Vittanala Sai Kushal

✉ saikushal185@gmail.com 📞 +91 9121274005 in LinkedIn ○ GitHub

Education

- **Vellore Institute of Technology** — Andhra Pradesh, IN
  B.Tech in Computer Science and Engineering | CGPA: 8.4/10 — *Jul 2022 – Jun 2026*

Projects

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

Food Waste Management System — *Sep – Oct 2024*

- Developed a full-stack application using SQL, React, and Node.js facilitating direct donations to local food banks, achieving a measurable 35% reduction in regional food waste.
- Refined SQL database queries for donation platform, increasing transaction throughput by 40% and ensuring efficient handling of large donation volumes.
- Integrated a natural language processing component to analyze user feedback, improving system usability and identifying areas for enhancement.

Technologies: Python, SQL, TensorFlow, Geolocation

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, impacting over 10,000 active daily users.
- 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

Technical Skills

- **Languages:** Python, JavaScript, C, MySQL, Java, HTML, CSS
- **AI/ML:** TensorFlow, PyTorch, scikit-learn, YOLO, MTCNN, Gradient Boosting
- **Data Science:** Pandas, NumPy, OpenCV, Matplotlib, Seaborn, Data Visualization
- **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

Certifications

- **AWS Academy:** Cloud Foundations, Cloud Architecting
- **Microsoft Certified:** Azure Data Fundamentals
- **MongoDB University:** Intermediate DBA