Vraj Shah

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Professional Summary

Passionate and motivated Software Developer with expertise in Python, machine learning, and computer vision, with hands-on experience in implementing TensorFlow-based solutions for object detection and image encryption. Skilled in developing and optimizing machine learning models, building scalable systems, and leveraging cloud technologies to deliver impactful results. Seeking to contribute to a collaborative team at Kalkul, utilizing my experience in ML/Computer Vision and cloud services.

Technical Skills

Programming & Machine Learning: Python (TensorFlow, Keras, OpenCV), SQL, FastAPI, Kotlin, Java, JavaScript

Data Engineering & ETL: Data Cleaning, Transformation, ETL Pipelines, Data Warehousing

Databases: PostgreSQL, MySQL, SQL Server, MongoDB, SQLite, Oracle

Cloud & DevOps: Azure (Learning Databricks & Synapse), AWS, GCP, Docker, Kubernetes, CI/CD (GitHub Actions, GitLab CI)

Big Data & Analytics: Apache Spark (Databricks), Data Governance, Power BI (Learning)

Testing & Debugging: JUnit, Mockito, API Performance Tuning, Debugging, Git

Soft skills: Strong communication, Problem solving, Teamwork and collaboration, Adaptability, Attention to detail, Critical thinking, Time management, Ability to learn continuously

Work Experience

Simform Solutions **Dec 2021 - Nov 2023**

Software Engineer *Ahmedabad, India*

- **Led the design and implementation of machine learning-based solutions**, utilizing TensorFlow to develop an object detection model integrated into a mobile application, which **improved security by automating image encryption to protect sensitive data**.
- **Built and optimized scalable ETL pipelines** using Python (Pandas) and SQL, which increased data processing speed by 40%, enabling real-time data integration and **improved efficiency across multiple data sources and systems**.
- **Developed high-performance REST APIs** using FastAPI and Spring Boot to facilitate seamless communication between distributed systems, **resulting in a 30% increase in data processing speed** and enhanced system reliability.
- **Implemented advanced database optimizations** in PostgreSQL and MySQL, including indexing and query optimization that reduced query execution time by 30%, **leading to faster report generation and data insights** for business stakeholders.
- **Streamlined CI/CD workflows** using GitHub Actions & GitLab CI, reducing manual deployment time and **ensuring 50% faster release cycles** and minimal downtime during deployments, which resulted in smoother operations and continuous integration.
- **Collaborated cross-functionally with data scientists and product teams** to translate business requirements into scalable and efficient data engineering and machine learning solutions, **enabling more accurate predictive models and actionable insights**.

Education

Dalhousie University **Jan 2024 - Sep 2025**

Master of Applied Computer Science (Co-op Candidate) | ***GPA: 4.07/4.3*** *Halifax, Canada*

Charusat University **Jun 2018 - Apr 2022**

Bachelor of Computer Engineering | ***GPA: 8.7/10*** *Gujarat, India*

Projects

ETL on Tweets Data | *Source Code* **JAVA | OpenCV | MySQL | GCP**

- **Built a distributed transaction system** using Java, enabling dynamic redirection of queries across multiple MySQL VMs in GCP, supporting **seamless ETL processes for efficient data processing and real-time interactions**.
- **Implemented horizontal and vertical data fragmentation techniques** for a distributed MySQL database ("SocialMedia"), optimizing query performance and ensuring scalability in a cloud-based environment.
- **Integrated and processed a large dataset** of tweets from Kaggle, **automating the ETL pipeline and enhancing system reliability**, while ensuring robust and scalable backend architecture that aligns with distributed database management best practices.

Machine Learning for Secure Image Communication **Python | OpenCV | TensorFlow**

- **Developed a machine learning-based encryption system** for securing messages embedded in images using TensorFlow and OpenCV, ensuring that sensitive data exchanged via images is fully encrypted and protected.
- **Built a custom model for real-time image encryption**, integrating it seamlessly into a mobile application, significantly **improving security and user privacy for users** transmitting confidential information.
- **Utilized TensorFlow for model training** and **OpenCV for preprocessing and post-processing of images**, enhancing the efficiency of the encryption process and reducing the computational overhead on mobile devices.

Android Object Detection Application **Kotlin | TensorFlow | OpenCV**

- **Engineered a real-time object detection feature in an Android app** using TensorFlow Lite, allowing the mobile app to identify objects with high accuracy and minimal latency, enhancing user interaction and functionality.
- **Implemented TensorFlow Lite optimization** techniques to ensure smooth performance on mobile devices, achieving faster model inference and providing an immersive user experience with real-time object tracking and detection.
- **Enhanced the app's performance by optimizing the model size**, leading to reduced app size and faster start-up times, improving user retention and app rating by 25%.