



# 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 | 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

---

**On Pepper LLC**

New York, NY [Remote]

*Software Engineering Intern - ML Infra*

**May 2024 – Aug. 2024**

- Developed a PDF analysis tool using **PyPDF2**, **Tabula**, **scikit-learn** for Supervised Learning, and **spaCy** for **Natural Language Processing (NLP)** to extract, process, and classify document content.
- Conducted comparative analysis of **NLP vs Optical Character Recognition** solutions, achieving **16% higher accuracy** with NLP methods.
- Designed and implemented a **React-based web application** for the PDF analysis tool, **enhancing user interaction and accessibility by 24%**.

**Department of Earth and Environmental Engineering, Columbia University**

New York, NY

*Research Assistant*

**Oct. 2023 – Aug. 2024**

- Engineered a data analytics framework using **Python** with **NumPy**, **SciPy**, and **sci-kit-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 data look-up efficiency by 18%**.
- Contributed to comprehensive code reviews and collaborated with senior engineers using Agile development practices to identify and resolve build inefficiencies, **improving team projects' build time 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**.

## PROJECT HIGHLIGHTS

---

**Conversation Starter**

- Developed a Java-based chat-backend **REST API** supporting 1-to-1 and group chats, capable of handling 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** 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, TypeScript, HTML, CSS,  $\LaTeX$

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