

# Atharvaa Rajendra Sawant

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## Profile

Accomplished Electrical and Electronics Engineer with 3 years of experience in power systems, electrical design, and embedded systems development. Skilled in designing and analyzing electrical networks, developing embedded solutions using C/C++ and microcontrollers (ARM, PIC), and creating efficient control systems with PLC/SCADA. Proficient in tools such as AutoCAD Electrical, ETAP, MATLAB/Simulink, and Altium Designer. Strong understanding of IEC, IEEE, and NEC standards, with a proven track record of delivering reliable, compliant, and cost-effective engineering solutions.

## SKILLS

**Power Systems & Electrical Design:** Load flow and short circuit analysis, power distribution systems, relay coordination, switchgear design, electrical schematics, panel layouts, AutoCAD Electrical, EPLAN

**Power Electronics & Motor Control:** AC/DC converters, inverters, rectifiers, motor drives, battery management systems (BMS), PWM control, motor protection schemes

**Embedded Systems & Control:** Microcontroller programming (C, Embedded C, Verilog, and VHDL), ARM Cortex, PIC, AVR, RTOS, sensor interfacing, communication protocols (I2C, SPI, and UART), low-level driver development

**Control & Automation Systems:** PLC programming (Siemens, Allen Bradley), SCADA/HMI development, ladder logic, Modbus, CAN bus, industrial automation design

**Simulation & Software Tools:** ETAP, MATLAB/Simulink, PSCAD, LTspice, PSpice, Multisim, ANSYS Maxwell, Altium Designer, Eagle, PCB layout and prototyping

**Standards, Compliance & Project Management:** IEC 61000, IEEE, NEC, CE Marking, ISO 9001 quality standards, electrical safety regulations, technical documentation, root cause analysis, Agile methodologies, MS Project, JIRA

## Work Experience

### Electrical Engineering, General Electric

Aug 2024 - Present | USA

- Designed and developed embedded control firmware using Embedded C on ARM Cortex-M microcontrollers with RTOS, enabling real-time multitasking and reliable industrial automation performance.
- Performed power system analysis (load flow, short circuit, relay coordination) using ETAP and MATLAB/Simulink, optimizing power distribution and ensuring compliance with IEC and IEEE standards.
- Created detailed electrical schematics and panel layouts with AutoCAD Electrical and EPLAN, reducing design errors and facilitating efficient project implementation.
- Engineered motor control algorithms and BMS firmware; programmed Siemens PLC and integrated SCADA systems for enhanced automation, improving motor efficiency by 15% and operational uptime by 20%.
- Led PCB design and prototyping using Altium Designer; prepared comprehensive technical documentation adhering to ISO 9001 and electrical safety standards to support quality compliance and successful audits.

### Electrical Engineering Trainee, Rashtriya Chemical Fertilizers Ltd

Aug 2021 - Jun 2022 | India

- Designed and implemented an embedded control system using ARM Cortex microcontrollers and Embedded C for real-time industrial process automation, enhancing data acquisition and system responsiveness.
- Developed detailed electrical schematics and PCB layouts with Altium Designer, ensuring signal integrity above 99% through comprehensive simulation and testing in Proteus.
- Created and optimized PLC programs (Siemens, Allen Bradley), reducing system response time by 30% and improving overall manufacturing automation efficiency.
- Performed power system analysis and monitoring using ETAP and MATLAB, implementing energy-saving strategies that lowered electrical losses by up to 10%.
- Conducted instrumentation calibration and maintenance, ensuring high precision and reliability of control systems, and collaborated with cross-functional teams to integrate embedded and power systems for improved operational performance.

### Electrical Engineer, Suraj Electronics and Electrical

May 2017 – Jun 2018 | India

- Managed the development of an embedded sensor-based automation system for industrial machinery, utilizing ARM Cortex microcontrollers and Embedded C to enhance real-time data acquisition and control accuracy by 25%.
- Engineered PCB layouts for 10+ multi-layer circuit boards using Altium Designer, optimizing signal integrity and manufacturability, reducing production errors by 15%.
- Conducted functional testing, durability analysis, and performance evaluation on critical electrical components including connectors and terminal blocks, ensuring full compliance with IEC, IEEE, and industry quality standards.
- Executed preventive maintenance and troubleshooting of motor control circuits and industrial power distribution systems, employing diagnostic tools and oscilloscopes to minimize downtime by 30%.
- Collaborated with cross-functional teams to perform electrical system simulations and load flow analysis in ETAP and AutoCAD Electrical, streamlining design validation and ensuring adherence to safety regulations.

## Education

### Master of Science, California State University

Aug 2022 - May 2025 | Northridge, USA

Electrical Engineering

### Bachelor in Engineering, Vivekanand Educational Society Institute of Technology

May 2018 - June 2021 | Mumbai, India

Electronics Engineering