Vishesh Rawal

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Software Engineer skilled in designing, implementing, testing, and deploying large-scale applications across Unix/Linux environments using C++, Python, Go, and Rust. Strong foundation in algorithms, data structures, and networking (TCP/IP), with proven ability to deliver scalable, reliable, and secure systems.

Education

Bachelor of Engineering in Computer Science — Patiala, Punjab, India
Thapar Institute of Engineering and Technology — *2022-2026*

Skills

Languages: Rust, Go, Python, C, C++, Swift, JavaScript, TypeScript, R, Matlab
ML / AI: PyTorch, OpenCV, BiLSTM, LSTM/GRU, BERT, GPT, ELMo, Time-series modeling
Infra / Cloud: Docker, Nginx, PM2, GitHub Actions, AWS (EC2, IAM), MongoDB Atlas, Vercel
Tools / Monitoring: Prometheus, Grafana, Git, Postman
Frameworks: Node.js, Express, React, Streamlit, TailwindCSS

Experience

SWE + Infra Lead — Sept 2022 – Feb 2024
Backslash Computing Society — *TIET*

- Designed and deployed distributed infrastructure on Linux (Docker, Nginx, AWS), ensuring 100% uptime under 25K+ intrusion attempts with real-time monitoring, security, and scalability.
- Led software engineering team of 10 to design, implement, and deploy applications supporting 1K+ users, coordinating cross-functional collaboration and ensuring system reliability.
- Directed a high-impact **HacktoberFest 2023 workshop**, propelling the society into the HacktoberFest Hall of Fame (top 10K contributors globally), boosting institutional visibility in open-source communities.

Projects

EV-Twin: AI-Powered Digital Twin Platform | *Go, MongoDB, Streamlit, PyTorch, Unity3D* GitHub Repository

- Built a modular digital twin framework for EV battery SoC/IR estimation, integrating ML pipelines (BiLSTM, KF-based SoC Estimators) with 3D Unity visualizations.
- Designed and implemented an AI-powered digital twin platform for EV batteries, integrating machine learning models (BiLSTM, PyTorch) with distributed Go backend and Streamlit frontend; deployed via cloud infrastructure (Prometheus, Grafana, Nginx, AWS) for real-time monitoring and scalability.

CCWC: High performance wc clone | *Rust* GitHub Repository

- Developed a high-performance command-line tool in Rust, optimized using memory-mapped files and multi-threading, achieving **93% throughput improvement** over GNU coreutils.

alvOS - Custom Operating System | *X, x86, Assembly* GitHub Repository

- Built x86-based operating system from scratch, implementing a **bootloader, kernel, and memory management.**
- Designed a **physical and virtual memory paging system**, for memory isolation and process management.

Achievements and Publications

IEEE International Conference on Computing, Communication, and Control (InC4 2025)
Real-Time Network Monitoring and Visualization using Zero-Trust Principles and Machine Learning

Mentor @ HackMIT 2024 — Remote
Massachusetts Institute of Technology, United States

Mentor @ GirlScript Summer of Code (GSSoC) 2024 — Remote
GirlScript Foundation, India