

# Wesley Wu

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## Education

### University of Illinois Urbana-Champaign

Master of Science in Electrical and Computer Engineering | Focus: Computer Architecture | GPA: 3.87/4.0 | Dec 2025

Bachelor of Science in Computer Engineering | GPA: 3.78/4.0 | Dec 2023

**Relevant Coursework:** Advanced VLSI System Design, Parallel Computer Architecture, Advanced Computer Architecture, Accelerator Architectures, Digital Systems Lab (FPGA), Operating Systems, Operating System Design, Networking, IC Device Theory & Fabrication

## Technical Skills

- **Languages:** SystemVerilog (RTL Design), UVM, C, C++, TCL, CUDA, Python, Java, x86 ASM
- **Tools:** Synopsys VCS, Verdi, DVE, Altera Quartus, ModelSim, Cadence Virtuoso, Innovus, vManager, Linux
- **Workflow:** Git, GitHub, Gerrit, Jira, Agile, ClearCase

## Work Experience

### Arm

**Chandler, AZ**

*System IP Engineer Intern*

*May 2025-Aug 2025*

- Collaborated with RTL team to identify and validate critical CoreLink RTL bug fixes, improving system stability
- Added VCS compile check to CI/CD, improving code quality and maintainability by catching build errors early

*SoC Validation Engineering Intern*

*May 2024-Aug 2024*

- Architected a remote thermal device controller API, streamlining user interactions and simplifying test execution
- Developed a tkinter GUI with live temperature plotting, enhancing user control and real-time monitoring
- Built a Python library for automation, enabling efficient batch/overnight testing with minimal manual effort
- Implemented a feedback loop to ensure precise maintenance of thermal testing device and DUT temperatures
- Designed a local buffer for temperature readings, allowing simultaneous live monitoring by multiple users

### Qualcomm

**San Diego, CA**

*SoC APSS Integration DV Intern*

*May 2023-Aug 2023*

- Incorporated functional coverage using SystemVerilog/UVM, enhancing quality of mobile SoC design verification
- Developed verification plans for functional coverage, ensuring the SoC design meets end user requirements
- Identified coverage holes in test suites, accelerating SoC design exploit detection and back-end design processes

### Motorola Solutions

**Schaumburg, IL**

*Embedded Android Engineer Co-Op*

*Nov 2022-May 2023*

- Implemented dump function in C for fastboot protocol, enabling user to check any partition image for corruption
- Added special fastboot commands, enabling developers to change flag bits in system images without remounting
- Updated fastbootd user-mode display, giving developers more useful information about their current device
- Enabled flashing lock/unlock for fused devices, allowing devs to flash various OS images in fastbootd user mode

*Android Platform Software Engineering Intern*

*May 2022-Aug 2022*

- Devised logic in C to prevent rollback to old, vulnerable firmware or maliciously modifying vital image data
- Upgraded pre-existing preflash validation in C, ensuring the device doesn't brick in fastboot mode or during boot
- Prevented device bricking in bootloader stage, allowing user to recover device in the case of image data corruption

## Projects

**oPOSsum - Hardware SAT Solver** | *SystemVerilog; Synopsys: VCS, Verdi, DC; Cadence: Virtuoso, Innovus; Calibre*

- Drove full RTL-to-GDSII flow for Boolean satisfiability (SAT) accelerator on TSMC 65nm with 1mm<sup>2</sup> die area
- Achieved tapeout sign-off quality by rigorously resolving all critical DRC/LVS errors using Calibre and Virtuoso
- Engineered high-performance SystemVerilog RTL for custom BCP clause units, the core computational engine
- Optimized NoC throughput via round-robin arbitration in clause banks, effectively mitigating mesh congestion
- Parameterized existing synthesis/PnR scripts for concurrent Innovus runs, accelerating back-end iteration
- Spearheaded RTL QA via proactive RTL/testbench debug using VCS and Verdi, streamlining verification sign-off

**Homomorphic Encryption Accelerator** | *SystemVerilog, Synopsys VCS + Verdi, C*

- Designed a hardware accelerator to speed up encrypted computation, focusing on encrypted-space multiplication
- Drafted top-down design of accelerator, from block design to data flow to architecture of low-level functional units
- Observed 16x speedup over pipelined RISC-V CPU, tested using a workload kernel written in C compiled to binary
- Implemented each layer of the design hierarchy in SystemVerilog and verified layers using Synopsys VCS & Verdi

**Pipelined RISC-V Processor** | *SystemVerilog, Synopsys VCS + Verdi*

- Created 5-stage in-order pipeline with data forwarding, split L1 cache, cache arbiter, and static branch prediction
- Designed, verified, and integrated a two-way set-associative cache in SystemVerilog for split L1 cache
- Verified pipelined CPU design functionality using RVFI and Synopsys toolchain, including Synopsys VCS & Verdi