

Seasoned Engineering leader with a quality-driven mindset, passion for data-driven decision making, 8+ years of experience delivering IoT, embedded systems, and enterprise applications, SaaS solutions in industrial, robotics, medical, aerospace, and fintech domains. Proven record of transitioning products from prototype to large-scale deployments, leading cross-functional engineering teams (35+ members), coordinating global engineering teams (US, India, Japan, and China), and ensuring zero-downtime operations across global infrastructure. Skilled in Agile/Scrum leadership, application development, cloud platforms (AWS), and real-time embedded/IoT integration. I excel at taking ideas from the conceptual stage to fully realized products. With a keen eye for detail and a deep understanding of all stages of product development, I can create high-quality products that accurately reflect the vision of the client. I am passionate about bringing innovative ideas to life and thrive in fast-paced, collaborative environments.

## Key Competencies

- Global Engineering & Cross-Functional Leadership
- Software, Embedded Systems & Hardware Development
- AI-Driven Systems, Machine Vision & Intelligent Automation
- Entrepreneurial Mindset with Hands-On Technical Expertise
- Prompt Engineering and Agentic Rag
- End-to-End Product Architecture & Commercialization
- Customer, Business & Stakeholder Alignment
- System Integration, Qualification & Field Validation
- Robotics, IoT, Cloud & SaaS Product Engineering
- Agile/Scrum Leadership, Delivery Management & Team Scaling

Git, JIRA, Confluence, Gitlab, GitHub, QuickBase, Proteus Design Suite, KiCAD, OrCAD, LTSpice, STM32, Esp32, NXP i.Mx9, NXP Kinetics, Nordic nRF54, Xilinx Zynq SoC, NVIDIA Jetson, Raspberry Pi, Arduino, BLE, GNSS, SPI, I2C, CAN, UART, RS232/485, REST API, MQTT, gRPC, GitHub Actions, GitLab CI/CD, Docker, MongoDB, Redis, Eclipse Mosquitto, AWS, .NET, .NET 6, WPF, ASP.NET, React.js, Linux, Yocto Project, ZephyrOS, FreeRTOS, MQX RTOS, CMSIS, LwIP, Libcurl, CMake, CUDA, C, C++, C#, Python, VHDL, YAML, SQL

## Professional Experience

### Head of Software Engineering, American Security

June 2024 - Present

- Ensures near-zero downtime operations across a fleet of 15,000+ deployed safes featuring a multi-board architecture, alongside Android apps, AWS-hosted cloud microservices, and Windows desktop applications. Coordinating global engineering efforts by managing offshore teams in India and collaborating with development partners in Korea and production team in China to ensure seamless integration and on-time delivery.
- Architected the next-generation CashWizard Touch/Pro/Ultra safes, incorporating modern processors and UI, strategically positioning the product line for over 5 years of market competitiveness. Now driving its pilot rollout. Re-engineered cloud reporting infrastructure achieving >90% performance improvement (45 min → <3 sec) for 13 report types across 15,000+ devices. Also reduced infrastructure costs by 40% through the redesign.
- Rapidly mastered the product domain and serves as the key strategic liaison between customers, product management, and engineering, translating field insights into actionable feedback to align product roadmap decisions with real-world needs. Enabled real-time business intelligence and support for customers and accelerated time-to-market for new features by acting as a subject matter expert during the modernization of legacy systems.
- Initiated and currently leading an AI-powered analytics assistant built with agentic AI workflows, AWS services, and Quickbase Webhooks, enabling natural language querying and real-time operational insights from enterprise data.

### Group Head – Embedded Systems, Travancore Analytics

October 2018 - May 2024

- Started as an intern and progressed through multiple roles to ultimately become Group Head of Embedded Systems within 5 years, through technical excellence, cross-functional leadership. Scaled the engineering team from 3 to 35 by driving strategic recruitment and talent development. Identified and groomed new leaders to sustain growth before transitioning to an on-site role in the US.
- Delivered mission-critical projects across IoT, medical imaging, and aerospace, managing a \$600K+ portfolio of outsourced product development for 4 global client accounts by leading a 35+ member cross-functional engineering organization (software, embedded, QA, DevOps, PMs). Expanded business portfolio, growing a new client account from \$0 to \$100k in first year through strong client engagement and delivery excellence. Directed global deployments, oversaw integration and validation at ISRO along with on-site system qualifications with client teams in Japan and USA.
- Implemented project health frameworks (finance, delivery, customer satisfaction) that improved predictability, transparency, and client trust. Promoted agile practices (TDD, iterative development, pair programming) to elevate engineering quality and delivery velocity while collaborating with C-suite executives to align engineering strategy with business goals.

### Technical Advisor | Osvauld, Open Source Initiative, Bengaluru (part-time)

July 2023 - May 2024

- Architected Rust-based peer-to-peer frameworks leveraging Iroh for distributed networking (DHT + NAT traversal) and CRDTs for real-time, conflict-free data synchronization. Implemented secure data pipelines with Sequoia-PGP encryption and UCAN token-based decentralized authorization.
- Guided architecture decisions, security design, and implementation strategy across multiple applications of the suite (Livnote, Libremot, Sthalam) including Sovereign Node, an always-on personal node platform for continuous peer connectivity using low-power hardware like a Raspberry Pi.

## Key Projects

- NiOX Product Line: Managed all phases of development for the NiOX data acquisition and test automation platform, a one-stop solution designed to qualify space subsystems. Delivered multiple product variants (NiOX1900, NiOX2100, NiOX1553, etc.), integrating WPF/.NET-based control software, Xilinx Zynq SoC (ARM + FPGA), ADC/DAC modules, FreeRTOS, and Ethernet stacks. Enabled the qualification of critical ISRO systems, including the SMA, FWA, SADA, and BLDC motor-based actuators.
- Xcross Industrial CT: Architected and developed WPF/.NET-based robotic, motion control, and fluoroscopic imaging software, integrating a 4-axis motion controller, GigE detectors, and COM-based emitters. Enhanced imaging performance by building a CUDA-based image processing module. Led onsite integration and system qualification with client teams in Nagoya, Japan.
- MechaSense IoT: Developed a scalable HVAC platform on ESP32/Raspberry Pi hardware and firmware, supporting 50+ daisy-chained I<sup>2</sup>C sensors with MQTT-based data publishing and LTE/Wi-Fi connectivity. Simultaneously oversaw the development of a React/Node.js web application and React Native mobile app for real-time data visualization and device control.
- TigerView: Led the revamp of a cloud-based DICOM imaging platform with .NET 6, Angular, and MySQL, hosted on AWS (S3, EC2, CloudFront). Delivered a modern, cross-device UI and secure patient image sharing, and implemented CI/CD pipelines with GitHub Actions to streamline deployments and improve release velocity.
- Robotic Arm for LEO: Architected and managed the development of an interface PCB and supporting software (NVIDIA Jetson Orin) to support the motion of a 7 DOF robotic arm (motors interfaced over CAN and RS485). Collaborated on the development of a deep learning-based object detection and Kalman filter-driven motion estimation system to track and intercept dynamic targets through real-time camera feedback.

## Education and Certification

BTech in Electrical and Electronics | College of Engineering, Trivandrum

August 2014 - July 2018