

Kushal Sri Rangam

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EDUCATION

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

EXPERIENCE

- **Research Assistant – Smart Hat Project** Jan 2025 – May 2025
University of the Pacific Stockton, CA
 - Developed an AI-powered navigation system for the visually impaired using **MobileNetV2 SSD TFLite** on Raspberry Pi 5 with **IMX500 AI camera** and ultrasonic sensors
 - Built a Flask backend with **real-time video streaming**, voice alerts via browser, and **Firestore logging** (Firestore + Storage)
 - Designed a modular dashboard with **Dash + HTML** for detection mode switching, logs, analytics, and config updates
 - Conducted VR-based testing and implemented risk scoring, object filtering, and detection optimization
 - **Publication:** Co-authored paper accepted at **IEEE AIIoT 2025 (Seattle)**

PROJECTS

- **Nobel Prize Analysis + Storytelling Chatbot** *ReactJS — Power BI — Python — LangChain — FAISS — OpenAI API*
 - Built “Laureate Lens” portal to explore Nobel Prize data (1901–2024) by gender, country, age, and category
 - Designed responsive frontend using React + Tailwind to showcase award trends and achievements
 - Created GPT-4 based RAG chatbot using LangChain and FAISS for natural language queries on Nobel data
 - Cleaned and transformed OpenDataSoft dataset; handled missing values, multi-laureates, and standardization
 - Enabled CSV/JSON export and embedded chatbot interface into the portal UI
- **Resume Analysis Web App** *Python — Flask — HTML/CSS/JS — Charts.js*
 - Built an interactive web tool to compare uploaded resumes with job descriptions using TF-IDF similarity scoring
 - Extracted skills and key phrases from PDF files using PDFMiner + custom NER logic
 - Displayed keyword match, missing skills, and score trends with dynamic Charts.js visualizations
 - Implemented suggestion engine to guide users on improving match rate based on job target
- **NoSQL ETL + Multi-Database Aggregation System** *Python — MongoDB — Redis — Neo4j — IndexedDB*
 - Designed a data lake and local warehouse for 100k+ task records collected across multiple NoSQL databases
 - Developed Python ETL with schema unification, ID resolution, and timestamp normalization
 - Built dashboard to compare performance of IndexedDB vs. Redis for read/write latency and query response
 - Aggregated records by ZIP using custom reduce logic and created map-based visual overlays
- **Esports Storytelling Platform** *Power BI — Squarespace — Twitch API*
 - Mined and visualized earnings and trends across top esports games and teams using Power BI
 - Created game-specific dashboards and rankings filtered by country, genre, and platform
 - Published insights through a Squarespace blog integrated with Twitch, YouTube, and Twitter feeds
 - Wrote short player profiles and linked to real-time match streams to enhance storytelling
- **AWS Cloud Foundations** *AWS — IAM — EC2 — S3 — VPC — CloudWatch*
 - Completed AWS Academy coursework and lab sessions on core services including compute, storage, and networking
 - Deployed secure multi-tier web app with EC2 + RDS + S3 using IAM roles and custom VPC configuration
 - Set up monitoring and cost alerts via CloudWatch and Billing Dashboard

TECHNICAL SKILLS

- **Languages:** Python, JavaScript, HTML/CSS, SQL, C++
- **Frameworks:** Flask, Dash, ReactJS, Jetpack Compose
- **AI/ML:** TFLite, MobileNetV2, LangChain, FAISS, OpenAI API
- **Data Tools:** Pandas, NumPy, Power BI, Charts.js
- **Databases:** Firebase, MongoDB, Redis, Neo4j, IndexedDB, MySQL
- **Cloud & Tools:** AWS (EC2/S3), Firebase, Git, Jupyter, Vite
- **Hardware:** Raspberry Pi 5, IMX500 AI Camera, Ultrasonic Sensors, VR Headset

CERTIFICATIONS & ACHIEVEMENTS

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