Rushil Madhu

rushilmadhu.com

Email: rushil1028@gmail.com
Phone: +1 240-413-0304
www.linkedin.com/in/rushilmadhu

Education

University of Maryland – College Park — College Park, MD
Bachelor of Science in Computer Science; GPA 3.9 — *August 2023 – May 2027*

Experience

Qualcomm — June 2026 – August 2026
Software Engineer Intern – WRD QuIC Modem SW Data Services — *San Diego, CA*

- **Linux modem data path** – Sole intern owning modem-to-host data-path tooling across RMNET, IPA hardware, and QMI, supporting 5G data-services validation for 30+ engineers
- **IPA SDK** – Designed and built a production C SDK and CLI tool that abstracts Qualcomm IPA hardware programming for carrier customers(Jio, Nokia, Airtel) enabling EoGRE/MPLSoGRE tunnel configurations
- **Test orchestrator** – Built a Python framework with host-keyed YAML topology registry, automating 20 end-to-end data-path test cases and reducing manual validation from hours to minutes
- **Hardware emulation layer** – Built an emulation framework for Qualcomm's IPA packet-accelerator kernel driver, enabling full driver prove and initialization without physical SoC hardware
- Implemented a memory mapped register stub that intercepts all driver ioread/iowrite calls against a fake register bank

nuha — October 2025 – May 2026
Software Engineer — *New York, NY*

- **Secure networking** – Built WireGuard+nftables overlay securing **50+ Raspberry Pis** with least-privilege RBAC
- Standardized remote ops via **Cloudflare Zero Trust** SSO and SSH **ProxyJump**, reducing setup time **80%**
- **Zero-touch enrollment** – Automated Pi provisioning with Registrar API, **Supabase** registry, auto WG keys/IPs
- **OTA fleet management** – Deployed **hawkBit+RAUC** for safe updates with rollback; built Kitting UI for ops
- Built **systemd radar-agent** on Pi (UART/SPI) for mmWave chirp config and real-time vital sign streaming
- **Device & cloud control plane** – Registrar APIs (`/enroll`, `/config`, `/telemetry`, `/commands`) with Supabase JWT + RBAC; device shadow/state, idempotent command queue with retry/backoff, and audit logs over WireGuard.

Paradigm AI — May 2024 – Present
Founding Engineer — *Remote*

- Managing a team of **3 interns** to develop an **OCR tool for Government of India documents**
- Scraped, lemmatized, and embedded constitutions, codes, and **10,000+ U.S. court cases** for legal RAG pipeline
- Designed **RESTful APIs** to process Single-Line Diagrams/handle .dwg files, leading to a **70% revenue increase**
- Implemented **CI/CD pipelines** with **GitHub Actions** and containerized services using **Docker**; deployed on **AWS EC2/Elastic Beanstalk** with **Nginx** and auto-scaling

finish'd — January 2025 – September 2025
Software Engineer — *Remote*

- Owned and shipped **3 healthcare applications** with **1000+ clients**, overseeing releases via App Store Connect
- Built a ride-share service on **Mapbox** with real-time tracking, **increasing active riders 40%** in 3 months
- **Managed a team of 2 interns** and built a Redis-backed User Hub request system, enabling faster feature access, centralized user data management, and backend processing; delivered in 3 months
- Built a **PyTorch LSTM** to predict mood from Ecological Momentary Assessment and health data, CoreML deployed

Projects

ProtectEd — 2024
2nd Place at VTHacks 12

- **Firearm Safety:** Python + Swift safety system combining YOLO object detection on CCTV frames, on-device gunshot audio classification, Firebase real-time alerts, and Dijkstra-based routing to the nearest safe exits

Relearn — 2023
Winner at HackPrinceton

- **Relearn:** Built a TikTok-style learning app using Swift, FastAPI, Redis, and GPT-4, with backend APIs for lesson generation, Redis-backed content caching, and an infinite-scroll mobile feed for short-form educational content

Skills

- **Languages:** Python, C, C++, Java, TypeScript/JavaScript, Swift/Objective-C, Rust, SQL, HTML/CSS
- **Systems/Kernel:** Linux kernel internals, RMNET/IPA driver, QMI stack, ioctl interfaces, DMA, WireGuard, nftables
- **Backend/Data:** FastAPI, Spring Boot, Node; PostgreSQL, Supabase, Redis; gRPC, REST, WebSockets/SSE
- **Infra/ML/Mobile:** Docker, Kubernetes, GitHub Actions, AWS, Nginx; Core ML, ONNX, TensorRT; SwiftUI, React