

Lee De En

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Software Engineer at TOPPAN Ecquaria with a solid grounding in algorithms, data structures, and software engineering, now furthering my expertise through a Master of Science in Computer Science at Georgia Tech (OMSCS). Through diverse hands-on projects, I have developed practical skills in full-stack web development, machine learning, and cloud computing. I enjoy solving complex problems and building scalable, user-focused solutions, and thrive in fast-paced, team-oriented environments building software that drives real-world impact.

Experience

Software Engineer | TOPPAN Ecquaria | Singapore

JUN 2026 – Present

Returned to TOPPAN Ecquaria full-time after interning with the team, building digital government software on the Judiciary's eLitigation (eLit) platform and resolving issues for legal stakeholders, continuing to work across resilient enterprise architecture within Singapore's justice sector.

Software Engineer Internship | Toppan Ecquaria, ISMART (ICA) | Singapore

DEC 2025 – JAN 2026

Interned on a large-scale ICA identity document collection project. Built RESTful APIs with Java Spring Boot, managing transactions through Spring JPA and Microsoft SQL Server for data consistency and persistence. Optimized database concurrency by implementing synchronization locks to eliminate race conditions and resolve critical deadlock scenarios, ensuring the integrity of mission-critical transactions. Led quality assurance efforts using Cucumber (Gherkin) to write automated BDD test suites, accelerating QA and deployment pipelines.

Software Engineer Internship | PhillipCapital (Pte Ltd), Digital Innovation | Singapore

MAY 2025 – AUG 2025

Prototyped a blockchain-based remittance service built on the Layer 1 Rubix protocol, gaining practical exposure to decentralized systems. Developed modular microservices with NestJS using Clean Architecture and Dependency Injection, designed PostgreSQL schemas via ORM prioritizing transactional integrity, integrated RabbitMQ for asynchronous messaging and Redis for distributed caching, and containerized services with Docker to streamline deployment.

Education

Georgia Institute of Technology | Master of Science in Computer Science (OMSCS) | Aug 2026 – Present

Specializing in Machine Learning and Computing Systems, pursued alongside full-time engineering work.

National University of Singapore | Bachelor of Computing (Honours) in Computer Science | Aug 2023 – Jul 2026

Graduated with Honours with Distinction (GPA 4.3/5.0); Software Engineering Focus Area (Distinction); awarded the Singapore-Industry Scholarship (SgIS); completed 2 internships and 2 exchange programs.

University of Texas at Austin | Student Exchange Program (Computer Science) | Aug 2025 – Dec 2025

Coursework spanning AI and systems: Natural Language Processing, Generative Visual Computing, Algorithms, Web App Development, and Intro to Data Science.

Korea University | Student Exchange Program | Dec 2024 – Jan 2025

Short-term winter exchange; completed intensive computer science coursework within an international student cohort.

Singapore Polytechnic | Diploma in Aerospace Electronics (Merit/With Distinction) | Apr 2018 – Apr 2021

Cumulative GPA 3.885/4.0, with Distinctions in Structured Programming and Microcontroller Applications.

Technical Skills

Languages: Java • JavaScript • TypeScript • Python • SQL • HTML/CSS

Frameworks & Libraries: Next.js • React • Node.js • Express.js • Spring Boot • Tailwind CSS

Databases: PostgreSQL (Prisma ORM) • MongoDB • Redis • Microsoft SQL Server • Supabase / Firebase

DevOps & Cloud: AWS (EC2, S3) • Docker • Git • GitHub Actions

Messaging & Queueing: RabbitMQ • IBM MQ

AI & Systems: PyTorch (RNNs/GANs) • Python (Playwright/Scraping) • Network Admin (PiHole/Tailscale) • WebSockets

Testing: Cucumber (Gherkin)

Certifications

- **AWS Certified Cloud Practitioner** [May 2025]
- **NUS Apollo 11 (Advanced)** [Aug 2024]

Projects

Admin Panel

DEC 2025 – JAN 2026

- Developed a full-stack web application using Next.js and Supabase to provide a secure authentication system featuring Role-Based Access Control (RBAC) and Row-Level Security (RLS), ensuring sensitive administrative data is protected from unauthorized access.
- Facilitated a comprehensive technical handover, including infrastructure transfer, while being retained as a long-term technical consultant to oversee ongoing platform stability.

Expense Tracker

MAY 2024 – AUG 2024

- Developed a full-stack web application using **MongoDB, Express, React.js, and Node.js (MERN stack)** to provide a responsive and user-friendly expense tracking solution.
- Implemented real-time transaction management features including adding, editing, and deleting expenses, with automatic recalculation of totals to ensure accurate financial insights.
- Focused on seamless user experience through dynamic UI updates and efficient backend data handling.

Tic-Tac-Toe Game

DEC 2023 – MAR 2025

- Developed an interactive Tic-Tac-Toe game using modern **JavaScript**, featuring both multiplayer mode and an AI opponent powered by the **minimax algorithm**.
- Implemented dynamic game setup, real-time gameplay interactions, and responsive, mobile-friendly design to enhance user experience.
- Demonstrated algorithmic problem solving and front-end development skills through game logic and UI implementation.

Leadership & Service

National Service, Combat Engineer | 3rd Sergeant & Section Commander, 30th Battalion Singapore Combat Engineers

JUN 2021 – APR 2023

- Led a Field Engineer Section to achieve REDCON 1 (the highest attainable proficiency rating) during major evaluation exercises.
- Accountable for the training and operational readiness of a specialist section, earning a "Very Good" performance and conduct appraisal.
- Attained the WSQ Advanced Certificate in Leadership and People Management through the Specialist Cadet Course.
- Recognized with the IPPT Gold Award and Marksmanship Award for consistent excellence in physical and operational standards.

Lion Befrienders @ Mei Ling Street

Volunteer Befriender | AUG 2024 – AUG 2025

- Provided regular companionship and emotional support to elderly residents, building meaningful relationships through weekly visits and activities.
- Assisted with basic needs, social engagement, and promoting mental well-being among socially isolated seniors.
- Developed empathy, active listening, and communication skills in a community outreach setting.