

GOPIKRISHNA M A

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Summary

Software engineer who builds end to end: embedded devices (Qt/C++ on embedded Linux), Go and TypeScript backends, and the AI on top, currently in regulated healthcare (FDA 21 CFR Part 11). I build AI and automation that remove the busywork so people only do the work that needs a human: reviewing, deciding and signing.

Experience

Software Engineer ausa.health

Oct 2024 – Present

Prar (*Ausa Health*) – Home-based primary care platform

Bengaluru, India

Quako – AI-native EQMS (FDA 21 CFR Part 11)

TypeScript, Fastify, PostgreSQL, pgvector, DBOS, React

- Designed and built from scratch a multi-tenant, self-hostable electronic QMS used in production, including a custom block editor with real-time collaborative editing, so quality teams spend their time reviewing and approving instead of chasing signatures, copying forms and assembling audit evidence.
- AI does the drafting:** generates procedures, templates and training quizzes from a prompt or referenced documents, summarizes what changed between versions, rewrites selected text inline, and builds a daily “needs your attention” digest grounded only in real records. AI assists but never signs.
- Automation moves the work:** rules engine with triggers, CEL conditions and action chains, dry-run, durable human-in-the-loop execution (DBOS), periodic-review and training sweeps, a visual node-canvas rule studio, and plain-English rule drafting that is validated and auto-repaired before it is offered.
- Part 11 by construction:** lifecycle state machine with a single enforcement point, 7 assignment types with sequencing, passkey and TOTP e-signatures on every resolution, role-based training matrix with requalification, and a hash-chained append-only audit trail.
- Guardrails and quality:** provider-agnostic LLM layer (Azure OpenAI, Claude), per-action AI credit metering with spend caps, provenance marking of AI content, untrusted-content rules for referenced documents; Postgres row-level security with cross-tenant negative tests in CI, strict TypeScript and Playwright end-to-end tests.

Ausa Brain – Internal AI Agent Platform

Python, FastAPI, LangGraph, Azure OpenAI, PostgreSQL, React

- Built from scratch the company’s internal AI assistant, available in web chat and as a Microsoft Teams bot, deployed on Azure Container Apps with Microsoft Entra SSO and role-based admin access.
- Multi-agent orchestration:** an intent router sends simple requests to one specialist and compound requests to a supervisor that delegates across Jira, GitHub, Microsoft 365 (mail, calendar, files), memory and rules agents (30+ tools) through structured hand-offs.
- Retrieval:** hybrid keyword and vector search with semantic re-ranking, fanned out in parallel across SharePoint and uploaded-document indexes, with per-claim source citations; per-user long-term memory on pgvector + BM25.
- Safe actions:** reads run instantly, while every write pauses on a LangGraph approval gate (approve, edit or reject per call) and runs through an idempotent lease, reconcile and compare-and-set protocol that never double-creates.
- Always on, always improving:** HMAC-verified webhooks, a rules engine, cron schedules and daily digests delivered to Teams; an audit log of every action, an LLM violation judge with admin calibration, a live trace panel and redacted LangSmith tracing that turn reviews into fixes and tests.

AusaHub – Patient Kiosk on the Ausa Home Health Device

C++, Qt 6 / QML, MQTT, GStreamer, embedded Linux

- Lead contributor (605 commits) to the device monorepo and owner of the Qt 6 app on Ausa’s home health hub (Qualcomm QCS6490): vitals with BLE medical devices, video consultations, appointments, messaging, care routines and at-home tests across ~30 feature domains.
- Built the device’s multilingual voice AI assistant (MQTT-driven conversational turns, confirmation cards, walk-away stop) for appointments, routines and profile; designed the data layer as repository-pattern domains over REST and MQTT with stale-while-revalidate caching and centralized session management; built LiveKit consultations with camera handoff to a native media daemon.
- Hardened it for a shared, always-on medical device: tamper-evident audit trail (21 CFR 11.10(e)), inactivity auto-logout, fail-fast config validation, systemd supervision and over-the-air delivery through Azure Device Update; integrated AR pose tracking for stethoscope-spot and BP-cuff guidance.

