

Kavindu Nirmal Delpachithra

Software Engineering Undergraduate | Full-Stack & Agentic AI

Boralesgamywa, Colombo, Sri Lanka • +94 76 347 5058 • kavindunirmald@gmail.com
linkedin.com/in/delpachithra • github.com/KavinduNirmal • kavindunirmal.com

Summary

Software Engineering undergraduate at SLIIT with hands-on experience building full-stack applications and backend services across academic and personal projects. Experienced with **C#/.NET, Java/Spring Boot, Python, TypeScript and Dart**, with a focus on developing REST APIs, data-driven applications, and React and Flutter clients. Currently exploring **AI-powered software**, including LLM agents, tool integration, workflow orchestration and semantic retrieval. Strong foundation in data structures and algorithms, databases, operating systems, networking and software engineering, with a practical approach to problem-solving and learning new technologies. Seeking a software engineering internship to contribute to a professional development team and grow through real-world engineering experience.

Technical Skills

Languages: C#, Python, TypeScript, JavaScript, Java, SQL, Dart

Backend: ASP.NET Core 10 (Minimal APIs, EF Core), FastAPI, Spring Boot, Node.js, Express.js, Go (Gin)

Frontend & Mobile: React 19, Next.js, React Native, Flutter, Tailwind CSS

Data & Retrieval: PostgreSQL 16 (pgvector, HNSW, hybrid dense + lexical search), MySQL, MongoDB, Redis

AI & Agents: LangGraph multi-agent orchestration, LLM prompting and tool use, embeddings and retrieval-augmented answers, Pydantic contracts

Testing & Quality: xUnit, pytest, Vitest, Flutter testing, Testcontainers, coverage gates in CI

Infrastructure & Tooling: Docker & Compose, GitHub Actions, Linux, Git, Azure (Bicep), OpenTelemetry, Prometheus, Grafana

Education

BSc in Information Technology, Specialising in Software Engineering *Expected May 2028*
Sri Lanka Institute of Information Technology (SLIIT), Malabe, Sri Lanka

Relevant coursework: Data Structures & Algorithms, Web & Mobile Development, Database Systems, Operating Systems, Machine Learning, Software Design, UI/UX Design.

Certificate in Software Engineering *Jul 2024*
National Institute of Business Management (NIBM), Colombo 07, Sri Lanka

Relevant coursework: Software Fundamentals, OOP, Project Management, Architecture Design, Requirement Engineering.

Projects

Aveline — Boutique Concierge AI Platform *Academic Group Project (SE3090) — Aug–Oct 2026*
ASP.NET Core 10, Python 3.12, FastAPI, LangGraph, React 19, Flutter, PostgreSQL + pgvector, Redis [GitHub](#) | [Live](#)

- Owned the Customer Concierge & Memory slice end to end: its eight tenant-scoped tables, the WhatsApp/Meta inbound gateway, semantic customer memory, and the Customer Memory Agent that turns raw messages into a living customer profile and staff-reviewed reply drafts.
- Built the WhatsApp integration gateway with HMAC-SHA256 webhook signature verification, inbound audit logging, Meta IP allow-listing and per-org rate limiting, plus an asynchronous first-

contact disclosure dispatcher that guarantees exactly-once delivery through an atomic claim and a per-customer distributed lock.

- Implemented semantic memory on PostgreSQL with pgvector — `vector(1536)` embeddings on an HNSW cosine index beside a generated `tsvector` with a partial GIN index — queried with hybrid dense + lexical retrieval fused by reciprocal rank fusion, and cached repeat customer lookups for 60 seconds in Redis.
- Designed the eight-node LangGraph memory sub-graph (customer resolution, staff-instruction updates, consent gate, intent parsing, retrieval, extraction, persistence and reply composition) behind Pydantic contracts that reject unexpected fields, dependency-injected so it stays testable without an LLM, with a deterministic template fallback when generation is disabled.
- Enforced data-processing consent fail-closed across agent dispatch, memory writes and outbound delivery — a revoked customer is never processed and no agent runs, while a consent-store outage blocks processing instead of failing open.
- Shipped the permanent opt-out journey — HMAC-signed, phone-number-free links, OTP verification, erasure tombstones and a data-subject export — with a labelled counter reporting every consent skip.
- Verified the slice with pytest and xUnit suites, including Testcontainers-backed Postgres/pgvector integration tests, against a CI gate of $\geq 90\%$ agent-service coverage; authored 26 of the project's 30 architecture decisions.

STORKS — School Transportation Booking & Tracking *Academic Group Project — 6 months*

React Native, Spring Boot, Go (Gin), Kafka, PostgreSQL, Redis, Docker

[GitHub](#)

- Led system design and React Native coordination for the team, and delivered two cross-platform mobile apps (parent and driver) covering booking, ride management and real-time GPS tracking.
- Designed a microservice backend that separates booking logic (Spring Boot) from real-time services (Go/Gin) with asynchronous Kafka messaging, exposed through Clerk-authenticated REST APIs.
- Implemented live driver-parent chat synchronisation, OTP ride verification, QR trip validation and one-tap emergency alerts, with Redis caching for low-latency seat availability.
- Containerised every backend service with Docker Compose and deployed the platform to Railway, with PostgreSQL hosted on NeonDB.
- Configured Prometheus and Grafana monitoring for request latency, error rates, system saturation, network traffic and memory usage.

Cinepal — Movie Management & Booking Platform *Academic Group Project — 2 months*

Next.js, React Native, Node.js, Express.js, MongoDB

[GitHub](#) | [Live Demo](#)

- Built a full-stack booking platform with a customer React Native app and a web theatre-management dashboard, leading project coordination and owning the mobile client and core booking workflows.
- Implemented real-time seat reservation with MongoDB transactions to prevent duplicate bookings and stale seat states across concurrent users.
- Designed RESTful APIs (Node.js/Express.js) with Clerk authentication and JWT-based user and admin access.
- Integrated Expo Notifications and Firebase Cloud Messaging for booking confirmations, promotions and reminders.
- Modelled MongoDB collections for dynamic movie schedules and hall layouts, and tracked latency and revenue metrics with Prometheus and Grafana.

Additional Information

- **Collaboration & leadership:** coordinated sprints, task allocation and handoffs across frontend, backend and mobile workstreams in multi-month academic team projects.
- **Technical communication:** presented design decisions and ran code walkthroughs, and documented architecture in writing alongside the code (the platform holds 30 decision records, 26 authored by me).
- **Adaptability:** onboarded Go, Kafka, Redis, Clerk and LangGraph within project timelines and turned each into working, tested code.
- **Languages:** English (professional), Sinhala (native).