Vanshika Agrawal (she/her)

(413) 450-8924 agrawalvanshika52@gmail.com LinkedIn GitHub Portfolio

Education

University of Massachusetts Amherst **Expected Graduation: May 2026**
Master of Science in Computer Science · GPA: 3.88/4 *Amherst, Massachusetts*

Current Coursework: Advanced Algorithms, Distributed and Operating Systems, Machine Learning, Reinforcement Learning, Systems for Data Science, Theory of Software Engineering, Computer and Network Security

Maulana Azad National Institute of Technology **Jul 2018 – May 2022**
Bachelor of Technology in Computer Science and Engineering · GPA: 9.23/10 · Rank: 2/210 *Bhopal, India*

Coursework: Data Structures, DBMS, Artificial Intelligence, Computer Architecture, Natural Language Processing

Skills

Backend: Java, Python, C++, Golang, SpringBoot, Flask, Django, ActiveMQ, Docker, Kubernetes, Junit
Frontend: React.js, HTML, CSS/SASS, JavaScript, Bootstrap, Jest
Database: SQL, OracleDB, MongoDB
Cloud Tech & DevOps: AWS, Linux/Unix, CI/CD, Jenkins, Groovy, Git, Bash Scripting

Work Experience

Bose Corporation **Jun 2025 – Aug 2025**
Cloud Identity Engineering Intern *Framingham, MA*

- Developed a security automation solution through cross-functional collaboration with key stakeholders to analyze existing workflows and writing a custom **Python** script to query **Kubernetes** namespaces, interface with the **Harbor** API, and execute vulnerability scans with **Trivy**.
- Automated builds for 90+ **Dockerized** microservices by orchestrating a **Jenkins** CI/CD pipeline that executes the security script weekly, publishing comprehensive buildability and vulnerability reports directly to team **Slack** channels.
- Reduced critical production vulnerabilities by 25%, eliminated 100% of stale images, and cut developer monitoring time by 5 hours/week, establishing the pipeline as the new **SDLC** management standard.

Deutsche Bank Group **Jul 2022 – Jul 2024**
Software Engineer *Pune, India*

- Modernized fintech reconciliation infrastructure by building full stack solutions in a fast-paced **Agile** environment, consolidating 14 legacy systems into a microservice platform using **Spring Boot**, **React.js microfrontends**, and **Oracle SQL**.
- Led a time-critical project from concept to delivery, architecting a **full-stack** configuration management system with an intuitive UI for business analysts and a **Git**-based pipeline that cut manual deployment efforts by 40%.
- Streamlined data reconciliation workflows by building the **frontend** dashboards in React.js and the supporting backend **REST APIs** in Spring Boot, saving 15+ business analysts over 10 hours per week.
- Accelerated a high-volume **Apache Spark** matching engine by 40% by implementing a core **Java** algorithm using test-driven development that translated abstract JSON business rules into optimized, machine-executable code.
- Achieved industry compliance by overhauling the platform's security and entitlement model, redesigning the **JWT** authentication flow and implementing a segmented **Oracle DB** architecture that minimized cross-service data exposure by 95%.
- Elevated team proficiency by leading hands-on workshops, interactive pair-programming, and collaborative working sessions in **React.js** and **Database Management**, fostering advanced full-stack capabilities in junior developers.

Projects

Distributed Stock Trading System **Mar 2025**

- Architected a fault-tolerant, high-availability stock trading platform using a **Dockerized**, multi-tier **microservice** system, implementing a concurrent request handler with dynamic **thread pools** and a server-side **LRU** cache.
- Validated system performance via load testing on **AWS**, demonstrating the capacity to process 1,000+ concurrent requests per second with 99.9% uptime and an average response time below 150ms.

Travel Planner **Dec 2024**

- Constructed a full-stack, **AI**-powered travel platform using **Spring Boot** and **React.js**, integrating with an **LLM** (**LLaMA**) via **REST API** and **prompt engineering** to generate custom itineraries based on user mood and budget.
- Optimized end-to-end performance by leveraging **AWS S3** for asset handling and implementing custom caching, reducing API response times for repeat queries by 60% and delivering travel plans in under 10 seconds.

UMate: A Roommate Matching Platform **Nov 2024**

- Built a full-stack roommate matching application with a **Python (Flask)** backend and a **React.js** frontend, integrating the services via **RESTful APIs** and leveraging **AWS S3** for scalable image hosting.
- Engineered a **recommendation** engine using a **cosine similarity** algorithm to generate data-driven roommate matches, surfacing the top 5 most compatible users on an intuitive dashboard.