

Arjun Kumar

Embedded Software Engineer

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PROFILE SUMMARY

Embedded Software Engineer with 4+ years of experience designing, developing, and optimizing Linux-based embedded systems. Strong expertise in Embedded Linux, the Yocto Project, system-level software development, networking, and secure communication technologies. Hands-on experience building custom Linux distributions for Raspberry Pi and Odroid XU4, including BSP customization, kernel configuration, and production deployment. Actively works on Post-Quantum Cryptography (ML-KEM, ML-DSA) and quantum-safe communication systems, with a strong interest in building secure, scalable, and high-performance embedded solutions.

EDUCATIONAL BACKGROUND

Qualification	Year	Score
B.Tech — Electrical & Electronics Engineering (EEE) ITS Engineering College, Greater Noida, Uttar Pradesh	2022	CGPA: 8.86
Class XII (Senior Secondary) Marigold Public School, Noida, Uttar Pradesh	2018	64%
Class X (Secondary) Marigold Public School, Noida, Uttar Pradesh	2016	CGPA: 7.4

SKILLS

Embedded Systems & Linux: Embedded Linux, Yocto Project, BSP Customization, Kernel Configuration, Linux Internals, Systemd Services

Programming & Automation: Python, Bash Scripting, Flask, REST APIs, Automation Development

Networking & Communication: TCP/IP, SIP / VoIP (baresip), VPN (Tailscale), SSH, Network Diagnostics

DevOps & System Administration: Docker, Git, Debian Packaging, Server Deployment, Linux System Administration

Cybersecurity & Cryptography: Post-Quantum Cryptography (PQC), NIST FIPS 203 (ML-KEM), NIST FIPS 204 (ML-DSA), PKI, Secure Communications

Embedded Platforms & IoT: Raspberry Pi, Odroid XU4, ARM Platforms, IoT & Edge Computing

EXPERIENCE

Embedded Software Engineer — Coral Telecom Ltd. 2023 – Present

- Embedded Linux development using Yocto Project customization for production-ready devices
- Implemented secure communication technologies, including Post-Quantum Cryptography (PQC)
- Custom Linux image development, BSP customization, and Linux server administration
- Worked with VoIP/SIP technologies, Python-based development, and Docker-based deployments

Embedded Software Engineer (Intern → Full-time) — VVDN Technologies 2022 – 2023

- Embedded Linux development and system-level debugging within the 5G domain
- Software integration and feature development alongside cross-functional engineering teams
- Networking-related development and Linux-based system customization

PROJECTS

Post-Quantum Cryptography for Secure VoIP (baresip)

Implemented ML-KEM-768 and ML-DSA65 based quantum-resistant key exchange and certificate authentication for a direct IP-to-IP VoIP system; resolved SRTP rekeying race conditions for stable bidirectional calls.

Custom Embedded Linux Phone Platform (Yocto)

Built a custom Yocto-based Linux distribution for Raspberry Pi 3 and Odroid XU4 with BSP/kernel customization, an integrated SIP calling package, a self-authored Debian package for automatic dependency configuration, a lighttpd-based embedded web GUI, and a Qt6 smartphone-style touchscreen UI.

CORAL Camera Security & Notification System

Designed a Python/Flask RTSP camera-monitoring pipeline with offline push notifications via a self-hosted, Dockerized ntfy server; packaged as a Debian package with two systemd services.

Hybrid Quantum-Safe Key Exchange (PQC + QRNG + ECDH)

Combined ML-KEM-768, classical ECDH P-256, and live Quantum Random Number Generation into a single HKDF-SHA256 derived session key, verified over quantum-secure direct IP calls.

Self-Hosted Qt File Server & Portfolio Platform

Built a self-hosted LAN server from scratch in C++/Qt with hand-rolled HTTP request parsing, bidirectional file upload/download, and dynamic single-page content loading; deployed as a persistent systemd background service.

LANGUAGES KNOWN

English, Hindi

DECLARATION

I hereby declare that the information provided above is true and accurate to the best of my knowledge and belief.

Date: _____ Place: _____

(Arjun Kumar)