Jal Patel

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EDUCATION

Master of Science in Data Science and Engineering **May 2026**
Ira A. Fulton School of Engineering, Arizona State University **AZ, United States**
Coursework: Data Processing at Scale, Statistical Machine Learning, Statistics for Data Analyst.

Bachelor of Technology in Computer Science and Engineering **June 2024**
Institute of technology, 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.

TECHNICAL SKILLS

Languages and Frameworks: C/C++, Python, Java, Solidity, Arduino, SQL, HTML/CSS, R, Scala
Databases: MySQL, MongoDB, PostgreSQL, NoSQL.
Tools: Git, AWS EC2, Hadoop, Jupyter Notebooks, Tableau, PowerBI, Spark, PySpark, ArcGIS Pro, Microsoft Excel.
Data Processing Packages: NumPy, Pandas, SciPy, scikit-learn, matplotlib, TensorFlow, PyTorch, Pandas, GeoPandas, Arcpy, tidyverse, dplyr.
Soft Skill: Attention to detail, Time Management, Literature Review, Research Methodologies, Problem-solving, Team Collaboration, Data Entry, Data Validation, Data Proofing, Data collection, and Data Analysis. Developing data pipelines, Extracting, Transforming, and Loading (ETL) data.

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.

ACADEMIC PROJECT AND RESEARCH

Finite Automata Visualizer with minimization of DFA and DFA **February 2023 - April 2023**
Nirma University **Ahmedabad, India**
- Built a system to take DFA input in JSON format and generate comprehensive visual representations of the DFA.
- Implemented state-minimization algorithms, reducing DFA states, revamped processing efficiency by 25% through lower memory usage and faster state transitions.
- Employed the Graphviz library in Python to apply state minimization algorithms, converting DFAs into regular expressions while boosting efficiency and accuracy through a deeper understanding of automata theory.

FETAL HEALTH CLASSIFICATION (Research Paper) | KNN, CV **August 2022 - November 2022**
Nirma University **Ahmedabad, India**
- Devised a machine learning model to classify fetal health based on cardiotocography (CTG) data.
- Achieved top classification performance using machine learning algorithms, specifically Random Forest, attained an F1-score of 86.33%, while also applying Logistic Regression and K-Nearest Neighbors (KNN) for effective data analysis.
- Optimized models with GridSearchCV and cross-validation, gaining a 15% increase in performance, while analyzing feature relationships and model learning curves to ensure robust performance and refine accuracy.

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, achieving 98.9% accuracy in environmental monitoring with Random Forest and CART by identifying the most relevant features for improved classification.

STUDENT PERFORMANCE REVIEW SYSTEM (SPRS) | Tkinter, Sqlite3 **February 2022 - April 2022**
Nirma University **Ahmedabad, India**
- Created dynamic graphs, charts, and dashboards provided actionable insights into performance metrics, trends, and patterns for over 100 students and 10 teachers, facilitating data-driven decision-making during evaluation.
- Designed and executed functionalities tailored for admins, teachers, and students, ensuring each role had access to relevant tools and information.

CERTIFICATIONS

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