

# Sarath Chandra Karri

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## Education

<b>Virginia Commonwealth University</b> <i>Master of Science, Decision Analytics and Data Science</i>	<b>Richmond, VA</b> Jan 2024 – Dec 2025
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## Experience

<b>Virginia Commonwealth University – Convergence Lab Initiative</b> <i>Image Processing Engineer</i>	<b>June 2025 – Present</b> <b>Richmond, VA</b>
<ul style="list-style-type: none"><li>Implemented facial recognition and facial expression recognition models to enhance secure and adaptive system responses.</li><li>Designed data workflows integrating YOLO-based object detection and multi-source data fusion for low-light environments.</li><li>Developed Video Anomaly Detection using rule-based logic for abandoned bag detection and pickpocketing in crowded zones.</li><li>Applied convolutional autoencoder models for quick movement anomalies and integrated results into HMI for real-time awareness.</li><li>Added hand sign recognition for general and military gestures using a CNN to expand non-verbal communication within HMI.</li><li>Processed model performance data in SQL, reducing troubleshooting time by 30% by resolving the data pipeline bottlenecks.</li><li>Developed a Streamlit dashboard to visualize system metrics and outputs for Technical and Non Technical stakeholders.</li></ul>	
<b>Virginia Commonwealth University – Chemical and Lifescience Engineering</b> <i>Data Science Intern</i>	<b>Jan 2025 – Aug 2025</b> <b>Richmond, VA</b>
<ul style="list-style-type: none"><li>Built a batch-based web scraping pipeline using Pythons BeautifulSoup frameworks reducing manual data collection time.</li><li>Extracted structured data, including price and supplier information, from over 6.3 million MCULE compound listings.</li><li>Designed a data processing framework that splits massive workloads into 50 manageable batches for memory efficiency.</li><li>Designed Power BI dashboards to visualize pricing, purity, and product trends, enabling more strategic decisions.</li><li>Added fail-safe mechanisms like data flushing and structured error handling to guarantee reliability during long-term runs.</li></ul>	
<b>Virginia Commonwealth University – Department of Information Systems</b> <i>Graduate research Assistant</i>	<b>Jan 2024 – May 2025</b> <b>Richmond, VA</b>
<ul style="list-style-type: none"><li>Worked on an ONR funded project to analyze the navy sailors behaviors that negatively impact operational readiness.</li><li>Conducted research to prevent sailors destructive behaviors which include suicide and substance abuse.</li><li>Studied how traditional models link destructive behavior to individual failures rather than systemic control issues.</li><li>Used the Systems Theoretic Accident Model and Process(STAMP) to analyze destructive behavior.</li><li>Studied the navy’s operational framework to identify system components contributing to its safe and effective functioning.</li><li>Analyzed and documented feedback loops of navy’s system components to identify potential vulnerabilities.</li><li>Mapped system processes using Agile and Lean methodologies, identifying critical improvement opportunities.</li><li>Developed a new organizational command structure with control actions and feedback loops to identify system issues.</li><li>Identified gaps from non-mandatory reporters, continuity issues from safety personnel turnover, and tailored strategic needs.</li></ul>	

## Skills

<b>Programming:</b>	Python, R, SQL, JavaScript, Bash, Git, HTML, CSS
<b>Tools:</b>	Excel, Tableau, Power BI, Jupyter, VS Code, AWS, HIVE, SPARK, GCP
<b>Core Skills:</b>	Machine Learning, Predictive Modeling, Statistics, Optimization, Dashboard Building
<b>Soft Skills:</b>	Problem-Solving, Critical Thinking, Communication, Detail-Focus,Teamwork

## Projects

<b>CUSTOMER CHURN PREDICTION</b>   <i>Python, Datamining, Machine Learning</i>
<ul style="list-style-type: none"><li>Conducted extensive Exploratory Data Analysis (EDA) on a telecom dataset (7K+ records, 20+ features).</li><li>Engineered features and performed data preprocessing, utilizing standardscaler and one hot encoder.</li><li>Developed a comprehensive classification pipeline using 70/30 train-test splits, evaluating model performance with accuracy.</li><li>Trained five classification models including KNN, DT, RF, and LR, with the (SVM) achieving the highest accuracy of 79.13%.</li></ul>
<b>REVIEW SENTIMENT CLASSIFICATION MODEL</b>   <i>Python, Datamining, Machine Learning</i>
<ul style="list-style-type: none"><li>Developed a binary sentiment classifier leveraging over 568K Amazon product reviews to predict customer sentiment.</li><li>Converted ratings from 1–5 stars into binary labels, explicitly removing neutral (3-star) reviews to enhance classifier accuracy.</li><li>Applied data preprocessing, including text cleaning, lemmatization, and numerical vectorization (Bag-of-Words).</li><li>Accuracies of decision tree and random forest classifiers are 92% and 93% respectively for predicting sentiment.</li></ul>
<b>CREDIT RISK ANALYSIS &amp; PREDICTION</b>   <i>Scikit-Learn, Machine Learning, Python, Datamining</i>
<ul style="list-style-type: none"><li>Performed EDA, identifying key factors for loan approval such as Person Age, Income, Credit History and Employment Length.</li><li>Built an interactive dashboard for real-time loan data exploration, improving decision-making efficiency.</li><li>Engineered numerical and categorical features with standardization and encoding to prepare clean, model-ready data.</li><li>Trained and evaluated Logistic Regression, SVM, and Random Forest models, achieving 92% accuracy with Random Forest.</li></ul>
<b>LICENSE PLATE RECOGNITION (LPR)</b>   <i>YOLOv8 EasyOCR</i>
<ul style="list-style-type: none"><li>Developed a real-time license plate recognition system integrating YOLOv8 for object detection and EasyOCR for text extraction.</li><li>Fine-tuned YOLOv8 on the CCPD dataset to detect plates with high precision across diverse lighting and angles.</li><li>Optimized live webcam inference using downscaled frames, selective OCR, and Apple MPS acceleration—achieving smooth real-time performance on macOS.</li><li>Delivered a lightweight, end-to-end LPR solution capable of reading multiple license plates simultaneously with minimal lag.</li></ul>