

## **INTERNSHIP OPPORTUNITIES AT ADVANCED ROBOTICS CENTRE**

The Advanced Robotics Centre in NUS works with industry to deliver autonomous vehicles for their specific robotics applications. We work with the state-of-the-art in developing robots for real world practical applications in the Ground, Maritime and Air domains. We are currently offering various internship project opportunities to both Computing and Engineering students passionate in Autonomous Vehicles development. If you have any relevant experience in Software/Hardware development for robotics applications and want to make a technological difference with your skillsets do join us on one of the available intership positions below!

Please email Mr Goh Eng Wei at [gohengwei@nus.edu.sg](mailto:gohengwei@nus.edu.sg) with your CV to express interest.

### **Autonomous Underwater Vehicle for underwater inspection of ship hull**

#### **Project outline**

We are currently on a project to develop an autonomous underwater vehicle (AUV) for ship hull inspection. Traditionally, AUVs were designed to be torpedo shaped with a single propeller motor with fin control surfaces for attitude control. This project will develop an intervention class AUV with six degrees of freedom capable for intelligent semi-autonomous and fully autonomous operations.

#### **Position(s)**

##### **Software Engineer**

You will be responsible for the software development of the dynamic positioning control systems, hardware drivers and user interface development for a commercial ROV(Remotely Operated Vehicle) operator.

#### **Minimum requirements:**

Engineering/CS student who is keen to learn, preferably in a fast-paced startup environment. Interest in Software Engineering and robotics will be good.

#### **Plus Points (Not Mandatory):**

- Knows C++/Python programming language
- Familiar with ROS/Linux programming interface
- Familiar with GUI development
- Familiar with backend server development
- Familiar with Feedback control systems (PID)

### **Autonomous Scooter Project (1<sup>st</sup> in Singapore)**

#### **Project outline**

We are building two autonomous scooters to enhance tourist attraction in Singapore. This is a 11-months project which involves building an end-to-end solution to test the business viability of autonomous vehicle as a mode of transport for last mile solutions, as well as a potential spin-off thereafter. We are looking for talented and enthusiastic individuals to join our current team for this journey. Engineering/Computing students who are studying full-time in NUS welcome to apply.

Location: NUS Enterprise@Singapore Science Park, 3 Science Park Drive, #01-06/09, Singapore 118223

**Position(s)****Perception Engineer**

We are looking for a programmer with software background to develop the scooter's perception capabilities. The task involves designing and developing a perception module that can detect and track obstacles in real time. You will also be responsible for building the vehicle's collision avoidance system and vision SLAM if time permits.

Min Requirements: Engineering/CS student who is keen to learn, preferably interested to work in a fast-paced startup environment. Interested in the state of the art Deep Learning techniques.

Plus Points (Not Mandatory):

- Knows C++/Python programming language.
- Familiar with ROS/Linux programming interface.
- Familiar with OpenCV
- Familiar with deep learning framework such as Tensorflow/Caffe

**Vehicle Engineer**

We are looking for an engineer with electronics hardware/firmware background to develop the scooter's low level embedded board. The task involves designing and prototyping electronic/embedded PCB board that can control the vehicle's speed, together with user button interface. You will also be responsible for writing firmware and mount of sensors (camera and lidars).

Min Requirements: Engineering student who is keen to learn, preferably interested to work in a fast-paced startup environment.

Plus Points (Not Mandatory):

- I2C, Serial communication.
- PCB Cad software (Altium, EagleCad)
- Knowledge of microcontroller programming such as Arduino, Teensy, STM32.
- Familiar with Linux/ROS - Knowledge of programming languages such as C/C++/Python