Philip Hu
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EDUCATION

University of Illinois at Urbana-Champaign *August 2020 - December 2023*
- *Bachelor of Science in Computer Engineering* *GPA: 3.29/4.00*

WORK & VOLUNTEER EXPERIENCE

Texas Instruments
Test Engineering Intern *May 2023-August 2023*
- Working with the MSP Arm-Cortex M0+ microcontrollers team under the Embedded Processing Division.
- Verified continuity, SCAN, and I/O tests on microcontroller packages post-manufacturing.
- Oversaw and managed a PCB design solution for testing a future microcontroller release.

University of Illinois at Urbana-Champaign
Undergraduate Teaching Assistant *August 2022-December 2023*
- Hosted office hour sessions for ECE 385: Digital Systems Laboratory students to improve their understanding of digital hardware design on a FPGA.
- Utilized Queue system for managing student requests and collaboratively suggested course suggestions with course staff.

Littelfuse
Application Engineering Intern *May 2022–August 2022*
- Modeled a simulation of a high power laboratory for fuse testing using MATLAB Simulink.
- Collaborated with a Research and Development team to find an optimization for the testing process by creating a tool to predict system behavior.

PROJECTS

Ray Tracing Hardware Accelerator – Team Decelerator *January 2023-May 2023*
- Collaboratively designed a hardware ray tracing accelerator integrated with a RISC-V CVA-6 Core.
- Devised functional units and thread scheduling to increase workload parallelism for faster rendering time of ray traced images.
- Implemented a Bounding Volume Hierarchy Optimization with Shading for an improved performance to CVA-6 Core area of 141 percent.

Linux Kernel *March 2023-May 2023*
- Collaboratively implemented a custom Linux Kernel with a team.
- Implemented multiple Tele-Type Terminals, Round Robin Task Scheduling, File System, PCI Drivers, and 16-bit SoundBlaster Audio Drivers.
- 4^{th}/59 on Team Competition.

RISC-V Processor – The Verifiers *September 2022-December 2022*
- Designed and verified a RISC-V processor with efficient L1 and L2 set-associative caching, prefetching, tournament branch prediction, and pipelining.
- Improved baseline benchmark performance by up to 20 percent.

High Power Laboratory Simulation *May 2022-August 2022*
- Created an adaptive interface to run simulations from user parameters in MATLAB Simulink.
- Provided a graphical user interface schematic for improved visualization and a programming interface for future adaptability.

Digital Music Synthesizer *May 2022*
- Collaborated with a partner to create an audio hardware implementation of a digital music synthesizer on a DE-10 Lite FPGA
- Interfaced with I2C and I2S protocols to interact with custom built lookup-table sine wave oscillator and a graphical user interface for user input.

CAMPUS INVOLVEMENT

ACM @ Illinois *August 2020-Present*
- Member, SigArch

Other Involvements: Kingfisher Task Force, Varsity Men's Glee Club, University of Illinois Track and Cross Country Club

AWARDS

HackIllinois Best Beginner Project *August 2020*
- Awarded to the best beginner team project of the 2020 HackIllinois hackathon.

COURSEWORK

- Computer Organization & Design, Computer Systems Engineering, Accelerator Architectures, Sensors & Instrumentation, Introduction to Algorithms & Models of Computation, Applied Parallel Programming, Digital Signal Processing, Data Structures & Algorithms, Digital Systems Laboratory, Artificial Intelligence, Circuits, Analog Signal Processing, Electronic Music Synthesis, Engineering Probability & Statistics, Differential Equations & Linear Algebra

SKILLS

SystemVerilog, Verilog, Vivado, Quartus, Verdi/VCS, RISC-V, CUDA, C/C++, Java, Python, x86, Android Studio, HTML/CSS, JavaScript, FPGA, MATLAB, Simulink, Digital Systems, Simulations, Circuits, Signal Processing, AI, PCB Design