AKSHARA THAKUR

✉ at3735@columbia.edu • 🔗 aksharathakur • ⌨ aksharathakur • ☎ +1 (646) 821-6065

EDUCATION

Columbia University, School of Engineering and Applied Sciences — New York, NY

Bachelor of Science in Computer Science (C.P. Davis Scholar) | GPA: 3.74/4.00 — **May 2026**

Relevant Courses: Data Structures & Algorithms, Object Oriented Programming, Data Science & Machine Learning, Introduction to Databases, Full-Stack Development, Operating Systems

Honors: Dean's List (Fall '22, Spring '23, Fall '23) | C.P. Davis Scholar at Columbia University | SAT: 1560/1600

PROFESSIONAL EXPERIENCE

Department of Earth and Environmental Engineering, Columbia University — New York, NY

Research Assistant — **Oct. 2023 – Present**

- Engineered a data analytics framework using **Python** with **NumPy**, **SciPy**, and **scikit-learn** to evaluate and compare wastewater filtration methods, **achieving a 30% increase in correct best method detection**.
- Implemented machine learning techniques, including **Principal Component Analysis** and **k-means clustering**, to successfully segment complex datasets and identify key filtration performance indicators.
- Built a data pre-processing pipeline using **Python** and **Pandas** to handle multi-source data integration for machine learning workflows. **Boosted data accuracy post-processing by 15%.**

Altair Engineering Inc. — Troy, MI [Remote]

Site Reliability Engineering Intern - AIOT Development — **May 2023 – Aug. 2023**

- Built a dynamic data retrieval dashboard, using **JavaScript ES6** and **React**, that queries an internal API and displays Altair usage statistics with **plotly.js** visualization. **Increased Product Managers' data look-up efficiency by 18%.**
- Contributed to comprehensive code review, collaborated with senior engineers to identify inefficiencies in the codebase, and used Agile development practices to help **increase overall code-efficiency for the AIOT development team by 7%.**

Apriori Education Solutions — India

Subject Matter Expert - Programming Languages — **May 2022 – Aug. 2022**

- Worked alongside Product Designers to revamp the firm's entire website using **React**, emphasizing responsive design for cross-device compatibility and scalability.
- Recorded user engagement by performing **A/B tests**. Implemented design changes that contributed to **14% improvement in customer quality application start**.

Sunlight Urja Pvt. Ltd. — India

Software Engineering Intern - Data Science — **May 2020 – Jun. 2020**

- Developed a notification pipeline leveraging **requests library in Python** for alerting respective teams via Microsoft Teams in case of an incident alert.

PROJECT HIGHLIGHTS

Conversation Starter

- Developed a **chat-backend REST API in Java** capable of supporting text, image and video messages.
- Leveraged **JPA CrudRepository** and **Hibernate ORM** for implementing data persistence in MySQL.

Disease Detection using Machine Learning — *project link*

- Developed a **Support Vector Machine (SVM)** and an **8-layer Artificial Neural Network (ANN)** model for binary classification on a diabetes dataset. The SVM model had a better performance, achieving roughly **82% accuracy** on the test dataset.
- Designed a **Convolutional Neural Network (CNN)** model with **92% accuracy** for detecting pneumonia based on chest X-ray images. **Top 10% kaggle submission.**

Facebook Messenger Clone — *github link*

- Built a Facebook messenger clone using **React framework** and styling using **Material-UI**.
- Implemented data persistence with **Firebase** for managing message data and deployed the app using **Heroku**.

Emergency Response IOT Device for Elders — *project link*

- Designed an IOT device using **Arduino UNO** for ensuring immediate response to emergency needs of elderly inhabitants of my housing condominium.

TECHNICAL SKILLS

Languages: Proficient: Java, C#, C, C++, Python, SQL | Familiar: JavaScript, HTML, CSS, LaTeX

Tools & Frameworks: React, MongoDB, MySQL, Node.js, AWS, Azure, Git, Data/ML/NLP Python Libraries