Shrenik Jain

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Education

University of California San Diego (UCSD) **Present**
Master of Science, Electrical and Computer Engineering - Machine Learning and Data Science

Vishwakarma Institute of Information Technology (VIIT) **May 2022**
Bachelor of Technology, Electrical Engineering - GPA: 9.47/10.0

Coursework: *Data Structures, Design & Analysis of Algorithms, Machine Learning, Deep Learning, Neural Networks, Image & Video Processing, Cloud Computing*

Experience

Machine Learning Engineer, Pivotchain Solutions **Jul 2022 - Jul 2024**
- Led the design of the RAVEN-AI System, developing Computer Vision algorithms for malicious event recognition, providing users with an intelligent surveillance platform, reducing missed security threats by 65% and incident response time by 50%.
- Employed ConvLSTM-based Spatio Temporal Autoencoder to verify AI-generated video clips, capturing spatial and temporal representations for accurate true/false positive classification of 10,000+ potential security events per day.
- Developed an ONVIF-compliant Video Management System integrating multiobject tracking, ANPR, and facial recognition, improving object tracking accuracy across 10 diverse environmental conditions.

Software Development Intern, Qualys Inc. **Jan 2022 - July 2022**
- Designed multi-stage CI/CD pipelines using Groovy-based declarative pipelines and containerized builds, to streamline workflows and cut average deployment time from 30 minutes to 10 minutes.
- Led the deployment orchestration of policy-compliant microservices across 3 major environments using Kubernetes, ensuring 95% uptime (equating to less than 2 hours of downtime per quarter).

Research Engineer, Vishwakarma Institute of Information Technology **Jul 2021 - Dec 2021**
- Led the development of a research paper summarization system using a BERT-based encoder, improving ROUGE-1 scores from 0.35 to 0.46 compared to baseline extractive summarization methods.
- Conducted research on transformers and multi-head self-attention mechanisms, for enhanced language modelling.

Machine Learning Intern, Validus Analytics LLP **Feb 2021 - Dec 2021**
- Analyzed Vector-Quantized VAEs (VQ-VAEs) and Convolutional VAEs (Conv-VAEs) for unsupervised learning of complex data via latent representations and generative modeling.
- Implemented ConvVAE-based generative modeling for dataset enhancement, expanding a critical training dataset from 50,000 to 150,000 samples while maintaining high perceptual integrity (SSIM $>$ 0.85).

Consulting Experience

Machine Learning Consultant, Pixstory **Aug 2023 - Mar 2024**
- Contributed to building a RAG-based Conversational Search System using Large Language Models (LLMs), improving search relevance and increasing average user session duration by 2 minutes.
- Optimized system throughput and hardware efficiency by 3x through the introduction of asynchronous requests and parallelized execution, reducing average query response time from 2 seconds to 600 milliseconds.

Software Development Consultant, AI For Rural **Sep 2021 - Nov 2021**
- Implemented efficient data preprocessing and visualization pipelines for insightful data handling, intuitive data exploration, and pattern analysis.
- Developed RESTful APIs and integrated them with various data sources, enabling real-time data updates and reducing data retrieval time by 40% for critical information.

Technical Skills

Languages: Python, Java, JavaScript, C++, Bash, SQL, HTML, CSS
Machine Learning: Tensorflow, PyTorch, Keras, LangChain, CUDA, Scikit-learn, OpenCV, NLTK, SpaCy, ONNX Runtime, TorchServe, TritonServer, TF-Serving, Hugging Face Transformers
Frameworks & Technologies: Flask, SpringBoot, PySpark, Git, FFmpeg, Docker, Kubernetes, Jenkins, Linux, ONVIF
Databases: MongoDB, SQL, Milvus, Vector Stores

Projects

Face Physiognomy | *Python, Flask, Docker, Git*
- Developed a hybrid human face emotion recognizer combining Haar cascades for face detection and CNNs for emotion classification, correctly identifying 9,200 out of 10,000 facial images across 7 emotion categories.

Vehicle Color Recognition | *Python, Scikit Learn, Git*
- Implemented pre-trained Haar cascades for car detection in video frames, and developed a K-Nearest Neighbors algorithm trained on RGB color histogram distributions for color classification, correctly identifying the colors spanning 7 color categories.