

CHRISTOPHER MORAN

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WORK EXPERIENCE

UC Santa Barbara Earth Research Institute

Santa Barbara, CA

Research & Development Engineer II, COAST Lab

September 2018 – Present

- ARPA-E Scalable Aquaculture Monitoring System (SAMS), Underwater Kelp Farm Monitoring
 - Built, tested, and pilots Blue Robotics BlueROV2 Heavy, including sensor integration
 - Primary test lead for microUUV operations, including planning, documentation, and instrument integration
 - Developer of subsurface kelp image segmentation deep learning pipeline using FastAI/PyTorch
 - Replaced use of external service at a cost savings of over \$25,000
- COAST Lab general lab management and contribution
 - Serves as external contact for lab safety, Export Control office, and general maintenance
 - Local network sysdamin, including automated backups, vehicle networking, and general tech support
- NSF Santa Barbara Channel Long-Term Ecological Research (SBC LTER)
 - Helps service and maintain oceanographic equipment, including ADCPs and thermistors

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, Electro spray 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 fuel cell stacks and test benches to collect and process performance data
- 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, HTML, VBA
- *Frameworks:* Linux, Git, CMake, OpenCV, MOOS-IvP, ROS/2
- *Software:* SolidWorks, ANSYS, LabView, Inventor
- *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

Professional Interests: Member of the Rust Machine Learning open source working group, fault-tolerant system design, autonomous navigation / control

Personal Interests: SSI Open Water Diver, blues music, combat sports, Eagle Scout; awarded 2013