Michael Hernandez

Portland Metropolitan Area

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Summary

Dedicated electrical engineering professional with a proven ability to develop innovative and creative solutions for complex problems. I specialize in embedded systems, and am particularly skilled at C++, and MATLAB coding. I also have experience with digital signal processing.

Skills

Engineering Skills:	Debugging, Digital Signal Processing (DSP), Embedded Systems, Linux OS, Schematic Analysis, Technical Writing
Engineering Tools:	Logic Analyzers, Multi Meters, Oscilloscopes, Soldering
Programming Languages:	C++, LabView, LaTeX, MATLAB, Python

Engineering Projects

Oregon Institute of Technology — Wilsonville, OR

Electrical Engineering Senior Project — September 2019 – June 2020

- Large embedded systems project which integrated 8 subsystems working together
- Developed software for an ATMEGA2560 microcontroller
- Used oscilloscopes, multi meters, and debuggers to design, test and validate the software on this embedded system
- Wrote over 1200 lines of code including 19 functions using C++
- Maintained engineering schedule to ensure that adequate progress was made to create a functional prototype by the end of the school year
- Created drawings, concept documents, electrical schematics, and wiring diagrams
- Designed three PCBs using PCB123 and KiCad software
- Maintained constant communication with engineers at a PCB fabrication and assembly facility to answer questions regarding how the main PCB should be assembled

Personal Project — Oregon City, OR

Bluetooth Speaker — April 2020 – June 2020

- Used MATLAB to write one test script simulating a low pass audio filter
- Reverse engineered three embedded PCBs which accomplished one function each to incorporate all integrated circuits into one final design
- Designed audio filter which can be enabled by the end user.
- Simulated the designed audio filter using LTSpice CAD and simulation software
- Designed a PCB in KiCad to house the Bluetooth module, audio filter, and associated electrical components
- Digital filtering was used to design the audio filter

Oregon Institute of Technology — Wilsonville, OR
Intracranial Pressure Peak Detection Algorithm — January 2020 – March 2020

- Intracranial pressure data obtained from hospitalized patients was analyzed using MATLAB
- A script was written in MATLAB to reliably detect the peak of each ICP signal, even after noise was introduced.
- Digital filtering was used to determine the fundamental frequency of the algorithm, and to reduce noise in the signal

Oregon Institute of Technology — Wilsonville, OR
Autonomous Robot Car — January 2019 – March 2019

- Programmed an ATMEGA2560 microcontroller using C++ as the programming language
- Wrote 5 C++ libraries with functions to interface with sensors for this project
- Wrote software which enabled the car to make driving decisions based on sensor input
- Implemented Bluetooth serial communication to enable manual control via smartphone
- Extensive testing was done on each system to ensure reliable functionality

Education

Bachelor of Science: Electrical Engineering — June 2020
Oregon Institute of Technology — 3.46 GPA
Relevant Coursework: Communication Systems, Computer Science, Digital System Design, Electronics, Engineering Programming, Geometric Optics, Linear Systems with Digital Signal Processing, Microcontrollers

Bachelor of Science: Biology, Minor: Chemistry — June 2014
Portland State University — 3.71 GPA

Certifications

FE: Electrical and Computer Engineering — September 2020
Arduino Fundamentals Certification on Electronics and Physical Computing — September 2020

Employment History

IKEA — Portland, OR
Product Quality — July 2019 – Present

IKEA — Portland, OR
Customer Service — June 2017 – July 2019

Aomori Prefectural Board of Education — Aomori City, Japan
Assistant Language Teacher — August 2014 – August 2016