Iraj Shrotri | Electrical Engineer
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LinkedIn | Portfolio

Professional Summary

Electrical Engineer specializing in Control, Robotics, and Machine Intelligence, with hands-on expertise in RTL design, system verification, and hardware-software integration. Proficient in Verilog, Python, and C/C++, with experience developing testbenches and validation frameworks for high-performance systems.

Education

University of California, Riverside | B.S. Electrical Engineering

- Specialization: Control, Robotics & Machine Intelligence
- Relevant Coursework: Digital Design (Verilog), Computer Architecture, Embedded Systems, Data Structures, Machine Learning

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Technical Skills

- Hardware Design & Verification: Verilog, SystemVerilog (basic), Arduino, FPGA, LTSpice
- Programming: Python, C/C++, MATLAB, Assembly,
- Tools & Frameworks: AutoCAD, LTSpice, JMP, Git, SQL
- ML/Data Analysis: NumPy, Pandas, MATLAB Image Processing

Work Experience

Process Engineer | Intel Fab 11X Lithography | June 2023 – Present

- Optimized Veeco AP-300 Lithography systems , reducing defect analysis time by 15% and ensuring 99.9% functional accuracy in high-volume production.
- Collaborated on cross-site product transfers, developing validation protocols that reduced preventative maintenance time by 20% for Canon/Veeco toolsets.
- Documented workflows for defect detection using advanced optical systems, improving team efficiency.

Undergraduate Research Assistant | UC Riverside, Zachariah Group Lab | Jan 2022 – Dec 2023

- Redesigned a legacy burn rate measurement system using Arduino and C#, achieving 30% higher precision in material analysis.
- Modified a Prusa 3D printer to fabricate custom resin components infused with metal oxides, enabling precise burn rate analysis for advanced material studies

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Projects

Autonomous Soil Sampling Rover | Python, LiDAR, OpenCV

- Designed a rover with 2D LiDAR and 2MP camera for real-time soil analysis; validated navigation algorithms using C++ testbenches.
- Achieved 95% accuracy in autonomous object detection and path planning.

RISC Processor Design (Verilog) | UC Riverside Digital Design Course

- Developed a pipelined RISC processor in Verilog, focusing on instruction set validation and data pathway optimization.
- Created testbenches to verify functional accuracy across edge cases.

ML-Based Particle Identification | MATLAB, Python

- Generated binarized training datasets for molten boron analysis, achieving 98% precision using MATLAB image processing.
- Applied computer arithmetic principles to optimize ML model efficiency.

Awards & Leadership

Inova 'R Award | Dec 2020 – Mar 2021

- Led a team to prototype a custom vinyl jukebox, securing a $3k grant and presenting iterative designs to 50+ stakeholders.
- Integrated Python analytics to refine user experience based on customer feedback.

Security Clearance

- Secret Level Security Clearance | Department of Defense | Jan 2024 – Jan 2026