SNEHA RATHI

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Detail-oriented Software Engineer with hands-on experience in full-stack development, cloud computing, and machine learning applications. Proficient in Java, Python, C, and C++, with strong foundations in data structures, algorithms, and system design. Experienced in developing RESTful APIs, deploying containerized applications using Docker and Kubernetes, and implementing CI/CD pipelines on AWS. Demonstrated ability to integrate AI models into real-world projects and automate workflows. Passionate about building scalable, secure, and efficient systems, collaborating in Agile teams, and continuously learning emerging technologies.

EDUCATION

George Mason University, Fairfax, VA | Master of Science; Major in Computer Science — **Aug 2023 – May 2025**

Jawaharlal Nehru Institute of Technology, Hyderabad, India | Bachelor of Technology; Major in Computer Science — **Aug 2019 –June 2023**

PROFESSIONAL EXPERIENCE

George Mason University — **Sep 2023-present**
Graduate Research Volunteer.

- Contributed to developing software prototypes in Java and Python for code generation and debugging experiments.
- Enhanced modular subsystems and refactored legacy components, improving tool efficiency.
- Collaborated in Agile development cycle with faculty and peers to deliver functional prototypes biweekly.
- Conducted 100+ hours of applied research on AI Assistants for Programming and Machine Learning Tasks, documenting weekly progress and experiment results.
- Enhanced debugging and automation tools, increasing overall performance efficiency by 20–25%.

Devpoint Solutions Pvt. Ltd. — **May 2022-July 2023**
Cloud Engineer Trainee

- Deployed and managed cloud-based applications on AWS, improving system reliability through efficient resource configuration.
- Assisted in setting up Docker containers and basic Kubernetes clusters, reducing manual deployment time by 20%.
- Supported the development of CI/CD pipelines using GitHub Actions to automate build and deployment workflows.
- Collaborated with the AI team to integrate GPT-based APIs into React applications for automation projects.
- Monitored and troubleshot cloud infrastructure, ensuring stable performance and timely issue resolution.
- Documented deployment processes and contributed to improving DevOps workflows and cloud environment consistency.

SmartKnower — **Apr 2021-June 2021**
AI/ML Software Engineer Intern

- Built and deployed an SVM image classifier achieving 89% accuracy, using GridSearchCV for hyperparameter optimization.
- Designed ETL pipelines in Python to process 100K+ images, reducing data preprocessing time by 30%.
- Built REST APIs using Flask and FastAPI, enabling real-time inference with under 1-second latency.
- Evaluated model fairness and robustness using precision, recall, F1-score, and confusion matrices to ensure reliable deployment.

TECHNICAL SKILLS

Programming Languages: C, C++, Java, Python, SQL, JavaScript

Web and Cloud Technologies: HTML, CSS, Flask, FastAPI, PHP, AWS, React, Google Maps API

Data and ML Tools: Pandas, GridSearchCV, SVM, Apriori, Clustering (K-Means, Hierarchical)

Operating Systems and Embedded: Windows, MS-DOS, POSIX (Real time systems), Arduino

Course Work: Operating Systems, Software design and development, Data Structures & Algorithms, OOPS

PROJECTS

CI/CD Pipeline and Containerized Web App Deployment — **Mar 2025**

- Containerized a Java web application using Docker and deployed it on Kubernetes with multiple pods to ensure high availability.
- Implemented a Jenkins CI/CD pipeline integrated with GitHub Actions, cutting deployment time from hours to minutes.

Automatic Fire Response System (Real-Time Operating System Project — **Dec 2024**

- Built a real-time fire alert system in C using DHT22 sensors, GPIO, and POSIX multi-threading for rapid response.
- Applied thread scheduling, synchronization, and data structures such as queues and buffers to enable efficient concurrent sensor management with a live console interface.

Kitchen Alchemy – Recipe Management Web App — **June 2024**

- Created a recipe management web application with search, review, and favorites features to enhance meal planning.
- Improved UI/UX through responsive design and filtering, increasing user engagement and retention during testing.

Movie Database Management System — **Aug 2023**

- Designed and optimized an Oracle SQL database supporting high-performance queries for movies, reviews, awards, and distributors.
- Enhanced query performance and reduced data retrieval latency through efficient indexing and schema optimization.

CERTIFICATIONS

- Data Science for Engineers (NPTEL)
- Social Networks (NPTEL)