Shrinikheathan Arunkumar

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Career Objective

"The Power of Dreams," "Sheer Driving Pleasure," "Das Auto" — these weren't just slogans to me, but the fuel for a lifelong obsession with the technology behind motion. Inspired by the engineering excellence that drives the Automotive industry and Space technology, I am deeply passionate about Automotive & Embedded Systems, and IoT.
I aspire to contribute meaningfully to the future of mobility—where software meets the soul of machines.

Skills

Programming Languages: Embedded C, Python, Fullstack Web & App development
System Scripting Tools: Linux, CAPL Scripting with Vector Canalyzer Interface, KiCAD Circuit Design, Kubernetes
Analysis: MATLAB, Pandas and Numpy, AWS

Experience

Intern, Spark Minda Limited – Bengaluru, India — June – July 2025

- Supported development of UDS (ISO 14229) services for ECUs in Piaggio Vespa (EU market) using CAN 2.0 protocol.
- Utilized CAPL scripting in CANoe to simulate and validate diagnostic messages and communication behavior.
- Conducted system testing, analyzed communication logs, and ensured compliance with European vehicle diagnostics norms.

Intern, Tecknodreams Software Consulting pvt. Ltd – Bengaluru, India — June – July 2024

- Built a LinkedIn Resume Optimizer using RAG for personalized profile suggestions.
- Integrated embedding and retrieval to align resumes with LinkedIn profiles.
- Fine-tuned prompts for context-aware, AI-driven recommendations.
- Delivered streamlined LinkedIn profile enhancements through AI-driven insights & user-document context.

Projects, Certifications and Workshops

CAN Bus–Based Vehicle Telemetry & ECU Simulation — November 2025

- Implemented a **two-node CAN bus system using Arduino Uno + MCP2515 modules** to simulate a full vehicle ECU, implementing throttle, braking, indicators, headlight control, fuel modeling, and real-time physics.
- Built a **Python (Pygame) desktop dashboard** that renders a live virtual instrument cluster with RPM, speedometer, odometer, fuel gauge, blinkers, brake indicator, and headlight state **synced over CAN in real time.**
- Tested a structured CAN messaging protocol, fault-tested the bus under sustained load, and validated reliable bidirectional communication **through custom stress tests, echo verification, and dynamic state simulation.**

Campus Sentry – Real-Time Violation & Flood Monitoring Platform — October 2025

- Developed a full-stack municipal monitoring system with a **React + Tailwind web dashboard** and a **cross-platform Expo mobile app**, backed by **Firebase Authentication, Firestore, and real-time listeners.**
- Integrated an external **ML pipeline** feeding parking-violation and water-logging detections directly into Firestore, enabling instant approval workflows, dynamic UI updates, and admin dashboards.
- Deployed the web app via **Firebase Hosting** and delivered production-ready Android builds through **EAS, complete with OTA updates, custom app icon,** and **automated UI splash screen.**

5G Core Network Simulation using Open5GS & UERANSIM — August 2025

- Simulated a full 5G Core Network using **Open5GS** and **UERANSIM**, containerized via Docker Compose to emulate UE/gNB registration and attach procedures.
- Configured and verified 5G core functions (AMF, SMF, UPF) with NAS/NGAP signaling and PCAP logs, demonstrating cloud-native telecom architecture aligned with NFV principles.

Real-Time Indoor Localization System On Wearable Device using BLE and Machine Learning — March 2025

- Built a BLE-based indoor localization system inspired by **IEEE research,** using wearables and **ML.**
- Boosted accuracy with **KNN, SVM, LightGBM, XGBoost, Random Forest**, and more for assistive applications.

IoT-Based Water Quality Monitoring System — November 2024

- Designed a prototype using **ESP32 with pH, turbidity, and salinity sensors** and sent the processed data and sent it to the AWS using AWS API, IoT Core, DynamoDB & Lambda Functions.
- Hosted a **Web application** on Firebase to visualize real-time water quality metrics.

Certifications and Workshops

Deep Learning Onramp — MathWorks — April 2025

- Completed a self-paced training covering fundamentals of deep learning, neural networks & practical model-building workflows in MATLAB.

MATLAB Onramp — MathWorks — February 2025

- Completed a certification on MATLAB essentials, programming basics, data handling, and computational workflows.

Machine Learning Onramp — MathWorks February 2025

- Completed a course covering ML concepts including classification, regression, training pipelines & evaluation techniques.

Python with AI certification by Coincent.AI February 2024

- Completed a certification on implementing Python in AI through Numpy, Pandas and Matplotlib.

AI with ML Workshop, IISC Bengaluru October 2024

- Attended a 15-hour workshop conducted by EduFabrica and trained a model to recognize animals using Gradient Descent.

AR/VR Workshop, CHOLALABS September 2023

- Attended a 12-hour workshop at SASTRA University, created a Brick-Breaker game on Blender, and explored recent trends and innovations in AR/VR.

Education

SASTRA University, Tanjore B.Tech CSE (Specialization in IoT and Automation) (Current CGPA : 7.48) July 2026

DAV Boys Higher Secondary School, Gopalapuram Secured 95% in XII CBSE Boards. 2022

Indian School Muscat, Oman Secured 94.5% in CBSE X Boards. 2020

Languages Known

🔵 Tamil 🔵 English 🟠 Hindi 🟢 French 🟣 German

Hobbies

🎨 Canvas Painting 📚 Bibliophile 🤺 Digital Art & Comics 🎶 Flute 🎤 Carnatic Vocal Singing 🏀 Basketball