Martha-Victoria Parizot

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EDUCATION

Harvey Mudd College, *Claremont*, CA May 2025
Bachelor of Science in Engineering (Electrical) *Tau Beta Pi Honors Society, Dean's List;* GPA: 3.85

SKILLS

Programming: C/C++, SystemVerilog, Python, SEGGER, Lattice Radiant

Design & Analysis: Altium, LTSpice, PLECS, ModelSim, KiCAD, MATLAB, Simulink, SolidWorks, Git/GitHub

Lab & Machining: Oscilloscope, SMT Soldering, Logic Analyzer, DMM, Board assembly, Mill, Lathe, Laser Cutting, 3D Printing

RELEVANT PROJECTS

Two-Channel DJ Mixer, https://projectparivo.github.io/ProjectParivoPortfolio/ October 2024 - December 2024

- Built a DJ mixer in Verilog and C that adjusts the frequency and gain of stereo AUX audio in response to user input.
- Implemented real-time audio pipeline using Inter-IC Sound (I2S) communication and Direct Memory Access (DMA) to stream data from external ADC through an FPGA to an STM32 Microcontroller and DAC while satisfying Nyquist sampling criteria.
- Achieved audio filtering using Finite Impulse Response (FIR) filters in MATLAB and RC low-/high-pass filters in hardware.
- Tested and debugged audio and serial interfaces using a logic analyzer, oscilloscope, and ModelSim.

Temperature Webserver, https://vparizot.github.io/IoTProject/ November 2024

- Developed an Internet of Things (IoT) temperature monitoring device, interfacing a STM32 microcontroller with an ESP8266 WiFi Transceiver over UART and a digital thermometer over SPI. Written in C using CMSIS headers in Segger IDE.
- Created a web interface to display real-time temperature data and allow users to control sensor resolution.

Keypad Scanner, https://vparizot.github.io/FSMProject/ September 2024

- Designed a finite-state machine (FSM) to scan and debounce a 4×4 matrix keypad and drive dual multiplexed seven-segment displays, implemented on an iCE40 FPGA using SystemVerilog and verified in ModelSim.

EXPERIENCES

Electrical Engineer - Embedded Software, Mainstream Engineering, *Rockledge, FL* June 2025 - Present

- Architecting the embedded software for a distributed six-node cooling system on Microchip MCU-based control boards, including defining the interactions between peripherals, control logic, and networking stacks (LwIP over UDP/Ethernet).
- Prototyping fault-tolerant leader election algorithms (Ring, Bully) via UDP in Python and C to test different failure conditions to ensure uninterrupted system control.
- Designing a current transformer and signal conditioning circuitry using filters and precision amplifiers to prepare the signal for ADC input range. Verified magnetics in PLECS and filtering in LTspice.
- Executed Direct-on-Line motor tests using power supplies, DMM, power analyzer, and oscilloscope to verify the inrush model.

Software Team Lead, Technical University of Denmark/Heriot-Watt University, *Claremont, CA* August 2024 - May 2025

- Built a data acquisition system and op-amp circuits for current, wind speed, and direction sensors with Teensy and MATLAB.

Hardware Intern, Volley Automation, *South San Francisco, CA* May 2024 - August 2024

- Devised and presented on short- and long-term strategies for retrofitting automated EV charging in parking garages to senior engineers. Prototyped promising solutions in SolidWorks and created 3D-printed prototypes.

Research Engineer, Origin Materials Clinic Team, *Claremont, CA* January 2024 - May 2024

- Met with recycling experts and ran composition analysis on PET plastic bales to provide design recommendations on PET caps.

Differential Privacy Researcher, **Rutgers University, NJ & Charles University, Prague** May 2023 - August 2023

- Created a Python framework to generate differentially private scatterplots based on user-chosen parameters and datasets.
- Analyzed impact of post-processing on visual utility and selected to present research to ~100 peers at international workshop.

Software Engineering Intern, TokenWorks Inc, *Bronxville*, NY June 2022 - August 2022

- Developed a subscription portal GUI for users to buy and manage credits to perform different ID authentications.

LEADERSHIP/TEACHING

West Dorm President, HMC, *Claremont*, CA August 2022 - May 2025

Machine Shop Proctor, HMC, *Claremont*, CA January 2023 - May 2025

- Taught students (100+) to safely use metal and woodshop tools, instructed them on proper machining processes and tolerances.

Data Structures & Program Development Tutor/Grader, **HMC, *Claremont*, CA** January 2023 - May 2025