

# Shrenik Jain

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## EDUCATION

### University of California San Diego

Present

Master of Science, Electrical and Computer Engineering - Machine Learning and Data Science - GPA: 3.70/4.0

**Coursework:** Recommender Systems & Web Mining, Probability & Statistics, Statistical Learning, Linear Algebra & Application

### Vishwakarma Institute of Information Technology

May 2022

Bachelor of Technology, Electrical Engineering - GPA: 3.98/4.0

**Coursework:** Data Structures, Design & Analysis of Algorithms, Machine Learning, Deep Learning, Image & Video Processing, Cloud Computing, Internet of Things (IoT)

## EXPERIENCE

### Applied Researcher, Cosman Lab, UC San Diego

Oct 2024 - Present

- Spearheading the development of a novel region-of-interest-based video compression method by integrating human attention on top of **Google's** baseline **Video Compression Transformer (VCT)**.

### Machine Learning Engineer, Pivotchain Solutions

Jul 2022 - Aug 2024

- Led a cross-functional team for the agile development of an AI System, designing **Computer Vision** algorithms to provide a scalable and real-time interface for autonomous event monitoring achieving 70% faster threat containment (MTTC).
- Implemented a **Spatio-Temporal Autoencoder** model to validate AI-generated video clips, precisely classifying **15,000+** daily security events, reducing false positives by 30% and saving **\$250K** annually in operational costs.
- Optimized **MongoDB** queries to efficiently handle over **10 Million** records of video surveillance JSON data, reducing data retrieval times by 55% and improving overall system performance for end-users across multiple regions.

### Software Development Intern, Qualys Inc.

Jan 2022 - July 2022

- Architected end-to-end **CI/CD** pipelines with Groovy and Docker, reducing deployment time from 30 to 10 minutes and enabling 200+ successful deployments monthly across multiple environments.
- Streamlined the orchestration of high-availability microservices deployment using Kubernetes, achieving 99% uptime and handling **1 Million+** daily requests across 3 production environments.

### Applied Researcher, Vishwakarma Institute of Information Technology

Jul 2021 - Dec 2021

- Spearheaded 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 modeling.

### 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 **3x** by implementing asynchronous requests and parallel execution strategies, which cut the average query response time from 2 seconds to 600 milliseconds.

### Software Development Consultant, AI For Rural

Sep 2021 - Nov 2021

- Engineered data preprocessing and visualization pipelines for insightful data handling and exploration.
- Developed **REST 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, JAX, JavaScript, C++, Shell Scripting, Bash, SQL, HTML, CSS

**Machine Learning:** Tensorflow, PyTorch, TFLite, 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, REST, Linux/Unix, ONVIF, Apache Spark, Apache Kafka

**Cloud & Databases:** AWS, GCP, Azure, MongoDB, SQL, Elasticsearch, Milvus, Vector Stores, Cassandra, RabbitMQ, MQTT

## PROJECTS

### Face Physiognomy | Python, Flask, Docker, Git

- Designed an emotion recognition system, integrating Haar cascades for real-time face detection and a CNN-based classifier for emotion analysis, achieving a 92% accuracy rate across 7 distinct emotion categories.
- Optimized the model's inference speed to handle large-scale input, reducing classification latency by 30%.