Heet Mehta

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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, Database Management Systems, Computer Networks, Artificial Intelligence

SKILLS

Languages : Python, Java, JavaScript, Rust, TypeScript, C, C++, C#, R, SQL, HTML, CSS
Frameworks / Libraries : FastAPI, React.js, UNIX/LINUX Environment, Zustand, Scikit-learn, Pandas, Chart.js, Tailwind CSS
Cloud / Databases : PostgreSQL, Google Cloud, Firebase, MongoDB, AWS (Lambda, IoT Core, CloudWatch)
Software Tools / Utilities : Docker, Kafka, Redis, ClickHouse, GitHub, Postman, VS Code, LaTeX

EXPERIENCE

NYU Secure Systems Lab | *Member* **Sep 2025 – Present**
- Contributed to **Lind Project Documentation**, supporting Prof. Justin Cappos in developing secure multi-program execution via cages, microvisors, and 3i interfaces.
- Enhanced documentation for **Lind-NaCl** and **RustPOSIX**, clarifying architecture and debugging methodologies, which shortened issue resolution time for researchers by **20%**.
- Streamlined setup, testing, and profiling workflows, reducing developer onboarding time by **1 hour** and limiting documentation gaps.

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, reducing evaluation time by **30%**.

Encardio Rite | *Software Development Intern* **May 2024 – Aug 2024**
- Engineered a **ML-powered infrastructure diagnostics tool** using Python, Scikit-learn, and AWS Lambda, reducing 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 data preprocessing pipelines, improving fault detection accuracy by **20%** and scalability.

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 to enforce rate limitings, supporting **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%**.

InsightBoard – B2B Product Telemetry Platform | *JavaScript SDK, React.js, PostgreSQL, ClickHouse* **2024**
- Established a **Mixpanel-style analytics system** to track feature usage, retention, and engagement via custom dashboard builders, providing actionable insights for **10+ product teams**.
- Assembled a lightweight JavaScript SDK with offline persistence, integrated with FastAPI backend and PostgreSQL, across **4 client applications**.
- Optimized querying of time-series data with ClickHouse & Kafka consumers,improving query performance by **40%** and securing role-based access with **Firebase Auth**.

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

- **Finance Head at Becoming I Foundation**, managing a 120-member team, ensuring accurate budgeting,increasing financial support for underprivileged students and conducting computer literacy programs for underprivilaged students.