

Kaitlin Lucio

ELECTRICAL AND COMPUTER ENGINEER

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Education

Harvey Mudd College

B.S. IN ENGINEERING

GPA: 3.057

Claremont, CA

Aug 2019 - Dec. 2024

Work Experience

Design Automation Intern

BLUE CHEETAH ANALOG

Remote

May 2024 - Present

- Refactored existing RTL files using a YAML representation influenced by IP-XACT, enabling rapid reuse of IP across projects.
- Added simulator-agnostic wave database creation and probing to internal tool used for design verification and debugging.
- Wrote Python to link codebases to generate addressing logic in SystemVerilog, ensuring rapid design and addressing of APB bus signals.

Clay-Wolkins Fellowship Research Assistant

HARVEY MUDD COLLEGE

Claremont, CA

May 2022 - Present

- Automated nightly regressions of processor functionality for OpenHWGroup's processor CVW-Wally.
- Modified existing scripts and testbenches to allow for automated testing of the Linux boot process.
- Rebuilt AHBLite bus' finite-state machine to implement burst mode, resulting in a 2% performance increase.
- Designed tests for a GPIO, PLIC, and UART in RISC-V Assembly and implemented them in testbenches to verify processor functionality.

Digital Design Intern

QUALCOMM

Claremont, CA

Aug. 2023 - Present

- Worked with a team of four students to analyze RTL projects to determine when a project will cause problems in logic synthesis.
- Wrote wrapper script to perform synthesis with Synopsys Design Compiler for RTL Projects to analyze synthesis results.
- Synthesized projects to create AND-Inverter graphs in the AIGER format for analysis using logical effort.
- Used Python to analyze AND-Inverter Graphs for parameters identified to cause synthesis issues such as congestion and timing.

R&D Intern

SILVUS TECHNOLOGIES

Westwood, CA

Jun. 2023 - Aug. 2023

- Characterized the frequency response of an embedded radio using an RF Testbench controlled via MATLAB using VISA commands.
- Built a parser for Synopsys netlists using Python, speeding up detection of transistor issues and saving hundreds of hours of manual searching.
- Automated phase calibration of multi-antenna high-speed embedded radios, allowing for testing and production of phase-calibrated radios.

Skills

Programming & Computer Languages, SystemVerilog, C, Assembly, Python, MatLAB, Linux, TCL, Bash, git

CAD Programs, KiCad, LTSpice, Synopsys Design Compiler, ModelSim, Verilator

Projects

Graphics Card Digital Designer

HARVEY MUDD COLLEGE

Claremont, CA

Ongoing

- Took charge of creating system schematic for an eight color 32x20 graphics driver over VGA from the ground up.
- Wrote SystemVerilog HDL to implement and test system architecture.
- Used Python to generate testvectors for pre-silicon design verification.
- Used oscilloscope to verify correctness of HSync and VSync traces when monitor failed to recognize VGA signal.

Analog Designer

HARVEY MUDD COLLEGE

Claremont, CA

- Designed a multi-stage op amp with an active gain phase using off-the-shelf components.
- Verified functionality of the op amp across calculated, simulated, and physical results.
- Characterized slew rate, open loop gain, steady-state error, and other properties and verified characterization through oscilloscope probing.

Other Experience

Humans vs Zombies

HEAD MODERATOR FOR HUMANS VS ZOMBIES

Claremont, CA

Feb. 2022 - Present

- Ran semesterly week-long games of infection tag to bring joy to hundreds of students' lives.
- Led moderation team to write stories and missions and move objects required for the game to event locations.
- Negotiated with college administration to ensure the game would not disrupt other events to promote a fun environment on campus.