Jack Shi

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Summary

Electrical Engineering student at UCLA with experience in C++, Python, & MATLAB, React, with projects in microcontrollers, DevOps, & hardware debugging. Passionate about repurposing existing technologies with a focus on cost-effective, consumer-centric solutions. On track to graduate early.

Education

University of California Los Angeles — Los Angeles, CA
BS Electrical Engineering *GPA: 3.92* — September 2024 - June 2027

- Relevant Coursework: Signals & Systems, Digital Signal Processing, Semiconductor Physics, Circuit Analysis, Data Structures & Algorithms, Logic Design of Digital Systems

Experience

University of California San Diego – Design Lab ECE Branch — San Diego, CA
Research Assistant – Infant Wearable Project — April 2025 - Present

- Wearable Device Design – Prototyped & fabricated a lightweight, child-safe wearable, including custom PCB design, soldering, & enclosure design for comfort & safety.
- Hardware Debugging & Embedded Programming – Diagnosed hardware issues & developed embedded software for device control, data acquisition, & power management.
- Research Output – Contributing to a paper for ACM CHI 2026; created slideshows and user manuals, and coordinated deliverables under tight user testing deadlines with real infant participants.

San Diego State University – ECE Department *GitHub* — San Diego, CA
Research Assistant - Waveform Generator GUI Project — May 2023 - August 2023

- MATLAB Programming – Engineered MATLAB software for Windows to interface with waveform generators, enabling automated control & data acquisition.
- Oscilloscope & Waveform Generator Operation – Hands-on experience configuring & troubleshooting waveform signals for electrical testing & research applications.

University of California San Diego – ECE Department — San Diego, CA
Full Stack Development Intern — May 2023 - August 2023

- Full-Stack Web Development – Implemented & debugged React Native frontend & JavaScript/PostgreSQL backend for PersonalPT, a machine learning-powered physical therapy app.
- Authentication & Security – Developed a secure user verification system with email-based authentication & access control to protect sensitive patient data.

Featured Projects

Dining Buddy Smart Keychain Project *GitHub* — May 2024 – Present

- Designed & printed PCB for a portable ESP32-C3 device, featuring an OLED screen & button.
- Implemented Wi-Fi to fetch dining hall menus & live weather, with deep sleep for low power usage.
- Modeled & printed custom themed enclosures featuring a screwless snap-fit design for tool-free assembly.

FFT Biometric Door Lock *GitHub* — February 2025 - March 2025

- Created a wearable microcontroller that generates a unique FFT signature for biometric door unlocking.
- Designed an ESP32-based signal analyzer using DAC-generated signals & ADC for FFT analysis.

Game Console Restoration Business — April 2025 – Present

- Sales & Resale – Repaired & sold 5 restored Game Boy consoles through online platforms, combining technical repair skills with market research & pricing strategy.
- Hardware Restoration – Refurbished over 10 Game Boy & DS consoles, performing micro soldering, capacitor replacements, & LCD/power circuit repairs using aftermarket parts.

Skills

- **Programming Languages:** C++, JavaScript, MATLAB, Python, Java, SQL, HTML
- **Software Tools:** Kicad, Fusion360, LTspice, Visio, React Native, Photoshop, Postman