MANDITHA MADUSHANKA

Software Engineer

Java · Spring Boot · Microservices · React.js

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PROFESSIONAL SUMMARY

Software Engineer with a recently completed BSc (Hons) in Information Technology from the University of Kelaniya and six months of industry experience as a Software Engineer Intern in the aeroPORT team at Information Systems Associates, building a microservices-based airline Departure Control System with Java, Spring Boot, React.js/Next.js, Apache Kafka and gRPC. My dissertation research produced PPCH, a framework that predicts complexity risk in Java pull requests (0.78 AUC) and runs as a working GitHub Action. Strong foundation in code quality, unit testing and Agile/Scrum; also builds VR/AR applications with Unity and WebXR. Seeking an Associate Software Engineer role.

TECHNICAL SKILLS

Programming Languages: Java, JavaScript, TypeScript, Python, C#, C++, SQL

Backend and APIs: Spring Boot, REST APIs, gRPC, Apache Kafka, Microservices Architecture, Event-Driven Architecture

Frontend and Mobile: React.js, Next.js, HTML, CSS, Tailwind CSS, Bootstrap, Android (Java), Flutter, Firebase

Databases: PostgreSQL, MySQL

DevOps and Tools: Git, GitHub, GitHub Actions, Bitbucket, Docker, Microsoft Azure, Vercel, SonarQube, Postman

Machine Learning: scikit-learn, XGBoost, Random Forest, Logistic Regression, bootstrap model validation

XR and 3D: Unity 6 (URP), XR Interaction Toolkit, OpenXR, WebXR, A-Frame, MindAR, three.js, React Three Fiber

Practices: Object-Oriented Programming, Unit Testing, Code Refactoring, Code Quality (SonarQube), Agile/Scrum

Soft Skills: Teamwork and Collaboration, Analytical Thinking, Problem Solving, Adaptability, Communication in Agile Teams

Spoken Languages: English (Fluent), Sinhala (Native)

WORK EXPERIENCE

Software Engineer Intern — Jul 2025 – Jan 2026

Information Systems Associates (Pvt) Ltd · aeroPORT team · Colombo, Sri Lanka

- Engineered features for aeroPORT, ISA's microservices-based airline Departure Control System (DCS) for check-in, boarding, baggage and passenger operations.
- Developed Java and Spring Boot backend flows that process Passenger Name Lists (PNL) for operational use, including check-in, seat assignment and boarding.
- Implemented enhancements across core DCS modules, on both backend services and React.js/Next.js frontend components.
- Debugged complex data flows spanning multiple microservices, Apache Kafka topics and gRPC calls to identify and resolve system issues.
- Refactored backend services to improve code quality, readability and maintainability.
- Improved frontend unit test coverage to meet SonarQube quality standards.
- Worked in an Agile/Scrum team, participating in sprint planning, daily stand-ups, reviews and retrospectives.

Technologies: Java, Spring Boot, React.js, Next.js, PostgreSQL, Apache Kafka, gRPC, REST APIs, Microservices, SonarQube, Git, Bitbucket

PROJECTS

PPCH Framework: Predictive and Proactive Code Health (Final-Year Dissertation) — 2026

Python, scikit-learn, XGBoost, GitHub REST API, SonarQube, GitHub Actions · **GitHub ↗**

- Built a Sense–Analyze–Act framework that predicts when a Java pull request will increase cognitive complexity and proposes verified refactorings before merge.
- Mined Apache Commons pull-request history through the GitHub REST API and ran SonarScanner on before/after snapshots to build a leakage-safe dataset of 334 PRs.
- Compared four models with 1,000-iteration bootstrap validation; Logistic Regression achieved the best mean AUC of 0.78.
- Developed an ILP-based Extract Method engine with four safety checks; every applied suggestion was re-verified safe by a real SonarQube scan.
- Deployed as a GitHub Action that comments on pull requests at submission, catching 42% of complexity-increasing PRs before merge (a reactive scanner took a mean 82 hours to flag them).

