

Kushal Sri Rangam

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EDUCATION

- University of the Pacific** May 2025
Master of Science in Computer Science Stockton, CA
 - Relevant Coursework: Machine Learning, Deep Learning, Advanced Data Analytics, Data Science, Cloud & Mobile Security, DBMS, Visualization & Storytelling

EXPERIENCE

- Research Assistant – Smart Hat Project** Jan 2025 – May 2025
University of the Pacific Stockton, CA
 - Delivered Flask API (12+ endpoints) and ReactJS + Tailwind dashboard supporting 100+ sessions for live streaming, voice alerts, and configuration updates
 - Led multi-model ML pipeline (MobileNetV2 SSD + RandomForest) with 92% accuracy on 500+ images, reducing false positives by 40%
 - Engineered Edge AI deployment on Raspberry Pi 5 (8GB RAM) with IMU, ultrasonic sensors, IMX500 AI camera, achieving <250ms latency for real-time obstacle detection
 - Architected Firestore schema and secure APIs managing 1,200+ logs with Firebase Storage integration for video uploads and audit trails
 - Conducted 10+ sessions simulating visual impairment to evaluate usability, accessibility, and detection performance

PROJECTS

- Laureate Lens – Nobel Prize Analysis & RAG Chatbot** *ReactJS — Flask — LangChain — FAISS — OpenAI API*
 - Crafted ReactJS + Tailwind UI visualizing 120+ years of Nobel data trends by gender, country, age, and category
 - Integrated RAG chatbot using LangChain + FAISS for 50+ NLP query types with semantic search
 - Developed Flask APIs serving 10,000+ standardized records after custom ETL processing
 - Embedded GPT-4 NLP interface improving query accuracy by 35% with optimized response times
- Resume Analysis Web App** *ReactJS — Python — Flask — NLP — Charts.js — OpenAI API*
 - Created ReactJS UI with Charts.js for real-time keyword match, skill gap analysis, and user feedback
 - Implemented Flask backend with PDFMiner and NLP NER to extract 100+ skills and phrases from resumes
 - Built TF-IDF scoring system to improve resume-job match rate by 25% with clear matchability feedback
 - Integrated OpenAI API to generate personalized resume improvement tips and rewrite suggestions
 - Delivered full end-to-end Web App enhancing ATS compatibility and usability
- NoSQL ETL + Multi-Database Aggregation System** *ReactJS — Python — MongoDB — Redis — Neo4j — IndexedDB*
 - Assembled Python ETL pipelines unifying 100k+ records from 4+ NoSQL sources with schema normalization
 - Constructed ReactJS dashboard to visualize latency benchmarks and interactive geographic overlays
 - Integrated custom reduce logic supporting 15+ aggregation scenarios for performance comparisons

TECHNICAL SKILLS

- Languages:** Python, JavaScript (ES6+), SQL, C++
- Frameworks & Libraries:** ReactJS, Flask, Dash, TensorFlow, PyTorch, TFLite, Scikit-learn, LangChain, FAISS, OpenAI API
- ML & AI:** Computer Vision, NLP, Deep Learning, Edge AI, Object Detection, Risk Scoring
- Frontend & UI:** ReactJS, Tailwind CSS, Charts.js, HTML/CSS/JS
- Data Tools:** Pandas, NumPy, Power BI, Matplotlib, Seaborn
- Cloud & Deployment:** AWS (EC2/S3), Firebase (Firestore, Storage), Vite
- Databases:** Firebase Firestore, MongoDB, Redis, Neo4j, IndexedDB, MySQL
- Tools & DevOps:** Git, Jupyter, Docker (basic)
- Hardware:** Raspberry Pi 5, IMX500 AI Camera, Ultrasonic Sensors, IMU, VR Headset

CERTIFICATIONS & ACHIEVEMENTS

- AWS Academy Cloud Foundations** — Completed April 2025
- IEEE AIIoT 2025** — Co-authored Research Paper Accepted (Smart Hat Project)
- IEEE COINS 2025** — Main Author (Smart Hat 2.0 Research Paper)
- Global AI Hackathon 2025 – All-Ages Team Winner (VisionCap)** — Awarded by MIT RAISE & App Inventor Foundation