EXPERIENCE

Ardea Investment Management

Sydney, AU

Quantitative Engineer

Dec 2024 – Present

- Design and develop portfolio optimisation tools using advanced mathematical algorithms and computational methods, applying systematic engineering approaches to multi-objective portfolio construction problems.
- Develop and maintain mission-critical, real-time trading applications, with a focus on reliability, performance, and computational efficiency.
- Leading integration of SimCorp's API into Heron, the firm's legacy trading platform, building the bridging services in Python (FastAPI) and ensuring data integrity and consistency across both systems through rigorous validation and error-handling design.
- Collaborate closely with quantitative analysts and portfolio managers to translate business requirements into technical specifications.
- Implement testing frameworks and validation procedures to ensure the accuracy and reliability of optimisation and trading solutions.
- Conduct ongoing performance analysis and continuous improvement of existing systems.

Engineering Sydney Industry Placement Scholarship Intern

Jun 2024 – Dec 2024

- Conducted a comprehensive optimisation study of an existing insurance portfolio management tool, investigating multiple parameters to enhance portfolio performance.
- Implemented the hypervolume metric as a quantitative measure for multi-objective optimisation assessment, and built testing frameworks to validate optimisation approaches.
- Produced technical reports documenting findings and methodologies, and collaborated with senior engineers to integrate research outcomes into production systems.

The University of Sydney

Sydney, AU

Summer Research Intern

Dec 2023 – Feb 2024

- Researched indoor positioning technologies and developed an Android application implementing indoor positioning algorithms.
- Built a Python Django backend for position prediction, data collection, and analysis, and evaluated positioning accuracy and system performance.

General Election Supervisory Agency

Sydney, AU

General Election Supervisory Committee

Feb 2024

- Monitored election processes for compliance with electoral law, investigated reported irregularities with diverse stakeholders, and produced official monitoring reports.

Batam State Polytechnic

Batam, ID

Part-time Vocational Lecturer

Jun 2017 – Jul 2023 (concurrent with Batamfast Ferry, below)

- Taught Software Engineering, Database Systems, and Data Structures; developed course materials and lab exercises, and supervised student capstone projects.

Batamfast Ferry Pte Ltd

Batam, ID

Senior Engineer

Mar 2017 – May 2023

- Led development of a cross-platform (Android/iOS) ferry booking application using Flutter, serving thousands of daily users.
- Designed and maintained the back-end booking system in ASP.NET, ensuring high availability and transaction integrity.
- Built an employee attendance system on .NET Core with biometric authentication and real-time data sync.

- Provided technical leadership and mentorship to junior developers, and led system architecture decisions across multiple concurrent projects.

Halcom Integrated Solution

Batam, ID

Engineer

Jun 2014 – Jul 2016

- Built an ASP.NET web system and companion mobile app for real-time digital machine monitoring at a manufacturing facility, including database design for historical performance data.

PT. Global Teknologi Media Baru

Batam, ID

Software Developer

Sep 2012 – May 2014

- Developed native Android/iOS applications (Java, C) for tour-guide (GPS-integrated) and educational multimedia use cases.

LEADERSHIP & ACTIVITIES

- Project Manager, Project-Based Learning, Batam State Polytechnic (Jul 2020 – Jul 2023) — managed project scope, timelines, and industry-partner coordination for student engineering projects each semester; mentored students in professional practice.
- Education Division member, Informatics Engineering Student Association & Batam Linux User Group (2009 – 2012) — ran peer-tutoring programmes and Linux/open-source workshops for students and local schools.

EDUCATION

The University of Sydney

Sydney, AU

Master of Professional Engineering (Software), Accelerated

Jul 2023 – Aug 2025

Thesis: Scalable and Efficient Optimisation of Insurance Portfolios

Batam State Polytechnic

Batam, ID

B.App.Sc, Multimedia and Networking Engineering

Jul 2012 – Aug 2014

Final Project: Design of a Cloud-Computing-Based Virtual Computer Lab Using oVirt in a Centralised Network

Batam State Polytechnic

Batam, ID

Diploma, Informatics Engineering

Jul 2009 – Jul 2012

Final Project: Psychological Test Information System at Batam State Polytechnic

SKILLS

Programming Languages: Java, Python, C, C#, Dart, PHP, JavaScript, SQL

Frameworks & Platforms: ASP.NET, .NET Core, FastAPI, Flutter, Django, React, Node.js

Databases: Microsoft SQL Server, MySQL, PostgreSQL, MongoDB, SQLite

Tools & Software: Visual Studio, Android Studio, Git, Docker, Kubernetes, MATLAB

Cloud Platforms: Microsoft Azure, AWS, Google Cloud Platform

Engineering Practices: Agile/Scrum, Test-Driven Development, CI/CD, Design Patterns

Specialisations: Quantitative Analysis, Algorithm/Portfolio Optimisation, Financial Systems Integration, Full-Stack & Backend Development