GroceryEase: Web-Based Grocery Management System (Solo Project) — 2024 – 2025

Java, Spring Boot, React.js, JavaScript, MySQL · **GitHub ↗**

- Developed a full-stack grocery store management system for Samantha Store, with a Spring Boot backend and React.js frontends.
- Built an e-commerce platform for customer pre-ordering, with inventory tracking, credit sales management

and supplier coordination.

- Uses a MySQL database; planned for Microsoft Azure deployment with security enhancements.

Employee Management System (Team Project) **2025**

Java, Spring Boot, JavaScript, HTML, Docker, Microsoft Azure · GitHub ↗

- Developed a full-stack Employee Management System with CRUD operations for employee records, using Spring Boot, JavaScript and HTML.
- Handled the Docker containerisation and Microsoft Azure deployment, and contributed to parts of the Spring Boot backend.

ElectricalSafetyVR: Electrical Workshop Safety Training Simulator (Team of 5) **2026**

Unity 6 (URP), XR Interaction Toolkit 3, OpenXR, C# · GitHub ↗

- Built the indoor workshop environment and integrated five team members' Git branches into one working build, writing Unity editor tools to apply and revert changes safely and fixing PPE grabbing and fuse snap-fit bugs.
- Trainees put on PPE, find hazards against the clock, follow the safe isolation procedure and replace a blown fuse, with a scored result.

AR Elemental Arena: Mobile Web AR Game (Solo Project) **2026**

JavaScript, A-Frame, MindAR, WebXR, three.js, Open-Meteo API · GitHub ↗ · Live demo ↗

- Built a browser-based AR game that combines marker-based image tracking (scan cards to collect creatures) with markerless surface placement for battles.
- Implemented real-time combat with an independent enemy AI and a live-weather damage buff; deployed on GitHub Pages for Chrome on Android.

Personal Portfolio Website **2026**

Next.js, TypeScript, Tailwind CSS, React Three Fiber, Vercel · Live site ↗ · GitHub ↗

- Designed and built a fast, accessible portfolio with lazy-loaded 3D, project case studies and SEO (Lighthouse Accessibility 100, WCAG AA).

Other Projects **2024**

- **Recipe App (GoodEats):** Android recipe app (Java, Firebase auth and storage) · GitHub ↗
- **Calculator App:** Flutter calculator app for iOS and Android · GitHub ↗
- **Inventory Management System:** web app (HTML, CSS, JavaScript) · GitHub ↗

EDUCATION

BSc (Hons) Information Technology **2023 – 2026**
University of Kelaniya, Sri Lanka · GPA: 3.36 / 4.00 (final results pending)

Diploma in English **2022**
BritishWay English Academy · Distinction pass

G.C.E. Advanced Level Examination **2021**
Dharmapala College, Pannipitiya · Mathematics Stream with ICT · Results: B, B, C · Z-score: 1.3277

G.C.E. Ordinary Level Examination **2017**
Dharmapala College, Pannipitiya

TECHNICAL ARTICLES

I Turned My Laptop's Gaming GPU Into an AI Image Studio **Aug 2026**
Medium · Running Stable Diffusion locally on an NVIDIA RTX 4060: the setup, the errors and how they were fixed. · Read ↗

Building My Own VPN on Microsoft Azure as a University Student **Jun 2026**
Medium · Hands-on WireGuard VPN on Microsoft Azure, including debugging iptables rules. · Read ↗

LEADERSHIP AND ACTIVITIES

Technical Team Member, SCSE 2025 **2025**
International Research Conference on Smart Computing and Systems Engineering, Department of Industrial Management, University of Kelaniya

Main Coordinator, IM Auwrudu **2024**
Industrial Management Science Students' Association, University of Kelaniya

Technical and Organizing Team Member, hackX 9.0 **2024**
Industrial Management Science Students' Association, University of Kelaniya

REFERENCES

Ms. Yehemini Jayatissa, Lecturer, Department of Industrial Management, University of Kelaniya
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Mr. Lakshitha Chathuranga, Senior Software Engineer, Information Systems Associates (Pvt) Ltd
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