

Trevor Murphy

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EDUCATION

Oregon State University

Corvallis, OR

Bachelor of Science in Electrical and Computer Engineering

Sep. 2018 – Dec. 2021

GPA: 3.60

Relevant Courses: Power Electronics, Power Systems, Digital Logic Design, Electronics I-II, Signals & Systems I-III

EXPERIENCE

Undergraduate Research Assistant

November 2018 – Present

Oregon State University

Corvallis, OR

- Maintained current control boards and interfaces for ocean going robotic system.
- Developed new systems of operation using off the shelf and custom boards for a new robotic system.
- Designed satellite communications programmer and daughterboard for the Iridium satellite constellation.
- Worked under multidisciplinary teams with specializations in electrical and mechanical subsystems.
- Participated in testing environments for the robotic system in adverse conditions while maintaining functionality.

Student Tutor

Sep. 2019 – June 2020

Oregon State University

Corvallis, OR

- Worked students on subjects for Math, English, Electrical Engineering, Chemistry, and Physics.
- Developed lesson plans for students when students requested specific tutoring hours.
- Worked with student's advisors to determine the best path for learning.

PROJECTS

Motion Motor Controller | *Altium Designer, STM32, CAN, UART, RS-485*

March 2020 – June 2020

- Developed a platform for motion control system for a custom robotic arm.
- Worked with high current motor applications in a H-bridge configuration.
- Designed custom schematic and PCB around the STM32G431RB microcontroller.
- Designed around multiple signal protocols for interfacing and control from a ROS based control system.

Science Mechanism Controller | *CircuitMaker, Arduino, Arduino C, RS-485, Git*

Oct. 2019 – March 2020

- Developed a platform for a life detection mechanism for use on a mock Mars Rover.
- Designed a custom PCB for high current motor control and environment sensing applications.
- Designed around a MK20DX256VLH7 microcontroller with a MKL04Z32 bootloader.
- Worked with a multidisciplinary team including scientists and mechanical engineers.
- Programmed microcontroller firmware in Arduino C.

FPGA Robotic Car | *SystemVerilog*

Oct. 2019 – Dec. 2019

- Developed platform around a Terasic DE10-Lite FPGA board using an Altera 10 Max.
- Programmed SystemVerilog interface blocks for external NES Controller and motor controller shield.
- Simulated interface blocks using ModelSim to verify waveforms, timing, and outputs.
- Designed custom platform for FPGA, motor controller, and dc motors to ride on.

TECHNICAL SKILLS

Design: Altium Designer, Altium CircuitMaker, Autodesk Inventor, Autodesk EAGLE, KiCAD

Languages: C/C++, Arduino C, MATLAB, SystemVerilog

Software Tools: VS Code, Git, PowerWorld, Wireshark, Visual Studio, LTspice, Quartus Prime, ModelSim, Vim

Electronics Tools: Oscilloscope, Frequency Generator, Variable Power Supply, DC Electronic Load, Benchtop/Handheld Multimeter, Logic Analyzer

PCB Rework: Soldering Iron, Heat Gun, Stereoscopic Microscope, Reflow Oven