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Electrical engineering student at Harvey Mudd College specializing in digital signal processing, embedded systems, and FPGA-accelerated hardware. Experience designing real-time signal processing pipelines, hardware-software integrated systems, and scalable engineering solutions for noisy, resource-constrained signal environments.

EDUCATION

Harvey Mudd College, Claremont, CA

Exp. Grad. May 2027

- *B.S. Engineering, GPA: 3.51 / 4.00, Dean's List*

Relevant Coursework

Spring 2026

- Microprocessor Systems, Digital Electronics & Computer Architecture, Signals & Systems, Control Systems, Manufacturing & Design, Mechanical Design, Applied Mathematics for Engineers, Experimental Engineering, Engineering Clinic Program

Planned Coursework

Spring 2027

- Radio Frequency Circuit Design, Analog Circuit Design, Dynamics of Rigid Bodies, State Estimation

PROJECTS

Instrument Tuner Integrating FFT on FPGA, *Microprocessor Systems: Design & Application*

Oct. 2025 - Dec. 2025

- Designed and built a real-time signal processing system for frequency estimation on resource-constrained hardware.
- Implemented a 512-point fixed-point FFT on FPGA, achieving sub-Hz frequency resolution without floating-point hardware.
- Demonstrated how FPGA acceleration can outperform MCU-only solutions for real-time signal processing.

IoT Remote Temperature Sensing System on STM32, *Microprocessor Systems: Design & Application*

Sept. 2025 - Oct. 2025

- Built a WiFi-enabled temperature monitoring device that can stream real-time sensor data to a user-accessible web interface.
- Implemented bidirectional communication, allowing users to remotely modify data acquisition parameters.
- Validated signal timing and protocol compliance using a logic analyzer, verifying synchronized communication between the MCU, WiFi module, and digital thermometer.

Harvey Mudd College Clinic Project (Apple Inc.), *Fall Clinic I Engineering (NDA)*

Aug. 2025 - Dec. 2025

- Conducted R&D towards an automated polishing system to reduce variability in cosmetic manufacturing processes.
- Improved surface finish consistency and production yield, addressing manufacturing bottlenecks in elastomeric component fabrication.
- Contributed to automation strategy for scaling high-precision finishing in industrial settings.

Autonomous Surface Vehicle (ASV), *Experimental Engineering*

Jan. 2025 - April 2025

- Designed a low-cost autonomous sensing platform for shallow-water mapping (< \$50 total system cost).
- Fused multi-sensor data from Hall-effect, pressure, and motor-based sensors to improve robustness to noise and sensor failure.
- Demonstrated that low-cost systems can achieve high-resolution bathymetric mapping comparable to commercial equipment.

WORK EXPERIENCE

Engineering Course Staff, *TA, Mentor, Writing Proctor*, Claremont, CA

Sept. 2025 - Present

- Lead tutorials and mentoring sessions for 100+ students across core engineering courses (E72, E79, E80).
- Teach analytical modeling of linear time-invariant systems and support MATLAB-based problem solving.
- Provide structured feedback on technical writing, lab reports, and experimental methodology.

Harvey Mudd College Machine Shop, *Shop Proctor*, Claremont, CA

Sept. 2024 - Present

- Teach 100+ first-time users each semester how to use the metal shop and wood shop equipment safely to prevent injury.
- Provide users with on-the-spot guidance to improve machining techniques, fostering confidence and competence.

Department of Medicine Statistics Core (DOMStat) at UCLA, *Student Assistant*, Westwood, CA

Aug. 2024 - Present

- Design and test a REDCap database to streamline proposal tracking for 80+ Department of Medicine PIs.
- Developed a user-focused DOMStat website interface emphasizing accessibility and information architecture.

SKILLS

- **Signal Processing / Hardware:** Digital Signal Processing, FPGA Design, SystemVerilog, Fixed-Point Arithmetic
- **Embedded / Programming:** C, Python, MATLAB / Simulink
- **Design & CAD:** KiCad, EAGLE, SolidWorks, COMSOL
- **Lab & Machining:** Oscilloscope, SMT Soldering, CNC Mill, Lathe, Laser Cutter, 3D Printer
- **Other:** GitHub, REDCap, MS Office, Spanish (Native / Fluent)