Aaryan Patwardhan

Applied AI Systems Engineer · Founder, QuantaSharp

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Summary

Third-year B.E. IT student who builds applied AI systems that check their own output: the AI reads, deterministic rules verify, and every doubtful result is shown to a person. I work across Python backends, LLMs, React and Docker, and I'm looking for applied AI or backend internships.

Experience

Founder & Applied AI Systems Engineer — QuantaSharp, Pune — Apr 2026 – Present

- Built **InvoiceAI**, which reads Indian GST invoices (digital PDFs, scans and phone photos) with local LLMs (Qwen2.5 and Qwen3-VL via Ollama) behind a FastAPI service with SQLite storage.
- Designed a deterministic verification layer: GSTIN check-digit validation with OCR repair that is accepted only when the checksum passes, totals and CGST/SGST cross-checks, and seller/buyer correction from PDF text positions. Every doubtful field is flagged for review.
- Wrote 136 automated tests and a labelled golden-set accuracy gate in GitHub Actions, so a model or prompt change that lowers accuracy cannot be merged; 83% field accuracy with 0 invented values on 11 sample documents.
- Shipped it as an offline Docker package with Windows and Linux installers, and designed the dashboard for non-technical and older users.

Python AI/ML Development Intern — Code N Try, Pune — Jan 2026 – Feb 2026

- Built a house-price prediction model: explored the data with pandas and Seaborn, trained a scikit-learn regression on a train/test split, and saved it with joblib for a prediction script.
- Built a Flask and SQLAlchemy web store with a product catalogue, session cart, checkout and an admin dashboard for adding and editing products.
- Built a command-line chat assistant on the Google Gemini API, with the API key kept out of the code.

Projects

Hyron AI — software supply-chain risk · FUSION 2026 hackathon, team lead — Oct 2026

- Led a four-person team that built, in 24 hours, a scanner that maps direct and transitive npm dependencies across projects in a NetworkX graph.
- Ranks findings with a transparent score combining OSV.dev advisories, FIRST EPSS and CISA KEV, and proposes semver-safe upgrade plans. Python, FastAPI, NetworkX, React

SentinelMesh — AI-assisted drone response · INSPIRON 5.0 (COEP), AI core lead — Mar 2026

- YOLOv8 incident detection on recorded video with confidence-based routing. Unclear detections go to two local LLM agents (Qwen2.5 via llama-cpp-python) that argue for and against before a dispatch decision.
- Simulated drone fleet with geofencing, streamed over WebSockets to a live React and Leaflet map. Python, CUDA, FastAPI, React

Aura — passive attendance from campus Wi-Fi events — Apr 2026 – May 2026

- Event-driven pipeline: RADIUS accounting events flow through FastAPI into Redis Streams, with attendance rules and an Isolation Forest anomaly score, stored in PostgreSQL. Runs end to end with a simulator. FastAPI, Redis, PostgreSQL, React, Docker

CramIQ — exam preparation for SPPU engineering students — May 2026 – Jun 2026

- Study planner, study vault, progress streaks and an admin panel. FastAPI and PostgreSQL backend on a hardened Ubuntu VM, Next.js frontend on Vercel, Gemini for study material. FastAPI, PostgreSQL, Next.js, Gemini

Skills

AI & ML: LLM applications (Ollama, Qwen, Gemini API), vision-language models for documents, LLM evaluation with golden datasets, YOLOv8, OpenCV, scikit-learn

Backend & data: Python, FastAPI, Flask, REST APIs, PostgreSQL, SQLite, Redis Streams, SQLAlchemy

Frontend: TypeScript, JavaScript, React, Next.js, Tailwind CSS

DevOps & tools: Docker, Docker Compose, GitHub Actions, pytest, Linux, Bash, Nginx, Git

Education

B.E. Information Technology — SKN Sinhgad Institute of Technology & Science, Lonavala (Savitribai Phule Pune University) — Expected Jun 2028

HSC (Class XII) — Saraswati Bhuvan, Chhatrapati Sambhajinagar — 2023

Certifications & Hackathons

- Front-End Development Internship — Cognifyz Technologies (Jan – Feb 2026)
- 21 Projects, 21 Days: ML, Deep Learning & GenAI — GeeksforGeeks (2026) · Python Skill Up — GeeksforGeeks (2026)
- Hackathons (participant): FUSION 2026 (team lead) · INSPIRON 5.0, COEP · Smart India Hackathon 2026 · Decode SIH 2026