CHRISTOPHER MORAN

christopher.and.moran@gmail.com | (860) 997-9261 | github.com/quietlychris

WORK EXPERIENCE

UC Santa Barbara Earth Research Institute — **Santa Barbara, CA**
Research & Development Engineer I, COAST Lab — September 2018 – Present

- Primary developer and operator of kelp biomass estimation system through stereo vision photogrammetry
- Built, tested, and pilots Blue Robotics BlueROV2 with integrated stereo camera system
- Developed parallelized post-processing pipeline for stereo imagery using C++, Rust, and Bash
- Develops feature-based navigation AUV mission simulations in MOOS-IvP autonomy framework in C++ & Rust
- Modified structural component CAD models and coordinated fabrication for REMUS AUV wet payload bay

iRobot — **Bedford, MA**
Systems Test Co-op, Terra Robotic Lawnmower — July 2017 – January 2018

- Developed test fixture for and conducted thermal performance analysis of brushless DC motors
- Contributed to design, build, and operation of automated software smoke tests of embedded Linux systems
- Served as primary support contact for users participating in user testing program
- Conducted accelerated lifetime testing on prototypes, including diagnosing and maintaining failure mode logs

Accion Systems — **Boston, MA**
Mechanical Engineering Co-op, Electrospray Ion Thruster Propulsion — June 2016 – January 2017

- Led mechanical design and development of planned flight product for use on CubeSats and small satellites
- Supported environmental testing of products, including vibrational and thermal vacuum tests
- Machined scale mass models, lab-scale prototypes, and fixtures for in-house testing using Tormach CNC mill
- Designed and created CAD renderings of products and concepts; edited and reviewed final proposal packages

Nuvera Fuel Cells — **Billerica, MA**
Electrochemical Engineering Co-op, Hydrogen Fuel Cell Stack Research and Development — July 2015 – January 2016

- Built, installed, and operated hydrogen fuel cell stacks and test benches to gather and analyze system metrics
- Contextualized results in technical reports for executive-level and customer presentations
- Worked directly with external suppliers to ensure proper design implementation and quality control
- Developed preliminary design drawings and FEA for hydrogen fuel cells stack components using SolidWorks

Northeastern University Plasma Physics Laboratory — **Boston, MA**
Research Assistant under Professor Oleg Batishchev, Ph.D — August 2014 – July 2015

- Collected and analyzed spectroscopic data from gas plasmas using high-resolution cameras and MATLAB

EDUCATION

Northeastern University — **Boston, MA**
Bachelor of Science, Mechanical Engineering and Physics — August 2018

- *Senior Capstone Project:* Design, fabrication, and testing of a modular passive thermal management system prototype for CubeSats, in collaboration with the NASA Jet Propulsion Laboratory

ADDITIONAL

Technical Skills

- *Languages:* Rust, Python, C++, Bash, MATLAB, C
- *Frameworks:* Linux, Git, CMake, OpenCV, MOOS-IvP, Keras, ROS
- *Software:* SolidWorks, ANSYS, LabView, Inventor, Labwindows, AutoCAD, Simulink, EagleCAD, FreeCAD
- *Fabrication:* CNC milling (manual and CAM), CNC lathe (manual), 3D printing, soldering, crimping, spot-welding, high-pressure hydraulic presses; experience with aluminum, engineering thermoplastics, and stainless steels

Open Source: Founding member and contributor to the Rust machine learning working group (Rust-ML)
Professional Interests: Fault-tolerant system design, autonomous navigation / control, machine learning
Eagle Scout: Awarded 2013
Personal Interests: SSI Open Water Diver, blues music, combat sports