

# TRINAV BHATTACHARYYA

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## EDUCATION

### Columbia University

New York, NY

#### MS in Computer Science (Machine Learning Track)

Expected Dec 2026

Supervised ML Models, Probability and Statistics, AI, Algorithms, Security & Cryptography.

### Jadavpur University

Kolkata, India

#### BE in Computer Science and Engineering, 8.88/10

May 2022

Compilers, Database, Distributed Systems, TCP/IP & Networks, Operating Systems.

## WORK EXPERIENCE

### 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 and evaluated an intern for six months; created user documentation and automated test cases using Generative AI, integrating 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.
- Led 3-member hackathon team building an automated kernel upgrade alerting tool reducing downtime.

### 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 large language models using causal inference 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 350+ 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).