

HEET MEHTA

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Portfolio

EDUCATION

New York University, Tandon School of Engineering

Sep 2025 – May 2027

Master of Science in Computer Science

Brooklyn, NY

Courses: Software Engineering, Design & Analysis of Algorithms, Machine Learning

Vellore Institute of Technology

Sep 2021 – Jun 2025

Bachelor of Technology in Information Technology, **GPA: 9.14/10**

Tamil Nadu, India

Courses: Data Structures and Algorithms, Operating Systems, Machine Learning, Backend Development, Database Management, Computer Networks, Mobile Development, Artificial Intelligence, Cloud Computing

SKILLS

Languages : Python, Java, JavaScript, Rust, TypeScript, C, C++, C#, Go, Swift, SQL, HTML, CSS

Frameworks / Libraries : FastAPI, React.js, UNIX/LINUX Environment, Zustand, TensorFlow, Angular, PyTorch, Scikit-learn, Pandas, Chart.js, Tailwind CSS, Natural Language Processing (NLTK, spaCy, Transformers)

Cloud / Databases : PostgreSQL, Google Cloud, NoSQL (Firebase, MongoDB), AWS, Microsoft Azure

Software Tools / Utilities : Docker, Kubernetes, Kafka, Redis, ClickHouse, GitHub, Postman, Agile, iOS, Tableau

EXPERIENCE

NYU Secure Systems Lab | Member

Sep 2025 – Present

- Wrote the **Lind Project Documentation**, supporting Prof. Justin Cappos in developing secure multi-program execution via cages and 3i interfaces.
- Contributed to **open source systems projects Lind-NaCl** and **RustPOSIX**, improving architectural documentation and debugging workflows, reducing issue resolution time by **20%**.
- Streamlined setup, testing, and profiling workflows by aligning documentation with **continuous integration (CI) pipelines**, reducing developer onboarding time by **1 hour**.

Bhabha Atomic Research Centre | Project Intern

Dec 2024 – May 2025

- Built **BLE-driven real-time visitor monitoring solution** using Python, BlueZ, and multithreaded sockets, monitoring **500+ devices**.
- Implemented **RSSI-based trilateration** with NumPy, SciPy, and Kalman filtering, achieving indoor positioning with **1-meter accuracy**.
- Developed automated testing scripts to simulate large-scale BLE environments, lowering evaluation time by **30%**.

Encardio Rite | Software Development Intern

May 2024 – Aug 2024

- Engineered a **ML-powered infrastructure diagnostics tool** built with Python, Scikit-learn, and AWS Lambda, decreasing critical failures by **40%**.
- Integrated sensor data from **20+ monitoring systems** via MQTT and AWS IoT Core, with real-time dashboards in Plotly/D3.js.
- Designed preprocessing pipelines, applying targeted optimization strategies improving fault detection accuracy by **20%**.

PROJECTS

SentryFlow – Real-Time API Rate Limiting & Usage Analytics | FastAPI, Redis, Kafka, System Design

2025

- Deployed a production-grade platform with FastAPI, Redis, Kafka, and ClickHouse and Cloud Infrastructure on AWS to enforce rate limits, supporting more than **1000 API requests/day**.
- Created a token bucket & sliding window algorithms with **JWT authentication**, **API key provisioning**, and event ingestion pipeline, ensuring **< 100ms latency** under load.
- Constructed an interactive React.js frontend with **Tailwind CSS** and **Chart.js** for real-time visualization of API usage, increasing monitoring efficiency for developers by **30%**.

Eco-Nexus – AI-Driven Sustainable Procurement Platform | Next.js, TypeScript, Node.js, Solana, Snowflake

2025

- Developed an **AI multi-agent negotiation engine** automating procurement scoring across **30+ supplier proposals**, improving decision accuracy by **25%** with explainable evaluation of cost, delivery efficiency, and carbon impact.
- Executed **real-time negotiation and analytics** powered by Socket.io, enabling seamless concurrent interactions for **50+ simulated buyer-seller sessions** with consistent state sync and sub-second updates.
- Implemented **Solana Web3** and **Snowflake ML analytics**, reducing transaction verification time by **35%** and contributing to **3rd Place Sustainability** and **MLH Best Usage of Snowflake** at HackNYU 2026.

PUBLICATIONS

- Published "*Applications of Machine Learning in Detecting Unethical Sources of Raw Materials in Supply Chains in the Cosmetic Industry*" at **ICSES 2024, IEEE Xplore**.

LEADERSHIP & SOCIAL IMPACT

- Volunteer Web Developer, Catchafire** – Led a pro bono website redesign initiative supporting workforce reintegration and community entrepreneurship programs for individuals returning from incarceration, enhancing site layout, navigation, and visual storytelling.