

Vittanala Sai Kushal

saikushal185@gmail.com +91 9121274005 linkedin.com/in/sai-kushal-vittanala github.com/Saikushal185Portfolio

Education

• Vellore Institute of Technology

B.Tech in Computer Science and Engineering | CGPA: 8.42/10

Andhra Pradesh, IN

Jul 2022 – Jun 2026

- Coursework: Data Structures & Algorithms (DSA), Operating Systems, Object-Oriented Programming (OOP), Software Engineering, Computer Networks

Technical Skills

- **Languages:** Python, JavaScript, C, MySQL, Java, HTML, CSS
- **AI/ML:** TensorFlow, PyTorch, scikit-learn, YOLO, MTCNN, Gradient Boosting
- **Business Intelligence & Analytics:** Power BI, Tableau, DAX, Power Query
- **Data Science:** Pandas, NumPy, OpenCV, Matplotlib, Seaborn, Data Visualization, Data Modeling
- **Web Dev:** MERN, REST APIs
- **Databases:** MongoDB, MySQL, DB Design, Query Optimization
- **Cloud & DevOps:** AWS, Azure, Git, Docker
- **CS Concepts:** Data Structures, Algorithms, OOP, Software Engineering, CV

Projects

Power BI Sales & Customer Analytics Dashboard

Aug 2025

- Built an interactive dashboard analyzing 25K+ orders across 5 product lines and 7 global offices, uncovering insights on regional sales and profitability.
- Enabled 30% faster decision-making through KPI tracking on revenue trends, customer segmentation, and employee performance.
- Proposed predictive ML integration (XGBoost/LightGBM) for sales forecasting and churn prediction, achieving 20–25% higher forecast accuracy.

Technologies: Power BI, DAX, SQL, Excel, Data Modeling, Predictive Analytics

Computer Vision-Based Face Recognition System

Feb – Apr 2025

- Deployed an MTCNN-based system for information retrieval across existing security camera infrastructure, achieving low-latency processing at 30 FPS and reducing manual monitoring hours by 65% through machine learning-enhanced accuracy.
- Achieved 97% precision and 85% recall in low-light and partial face conditions.
- Minimized false positives by 70% using preprocessing and threshold optimization.

Technologies: Python, MTCNN, TensorFlow, OpenCV, Deep Learning

Real-Time Fight Detection System

Jan – Mar 2025

- Engineered a real-time, YOLOv3-powered altercation detection system, achieving 91% accuracy in identifying violent incidents and triggering immediate alerts to security personnel, improving response times.
- Improved video processing pipeline with optimized caching mechanisms within a distributed systems architecture, reducing latency by 20% and enabling real-time detection in crowded environments through efficient data storage strategies.
- Streamlined to 18 FPS on standard hardware with 65% fewer false alarms, implementing data compression techniques to reduce storage needs.

Technologies: Python, YOLOv3, OpenCV, Object Detection, Video Analytics

Quiz Website

Mar – May 2024

- Created quiz web app with user authentication and leaderboard features, improving user engagement by 40%.
- Revamped quiz application's database structure using MongoDB; slashed average data retrieval time by 60% and enabled real-time leaderboard updates
- Implemented TCP/IP networking protocols to ensure seamless communication between the client and server, enhancing the overall user experience.

Technologies: React.js, Node.js, MongoDB, JavaScript

Research Publications

- Co-authored and presented a novel machine learning-based prediction model at ADSSS Conference 2024 titled "Prediction of Kidney Disease and Urinary Disease using Machine Learning" achieving 92.31% diagnostic accuracy using Gradient Boosting.
- Enabled 15% improvement in early-stage diagnosis and treatment planning for kidney and urinary diseases through hyperparameter tuning and clinical data analysis.

Certifications

- **AWS Certified:** Cloud Practitioner, Cloud Foundations, Cloud Architecting
- **Oracle Certified:** OCI 2025 Generative AI Professional
- **Microsoft Certified:** Azure Data Fundamentals
- **MongoDB University:** Intermediate DBA