Matthew Guo

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Education

HONORS BACHELOR OF SCIENCE (GPA: 3.99/4.00)   **EXPECTED JUNE 2021**
Oregon State University - *Corvallis, OR*
- **Major 1**: Electrical & Computer Engineering
    - o **Related Coursework**: Digital Logic Design, Electronics I/II, Microcontroller System & Design, Power Electronics, Signals & Systems I/II, Transmission Lines
- **Major 2**: Computer Science
    - o **Related Coursework**: Computer Architecture, Computer Networks, Data Structures, Digital Image Processing, Introduction to Parallel Programming, Machine Learning & Data Mining

Experience

GARMIN AT - *Salem, OR*

- **DESIGN ENGINEER INTERN**   **APRIL 2019 – SEPTEMBER 2019**
    - Redesigned a LED Test Controller schematic and PCB to test the backlight LEDs of Garmin avionic displays.
    - Researched, designed, and implemented a proof-of-concept proximity sensor schematic and PCB using ultrasonic technology with Phase-Shift Keying Modulation.
    - Analyzed power sequencing and ramp rates for voltage rails on Garmin display interface boards and compared the results to the LCD Manufacturer's specifications.
    - Defended schematic and PCB design decisions via formal engineering reviews.

- **DESIGN ENGINEER INTERN**   **JUNE 2018 – SEPTEMBER 2018**
    - Designed a LED Test Controller schematic and PCB to test the backlight LEDs of Garmin avionic displays.
    - Wrote firmware for ATMEL ARM microcontrollers for analog and digital signal processing and generating PWM signals of various frequencies and duty cycle resolutions.
    - Researched, designed, and implemented a proof-of-concept data transmission protocol using visible light.
    - Defended schematic and PCB design decisions via formal engineering reviews.

OPENLY PUBLISHED ENVIRONMENTAL SENSING (OPEnS) LAB - *Corvallis, OR*

- **LAB RESEARCHER**   **JANUARY 2019 – PRESENT**
    - Wrote firmware for ARM and AVR microcontrollers to create an autonomous irrigation system using passive RFID tags.
    - Modified the SparkFun CEO's open-source RFID Reader library to read moisture values sensed by RFID tags.
    - Designed a PCB to interface a RFID reader board to ARM microcontrollers.

OREGON STATE UNIVERSITY - *Corvallis, OR*

- **ENGR 201 STUDENT TA**   **SEPTEMBER 2017 – JANUARY 2019**
    - Supervised at least two laboratory sections, each with 20 undergraduate students, per academic term.
    - Held office hours and taught undergraduates the fundamentals of DC circuit analysis and their applications.
    - Assisted the teaching professor in reviewing and updating course materials.

Skills & Abilities
- Highly proficient in schematic design and PCB layout.
- Proficient in C, C++, Python, MATLAB, Assembly, Verilog, OpenMP, and CUDA.
- Proficient in oscilloscope, logic analyzer, signal generator, solder, and multimeter laboratory equipment.
- Excellent teamwork and collaboration skills.
- Excellent verbal and written communication skills.

Professional Affiliations
- OSU Audio Engineering Club
- OSU Robotics Club
- American Institute of Aeronautics and Astronautics

Awards
- Garmin Scholar Award
- Finley Academic Excellence Award
- Acceptance to Oregon State University's University Honors College
- AP National Scholar Award