

Ghanithan Subramani

Principal Software Engineer

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Languages: English (full professional), Tamil (native)

PROFESSIONAL SUMMARY

Principal Software Engineer with 15+ years across embedded systems, backend engineering and platform security. Specialised in Rust and Golang, designing high-performance, low-footprint systems and optimising them under production load. Google Certified Professional Cloud Architect, with experience across fintech, streaming media, insurance and enterprise security.

TECHNICAL SKILLS

Programming Languages: Rust, Go, JavaScript, TypeScript, C, C++, Python, Java

Backend and APIs: REST, WebSocket, gRPC, GraphQL, JWT, microservices architecture, MCP

Frameworks: Tokio, Axum, Actix, Tungstenite, Gin, Fiber, Next.js, React, Lit, Svelte, Express.js

Databases: PostgreSQL, MongoDB, Dgraph, Couchbase, CouchDB, Oracle, MySQL, Redis

Cloud and Infrastructure: Google Cloud Platform, AWS (full VPC design), VMware, Kubernetes, K3s, Docker, Packer, Terraform

Observability: OpenTelemetry, Prometheus, Grafana, Jaeger, Honeycomb

Security: ScoutSuite (CSPM), OWASP ZAP, OpenAPI security testing, vulnerability management, credential and key rotation

Practices: Software architecture, performance engineering, CI/CD, DevOps, Agile, technical leadership and mentoring

PROFESSIONAL EXPERIENCE

Principal Software Engineer

OpsMx Inc. | Nov 2024 - Present | Coimbatore, India (remote)

- Architected a virtual application packaging solution using Packer, K3s and shell scripting, reducing deployment time from 8 hours to 5 minutes, a 99% improvement, with cross-platform OVA distribution across GCP, AWS and VMware.
- Owned architecture across authentication and authorisation, audit and cloud security posture, covering the token model, session handling and the authorisation model.
- Designed the audit service and delivered it to other services as a Go package with a fluent API, reducing event instrumentation to a single expression at the call site.
- Led Dgraph performance engineering: reduced pod restarts, sized memory, block cache and index allocation against production workloads, and drove query latency toward 1-2 seconds.
- Built a customer-deployable diagnostic toolset that collects database and node telemetry into a single report with sizing recommendations, with an accompanying investigation runbook.
- Built a context service exposing cloud security posture to AI agents over MCP, with its own query language and a TTL-based lifecycle.
- Delivered GitHub App integration for on-premises installations, covering credential distribution and key rotation.
- Designed a global service collecting and rendering OSS library metrics and vulnerabilities, and extended OWASP ZAP scanning to cover OpenAPI v2 and v3 specifications.
- Established the architecture documentation and delivery plan, since adopted and owned by the wider engineering team.

Principal Software Engineer

Astra Technologies Inc. | Jun 2023 - Sep 2024 | Chennai, India

- Built a low-latency market data aggregation service and an Over The Counter (OTC) trading solution with a small team at an early-stage startup.
- Architected a high-performance, low-latency backend (REST and WebSocket) in idiomatic Rust using Tokio, Tungstenite and Axum.
- Created a Bitcoin wallet service from the ground up in Rust.
- Owned the AWS VPC architecture and led the DevOps team on secure, scalable infrastructure, with CI/CD on GitHub Actions and cross-compiled binaries deployed via Docker.
- Set up monitoring and traceability with OpenTelemetry, Jaeger, Prometheus, Grafana and Honeycomb.
- Built web applications in Lit, Web Components, React, Next.js and Firebase, later spun out as a separate product.

Senior Software Engineer

XRG Consulting Pvt. Ltd. (Quickplay Media) | Sep 2022 - Jun 2023 | Chennai, India

- Developed Golang microservices for the Content Management System serving OTT platform provider Quickplay Media, client Allen Media Group.
- Optimised the backend to handle 60,000 transactions per second during peak news events.
- Developed a sidecar solution for image processing, reducing cost for that feature by 50%.
- Worked extensively with Kubernetes on Google Cloud Platform, covering EPG management, VOD and live content pipelines, authorisation and entitlement.

Lead Full Stack Engineer, Administrative Officer

United India Insurance Company Ltd. | Jan 2020 - Sep 2022 | Chennai, India

- Built an internal Document Management System using Go (Gin) and MongoDB.
- Created an offline-first Progressive Web App for premium calculation using Svelte, Vite, PouchDB and Workbox, with Go (Fiber) and CouchDB on the backend.
- Led cross-functional teams delivering Digilocker integration and a claims reporting solution for banks.
- Created a phonetic name comparison algorithm and REST API for Indian names, in the spirit of Soundex.

Risk Underwriter

United India Insurance Company Ltd. | Nov 2016 - Dec 2019 | Coimbatore, India

- General insurance underwriting.
- Completed a Fellowship of the Insurance Institute of India, with distinction in Actuary.

Senior Software Engineer

Bosch Global Software Technologies | Sep 2014 - Sep 2016 | Coimbatore, India

- Implemented the injection-over-CAN concept from scratch for a diesel truck ECU, and worked on engine position management.
- Component-responsible for the hardware encapsulation layer, and co-ordinated tasks for powertrain and temperature devices.

Senior Design and Development Engineer

HandsOn Technologies | Apr 2013 - Aug 2014 | Coimbatore, India

- Product development in industrial automation on ARM Cortex-M series controllers, from requirement analysis and component selection through circuit schematic and PCB layout.
- Designed 6 major boards, plus two products taken from requirement through to production in weight-based industrial automation and home automation.
- Wrote firmware for ARM Cortex-M0, and drivers for CAN, I2C, SPI, UART and high-precision ADCs.

Software Engineer

Bosch Global Software Technologies | Jun 2011 - Mar 2013 | Coimbatore, India

- Development on diesel truck engine software, including the full implementation of water pump control, a new feature in the project.
- Extended the device encapsulation library for new temperature and pressure sensors, auto-generating C from Perl scripts; implemented device drivers, CAN frame handling and resource optimisation.

PROJECTS

- **Rust Tour** (rust-tour.dev): interactive Rust course with 40 test-driven exercises, a Monaco editor and an integrated terminal. Built in Rust.
- **archMD** (archmd.dev): offline-first PWA for system architects. Live preview, Mermaid diagrams, direct disk access and HTML and PDF export, with an MCP server that pairs it with Claude Code.
- **PDFReplicator**: generates millions of PDFs from an HTML template and a spreadsheet data source, in Java.

EDUCATION AND CERTIFICATIONS

Bachelor of Engineering, Electronics and Communication Engineering | Kumaraguru College of Technology | 2007 - 2011

- Google Cloud Certified Professional Cloud Architect, 2025
- Google Cloud Essentials; Build Infrastructure with Terraform on Google Cloud
- Fellow of the Insurance Institute of India, with distinction in Actuary (FE93778)
- Foundations of User Experience (UX) Design