

Summary

Fourth-year Computer Engineering student at Cal Poly (3.5 GPA) specializing in embedded systems, mechatronics, and digital signal processing. Seeking a challenging full-time Embedded Software Engineer role. Proven ability in designing, developing, and debugging complex hardware/software solutions, from low-level firmware on FPGAs and microcontrollers to control systems for autonomous robotics. Eager to apply strong C/C++, Embedded C, Python, and assembly skills to deliver robust and efficient software solutions.

Education

California Polytechnic State University, San Luis Obispo. Bachelor's degree in Computer Engineering, 3.5 GPA.

Expected Graduation: December 2025

Templeton High School Graduated 2021 Salutatorian & Computer Engineering STEM Scholar, 4.51 GPA

Technical Skills

- **Languages:** C++, C, Embedded C, Python, Java, C#, RISC-V Assembly, Verilog, Linux Shell Scripting
- **Hardware & Microcontrollers:** Artix-7 FPGAs, STM32, ESP32, Raspberry Pi, Arduino, Eagle PCB Design
- **Software & Tools:** Xilinx Vivado, Unity Game Engine, ROS2, Visual Studio Code, Fusion 360, FreeCAD
- **Core Competencies:** Agile Development, Real-Time Systems, Control System Design, Hardware/Software Integration, Algorithm Development, Technical Datasheet Interpretation, Team Collaboration & Project Leadership

Technical Projects

- **Autonomous Biofilm Removal System** *NAVFAC-EXWC, 2025 - Present*
Designed and implemented the core control system for a robotic device featuring a pneumatically actuated expansion mechanism, including software for system testing and data acquisition.
- **Hyperloop Tunnel Boring Machine** *Cal Poly Hyperloop, 2024*
Led the control and power systems design sub-team, architecting the electronic infrastructure for a large-scale mechatronic system.
- **FPGA-Based RISC-V Synthesizer** *2023*
Engineered a custom 32-bit RISC-V soft-processor on a Xilinx Artix-7 FPGA using Verilog. Subsequently programmed the processor in RISC-V Assembly to function as a real-time, polyphonic music synthesizer.
- **Real-Time MIDI Effects Pedal** *2022*
Built and programmed an Arduino-based foot pedal to generate and transmit MIDI messages to external audio processors for live music performance. Featured in Cal Poly's Engineering Advantage magazine.
- **4D Polytope Renderer** *2021*
Researched and implemented vector projection algorithms to generalize 3D rendering techniques for 4D objects, developing a real-time 4D data visualization engine.
- **Handwriting Emulation Robot** *2020*
Developed a full-stack robotic system, including a custom curve-fitting algorithm utilizing gradient descent and image blurring to program a CNC-style robot to precisely trace and replicate handwriting.
- **Multiplayer Game & Network Protocol** *2021*
Constructed a parallel processing cluster using Linux nodes, developing a custom ASCII-based communication protocol to support a multiplayer game environment.

Professional Experience

IT Help Desk Technician Summer 2020 *Movement for Life Physical Therapy*

Managed and maintained computer and server systems across multiple sites. Provided timely technical support to employees, resolving a wide range of hardware, software, and network issues while communicating with service providers. Deployed new computers and network hardware.

Tutor & Instructor 2019 - Present *Self-Employed*

Instructs students in technical and musical subjects including Java, Calculus, guitar, and piano. Designs personalized lesson plans and exercises to address individual student learning challenges and goals.

Cashier Assistant Summer 2023 *Costco Wholesale*

Assisted customers, maintained retail logistics, operated heavy machinery, and contributed to nightly closing procedures.

References

Hunter Spence

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