Tharmaraj Thushalan

Senior Software Engineer · Full-Stack, Mobile & *Applied AI*

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Senior software engineer with 11+ years building web, mobile, backend and cloud products across healthcare, finance, mobility, food delivery and enterprise. At Race Data I build a .NET 8 microservice platform with native mobile SDKs and a self-hosted RAG assistant. Former technical lead of a distributed team. MSc researcher in trustworthy on-device AI for oral cancer screening. Open to senior engineering and technical leadership roles, hybrid, remote or on-site.

SKILLS

AI & ML	RAG, LLM evaluation, AI agents, on-device ML (TFLite / LiteRT), quantization and calibration, conformal prediction, contextual bandits, vLLM, Ollama, pgvector, PyTorch, sentence-transformers
Backend	.NET 8 / ASP.NET Core, Python / FastAPI, Laravel / PHP, Node.js, microservices, RabbitMQ / MassTransit, Ocelot, MediatR, Polly, REST APIs
Mobile	Flutter / Dart, Kotlin, Jetpack Compose, Swift, Android and iOS SDKs, Hilt, SQLDelight, Firebase
Frontend	React, Next.js, TypeScript, Tailwind CSS, Vue, Redux, Playwright
Cloud & data	AWS, Azure, Docker, CI/CD, Terraform, Nginx, Linux, Prometheus, Grafana, Serilog, PostgreSQL, SQL Server, MySQL, Redis, MongoDB
Practices	Clean Architecture, system design, event-driven design, testing, code review, mentoring, Agile / Scrum

EXPERIENCE

Jan 2026 – Present

Senior Software Engineer

Race Data · Full-time

- Build a customer communication platform end to end: .NET 8 microservices behind an Ocelot API gateway with JWT and OpenID Connect, event messaging over RabbitMQ with MassTransit, Redis caching and Polly resilience.
- Instrument services with Prometheus metrics and Grafana dashboards; ASP.NET Core APIs on SQL Server.
- Deliver a Next.js and TypeScript console with Playwright tests, and native Android (Kotlin) and iOS (Swift) SDKs for in-app messaging and secure push.
- Built a self-hosted RAG support assistant in Python with FastAPI, sentence-transformers on PyTorch, Ollama and pgvector.

`.NET 8 · RabbitMQ · Redis · Prometheus · Grafana · Next.js · Kotlin · Swift · Python · FastAPI · Ollama · pgvector`

Mar 2025 – Dec 2025

Mobile Application Developer

Storypark · Full-time

- Built features for Storypark's Families and Education apps across Android, iOS and Flutter, used by early-childhood teachers and parents to share children's learning stories, photos and videos.

`Kotlin · Jetpack Compose · Swift · Flutter · Hilt · SQLDelight · Media3 · Firebase`

2021 – Dec 2025

Mobile Application Developer

Proitzen · Australia · Hybrid

- Migrated a production Flutter app to the latest framework with sound null safety, with no feature freeze.
- Refactored it around Bloc, Clean Architecture and MVVM; integrated payments, social and cloud-storage APIs; built native Android features in Kotlin and Jetpack Compose.

`Flutter · Bloc · Kotlin · Jetpack Compose · Testing`

2022 – 2023

Technical Lead

Nuvay Pvt Ltd · United Kingdom · Remote · Part-time

- Led architecture and delivery across web, mobile and cloud: Laravel and React platforms, cross-platform Flutter apps, and AWS infrastructure (EC2, S3, Lambda, RDS).
- Established CI/CD that cut deployment times, ran server management and project planning, and mentored the team.

`Laravel · React · Flutter · AWS · CI/CD`

2019 – 2021

Senior Software Engineer

Nuvay Pvt Ltd · United Kingdom · Remote

- Led Laravel and React web applications and Flutter mobile builds; deployed scalable AWS solutions with CI/CD; ran code reviews and mentored junior developers.

`Laravel · React · Flutter · AWS`

2016 – 2018

Software Engineer

Technovate · Sri Lanka

- Engineered Laravel applications and APIs, deployed on AWS; built Flutter and native iOS and Android apps; set up CI/CD and automated testing.

2014 – 2016

Associate Software Engineer · Freelance Developer

ISOFTFriends · Freelance

- Web and mobile applications across Laravel, Java, Node.js, Vue and Flutter, with Firebase, payment and SMS gateways and Linux server administration; freelance web systems and SPAs for clients.

SELECTED PROJECTS

Aegis RCA AI FOR CLOUD OPS
Self-hosted root-cause analysis: turns metrics, logs, traces, change events and dependencies into ranked, evidence-cited hypotheses and auditable incident reports. Python, FastAPI, React, PostgreSQL.

Sepsis Early Warning HEALTHCARE AI
Early sepsis detection for hospitals in low-resource settings, raising a warning when a patient's risk starts to climb from vital signs and routine clinical data.

Notify IQ REINFORCEMENT LEARNING
Contextual-bandit notification policy that can choose silence; off-policy evaluation over a 10,000-user, 90-day simulator.

Spot Serve LLM INFRASTRUCTURE
vLLM inference across spot and on-demand GPUs with drain-and-migrate on interruption and a trace-driven capacity simulator.

App Scout AI AGENTS
Agent that explores Android apps through the accessibility tree, reports crashes and exports Maestro test flows.

Cloud Foundations CLOUD
AWS topology with CI/CD that deploys on green; Docker and Nginx standardised from laptop to production.

Oral Cancer Screening HEALTHCARE AI · MSC
Android app running an oral-lesion model fully on the phone; research on keeping calibration and conformal referral guarantees after FP16/INT8 compression. TFLite / LiteRT.

KB Sentinel RAG
Support bot that detects its own bad answers, clusters failures, drafts knowledge-base articles and measures improvement after approval. FastAPI, pgvector.

Edge Route ON-DEVICE AI
Flutter plugin routing each prompt to an on-device or cloud LLM by difficulty, network, battery, heat and privacy.

Lanka Tamil Bench NLP
Benchmark and LoRA-adapted models for Sri Lankan (Jaffna) Tamil: dialect ID, code-mixed sentiment, translation, QA and speech.

Cross-Platform Suite ENTERPRISE
Web, iOS and Android for a UK product suite from one team: Laravel, React, Flutter and versioned API contracts.

Transit Grid MOBILITY
Bus seat reservations with transactional seat-locking and expiring holds; double-booking impossible.

EDUCATION

MSc in Computer Science, Cloud Computing
University of Moratuwa · 2026 – 2028 (in progress) · research: trustworthy on-device oral cancer screening

BEng (Hons) Computer Software Engineering
London Metropolitan University · 2017 – 2019

Diploma in Computing
CBS · 2008 – 2009

MORE

Memberships
IEEE · IAENG

Languages
English, Tamil and Sinhala

Portfolio
thushalan.com