Clinical Platform Backend

Go, PostgreSQL, sqlc, OpenAPI, Terraform, Azure

- Contributed to AUSA's clinical platform, a Go modular monolith (chi, OpenAPI strict-server, sqlc/pgx) on Azure Container Apps with Terraform and OIDC-federated CI/CD; built and hardened care-domain APIs (referrals, hand-offs, notes, observations) for idempotent retries, stable pagination and per-record authorization, backed by conformance and integration tests.
- Planned the Remote Patient Monitoring service that connects the home hub to hospital EHRs: scoped a first real-use slice (verified device, enrollment, consent, durable BP capture, idempotent EHR delivery with provenance) with requirements traceability and a risk register.

Software Developer

Jan 2024 – Jun 2024

Dr. Venu P, Teaching, Research & Innovation, University of Bahrain

A'ali, Bahrain (Remote)

- Built a Sustainable Development Goal prioritization platform (Python, Flask, Next.js, MongoDB) that ranks development goals from expert evaluations using fuzzy-logic multi-criteria analysis, and delivered it for university use.

Software Developer

Jul 2023 – Sep 2023

Dr. Abraham Varghese, Senior Lecturer, UTAS

Muscat, Oman (Remote)

- Developed a question-paper generation tool for educators with in-browser equation input (MathQuill) and print-ready PDF export, cutting paper preparation time by roughly half.

Technical Skills

Languages: C++, Go, TypeScript, JavaScript, Python, QML, SQL

AI and Agents: LangGraph, LangChain, RAG, hybrid search and semantic re-ranking, Azure OpenAI, Claude, pgvector, LangSmith, LLM evaluation, voice AI, human-in-the-loop design

Embedded and Desktop: Qt 6 (QML, Qt Quick), embedded Linux, systemd, CMake, GStreamer, MQTT, BLE, Azure DevOps Update (OTA)

Back-end: Go (chi, sqlc, OpenAPI), Node.js, Fastify, FastAPI, Express, Flask, REST, modular monoliths, BullMQ, DBOS

Front-end: React, Next.js, Flutter, React Query, Tailwind CSS, shadcn/ui, React Flow, rich-text and block editors, real-time collaboration

Data and Security: PostgreSQL (row-level security, Drizzle), MongoDB, Redis, Keycloak/OIDC, Microsoft Entra, passkeys (WebAuthn), DPOP, audit-trail design, FDA 21 CFR Part 11

DevOps and Testing: Docker (ARM64 cross-builds), Terraform, Azure (Container Apps, AI Search, OpenAI, VMs), GitHub Actions, Playwright, Vercel, AWS S3, Sentry

Projects

Fanboy Jerseys – E-commerce Store | Next.js, MongoDB, Razorpay

Jul 2024

- Launched a full-stack e-commerce platform for a sports jersey business, moving it from WhatsApp and Instagram DM sales to a professional online store with live customers and orders.
- Integrated Razorpay payments and built an order management system that cut order processing time by 60%.

Unified Retail Hub | Next.js, Node.js, MongoDB, AWS

May 2024

- Built an integrated retail platform (eCommerce storefront, POS billing system and admin dashboard) sharing one centralized database, so small supermarkets keep inventory and sales in sync when moving online.
- Delivered sales analytics, inventory tracking and user management from a single admin console.

Education

Kerala Technological University (CGPA 7.36/10.0)

Sep 2020 – Jun 2024

Bachelor of Technology in Computer Science Engineering

SCMS College of Engineering and Technology

Extracurricular

Freelance Video Editor

2020 – 2024

Fiverr

Remote

- Completed 50+ orders with 45 five-star ratings out of 46, alongside studies and full-time work.