Isabella Nicole Zaens

isabella.zaens@utexas.edu • linkedin.com/in/isabella-zaens • isabella-zaens.github.io

EDUCATION

The University of Texas at Austin Aug 2022 - May 2026
B.S. Electrical and Computer Engineering

Relevant Coursework
Spring 2025: Analog Circuits Lab, Embedded Systems Design Lab, Data Science Lab
Completed: Computer Architecture, Embedded Systems, Algorithms, Circuit Analysis and Design, Digital Logic, Probability & Random Processes, Linear Systems and Signals, Vector Calculus, Discrete Math

EXPERIENCE

Texas Instruments May 2025 - Aug 2025
Incoming Product Engineering Intern

AMD May 2024 - Aug 2024
Product Test Engineering Intern
- Conducted system-level testing for next-generation Radeon GPUs, validating functionality and performance standards
- Debugged and characterized products to evaluate performance metrics, process variations, and test sensitivities
- Performed yield analysis using industry-standard tools, supporting yield improvement and failure analysis
- Developed and automated scripts for release notes generation, reducing manual effort and streamlining publication

ReNeu (Rehabilitation and Neuromuscular) Robotics Lab Sep 2023 - Aug 2024
Research Assistant
- Developed embedded software for an EMG-driven hand exoskeleton to aid spinal cord rehabilitation
- Optimized data acquisition system with C++, EtherCAT, ESI, and SOEM, enabling real-time signal processing
- Researched and integrated advanced hardware and software for the next iteration of the exoskeleton
- Created documentation, wiring diagrams, and tools to facilitate hardware integration

PROJECTS

LC-3b Microarchitecture Simulator
- Developed a pipelined cycle-level simulator for the LC-3b microarchitecture using C and LC-3b assembly
- Added support for four exception types: unaligned access, protection, page fault, and unknown opcode
- Implemented a one-level page table translation scheme for virtual memory management
- Modified the datapath, state diagram, and microsequencer

Two-Player Space Invaders
- Developed a two-player Space Invaders game on a TM4C microcontroller using C++ and ARM assembly
- Designed a custom game controller PCB using EAGLE, integrating analog joysticks, LEDs, switches, and an ST7735 LCD
- Incorporated interrupts for dynamic sound effects, outputting audio through a DAC
- Utilized version control and peer-programming techniques for code efficiency and collaborative development

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

SKILLS AND CERTIFICATIONS

Software: Java, Python, C/C++, Verilog, ARM Assembly, MATLAB, SQL, R, HTML/CSS, Javascript, Tableau
Hardware: Microcontrollers (TM4C, Arduino, Raspberry Pi), FPGA, PCB Design, Oscilloscopes, Logic Analyzers
Tools: Linux, Git, VSCode, Keil, Vivado, KiCad, EAGLE, AutoCAD, Fusion 360
Certifications: Google Data Analytics, IBM AI Fundamentals