Suren Shirani

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EDUCATION

Bachelor of Science, Electrical and Computer Engineering, May/2028
Intended Track: Electronics and Integrated Circuits
The University of Texas at Austin, GPA: 3.87
Relevant Coursework: Intro to Electrical Engineering, Intro to Computing, Intro to Embedded Systems, Circuit Theory.

WORK EXPERIENCE

Intern, NASA JSC - ER4, 06/2025 – 08/2025
- Programmed a temperature sensor control system in Arduino, selecting a microcontroller based on RTD resistor resolution.
- Designed interface panel schematics and presented in design reviews with senior engineers.
- Supported development of SEV temp-sensor alert system, contributing to astronaut safety systems.
- Collaborated in multidisciplinary teams, applying CAD and electrical engineering fundamentals.

Programmer, FRC 2468 & 2689, 08/2023 – 05/2025
- Programmed subsystems in LabVIEW and worked on integrating an omnidirectional vision system for field mapping.
- Created an automated scouting system in Google Apps Script to collect live competition data through API pulls.

Projects

NASA TechRise Challenge - Design Leader: 03/2024 – 10/2024
- Led design of payload testing Zylon polymer outgassing under stratospheric conditions with $1500 budget.
- Integrated sensors (pressure, UV, humidity, particle) and programmed Python analysis for material testing.

Buck Converter | KiCad (Schematic + PCB Design), Soldering, Hardware Testing: 11/2025 - 12/2025
- Co-designed and implemented a high-efficiency buck converter, achieving over 90% voltage step-down efficiency through MOSFET switching and inductive filtering, surpassing traditional resistive regulation.
- Executed the full hardware development workflow, encompassing schematic creation, PCB design, component soldering and assembly, and comprehensive testing and troubleshooting using an oscilloscope, function generator, and digital multimeter.

4 Switch Synchronous Buck-Boost Solar Charger: 10/2025 - 12/2025
- Designed a 4-switch synchronous buck-boost converter (4–30 V input → 12 V @ 5 A) achieving ~98.5% efficiency in both step-up and step-down modes.
- Selected and validated controller-specific component values through datasheet analysis and manufacturer references. Implemented current sensing, decoupling, and power integrity techniques suitable for battery-charging applications.
- Led full schematic and 4-layer PCB layout, optimizing high-di/dt switching loops, EMI reduction, grounding strategy (solid PGND plane), and sensitive analog routing.

Traffic Light Control System: 12/2025 - 1/2026
- Designed a Traffic light control system for a 4-way intersection.
- Defined FSM and logic sequence for Moore FSM, then implemented design in verilog with clock cycles.
- Simulated and tested in AMD Vivado.

SKILLS

Programming: C++, Python, JavaScript, Arduino, Verilog, ARM Assembly
Software/Tools: OnShape, Git, LTSpice, AMD Vivado, KiCAD, VSCode, CCS,
Hardware: Microcontrollers(MSPM0, Arduino), Soldering, Oscilloscope, Waveform Generator, DC Power Supply.
Languages: English (native), Farsi (conversational)

ACCOMPLISHMENTS

United States Computing Olympiad - Gold Division (2024)
Physics Bowl – 2nd Place Global Top Team, Division 1 (2024)
UIL Science – District Winner, Top 2 in Chemistry & Physics (2024)