Wesley Wu

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Education

University of Illinois at Urbana-Champaign, Grainger College of Engineering — Urbana, IL
Bachelor of Science in Computer Engineering — Expected Graduation - Dec 2023
Awards/Honors: Dean's List - Fall 2020, Spring 2021, Fall 2021 — Cumulative GPA: 3.9/4.00

Relevant Coursework

Digital Systems Laboratory, Computer Systems & Programming, Digital Signal Processing, Data Structures, Software Engineering 1, Blended Software Engineering 2, Probability with Engineering Applications

Work Experience

Motorola Solutions
Android Platform Software Engineering Intern *(May 2022-Aug 2022)*

- Improved bootloader security on work-in-progress radio running on Android
  - Devised logic in C to disable A/B slot switching on production devices
  - Upgraded pre-existing preflash validation in C to prevent cross-flashing of Android bootloader images
  - Developed preflash validation in C to prevent cross-flashing of HLOS (high-level operating system) hash images and chained partition images on production devices
  - Restricted blank flash commands to production devices and designed mechanism in C to prevent blank flashing invalid images to critical partitions

ECE 329 Fields & Waves Grader *(Jan 2022-May 2022)*

- Assess 130 students' weekly homework submissions and give feedback on topics such as static and time-varying electric and magnetic fields, Maxwell's equations, time-domain analysis of waves, and transmission line circuit analysis

Projects

FPGA Crossword | Team of 2 — **GitHub** | View Project
Hardware Design Engineer/Firmware Developer *(April 2022-May 2022)*

- Implemented an SoC (NIOS-II processor) on the MAX10 DE10-Lite FGPA board and interfaced it with a VGA text mode graphics controller, created as an IP core in SystemVerilog; upgraded the graphics controller to draw a 5x5 game board, a highlight to indicate current cell selected, and a state machine to determine whether to display a menu or the game board
- Expanded on-chip memory to initialize it with the game puzzles clues' and the answers to the clues, leveraging pointer arithmetic in C to read the clues and parse together and store the clues and store the answers implemented check and reveal logic in C, and passed win condition back to state machine and stopwatch (both implemented in SystemVerilog) from C code

Pulse 2022 Hardware Competition | Team of 4 — **GitHub** | View Project
Firmware Developer *(Feb 5, 2022)*

- Attempted to replicate the puzzle game Wordle on hardware using an Arduino, shift registers, and individually-lit green and yellow LEDs within a 5-hour time constraint
- Wrote Arduino code to clock a certain shift register using the Arduino pins based on the guess number to load green or yellow light logic values (representing the green and yellow squares in the game) into the shift registers

Board Game Recommendation System | Team of 4 — **GitHub** | View Project
Software Developer *(Nov 2021-Dec 2021)*

- Implemented graph in C++ using adjacency matrix to recommend board games to users based on inputs in a month-long time constraint
  - Implemented BFS, Dijkstra's Shortest Path Algorithm, Eigenvector Centrality Algorithm
  - Debugged code using comprehensive unit test cases coded using Catch (v 2.4.0) based on graph theory

IoT Water System | Team of 4 — **Project Wiki** | View Project
Firmware Developer *(Jan 2021-May 2021)*

- Wrote Python code to display a window of continuous, real-time data onto a graph as part of an IoT Water System which measured statistics such as average water usage per week and rate of water flow over a semester-long time constraint
- System was a water sensor connected directly to a Raspberry Pi, which sent the flow rate data of the water source (we tested on a sink) to a server which would display the continually updating plot onto a web app

Activities

IEEE-HKN Alpha Chapter
Member *(Dec 2021-Curr)*

- Help provide student services to the UIUC ECE community, including, but not limited to:
  - Administering one-on-one tutoring and leading exam review sessions for core ECE classes
  - Conducting resume reviews, mock interviews, and similar career-oriented event

Relevant Skills

- **Software**: SystemVerilog, ModelSim, Python, Java, C, C++, Arduino, Firmware, Digital Signal Processing, Linux
- **Workflow**: Git, GitHub, Gerrit, Jira, Agile