Ajay Shankar Sriram

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Professional Summary

Versatile electrical engineer with 2+ years of professional experience developing electrical parts for Aerospace applications. Hands-on experience in building and fixing things in hardware & software. Superpowers: Adaptive, Communicative, Organized, Curious

Skills and Tool-sets

Competencies: Hardware Sizing & Design, MEMS, Battery Management Systems, DC-DC Converters, Control Systems
Programming Languages: Python, C/C++, ROS2 (beginner), Rockwell RS Logix 500 (Ladder logic), SQL (basic)
Development Tools: MatLab, Simulink, CoventorWare, L-Edit, COMSOL, Catia, LabVIEW, Android Studio, Linux, LaTeX, Git
Certifications: Battery Management Systems(with honors); Equivalent Circuit Cell Model Simulation; PLC Developer

Experience

Intern - F1Tenth Autonomous Racing 06/2024 – Current
Resilient Cyber Physical Systems Research Lab | ROS2, SLAM, Autonomous Navigation, Control *Irvine, California*

- Assembled and debugged custom hardware components (e.g., Nvidia Jetson NX, LIDAR, power distribution PCB).
- Conducted **root cause analysis** on Lidar failures, implemented design modifications, & improved durability by 5%.
- Created an **autonomous navigation stack** with PID control and RRT based path planning for obstacle avoidance.

Qualification/Supplier Industrialization Engineer 07/2021 – 08/2023
Electrical & Optical System Standard Parts, AIRBUS | Technical Program Management, FMEA, APQP *Bengaluru, India*

- Led a **cross-functional** product team to **liaise with suppliers** and develop and qualify electro-mechanical components.
- Conducted design validation through testing in accordance to reliability standards (EN, DO-160,etc.) & practicing APQP.
- Validated qualification test plans in **collaboration with design teams & external labs**.
- Utilized Failure Modes and Effects Analysis (FMEA) and Root Cause Analysis (**RCA**) to implement design improvements reducing failure rates by 20%.
- Achieved a 99.5% first-time-right rate and 98.8% on-time delivery, **delivering over 500 studies** to resolve anomalies in the functional definition of the electrical wiring harness, contributing to cost savings of over €200,000 per aircraft.
- Drove the proof of concept development of multiple business-critical **process automation tools** using Python, which led to **a 20% reduction in efforts** for the team and **saving $100,000** annually.
- Received 2 '**Spot Awards**' for leading the **development of knowledge management** material that enhanced training efficiency by 25%, **and presenting** critical technical projects to the Airbus CTO, influencing strategic decisions.

Projects

Design and Construction of a Boost Converter |*Power Electronics, DC-DC, SIMULINK* 03/2024

- Designed and implemented a boost converter with a system efficiency of about 93%, demonstrating high-level performance through simulation and experimental validation.
- Conducted detailed analysis of voltage ripple, adaptive to Continuous Conduction Mode (CCM) and Discontinuous Conduction Mode (DCM), reflecting a comprehensive understanding of system dynamics.

Reinforcement learning based end to end swing up control | *MatLab, Deep Q Learning, Neural Networks* 05/2024

- Accomplished a 25% improvement in control efficiency, validated with simulation results, by developing an optimized control strategy using deep Q-learning algorithms in a simulated environment.
- Presented the project outcomes to a group of 50 peers and faculty members by creating a comprehensive 6-page technical report, which detailed the integration of machine learning techniques with classical control theory.

Design and Simulation of 10Khz MEMS Resonator | *L-Edit, CoventorWare, COMSOL, PolyMUMPS* 12/2023

- Designed a micro-resonator to be manufactured using the **PolyMUMPS** process with closed loop electronics operated at 5V to maintain the oscillation frequency at the desired value of 10Khz with an error of 0.4%
- Studies were conducted using Simulink to show the effect of temperature, manufacturing tolerances, Brownian and Johnson Noise and also to identify the vacuum packing requirements

Solar DC Powered Washing Machine | *New Product Dev., Hardware testing, Project Management* 01/2021

- Developed a prototype solar-powered washing machine, conducting rigorous hardware reliability testing per IS302-1:2008, ensuring compliance with safety and performance standards.
- Collaborated with local machine shop to integrate solar panels, a DC motor, and custom-fabricated parts, enhancing skills in communicating complex technical topics to various stakeholders.

Education

University of California, Irvine 09/2023 – 01/2025 (Expected)
Master of Science in Electrical Engineering - Systems Track *GPA: 3.86*

National Institute of Technology Tiruchirappalli, India 07/2017 – 05/2021
B.Tech Instrumentation and Control Engineering; Minor : Computer Science *GPA: 8.63 (Cum Laude)*