

ALVIN JOMON

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PROFESSIONAL SUMMARY

Computer Science & Engineering student and Software Developer at iKorex with practical expertise in full-stack web application development, dedicated production Linux server administration, automated CI/CD deployment pipelines, containerized self-hosting, embedded IoT firmware engineering, and local vector retrieval engines. Proven hands-on track record in leading engineering teams for national hackathons and steering campus open-source initiatives.

TECHNICAL SKILLS & CORE STACK

- Software Application Development:** Full-Stack Web Apps (Next.js 15, FastAPI, PyQt6, Express), Mobile Apps (Kotlin Jetpack Compose, Flutter), RESTful APIs, SQL/NoSQL Databases.
- Server Management & Infrastructure:** Production Linux Server Administration (Arch Linux, Ubuntu Server), System Hardening, udev/systemd Services, Reverse Proxies (Nginx), Docker Containerization, Self-Hosted Developer Services.
- CI/CD & DevOps Automation:** Automated Deployment Pipelines (GitHub Actions), Environment Configuration, Linux Shell Scripting (Bash), System Monitoring & D-Bus Inter-Process Communication.
- Languages & Frameworks:** C/C++, Python, TypeScript, Dart, Kotlin, Java, Bash, SQL, FreeRTOS, GStreamer, Socket.io, OpenCV.
- Embedded Systems & AI Tooling:** ESP32 / ATmega328P Microcontrollers, I2C/SPI/UART/GPIO Buses, Vosk STT, Kokoro ONNX TTS, Local Vector Search (mxbai-embed-large 1024-dim), SQLite FTSS BM25.

PROFESSIONAL EXPERIENCE & LEADERSHIP

iKorex | *Software Developer / Engineer*

2026 – Present

Kottayam, Kerala

- Software Application Development:** Engineered end-to-end web applications, responsive frontend components, backend REST APIs, and database integrations.
- Server Management & Deployments:** Administered production Linux servers, configured security policies, managed environment setups, and ensured high system availability.
- CI/CD & DevOps Automation:** Designed and configured automated continuous integration and continuous deployment (CI/CD) pipelines for streamlined releases.
- Self-Hosting & Maintenance:** Deployed containerized internal developer services using Docker, configured reverse proxies, and maintained server backups.

IIIT Kottayam (PM-VIKAS Scheme) | *IoT Student Trainee*

May 2026 – Jul 2026

Kottayam, Kerala

- National Skilling Initiative:** Selected for national IoT training funded by Ministry of Minority Affairs (Govt of India); IIIT Kottayam was the first higher education institute to host this skilling program.
- Microcontrollers & Protocols:** Programmed ESP32/ATmega328P microcontrollers using FreeRTOS multitasking, I2C/SPI/UART sensors, and MQTT/WebSocket networking.

Smart India Hackathon (SIH 2025) | *Team Leader*

2025

Ministry of Education

- Hackathon Team Leadership:** Led a 6-member engineering team designing AI-driven smart agriculture hardware and software prototypes for the national SIH 2025.

FOSS Club CEP & IEEE SPS | *Tech Lead / Vice Chair*

2025 – Present

CEP Poonjar

- Community Leadership & Workshops:** Directed open-source Linux workshops, git bootcamps, and co-organized SIGNAL 4.0 Drone Workshop at TKMCE Kollam.

FLAGSHIP TECHNICAL PROJECTS

CyberSim Security Platform

Next.js 15, Socket.io, TypeScript

2026

Public Repo

- Gamified Cyber Training:** Built an interactive cybersecurity platform with real-time brute-force attack streams over WebSockets, header analysis tools, and DOM XSS sandboxes.

Central Brain Engine

Python, Vector RAG (1024-dim), SQLite FTS5

2026

CLI Tool

- Local Vector Retrieval:** Developed a zero-cloud memory CLI tool (brain) blending 1024-dim dense embeddings (mx-bai-embed-large) with BM25 keyword matching via Reciprocal Rank Fusion.

Project Doremon & Happy Voice Assistant

FastAPI, Vosk STT, Kokoro ONNX, ESP32

2025 – 2026

Hybrid System

- Offline AI & Edge Hardware:** Architected privacy-first home assistant with hybrid vector+FTS5 search, Vosk/Kokoro offline speech stack, ESP32-S3 I2S microphone satellite nodes, and Kotlin Jetpack Compose Android client.

plasma-backlight-control

Python, GStreamer, D-Bus, PipeWire

2025

Linux Daemon

- Linux Ambient Lighting:** Created background Linux daemon capturing screen video colors via GStreamer/PipeWire to dynamically sync Asus TUF keyboard RGB backlight zones using D-Bus.

EDUCATION

College of Engineering Poonjar (IHRD)

B.Tech in Computer Science & Engineering

2023 – 2027

KTU Affiliated

- Academic Focus:** Affiliated to APJ Abdul Kalam Technological University. Focus on Systems Architecture, Operating Systems, Computer Networks, and Artificial Intelligence.

SMV HSS Poonjar

Higher Secondary Certificate (HSC Class 12 Science)

Mar 2024

Kerala State Board

- Academic Score:** Passed with 89.17% (1070 / 1200) in Science Stream.

CERTIFICATIONS & TRAINING

- Digital 101 Gold Certification:** NASSCOM IT-ITeS Sector Skills Council (Approved by Govt of India) | ID: FSP/2025/5/10223851.
- Website Hacking & Defence:** Website Security Council Research (CEP/WHD/2025/12) & Offenso Hackers Academy (OHA-DWEB-2025-12).
- Cybersecurity & Innovation:** IEEE Computer Society Kerala Chapter (Informatyka 5.0) & K-DISC Young Innovators Program 7.0.