

Sarthak Kakkar

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Computer Science Student at Northeastern | Embedded Systems • AI/LLMs • Full-Stack Development

EDUCATION

Bachelor of Science in Computer Science | Business Administration minor

Northeastern University, Khoury College of Computer Science | Boston, MA | GPA: 3.70 | 05/2026

WORK EXPERIENCE

Movement NeuroScience Lab | Boston, USA | 01/2025 - 06/2025

Embedded Systems Engineer Co-op | Full-time

- Engineered C++/Python embedded system with **BLE** stimulators & force sensors, enabling real-time **IRB-approved** human subject experiments.
- Re-architected vendor API into **async modular framework**, boosting portability across 3+ projects and enabling live control stimulation.
- Reverse-engineered undocumented BLE hardware and created **Python APIs** for real-time data streaming and device control.
- Automated end-to-end pipelines from raw sensor input to **clinician-ready visualizations**, producing **research-grade** reports for federal trials.

Northeastern University | Boston, USA | 09/2024 - 12/2024

Teaching Assistant - Programming in C++ | Part-time

- Taught over 100 students advanced C++ (OOP, memory management, smart pointers), optimizing course-wide **Linux** development workflows.
- Delivered independent lecture on **smart pointers** with live coding demos, simplifying complex **memory-safe design** for large student audiences.
- Debugged and optimized **student projects**, resolved Khoury **Linux server** issues, and streamlined productivity across multiple course sections.

Wissen Infotech | Bangalore, India | 06/2024 - 08/2024

LLMOps Intern | Full-time

- Built **Python code-conversion accelerator** projected to reduce enterprise migration timelines by **2–3 months** across global client systems.
- Drove **LLM adoption** by delivering technical prototypes/demos to executives and prospective clients, influencing high-level business strategy.
- Designed **LangChain/LangGraph** feedback loop for autonomous error detection, targeted regeneration, and recovery, boosting pipeline efficiency.

Applify Tech Private Limited | Mohali, India | 07/2023 - 08/2023

Intern | Full-time

- Developed **Java backend services** with **REST APIs**, **SQL** queries, and **JDBC** integration, strengthening scalability and production reliability.
- Implemented **JaCoCo unit tests** and **debugged** production code, improving release stability and reducing runtime issues.
- Collaborated in an **agile** environment using **Git** and **JIRA**, documenting workflows and aligning sprint goals with client needs.

PROJECTS

Squegg Python API

- Reverse-engineered the **BLE protocol** of the Squegg smart squeeze ball, enabling seamless **desktop integration** for analytics and control.
- Built open-source **Python API** streaming grip strength, battery status, and notifications, delivering reliable real-time device monitoring.
- Packaged tool with **PyInstaller** into a cross-platform executable, deployed in **medical research labs** for clinician-ready data access.

Industry Practicum - PawtoGrader Platform (Ongoing)

- Undertook an exclusive practicum project, collaborating in a 6-person **Agile** team to extend PawtoGrader for 3k+ Khoury College CS students.
- Serve as **client liaison** with Dr. Jonathan Bell, gathering requirements, aligning priorities, and translating needs into technical deliverables.
- Contribute as a **full-stack developer** using **TypeScript**, **SurveyJS**, and **Supabase**, delivering surveys, dashboards, and automated group formation.

PUBLICATIONS

Mapping the Typographic Latent Space of Digits | 04/2023

International Conference for Learning Representations

Used disentangled Beta-VAE's in an unsupervised learning approach to map latent feature spaces with a dataset of MNIST Style Typographic Images across 2990 unique font styles, helping typographers explore new attributes for their classification systems.

SKILLS

Programming Languages: C++, Java, JavaScript, OCaml, Python, SQL, TypeScript

Frameworks & Libraries: LangChain, LangGraph, Matplotlib, NumPy, Pandas, PyTorch, React, scikit-learn, Tailwind CSS

Systems & Tools: Git, GitHub, JIRA, Linux, Netlify, Streamlit

Software Development: Agile, API Development, Async Programming, CI/CD, Object-Oriented Design (OOD), Unit Testing