AMIR HOSSEIN ESLAHCHI
Hardware Designer Engineer

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Professional Summary

Experienced Hardware Design Engineer with 10+ years of expertise in high-speed, multilayer PCB design for FPGA and microcontroller-based applications. Proficient in Altium Designer, OrCAD, MATLAB, and C/C++ programming for microcontrollers. Proven track record in designing complex PCBs for satellite communication, embedded systems, and precision measurement devices. Leveraged up-to-date component knowledge to reduce power consumption and enhance device efficiency across multiple projects. Skilled in signal integrity, schematic capture, and circuit simulation. Successfully optimized hardware performance through innovative designs and firmware upgrades.

PROFESSIONAL EXPERIENCE

R&D Hardware Designer | Sensi Technology | Remote Work — 2023 – Present

- Designed multi-layer PCBs for high-speed, low-power applications, optimizing power consumption and system efficiency.
- Upgraded existing systems by redesigning hardware and optimizing firmware using STM32 microcontrollers, leading to improved performance and reduced operational costs.
- Utilized LTspice MATLAB/Simulink for circuit simulation and performance analysis.
- Conducted comprehensive testing and validation to ensure product reliability.
- Designed and developed **high-frequency, mixed-signal, and precision PCBs** for satellite communication.

R&D Electronic Manager | Mobile Communication Technology of Eshtad Pars — 2018 – 2023

- Developed STM32-based embedded systems for real-time signal processing and communication control, enabling advanced functionality and seamless integration.
- Designed FPGA-based hardware for satellite tracking, reducing latency and improving data throughput for real-time applications.
- Prepared detailed production documentation and delivered finalized products to the sales and marketing team, ensuring smooth market entry and customer satisfaction.
- Optimized hardware and firmware for low-power, high-performance applications and enhancing overall device efficiency.
- Conducted rigorous testing, debugging, and validation of embedded systems and FPGA designs, ensuring reliable operation in challenging environments.

Embedded Systems Engineer | Ide Kavan Pipe Inspection Robot Design Company — 2013 – 2015

- Designed and developed an industrial pipe inspection robot capable of **video metrology** and **defect reporting** for **sewer pipes**.
- Implemented precise robotic movement control using **STM32** microcontrollers, managing both hardware and software components.
- Integrated **advanced sensors** and **vision systems** for automated inspections, improving inspection accuracy and efficiency.
- Developed **real-time** monitoring and **control systems** for robotic operations in sewer pipelines.

EDUCATION

SHIRAZ UNIVERSITY OF TECHNOLOGY — **2015-2018**
Master of Power Electronics Engineering

Arak University — **2011-2015**
Bachelor's Degree in Electrical Engineering

SKILL

- **Hardware Design:** Altium Designer, OrCAD, PCB Layout, Signal Integrity
- **Embedded Systems:** STM32, C/C++ Programming, Real-Time Control
- **Development Tools:** STM32CubeIDE, Keil, LabVIEW
- **Debugging Tools:** JTAG Debuggers, Logic Analyzers, Oscilloscopes
- **Soft Skills:** Problem-Solving, Project Management, Team Collaboration

KEY ACHIEVEMENTS

- **Satellite Antenna Stabilizers**: Designed and implemented stabilizers for maritime and mobile communication systems, enhancing tracking accuracy and signal reliability.
- **Precision Measurement Devices**: Developed high-accuracy oil concentration and density measurement tools, enabling precise quality control and research applications.
- **Laboratory Equipment for Oil Corrosivity:** Designed devices to evaluate oil corrosivity, optimizing material selection and extending equipment lifespan.
- **Multi-Parameter Dataloggers**: Built robust dataloggers for monitoring temperature, concentration, and oxygen levels in industrial processes, improving operational efficiency.

Research Projects & Designs

- **Kalman Filter-Stabilized Quadrotor:** Reduced position error using STM32 microcontroller for enhanced stability.
- **University-Grade Vibration Table:** Achieved ±0.5mm accuracy for university-grade vibration testing.
- **Active Power Filter**: Designed and implemented as part of master's thesis, improving power factor correction.