

# Nandu Krishna Raji Mol

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## EDUCATION

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### California State University, Northridge

*Master of Science in Computer Engineering*

Northridge, CA

*Aug. 2024 – May 2026 (Expected)*

### APJ Abdul Kalam Technological University

*Bachelor of Technology in Electronics and Communication Engineering*

Thiruvananthapuram, Kerala

*Aug. 2017 – Mar. 2021*

## EXPERIENCE

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### California State University, Northridge

*Graduate Research Associate, CSUN ARCS*

Jan. 2025 – Present

*Northridge, CA*

- Collaborating on a NASA-backed research project to improve drone processor fault tolerance for Mars missions.
- Designing a buffer system to store critical flight data for auxiliary-processor handoff during primary processor failure.
- Addressing power constraints by enabling failover without running dual processors simultaneously.

### Rajadhani Institute of Engineering and Technology

*Co-Founder, WELKIN AVES*

Oct. 2019 – Jan. 2024

*Thiruvananthapuram, Kerala*

- Developed a drone prototype with a battery-swapping feature.
- Raised \$12,000 for prototyping through government grants; incubated at AICTE IDEA Lab and Cisco ThingQbator.

## PROJECTS

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### Risk-X Real-Time Risk Intelligence Pipeline | Azure (Event Hubs, Container Apps, SQL), Python, Streamlit, Drift Detection (ADWIN/Page-Hinkley)

- Built a cloud-native real-time risk intelligence pipeline on Azure to replay IEEE-CIS fraud transactions into Event Hubs and process streaming events via a containerized Python microservice (Azure Container Apps).
- Implemented online anomaly scoring with drift detection (ADWIN, Page-Hinkley) and an auto-adaptation policy to recalibrate alert thresholds and reset the anomaly model upon drift to maintain stable alert quality.
- Persisted scoring and drift events in Azure SQL and developed a Streamlit dashboard for monitoring and auditability; *in progress*: offline evaluation and reliability/performance benchmarking.

### Camera-Guided Humanoid Navigation (Ainex) | ROS Noetic, Python, OpenCV, OpenAI Vision-Language Model

- Conducting research under **Prof. Michael Cho** on closed-loop camera-guided navigation for an Ainex humanoid using ROS Noetic, integrating perception -> decision -> actuation for real-time autonomous motion.
- Implemented a vision-language decision module to map live frames into safe actions (forward/left/right/stop/ask-user) and execute motion via ROS services/scripts; *in progress*: expanding trials, strengthening safety logic, and optimizing end-to-end latency.

## TECHNICAL SKILLS

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**Languages:** Python, SQL, Embedded C, VHDL, SystemVerilog

**ML / Data:** Anomaly Detection, Drift Detection (ADWIN, Page-Hinkley), Feature Engineering, Model Evaluation, Cross-Validation, Hyperparameter Tuning

**Cloud / DevOps:** Microsoft Azure (Event Hubs, Container Apps, Azure SQL), Docker, Git

**Robotics / Tools:** ROS Noetic, OpenCV, VS Code, Keil uVision, AMD Vivado, Libero SoC Design Suite

**Libraries:** pandas, NumPy, Matplotlib, Scikit-learn, TensorFlow, XGBoost