

Honda Research Institute USA (HRI-US) is at the cutting edge of Honda's research and development activities. HRI-US internship program is designed to give students hands-on experience in developing new research ideas. Each intern is expected to work closely with HRI-US scientists and engineers to generate research prototypes. Interns will have the opportunity to publish scientific publications in academic conferences and journals. The time frame for these positions may be adjusted to accommodate the intern's academic schedule. HRI-US pays competitive salaries to interns and provides for a comfortable and exciting research environment. Applicants are expected to be pursuing a PhD degree in the related areas. Qualified MS students are also encouraged to apply.

Location: Mountain View, CA
Start Date: January 2017 (flexible)
Duration: 12 weeks minimum

We are looking for experienced and highly motivated students with good publication records and excellent analytical and programming skills to join our team for Winter 2017!

Behavior Planning for Autonomous Driving (Job Number: P15INT-04)

This position focuses on intelligent decision making for targeted autonomous driving applications, using motion planning and machine learning techniques. The candidate's responsibilities include: designing novel algorithms that make intelligent decisions and learn from previous experiences, data processing from several sensors, software development in simulation, and time permitting, implementation on the vehicle and evaluation the real-time performance of the developed technologies.

Qualifications:

- Research expertise in Motion Planning, Optimization, Machine Learning
- Hands-on experience with robots or autonomous vehicles, and Robot Operating System (ROS)
- Excellent programming skills in C++ and/or Python

Visual SLAM (Job Number: P15INT-05)

This position focuses on robot localization, mapping, and SLAM using cameras and other sensors like GPS, IMU, and LiDAR. The candidate's responsibilities include: designing novel algorithms that enable robust visual localization under challenging situations (e.g. varying lighting conditions), data processing from camera, LiDAR and other sensors, development of the software, and time permitting, implementation on the vehicle and evaluation the real-time performance of the developed technologies.

Qualifications:

- Strong knowledge in Computer Vision and Machine Learning
- Experience in Visual SLAM or Deep Learning is a strong plus
- Excellent programming skills in C++ and python/MATLAB under Linux

Accelerated Deep Learning Frameworks (Job Number: P15INT-06)

Recent research on deep convolutional neural networks (DCNNs) has focused primarily on improving accuracy. However, the state-of-the-art CNN networks require tremendous training effort and are too slow for real-time computing systems. The goal of this project is to build an efficient deep learning pipeline from training to inference for object detection and semantic segmentation. The main responsibilities of the candidates include: 1) the research and development of new DCNN architectures for real-time systems 2) the investigation and implementation of techniques to parallelize and accelerate the underlying computation.

Qualifications:

- Research experience in object detection and semantic segmentation
- Solid understanding of neural networks and the underlying math
- Hands-on experience in designing deep convolutional neural networks using Caffe or similar libraries (Torch, Tensorflow and Theano)
- Strong background in CUDA and parallel computing. Good understanding of GPU architecture is a plus
- Excellent programming skills in C++ and/or Python

Benchmark SLAM Dataset (Job Number: P15INT-07)

This project focuses on the problem of creating a comprehensive benchmark dataset and evaluation metrics in support of scientific evaluation and objective comparison of SLAM, and localization approaches for automated driving and robotics applications. The dataset will include recordings on new, challenging, and real-world scenarios using synchronized data streams from an array of sensors that includes: cameras, LiDAR, GPS, and IMU. It is our intention to make this dataset available to the scientific community to push the state-of-the-art forward.

Qualifications:

- Experience with visual SLAM, LiDAR SLAM, and multi-sensor fusion and calibration.
- Familiarity with Robot Operating System (ROS) and Point Cloud Library (PCL).
- Excellent programming skills in C++ and/or Python.

How to Apply

Please send an e-mail to interns@honda-ri.com with the following:

- Subject line including the job number you are applying for
- Recent CV
- A cover letter indicating your desired internship period and briefly explaining how you fit to the position