Reese Kuper

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Objective: Summer of 2021 internship in computer architecture, digital hardware design, or hardware verification

Education

University of Wisconsin-Madison (GPA: 3.85/4.00) **Spring 2021**
Bachelor of Science in both Computer Engineering and Computer Science

Related College Coursework

- Advanced Computer Architecture 2 (757)
- Parallel and Throughput-Optimized Programming (639)
- Object Oriented Programming & Data Structures (400)
- Computer Architecture (552)
- Operating Systems (537)
- Linux and Shell Scripting
- Digital System Design & Synthesis (551)
- Microprocessor Systems (353)
- Circuits and Circuits Analysis (230 & 340)

Skills

Programming Languages: C, Python, Java, Shell Scripting
Hardware Description Languages: Verilog, System Verilog
Software: ModelSim, Icarus, Quartus, Vim, git, gem5
Operating Systems: Linux (Ubuntu), MacOS, Windows
Databases: MySQL

Work Experience

Arm – Austin, TX **Summer 2020**
Hardware Engineering Internship – Systems Interconnect Verification Team

- Developed internal python tool to analyze the use of all plusargs within the UVM testbenches
- Fixed UVM register definition auto-generation for more flexible RAL models
- Programmed module for modeling transactions between a master device to interconnect return nodes in SystemC
- Formally verified round robin and LSB priority arbiters using system verilog assertions

Qualcomm – San Diego, CA **Summer 2019**
Software Engineering Internship – Linux Kernel Memory Team

- Improved kernel ION allocation speeds by ~10% that will be in the upstreamed kernel version
- Analyzed the efficiency of IOVA's use of caching and compared it with MMAP's gap searching RBTree
- Created internal python tool for parsing Linux RAM dump binaries
- Worked towards shifting mmap allocations to use the mempool API

Suvola – Austin, TX **Summer 2018**
Software Engineering Internship – Cybersecurity Device Development

- Assisted patent creation for a cybersecurity device through flowcharts, device descriptions, and outside patent research
- Coded a proof of concept java backend to demonstrate the device's functionality

SimpleRisk – Austin, TX **Summer 2018**
Programming Internship – Governance, Risk Management, and Compliance Website

- Minor syntax and bug fixes for MySQL database queries
- Added explicit user-based comment permissions within page sections

Projects

Computer Science and Engineering Projects **2018 - 2020**
Projects created through computer science and engineering courses

- Predicted performance for coherence decoupled systems (directory-based MESI protocol) using a 2-level predictor for *improved* accuracy, and estimated rollback costs for *complete* accuracy using the gem5 architecture simulator
- Self-balancing Segway written in Verilog for a DE0-Nano FPGA board
- Synthesized 5-stage pipelined CPU with separate, 2-way set associative Instruction and Data Caches (using an LRU replacement policy) written in Verilog

Hackathons (HackNYU and HackMobile) **2018 - 2019**
48- and 24-hour coding project competitions

- Developed a mobile iOS application for animal photo recognition using Microsoft's Custom Vision API
- Wrote an Android app that sends dense packets of information to proactively track lost people (connection-free)