Vraj Rana

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PROFESSIONAL EXPERIENCE

Data Analyst - AIDE Lab, Arizona State University — October 2022 - October 2023

- Developed and managed a classroom air quality monitoring network, leveraging data analytics to identify a 30-40% reduction in indoor pollutants through the implementation of portable air filters.
- Streamlined data processing workflow by designing script that utilized REST APIs for efficient data downloading, processing, and storage, achieving a 50% improvement in processing time and enhanced data accuracy.
- Produced comprehensive reports on air exchange rates, incorporating data visualizations to support advanced classroom air quality management, enhancing decision-making processes by 20%.

Systems Engineer - Tata Consultancy Services — July 2021 - July 2022

- Applied Agile and Scrum methodologies to develop REST APIs and microservices using Spring Boot for Verizon projects, significantly improving development efficiency and system performance.
- Enhanced system performance by implementing advanced algorithms, data structures, async, and parallel programming, reducing REST API response times by 40%.
- Migrated PL/SQL to Java with JPA and JPQL, enhancing data security and integration with PostgreSQL databases.
- Utilized Jenkins to configure and deploy microservices and REST APIs in testing environments, ensuring seamless integration and efficient testing processes.
- Mentored a team of three in REST API troubleshooting and deployment for efficient project execution.

EDUCATION

Master of Science, Computer Science — May 2024
Arizona State University, Tempe, AZ — 3.7 GPA

Bachelor of Engineering, Computer Science — May 2021
The Maharaja Sayajirao University of Baroda, Vadodara, GJ — 3.8 GPA

TECHNICAL SKILLS

Programming Languages: Python, Java, C++, JavaScript, SQL, NoSQL
Technologies: PyTorch, Docker, Kubernetes, AWS, Spring boot, Node.js, D3.js, Git, Junit, Jenkins, PostgreSQL, MongoDB

ACADEMIC PROJECTS

Multimedia Data Analysis and Feature Space Exploration — Fall 2023

- Explored feature extraction, dimensionally reduction, indexing and clustering with caltech101 image dataset to build versatile databases for accurate and effective image\label retrieval and visualization.
- Implemented customizable image identification programs using various machine learning algorithms.
- Programmed SVM and Probabilistic based relevance feedback system for precise results.

Elastic Fusion Cloud — Spring 2023

- Deployed a cost-efficient, auto-scaling web app utilizing AWS EC2, SQS, S3, and CloudWatch based on demand.
- Enhanced deployment by integrating AWS Lambda, SQS for queuing, and DynamoDB for data storage, to develop a smart classroom assistant powered by facial recognition technology.
- Migrated app to hybrid cloud, optimizing costs and improving cloud skills with AWS and OpenStack.

Data Fusion and Classification for Glycemic Analysis — Spring 2023

- Synced Insulin and CGM datasets and extracted insights and distinctive features.
- Trained supervised machine learning models to classify data using meal and non-meal features.
- Analyzed meal data using clustering techniques and assessed accuracy with SSE, entropy, and purity metrics.

EmoViz: Emotion Visualization from Tweets — Fall 2022

- Developed an immersive emotion inference solution for tweets using deep neural networks and natural language processing to predict human emotions.
- Enhanced user engagement through dynamic stream graphs and bubble-packing graphs using D3.js for effective emotion visualization.

HONORS & ACTIVITIES

- Jehn, M, …, Rana, V et al. **Effectiveness of Do-In-Yourself Portable Air Cleaners in Reducing Exposure to Respiratory Aerosols in US Classrooms** under review with **Science & Education Journal.**
- Part of **IT Deskside Support team** at Thunderbird School of Global Management, ASU. February 2024 - Present