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 Spring 2025: Analog Circuits Lab, Embedded Systems Design Lab, Data Science Lab
Current Fall 2024: Algorithms, Linear Systems and Signals, Vector Calculus
Completed: Computer Architecture, Embedded Systems, Digital Logic, Circuit Analysis and Design, Probability and Random Processes, Discrete Mathematics

EXPERIENCE

Incoming Product Validation Engineering Intern, Texas Instruments   May 2025 - August 2025

Product Test Engineering Intern, AMD   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

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