TRINAV BHATTACHARYYA

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EDUCATION

Columbia University
New York, NY
MS in Computer Science (Machine Learning Track)
Expected Dec 2026
ML, AI, Probability and Statistics, Discrete Math, Algorithms, Security & Cryptography.

Jadavpur University
Kolkata, India
BE in Computer Science and Engineering, 8.88/10
May 2022
Database, Distributed Systems, TCP/IP & Networks, Operating Systems.

WORK EXPERIENCE

Columbia University Graduate School of Arts and Sciences
New York, NY
Teaching Assistant - II (ML for Social Sciences)
Jan 2026 - Present
- Grading and providing student support for ML involving Python, Linear Algebra, Probability & Statistics and Calculus.

Amazon Web Services
Bengaluru, India
Software Development Engineer II / I
Jun 2022 - Jul 2025
- Collaborated with AWS Aurora's database storage team focusing on durability and availability.
- Promoted to SDE II (Oct 2024) for ownership of Aurora QA infrastructure and customer-impacting reliability work.
- Resolved 5 critical Undo code defects in MySQL impacting Netflix and Paytm, leading root-cause analysis and client refunds.
- Delivered AWS cross-zone replication features in Aurora's Graph database, attracting enterprise clients such as Disney.
- Built and owned high-throughput validation infrastructure (Java, Bash, PostgreSQL) for distributed, latency-sensitive systems.
- Led a team of 3 to enhance C++ code and reduce chances of downtime by 15% via intelligent performance anomaly detection.
- Mentored intern and integrated final code into production to increase availability by 20% through optimized replication.
- Scrutinized team's annual bill to reduce infrastructure cost by 15% via hardware modernization and removal of unused nodes.
- Implemented an enhanced Linux script at startup of nodes to extract EC2 metadata leveraging session-token mechanism.
- Conducted interviews for SDE 1 and intern roles, collaborating with management on evaluation and hiring.

Amazon Web Services
Bengaluru, India
Software Development Engineer Intern
Jun 2021 - Jul 2021
- Designed and implemented Java-based tool to collate logs from 100,000+ Aurora nodes, store in DynamoDB, and visualize with a dashboard. Tool integrated into production, leading to full-time offer.

RESEARCH EXPERIENCE

ARiSE Lab, Columbia University
New York, NY
AI & Privacy Research Assistant
Oct 2025 - Present
- Developing an NSF-funded compliance audit framework for LLMs using Causality and Explainable AI at the Advanced Research in Software Engineering Lab.
- Collaborating with faculty from Columbia, Wesleyan & University of South Carolina, and researchers from Google & IBM.

CMATER Lab, Jadavpur University
Kolkata, India
AI/ML Research Assistant
Jan 2020 - Apr 2022
- Published 9 research papers in peer-reviewed journals (IEEE, Springer, Elsevier) accumulating 400+ citations, and guided 4 students at the Centre for Microprocessor Applications Training and Research.
- Researched stock market prediction, image segmentation and feature selection. Presented at 3+ conferences.

ACADEMIC PROJECTS

Py_FS: An Open-Source Package For Feature Selection (Python)
- Coded open-source Python-based ML optimizations with 66+ stars and 39+ forks, leveraged by researchers worldwide.

CUFoodie: Food Near Columbia University (Python, JavaScript)
- Developed full-stack React + Flask web app with PostgreSQL backend to serve curated restaurants for 500+ students.

TECHNICAL SKILLS

Programming: C++, Java, Python, Bash.
Web Development & Technologies: React, Flask, JavaScript, TypeScript, HTML, CSS, PHP.
App Development: Kotlin (Android), Java.
Machine Learning: NumPy, SciPy, Pandas, PyTorch, scikit-learn, MATLAB.
Databases: MySQL, PostgreSQL.
Cloud & Tools: AWS (EC2, S3, DynamoDB, Bedrock, RDS, Q, EMR), Git, Hadoop.
Concepts: CI/CD, Linux, Low-Latency Systems, Automata, Generative AI, Deep Learning, REST APIs, OOP, Virtualization.
Certifications: AWS Data Analytics (2022), IBM Cloud Computing (2022).