**AUV Embedded Software Engineer Intern (Paid)**

**Woods Hole Oceanographic Institution**

The Scibotics Lab at Woods Hole Oceanographic Institution develops autonomous underwater vehicles that help scientists understand the ocean. We invented the SharkCam, an AUV that locates, tracks, and films marine animals like the North Atlantic white shark (great white).

We are seeking an intern to help us develop embedded software for our next ambitious project: protecting the arctic from environmental damage with an AUV capable of detecting and mapping out oil spills under ice.

You will help the team by:

* Developing
* ROS nodes to interface with various instruments such as sonars, navigation systems, and depth sensors attached to an embedded Linux computer
* Designing
* autonomous navigation, perception, and mapping behaviors to allow the vehicle to respond to environmental stimuli like the presence of oil droplets
* Developing
* ROS-based interfaces for generalized AUV data and control management
* Building
* visualization and user interface software that allows users to interact with the data being passed through the ROS interfaces
* Integrating
* the vehicle’s computers with other hardware components such as GPS, power management units, etc.
* Operating
* the vehicle during field deployments

We value candidates who excel in multidisciplinary contexts; our ideal intern will bring both software and electrical engineering experience, but will be prepared to step out of their comfort zone to contribute wherever challenges arise.

The ideal candidate would fit many of the following qualifications:

* 3+
* years of software development experience in Python or C++
* Experience
* developing software using ROS, LCM, or a comparable robotics middleware
* Experience
* working with embedded Linux systems (Raspberry Pi, etc.)
* Working
* knowledge of robotics system design (navigation and planning methods, sensing technologies, perception algorithms, etc.)
* Familiarity
* with electronics: RS-232 communication, microcontrollers, DC power distribution, acoustic transducers, sonar, oscilloscopes, CPU BIOS configuration
* Experience
* creating graphical user interfaces (GUIs) or data visualization tools

To apply, please submit a cover letter, rèsumè or CV, and a brief project portfolio showcasing at least one project relevant to robotics to: scibotics.intern.2021@gmail.com

### Educational Requirements

* Currently
* enrolled as a junior, senior, or master’s student pursuing a degree in ECSE, CSCI, or equivalent

### Special Requirements

* Must
* be a US Citizen

### Physical Requirements

Physical duties for this position include but are not limited to, ability to lift less than 25 lbs independently, 2 times per day; carry 10-25 lbs, 2 times per day. Visual abilities to include near, far, peripheral, depth perception, and ability to distinguish basic colors. Hearing requirements include the ability to hear and respond to instructions, communicate effectively in loud areas (pier/dock, warehouse). Other physical tasks include occasional prolonged standing/walking; use of hands for basic/fine grasping and manipulation, repetitive motion, reaching above and below the shoulders, pushing, pulling, kneeling, bending, twisting, and stooping. Other occupational requirements include talking, traveling, working around others, and with others. Will be exposed to dust or other irritants and electrical/mechanical/power equipment hazards. Physical duties are subject to change.

### Sea Duty

May work at least 8 hours per day and, at times in excess of 12 hours per day, 7 days per week. Sleep and work hours can deviate from those on land. May be expected to work on watch schedule (such as 8 hours on and 8 hours off or 12 hours on and 8 hours off) for all or part of a cruise or to work as hours are needed to accomplish the planned work. May need to travel during holidays and for long distances to and from foreign ports. May experience rudimentary living and working conditions, with shared and basic living quarters and laboratories. May experience bad or extreme weather conditions, including heavy seas, winter weather or hot, tropical weather. Work on deck may occur in both hot and cold conditions around the clock. Sea conditions will lead to active ship motion. Should be able to climb steep and vertical ladders and able to enter and exit compartments through hatches, doors, and sills. Should be able to carry heavy gear and participate in the loading and unloading of the ship as well as in the activities on deck and in the labs during the cruise. Shipboard environments may include: confined areas, shared sleeping quarters (berths) and bathroom facilities, small and basic berthing, fixed meal times and basic menus. Modest levels of heating, cooling, ventilation, and illumination, limited or no email and internet access and limited off-duty and recreational facilities (library, lounge, movies). May be exposed to potential allergens and irritants, including paint fumes. May experience constant and intermittent loud noises, and slippery and uneven surfaces.