

Isabella Nicole Zaens

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EDUCATION

The University of Texas at Austin

August 2022 - May 2026

B.S. Electrical and Computer Engineering, Honors Program

Relevant Coursework

Upcoming Fall 2024: Algorithms, Linear Systems and Signals, Vector Calculus

Completed: Software Design, Circuit Analysis and Design, Computer Architecture, Embedded Systems, Data Structures, Digital Logic, Probability and Random Processes, Discrete Math, Linear Algebra, Differential Equations

EXPERIENCE

Product Test Engineering Intern, AMD (Austin, TX)

May 2024 - August 2024

- Conducted system-level testing for next-generation Radeon GPUs, ensuring functionality and performance standards
- Debugged and characterized products to assess performance, process, and test sensitivities
- Performed yield analysis using industry-standard tools to support yield debug and failure analysis
- Developed multiple scripts and tools to automate release notes generation and publication

Research Assistant, ReNeu Robotics Lab

September 2023 - August 2024

- Developed embedded software for an EMG-driven hand exoskeleton that aids in spinal cord injury rehabilitation
- Optimized performance of data acquisition system using C++, EtherCAT, ESI, and SOEM
- Created documentation and wiring diagrams to help build a new exoskeleton
- Developing a new version of the exoskeleton by researching and integrating advanced hardware and software

Electrical Engineer, Texas Battlebots League

January - April 2023

- Collaboratively developed a full-body spinner robot for combat competition
- Designed and implemented the robot's electrical system using Arduino Uno Rev3 microcontroller
- Integrated various control system elements, including ESC, RC controller, power supply, motors, and remote kill switch

PROJECTS

Two-Player Space Invaders

- Developed a two-player Space Invaders game on a TM4C microcontroller using C++ and ARM assembly
- Implemented version control and peer-programming techniques for code efficiency and collaborative development
- Designed custom game controller PCB, sampled analog joysticks (ADC), displayed on LCD
- Incorporated interrupts for dynamic sound effects, outputted through DAC

LC-3b Simulator

- Developed LC-3b simulator using C and LC-3b programming languages, microcode, and a control store
- Equipped with instruction execution, branching, virtual memory management, and interrupt and exception handling
- Added support for four types of exceptions: unaligned access, protection, page fault, and unknown opcode
- Modified existing datapath, state diagram, and microsequencer

FPGA-Based Stopwatch and Timer

- Designed a programmable stopwatch/timer on the Basys3 FPGA with four counting modes using RTL methodology
- Developed a high-level state machine and datapath architecture to control operations and optimize efficiency
- Implemented in Xilinx Vivado using behavioral modeling, clock division techniques, and a 7-segment display

SKILLS AND CERTIFICATIONS

Software: C/C++, Java, Python, Verilog, ARM Assembly, MATLAB, SQL, R, HTML/CSS, Javascript, Tableau

Hardware: Circuitry, Oscilloscopes, FPGA, PCB Design

Tools: Unix/Linux, Keil, VSCode, Vivado, KiCad, EAGLE, AD2 Waveforms, AutoCAD, Fusion 360

Certifications: Google Data Analytics, IBM AI Foundations