Vaibhav Goel

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Work Experience

DCM Shriram Ltd. **May 2026 – July 2026**
Software Engineering Intern *Uttar Pradesh, India*

- Developed and supported an Audit Management System in React, FastAPI, and PostgreSQL for secure audio handling and QA reviews.
- Moved the production backend from SQLite to PostgreSQL, improving concurrent access, scalability, and maintainability.
- Deployed enterprise applications on Ubuntu, configuring Nginx, Uvicorn, and PostgreSQL for production use.
- Implemented role-based authentication, protected audio storage, automatic retention rules, and enterprise feedback features.
- Resolved production issues, tuned backend performance, and delivered features with HR, QA, and infrastructure teams.
- Gained hands-on exposure to MPLS, VPN, Layer 2–7 networking, routing, ISP connectivity, leased lines, redundancy, and Linux networking.

MossX **June 2025 – July 2026**
Frontend Developer *Remote*

- Organized reusable React components for 6–8 production features spanning dashboards, API pages, and responsive layouts; improved code reuse by 40% and accelerated UI delivery.
- Built Framer Motion animations that maintained 60 FPS in complex views and managed async dashboard data through Zustand global state.

Aarvasa **Jan 2026 – May 2026**
Frontend Developer Intern *Remote*

- Produced 20+ React and Tailwind CSS components from Figma: navigation, heroes, forms, cards, dashboards, and tables, matching design specifications across mobile, tablet, and desktop.
- Integrated REST APIs and GSAP/Framer Motion animations with backend and design teams, releasing changes without compatibility breaks.

Team Sammard – VIT Rocket Team **May 2025 – Oct 2025**
Software Team Member *Vellore, India*

- Developed a Ground Control Station (GCS) dashboard for ground and flight testing, using WebSockets to display live altitude, velocity, and multi-sensor telemetry.
- Fed ESP32 avionics sensor data into the simulation pipeline to improve telemetry responsiveness and flight-test reliability.

Projects

Agentic-Ledger: Autonomous Financial Engine | *PyTorch, FastAPI, Docker, Phinite OS* | Case study

- Created a multi-agent workflow for real-time payment fraud interception and dynamic underwriting of small-business micro-loans.
- Used 400,000 retail transactions to train a PyTorch LSTM for revenue forecasting, achieving 94% accuracy to inform decisions on releasing frozen capital.
- Packaged an asynchronous FastAPI backend and Streamlit dashboard in Docker containers for production deployment.

Physics-Augmented 1D-CNN Fault Diagnosis | *Python, PyTorch, ONNX, Signal Processing* | Case study

- Built a dual-stream 1D-CNN with a physics-based residual filter and attention for bearing-fault diagnosis, and compared it with 11 models (CNN, WDCNN, pre-trained ResNet-18, Random Forests).
- Designed a leakage-free evaluation (load, fault-size and bearing-disjoint splits; Wilcoxon/Holm tests): network macro-F1 falls from over 99.8% to 45–48% on unseen defect sizes; test-time AdaBN raised strong-noise macro-F1 by 15–19 points.
- Exported an INT8 ONNX model (132.5 KB, 0.30 ms/inference on CPU); IEEE manuscript in preparation.

AI Financial Audio Intelligence System | *FastAPI, React, Whisper, Celery, Redis* | Case study

- Built a financial call analysis pipeline that transcribes audio with OpenAI Whisper and identifies risk signals through custom NLP logic.
- Implemented a scalable async FastAPI service with Celery/Redis background processing and rate limiting, alongside a React dashboard showing risk signals in real time.

ML & IoT Fire Detection System | *ESP32, Random Forest, Flask, Dash* | Case study

- Developed a five-sensor fire detector with a Random Forest classifier, reducing false alarms by 25%; sent ESP32 WiFi readings to Flask for live remote monitoring and automated alerts.

Education

Vellore Institute of Technology (VIT) **Aug 2024 – May 2028**
B.Tech in Computer Science and Engineering | CGPA: 8.19/10 *Vellore, India*

- Class XII: 80%
- Coursework: DSA, Database Systems, IoT, Operating Systems, Microprocessors, Computer Architecture, Computer Networks
- Activities: EXC Club (graded project obligations); VIT Rocket Team – Software Division

Technical Skills

Languages: Python, C++, JavaScript, TypeScript
Frontend: React 18, Next.js, Tailwind CSS, Three.js, Framer Motion, GSAP, Zustand
Backend & Systems: FastAPI, Node.js, REST APIs, WebSockets, Redis, Celery, System Design
AI / ML: PyTorch, Scikit-learn, OpenAI Whisper, NLP Pipelines, Model Validation
Networking & Infra: OSI Model, TCP/IP, DNS, HTTP/HTTPS, MPLS, VPN, Enterprise Networking, Linux Networking, Network Security
Tools: Git, GitHub Actions, Linux, Figma, ESP32/IoT, Vercel