

Zachary W. Walden

222 *Prairie Ridge Dr. Bartlesville, Oklahoma 74006*

☎ (832)-294-9706 | 🌐 ZachWWalden | ✉ zachary.walden@eagles.oc.edu

To whom it may concern,

I am a recent graduate in Computer Engineering and am seeking a challenging position applying my knowledge and skills. The Design Engineer I position description matches well with my abilities. I desire to interview with the hiring manager.

Per my attached resume, I earned a 4.0/4.0 and graduated Summa Cum Laude. I led a team of students in a project to

I also worked for three of my professors as an assistant grading and helping students with labs and homework. I also worked for one professor's business, VisualALS Technology Solutions, LLC.

My strong academic performance and work on team projects has prepared me for the Design Engineer I position I am applying to. Please consider me for this position.

Opportunities at Garmin and share the interpersonal strengths and technical experience I can bring to the Garmin team.

I am available by phone or email, which are listed below and on my resume

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—Seeking a Challenging position designing, building, testing mixed signal systems in a team environment. A position with growth and leadership potential that uses my skills, knowledge and experience to provide excellence in product development and manufacturing. I will contribute to the success of projects and products that will expand and improve the product lines for Garmin.

Skills

—Software

Languages—C/C++ (Embedded(RTOS, PIC, STM32, AVR), Linux, Windows), Python, Assembly (AVR) , Verilog (CocoTb) , MATLAB/Simulink, Java (General, Android) , Bash
Other—GDB, Git, Qt GUI (Python & C++) , General Linux, UML, SYSML, L^AT_EX, Agile, Docker

—Hardware

Design—Kicad(Schematic Capture, PCB layout), Cadence Design Entry CIS, Digital (Microcontrollers, FPGA, 7400 series), Analog (Op-Amps, Transistors, Diodes)
Verification/Validation—Cadence PSpice, Oscilloscopes, Function Generators, Multimeters, Logic Analyzers, Network Analyzers.
Prototyping—Breadboard, Iron & Hot Air, SMT (Experience with all package types besides BGA, QFN, & Wafer Scale) , THT

Education

—Oklahoma Christian University

Bachelor of Science, Computer Engineering, GPA 4.0/4.0, Summa Cum Laude

Aug. 2018 - Apr. 2022

Honors & Awards

—Oklahoma Christian University

- Outstanding ECE Senior 2022
- Outstanding ECE Junior 2021
- Outstanding ECE Sophomore 2020
- The President's Scholarship 2018

Experience

—Oklahoma Christian University

Professor's Assistant—

Dec. 2020 - Jul. 2021

- Designed 2 revisions of a 3 channel adjustable full color laser diode driver board, using Kicad, to replace a 7 color driver board using an enhanced differential Howland Current Pump.
- Selected components to meet the frequency needs in excess of 12 MHz
- Reverse engineered 7-Color TTL driver board

Teaching Assistant: CENG-3203, CENG-3213, ENGR-1122—

Jan. 2020 - Mar. 2020, Aug. 2021 - Apr. 2022

- Helped students troubleshoot hardware and software issues with 8-bit AVR Microcontrollers & 74 series logic used to control HD44780 LCD's, Keypad encoders, and parallel DACs in order to control a laser scanner system.
- Instructed students on Assembly language concepts
- Guided students in constructing an autonomous robot
- Debugged Analog & Digital circuitry, and embedded C written for Microchip's 16-bit dsPIC line

—VisuALS Technology Solutions LLC

May. 2019 - Aug. 2020

Java Programmer—

- Designed a Spring REST API to authenticate a software purchase using a tablet's imei number
- Connected the authentication API to a SQL database that stored the hash of the imei
- Designed a SQL database, running on Google's Cloud
- Wrote dynamic Android U.I.
- Researched Machine Learning for text prediction (Tensorflow, Tensorflow Lite)

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Projects

–8-bit 5-stage Pipeline RISC CPU

Jan. 2022 - Apr. 2022

- Designed and implemented 32-bit fixed length RISC instruction set comprising 42 instructions.
- Architected and implemented, from scratch, an 8-bit mostly bypassed CPU with a 5 stage integer pipeline in Verilog and run on a Xilinx Spartan 7 board.
- Implemented, and integrated a vga sync generator and a dumb framebuffer into the cpu using special instructions to write to the framebuffer.
- Wrote a simple assembler for the instruction set in Python along with helper scripts to convert the assembler output into Xilinx's coe format.
- Debugged modules using testbenches written using the cocotb framework for Python.
- Used Xilinx's Integrated Logic Analyzer IP in conjunction with an internal reset trigger circuit to troubleshoot on chip behaviour.

–DC/DC Boost Converter

Sep. 2020 - Nov. 2020

- Designed a discrete boost converter taking a 6V input and giving an adjustable 12V-24V output in steps of .1V using a PIC microcontroller for control.
- The design achieved an average of .54% error relative to the target output voltage.
- Used PIC Datasheet and Family Reference Manual to write register level PWM and SPI drivers.
- Wrote simple proportional-only control system to stabilize the output voltage, along with a bias adjustment to ensure the correct setpoint was reached.
- Designed and assembled a printed circuit board for the project.
- Led 3 person team.

–RGB Laser Scanner Controller

References
