Phillip Marlowe

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Education

University of California, Santa Cruz

Master of Science (M.S.) in Computer Science & Engineering December 2025 (Expected)

Bachelor of Science (B.S.) in Computer Engineering June 2023

Member of Engineering Honor Society Tau Beta Pi: Ca Alpha Delta Chapter June 2022

Engineering Experience

Hardware Systems Collective Research - UC Santa Cruz September 2023 - Present

Graduate Student Researcher

- Produced a semi-generalized physical design flow to generate eFPGA Fabrics for use in observing Bias Temperature Instability (BTI) on particular nodes and routes
- Produced SPICE test environment to observe BTI effects on metastability in D-FlipFlops and plot relevant data
- Assisted in setting up lab workstations and enabling remote access for running simulations, facilitating experimental testing, CAD design, etc.

Baskin Engineering Lab Support - UC Santa Cruz April 2022 - Present

Student Technician

- Support instructional labs by verifying, moving, and securing test & measurement equipment, as well as sourcing supplies to ensure that each lab is safe and functional for instruction
- Assist students, faculty, and teaching assistants by reconciling equipment checkouts, assembling/distributing instructional kits, operating specialized tools (poster printers, 3D printers, PCB mill, laser cutters), and creating standard operating procedures
- Maintain lab workstations by installing and updating specialized software, creating and deploying master images, and resolving hardware and software issues
- Operate AV systems for Baskin Engineering event spaces as well as support presenters and resolve live issues
- Manage stockroom, poster, and receiving workflows by tracking inventory, sourcing required materials, overseeing poster printing and documentation, and supporting precise shipping and receiving operations

Capstone Engineering Design Project - UC Santa Cruz January - June 2023

Electrical & Mechanical Hardware Systems Engineer

- Collaborated on a six person team to build a hands free following utility wagon by integrating electrical and mechanical subsystems to assist workers and/or older adults with carrying physical loads
- Designed wiring and power distribution for motors, microcontrollers, and sensors, enabling reliable communication and consistent power across the system
- Selected and sourced materials to assemble circuits; tested prototype to verify proper functionality

Engineering Projects

Ground Bounce PCB - ECE 173: High-Speed Digital Design June 2023

- Designed and fabricated a custom printed circuit board to experimentally observe ground bounce
- Measured propagation delays and signal distortion with an oscilloscope to evaluate switching noise, validating results through RC timing and frequency testing

Technical Skills

- **Software/Design** - 3 years of FPGA/ASIC design experience, Cadence ASIC Design tools, Cadence PCB Design tools, Xilinx Vivado, Synopsys VCS, Open-Source ASIC/FPGA design tools, Solidworks, Windows Support, Linux Support, Docker, Git, LaTeX, Markdown, Web Development experience
- **Programming Languages** - SystemVerilog (including HLS), C/C++, Python, Java, Javascript, ISAs (RISC-V,x86,MIPS), SPICE analog simulation, Makefile automation
- **Fabrication** - 2-Layer PCB Milling, Surface mount/through hole soldering, PLA/SLA printing, Laser cutting, Electronics Diagnosis & Repair
- **Hardware Experience** - Xilinx and Lattice FPGAs, Arduino, Raspberry Pi, Microchip MCUs, Cypress PSoC 6, STM32