Zachary W. Walden

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To whom it may concern,

I am a recent graduate in Computer Engineering and am seeking a challenging position to apply my knowledge and skills. The Design Engineer I position description matches very well with my knowledge aspirations. I would like to contact the hiring manager to discuss the possibilities of joining the Garmin team.

As is found in my attached resume, I graduated summa cum laude with a 4.0 out of 4.0 grade point average. 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.

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, LaTeX, Agile, Docker

–Hardware

Design—Kicad(Schematic Capture, PCB layout), Cadence Design Entry CIS, Digital (Microcontrollers, FPGA, 7400 series), Analog (Op-Amps, Transisitors, 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 enocoders, 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 Pyhton 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 relatice 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 stabalize 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