Aiden Wenzel

(248)-775-9622 aidenwen@umich.edu linkedin.com/in/aiden-wenzel github.com/aiden-wenzel

EDUCATION

University of Michigan

- Major, Electrical Engineering (BSE)
- Minor, Computer Science
- GPA: 3.45/4.00

RELEVANT COURSE WORK

- **Data Structures and Algorithms**: Studied data structures such as stacks, queues, trees, heaps, hashtables, sets, directed, and undirected graphs. Utilized algorithms such as DFS, BFS, quicksort, merge sort, heapsort, Prim's algorithm, Dijkstra's algorithm, and various DP algorithms. Projects utilized C++ STL and involved extensive optimizations using complexity analysis, perf profiling, and valgrind memory checker.
- **Computer Organization**: Studied assembly style languages and how they are assembled into machine code. Second half of class focused on single and multicycle datapaths, pipelined processors, caches, and virtual memory. Projects included building a simple assembler, linker, pipeline simulator, and cache simulator.
- **Electrical Engineering System Design**: Built autonomous robot with a team of three other engineering students. Project involved implementing odometry, motor controls, acoustic range finding, thermal sensors, and opencv image processing to control the robot's movement.
- **Introduction to Circuits**: Studied analog circuits. Topics included nodal analysis, diodes, op amps, MOSFET transistors, RLC circuits, AC circuits, and filters.
- **Signals and Systems**: Studied mathematical concepts such as LTI systems, convolution, fourier series and transform, laplace trasform, sampling, and control systems. Labs included designing filters, an envelope detector, and a mock AM radio on breadboards, as well as simulating control systems in Simulink.
- **Digital Logic Design**: Studied combinational circuits such as multiplexer, adders, decoders, and encoders and sequential circutis such as D flip-flops, registers, multipliers, and counters. Investigated optimization and analysis techniques through timing analysis, two level logic minimzation, and state minimization. Projects involved using Modelsim and Verilog to model a trafic light controller, combinational and sequential calculator on Altera FPGA.

PROFESSIONAL EXPERIENCE

Coretek Services

- Worked with HTML, CSS, and C# to develop intuitive ASP.NET UIs.
- Used C# APIs to pull cloud resource information from MS Azure and ticket information from ServiceNow.
- Used KQL to query and summarize cloud resource analytics in Azure dashboards.

SKILLS

- **Programming Languages**: C, C++, Python, Lua, MatLab, Verilog HDL, LaTeX.
- **Linux**: Debian, WSL2, grep, cmake, make, tmux, vim, ssh.
- **Software**: Simulink, Waveforms Oscilloscope, LtSpice, Modelsim, Jupyter Notebooks.

PROJECTS

Fractal Visualizer

- Utilized OpenGL APIs to accurately visualize the Mandelbrot set and Julia sets.
- Implemented custom panning and zoom functionality for near-infinite zooming into complex geometries.

Conway's Game of Life

- Wrote custom implementation of Conway's Game of Life using SDL.
- Customized build system and dependency management with CMake.

Instrument Recognition Software

- Worked with a team of 3 other engineering students to build an instrument recognition app.
- Input audio data would be processed using the Librosa library. Harmonic overtones in audio samples would be extracted using the FFT algorithm.
- Processed audio data would be used to train a CNN which would take audio files as input, process them, and predict what musical instrument is featured in the sample.

EXTRACURRICULARS

Michigan Marching Band

- Dedicated approximately 20 hours each week to rehearsals and performances in the Big House.
- Performed at the 2023 Big Ten Championship and 2024 ReliQuest Bowl.
- Initiated as an official brother of Kappa Kappa Psi ($KK\Psi$), the National Honorary Band Fraternity.
- Performed with the Michigan Hockey Band at Yost Ice Arena.