## Autonomous Marine Electrical Engineer Co-op Position
## Open Ocean Robotics

Open Ocean Robotics is an early-stage company developing offshore-capable autonomous unmanned energy-harvesting boats. The vessels collect data using a variety of sensors which is relayed to shore via telemetry or stored onboard with a datalogger. Powered by the sun or wind, our boats produce no greenhouse gases, noise pollution or risk of oil spills, and operate at a fraction of the cost of traditional crewed vessels. They can travel non-stop for up to a year, always on and always collecting data, and go into areas too dangerous for people. Some of the tasks the boats can perform include detecting and helping clean up oil spills, assessing fish stocks, environmental monitoring, detection of hazardous materials, port security and safety, relaying data from subsea sensors, and patrolling borders and marine protected areas.

Autonomous boats hold the same disruptive potential as autonomous automobiles. We are Canada's first autonomous boat company, and are focused on creating new technologies to revolutionize this burgeoning industry.

**Position Description**
We are developing an industry first: a solar powered unmanned surface vessel, Solar Xplorer, which is also the world's fastest energy-harvesting autonomous boat. The Autonomous Marine Electrical Engineer will provide essential support and leadership in devising and installing some of the electrical systems for the prototype vessel.

Ideally, the candidate will have a background in autonomous unmanned aerial vehicles or other autonomous vehicles, in particular, having experience with the opensource Pixhawk autonomous navigation system. Integration and installation of the various systems including telemetry, data logger, AIS, etc. will be some of the tasks required.

**Key Duties and Responsibilities**

- Optimizing solar array. The vessel is powered with a (rated) 1100-watt solar array, which will charge a lithium ion battery. Some aspects of the electrical system will need to be finetuned as the system is installed on the boat.
- Installing and optimizing a third-party satellite telemetry system that runs off Raspberry Pi and is configured to work with the Pixhawk system.
- Installing a third-party telemetry system that works off the 3G/4G cellular network. This system will also relay high-definition video.
- Installation of weather sensors, AIS, antennas, etc. Some of the cables will run a significant distance through the vessel, with consideration for reducing electrical noise.
- Creating algorithms to regulate power consumption. For example, motor speed will need to be adjusted according to several inputs from sensors such as solar output, battery voltage, length of nights, etc.

**Job Knowledge Qualifications:**

- Strong problem solving skills
- Must be self-motivated
- Strong attention to detail
- Experience with UAV or other autonomous vehicles an asset
- Experience with the opensource Pixhawk autonomous navigation system an asset
- Undergraduate or graduate student in Electrical or Computer Engineering

**Conditions:**

This is a 16-week co-op position in Victoria beginning January 2, 2019.

**Application:**
For more information, please visit www.openoceanrobotics.com.
Please send your resume and cover letter to julie@openoceanrobotics.com.
All applications must be received by end of day on Friday November 2, 2018.