

ANCHIT LAHKAR

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SUMMARY

Second-year B.Tech CSE undergraduate at SRMIST (NIRF Rank 11, CGPA: 9.8/10) conducting research in Quantum Machine Learning. Ranked #727 / 35,548 at Google Prompt Wars 2026 (top 2%); ICPC High Honor (2025); Top 10 at Ultron 9.0 Hackathon (300+ teams). Experienced in full-stack development, post-quantum cryptography, computer vision, and zero-infrastructure automation pipelines. Seeking research and engineering opportunities in quantum information science, applied ML, and systems-level computer science.

EDUCATION

SRM Institute of Science and Technology, Kattankulathur

2025 – 2029

Bachelor of Technology in Computer Science and Engineering (B.Tech. CSE)

CGPA: 9.8/10 | NIRF Rank 11 in India (2025) | QS Ranked: Top 54 Indian Universities

Maria's Public School, Guwahati, Assam

2013 – 2025

Class X: 93% | Class XII: 85%

RESEARCH EXPERIENCE

Undergraduate Research Assistant

Jan 2026 – Present

Quantum Machine Learning | Supervisor: Dr. Manju A, Dept. of Computing Technologies, SRMIST

- Developing a binary classification pipeline for forest fire detection using Variational Quantum Circuits (VQCs) with PennyLane, benchmarking accuracy and circuit depth against classical baselines including Logistic Regression and Random Forest.
- Investigating quantum feature encoding strategies — amplitude encoding vs. angle encoding — across tabular environmental datasets to evaluate expressibility and generalization trade-offs.
- Conducting cross-domain research spanning Quantum Computing, Robotic Control, and AI under Dr. Manju A, who holds 15+ years of multi-disciplinary research expertise.

SKILLS

Languages:	Python, JavaScript, TypeScript, C++, Java
Frameworks:	React, Next.js, Node.js, FastAPI, Flask, PennyLane, Qiskit
ML & AI:	Scikit-Learn, OpenCV, TensorFlow, PyTorch, VQC, Gemini API
Research Areas:	Quantum Machine Learning, Post-Quantum Cryptography, Lattice-Based Algorithms, CV
Databases:	MySQL, Firebase Firestore, Supabase (PostgreSQL)
Cloud / DevOps:	Vercel, GitHub Actions, Git, CI/CD, Raylib, COLMAP
Soft Skills:	Technical Communication, Cross-functional Collaboration, Research Documentation
Learning:	Qiskit Runtime, Quantum Error Mitigation, LangChain

PROJECTS

CarbonSense — AI-Powered Carbon Footprint Awareness Platform

2026 | React | TypeScript | Supabase | Gemini 1.5 Flash | React Three Fiber | Zustand | Vercel

- Ranked #727 / 35,548 (top 2%) at Google Prompt Wars 2026; built a full carbon intelligence cockpit with TERRA AI coach (Gemini 1.5 Flash), 3D Planet Twin via React Three Fiber, AI receipt OCR, and MCDA-based optimization engine identifying up to 40% reduction pathways.
- Engineered deterministic TypeScript carbon math across 7 packages with 258 passing unit tests; Supabase backend with JWT auth and row-level security; AI strictly isolated to reasoning/OCR — all carbon calculations are deterministic, not AI-generated.

Alpha-Forge — Personal Research Intelligence Pipeline

2026 | Python 3.12 | Gemini 2.5 Flash | GitHub Actions | Jinja2 | Telegram Bot API

- Built a zero-infrastructure intelligence aggregator scanning RSS feeds across Finance, AI, Quantum Computing, Semiconductors, and Startups; scores articles using a custom weighted formula ($\text{Signal} \times 0.7 + \text{Personal Relevance} \times 0.3$); caps at 10 articles/run to stay within API limits; auto-rotates across multiple Gemini API keys on quota exhaustion.
- Validates all LLM outputs via 11-field Pydantic schemas with auto JSON repair; deploys a Jinja2 glassmorphism dashboard to GitHub Pages on every run; delivers top insight to Telegram with zero persistent server infrastructure.

QHACK Quantum Lab — Full-Stack Quantum Circuit Workbench

2026 | *Next.js* | *TypeScript* | *FastAPI* | *Python* | *Qiskit Aer* | *WebSocket* | *Zustand*

- Architected a dual-workspace quantum circuit simulator supporting 20+ gates (H, X, CNOT, RX/RX/RZ, SWAP, QFT, Grover, VQE Ansatz, Bell State, GHZ) with 1024-shot sampling; backend compiles gate sequences via Qiskit Aer and streams results over a persistent WebSocket channel.
- Implemented side-by-side circuit comparison using Bhattacharyya coefficient on output distributions; step-by-step statevector playback with per-qubit Bloch sphere visualization; rule-based optimization engine suggesting gate cancellations and rotation merges. Live at qinsight-sigma.vercel.app.

