Jal Patel

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EDUCATION

Master of Science in Data Science, Analytics and Engineering (GPA 3.78/4) **May 2026**
Arizona State University **Arizona, United States**
Coursework: Data Processing at Scale, Statistical Machine Learning, Software Security, Analyzing Big Data.

Bachelor of Technology in Computer Science and Engineering (GPA 3.2/4) **June 2024**
Nirma University **Gujarat, India**
Coursework: Data Structures & Algorithm, Database Management Systems, Machine Learning, Natural Language Processing, Object Oriented Programming, Operating Systems, Cloud Computing, Blockchain Technologies, Big Data Analytics, Computer Architecture, Computer Network.

TECHNICAL SKILLS

Languages & Frameworks: C/C++, Python, Java, Solidity, Arduino, SQL, HTML/CSS, R, Scala, JavaScript.
Databases: MySQL, MongoDB, PostgreSQL, NoSQL, Neo4j, Nebula.
Tools & Technologies: Git, AWS EC2, AWS ECR, AWS ECS, Hadoop, Jupyter, Tableau, PowerBI, Spark, PySpark, Microsoft Excel, GCP, Databricks, AutoCAD, MATLAB, Adobe Photoshop, ArcGis, Workday, FastAPI.
DevOps and Containerization: Docker, Kubernetes, CI/CD Pipelines (Jenkins, GitLab CI)
Data Processing & ML: NumPy, Pandas, SciPy, Scikit-learn, TensorFlow, PyTorch, Keras, GeoPandas, OpenCV
Skills: Supervised/Unsupervised Learning, Deep Learning, Transfer Learning, A/B Testing, Predictive Modelling, SVM, Clustering, ETL, EDA, Data analysis and visualization, Model Integration.
Soft Skills: Attention to detail, problem-solving, team collaboration, time management, conflict resolution, Decision-making, identifying issues and proposing solutions, troubleshooting, and good decision-making.

ACADEMIC PROJECTS

Enhancing Search Accuracy: The Power of Re-ranking Technique **November 2024 - December 2024**
Arizona State University **Arizona, United States**
- Devised a re-ranking framework for large-scale information retrieval, enhancing query-passage relevance by 18%.
- Integrated BERT-based embeddings with TF/IDF vectorization, bettering ranking precision by 12% and boosting semantic alignment.
- Attained a ranking accuracy of 80.89% with TF/IDF and demonstrated increased semantic precision using BERT embeddings, leading to more relevant search results for practical applications.

Scalable Real-Time Analysis of NYC Taxicab Data **October 2024 - November 2024**
Arizona State University **Arizona, United States**
- Designed and implemented a real-time data pipeline operating Apache Kafka to process NYC taxicab trip data, enabling efficient data ingestion and analysis.
- Utilized Neo4j to study 1,530 NYC taxi trips, applying PageRank and BFS algorithms to map 42 locations and uncover key transit patterns, discovering Zone 159 as the most influential hub.
- Deployed the system leveraging Docker and Kubernetes, ensuring scalability and high availability for processing over 1 million records.
- Achieved a 25% improvement in system performance and uncovered actionable insights for urban mobility and route optimization.

LULC Classification using Machine Learning and Google Earth **August 2022 - November 2022**
Nirma University **Ahmedabad, India**
- Acquired and pre-processed Landsat 8 satellite imagery leveraging Google Earth Engine for LULC analysis.
- Applied machine learning algorithms (Random Forest, SVM, CART, Naive Bayes) to classify land cover types.
- Conducted feature selection and model training, reaching 98.9% accuracy in environmental monitoring with Random Forest and CART by identifying the most relevant features for improved classification.

WORK EXPERIENCE

Web Development Intern **January 2024 - May 2024**
Plexusnet Services **Ahmedabad, India**
- Developed the front-end and back-end components, combining APIs for third-party services such as Google Analytics, social media plugins, and customer support features.
- Created a Web application for company using React and Django, integrating both expense management module and project management for seamless on-site Data Management.

Web Development Intern **June 2023 - July 2023**
Vardhan Insys **Ahmedabad, India**
- Developed and deployed a business website, improving performance by 30% with resource optimization techniques and increasing user engagement by 20% through enhanced cross-browser compatibility and mobile responsiveness.
- Combined a back-end system with PHP and MySQL to handle data storage, ensuring site-related information entered by technicians was securely saved and easily retrievable for reporting.

CERTIFICATIONS

AWS Cloud Foundation | AWS Machine Learning Foundations | Sandford Machine Learning Specialization (3 Course Specialization)