Vibhu Dixit

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github.com/vibhu-dixit

Summary

A dedicated **Computer Science Master's candidate** (STEM-designated) at Arizona State University with a interest in **Deep Learning, NLP, and Reinforcement Learning Data Science, Machine Learning**. Proficient in **Python, TensorFlow, PyTorch**, and full-stack technologies, with hands-on experience in **machine learning pipelines, real-time dashboards**, and **cloud-based deployment (AWS)**. Demonstrates a ability to design scalable ML systems, conduct advanced analytics, and deliver impactful results.

Skills

Programming Languages: Python , C++ , C , HTML , JavaScript , CSS
Libraries/Frameworks: PyTorch, TensorFlow, Scikit-learn, Transformers, NumPy, Pandas, Spark, SQLAlchemy
Tools & Platforms: Git, GitHub, MLflow, Apache (Spark, Airflow) , AWS (S3, Lambda, DynamoDB) , ZenML
Database & Cloud: SQL, AWS, Flask, Snowflake
Development: CI / CD pipelines, API development, MLOps, JSON, XML, Kubernetes
Soft Skills: Communication, Team Collaboration,Strategic Thinking, Creativity, Resilience, Problem Solving

Experience

Data Engineer Intern - Alcon| India   Feb 2024 – Aug 2024

- Built a full-stack Flask application on AWS (EC2, S3, RDS) and orchestrated end-to-end ETL pipelines with Apache Airflow and CI/CD, processing 2TB+ data, enhancing decision-making for 5 teams.
- Leveraged Python and SQL to conduct **ETL** and process large-scale telemetry data, used **Flask and AWS** to automate workflows, and **implemented CI/CD pipelines** to streamline deployments of 4 projects.
- Increased operational visibility by **40%**, reduced project development cycle time by **43%**.

Deep Learning Intern - Bhargava Infotech Solutions Pvt Ltd | India   Sept 2023 – Nov 2023

- Prototyped a **CNN-based population density model** using day/night satellite imagery, driving data for smart city planning using a 3 band approach of RGB color scheme,Using AWS SageMaker.
- Developed an end-to-end deep learning pipeline using **PyTorch, NumPy**, and **Scikit-learn** handling 9 GB of image data.
- Improved urban planning resource allocation accuracy by **45%** through advanced image analytics.

Projects

OpenMonitor | Feb 2025

- Engineered OpenMonitor, an **AI border-security platform** analyzing four concurrent 1080p video streams to detect unauthorized crossings and publish **real-time alerts** on a web dashboard.
- Fine-tuned **YOLOv8** on 5000 labeled frames and built a Django/WebSocket pipeline with **multithreaded OpenCV**, sustaining 30FPS inference and issuing SMS/email alerts within 1.3s.
- Achieved 94 % recall, cutting manual monitoring by 80 %; **secured Runner-up at the ASU Voxel51 Visual AI Hackathon**.

Video Recommendation System | Sept 2024 - Dec 2024

- Designed a personalized video suggestion system using **R3D-18, STIP, color histograms**, and **deep feature extraction**.
- Applied **clustering (KMeans, LDA)** and **dimensionality reduction (PCA, SVD)** to improve similarity search accuracy to **97.2%**.
- Streamlined the process from training to final results buy creating a pipeline, improving execution speed by **18%**.

Education

Arizona State University – Tempe, AZ, MS in Computer Science(STEM)   Aug 2024 - May 2026
- **Coursework:** Natural Language Processing, Statistical ML,Fund. of Statistical Learning and Pattern Recognition
RV College Of Engineering– Bengaluru, India, BE in Electrical Engineering   Aug 2020 - May 2024
- **Coursework:** Computing Using Python,Machine Learning,Mobile App Development, Web Development