QSecureX — Post-Quantum Secure File Exchange Platform

2026 | *Python* | *Kyber768 + ML-DSA-44 (liboqs)* | *AES-256-GCM* | *Zstandard* | *PyQt6* | *FastAPI*

- Engineered a hybrid post-quantum file exchange platform using Kyber768 (KEM) and ML-DSA-44 (signatures) via liboqs bindings, with AES-256-GCM encryption and Zstandard compression; chunks files into 2MB upload blocks with HMAC-SHA256 dynamic boundaries to prevent boundary analysis attacks.
- Implemented resumable uploads with 5-pass exponential backoff ($2s \times 2^{\text{attempt}}$), 60s server idle timeout, and pre-allocated disk reservation; PyQt6 multithreaded GUI keeps main thread fully responsive during CPU-intensive encryption. Led team to Top 10 / 300+ at Ultron 9.0.

ForkCast — Real-Time Multiplayer Food Decision Engine

2026 | *Next.js 15* | *TypeScript* | *Framer Motion* | *Firebase Firestore* | *Google Places API* | *Vercel*

- Architected a multiplayer voting app where groups create rooms via a 6-character code, vote on the top 5 nearby restaurants (Google Places API, 1,500m radius) using Framer Motion swipe gestures, and receive a winner via a race-condition-safe Firestore transaction.
- Engineered real-time session sync across all clients using Firestore onSnapshot; deterministic vote aggregation with tiebreaker. Secured 3rd place at Ship in a Day Buildathon (24 hours). Live at forkcast-iota.vercel.app.

Frame2Scene — Photogrammetry Pipeline & 3D Point Cloud Viewer

2025 | *C++* | *Raylib 5.5* | *COLMAP 3.9.1 (CUDA)* | *Python* | *FFmpeg*

- Built a Windows photogrammetry pipeline that extracts frames from video at 2fps via FFmpeg, runs COLMAP 3.9.1 sparse-to-dense reconstruction with 8,192 SIFT features and 5 stereo iterations, and outputs a fused.ply dense point cloud.
- Implemented a custom C++/Raylib viewer rendering the point cloud with GL_POINTS; supports rotate, pan, zoom, PCA alignment, vertical flip, density toggle, and grid overlay. Pitched for Samsung Solve for Tomorrow as a 3D anatomical model generation tool.

Dreams Creation — Production Preschool Network Website

2025 | *Next.js 15* | *React* | *GSAP ScrollTrigger* | *Framer Motion* | *Canvas* | *Vercel*

- Developed a live production website for a 3-branch preschool network in Guwahati serving 220+ students; features a draggable canvas hero, GSAP ScrollTrigger parallax, Framer Motion page transitions, parent login, and an admissions flow routing enquiries directly to Telegram.
- Implemented Next.js SSR for SEO optimization and Vercel CI/CD deploying on every Git commit. Live at dreamscreation.vercel.app.

ACHIEVEMENTS & COMPETITIONS

Google Prompt Wars 2026 — Rank #727 / 35,548 (Top 2%)

2026 | *Google* | *AI Code Submission Track* | *35,548 Participants*

- Ranked #727 / 35,548 for CarbonSense, evaluated by AI on code quality, Gemini API integration depth, and product completeness across a global field of submissions.

ICPC 2025 — High Honor

Nov 2025 | *International Collegiate Programming Contest* | *Chennai Multi-Provincial* | *3-Member SRMIST Team*

- Earned High Honor competing against top university teams across the region; solved problems spanning graph theory, iterative optimization, and data structures within a 5-hour timed window.

Ultron 9.0 Hackathon — Top 10 / 300+ Teams

Jan 2026 | *SRMIST* | *IEEE HIZE and Futurix Association* | *24-Hour Overnight Hackathon*

- Led team to Top 10 shipping QSecureX — post-quantum file exchange using Kyber768 and ML-DSA-44 — from concept to working code in 24 hours under live competition constraints.

Ship In a Day Buildathon — 3rd Place

Mar 2026 | Online | 24-Hour Build Window

- Secured 3rd place shipping ForkCast with live Firebase sync, Google Places integration, and race-condition-safe winner finalization within the time limit.