

SAHIL RANE

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EDUCATION

Vidyavardhini's College of Engineering and Technology
*Bachelor of Engineering in Computer Science (Data Science); **SGPA: 9.5***

Vasai, Maharashtra
2024 – 2028

TECHNICAL SKILLS

Languages: Python, Java, C++, C, TypeScript, JavaScript, SQL
Frameworks & Libraries: React Native, React, Expo (SDK 54), Fastify, Node.js, Express.js, FastAPI, OpenCV
Tools & Kernels: OpenCASCADE, ONNX Runtime, Shapely, PyOpenGL, PyInstaller, Git, GitHub Actions, Linux
Databases & Storage: MongoDB, MySQL, Oracle SQL, MMKV Storage

KEY TECHNICAL PROJECTS

Privacy Shield · *React, TypeScript, Fastify, FastAPI, GLiNER NER* · [GitHub](#) Feb 2025

- Engineered a zero-trust AI security proxy and Manifest V3 Chrome extension intercepting prompts across ChatGPT, Claude, and Gemini to block leaks for 22+ PII and credential types.
- Built a low-latency redaction pipeline coupling Shannon entropy analysis and Bloom filters with a FastAPI-hosted zero-shot GLiNER NER model for contextual entity detection.
- Architected a session-isolated, in-memory tokenization layer with zero disk persistence to ensure seamless client-side re-hydration of redacted tokens in incoming responses.
- Implemented an interactive sanitizer playground, screenshot OCR scanner, and a threat analytics compliance dashboard aligned with GDPR, HIPAA, and PCI-DSS standards.

Python CAD Pro · *Python, PyQt, PyOpenGL, OpenCASCADE, Shapely, ONNX* · [GitHub](#) Jan 2025

- Engineered a standalone engineering CAD/CAM platform with 2D geometric constraint solving, ONNX-assisted blueprint vectorization, and analytical 3D B-Rep reconstruction (STEP AP214).
- Implemented an ASME Y14.5-2018 metrology engine supporting 3-2-1 DRF, RSS tolerance stack-ups, and True Position MMC bonus tolerances calibrated down to 10^{-4} mm.
- Constructed an ISO/DIN semantic feature extractor for machine elements (threads, counterbores, keyways) and a DFM linter checking CNC cutter accessibility and draft angles.
- Automated Haas/Fanuc G-code generation and 1:1 metric vector PDF/DXF outputs, packaged via PyInstaller and verified with a 59-test suite (100% pass rate).

ABHAYA – Autonomous Threat Detection System · *React Native, Express, Twilio* · [GitHub](#) Mini Project 2026

- Architected an autonomous emergency app integrating manual SOS, > 2.5g accelerometer shake detection, and on-device Picovoice Porcupine keyword recognition.
- Engineered an SOS pipeline dispatching high-accuracy GPS coordinates via Twilio SMS (3.5–4.2s) with automated native GSM messaging fallback for offline environments.
- Implemented stealth ambient audio recording via **expo-av** and multi-brand incoming fake call deception interfaces to deter active threats.
- Employed **react-native-mmkv** for sub-2s cold-start initialization and built a 60-second hardware-level cooldown lock to prevent repeat trigger floods.

Institutional Web Portal Redesign · *React, Tailwind CSS, REST APIs* · [GitHub](#) · [Live](#) 2025 – 2026

- Redesigned and deployed the institutional portal (old.vcet.edu.in), modernizing UI architecture and content delivery across 15+ sub-portals.
- Engineered responsive layouts and reusable modular components with dynamic filtering and search capabilities for academic circulars and departmental notifications.
- Optimized bundle size and asset delivery via lazy loading and media compression to significantly reduce load times across low-bandwidth connections.

HONORS & CERTIFICATIONS

- **First Place Winner, OSCILLATION '26:** Awarded 1st place in Technical Paper Presentation for the research and systems architecture of the *ABHAYA Autonomous Safety System* at VCET (Apr 2026).
- **Data Analysis with Python Developer Certification:** 300-hour verified credential covering Pandas, NumPy, and statistical data visualization — [freeCodeCamp](#) (Jun 2026).
- **Foundations of Data Science:** Professional credential covering data exploration, analytics pipelines, and statistical modeling — [Google / Coursera](#) (Jan 2026).
- **Open Source Software Development:** Published and maintain production-grade desktop kernels, full-stack security tools, and native utilities under GitHub handle [@CyberCodezilla](#).