Honda Research Institute USA (HRI-US) strives to be at the cutting edge of Honda's research and development activities. Driven by Honda's global slogan - The Power of Dreams - we pursue emerging technologies and bring them into reality to make people happy by engaging daily in highly scientific, pioneering work. We realize that dreams don't come from organizations, systems, or money. They come from people, and we seek people who have such a challenging spirit to join us.

Currently, HRI-US (Silicon Valley) is offering research internships to highly motivated Ph.D. (and qualified M.S.) students. Interns will work closely with HRI researchers, and publishing results in academic forums is highly encouraged. We are looking for candidates with good publication track records and excellent programming skills to join our team!

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

- Subject line including the job number(s) you are applying for.
- Recent CV

Candidates must have the legal right to work in the U.S.A.

Machine Learning on Time Series Data (Video/Car Sensor Signals) (Job Number: P17INT-01)

The title includes multiple positions which focus on developing and evaluating novel machine learning frameworks using on-road driving data collected from our highly advanced test-vehicles. The candidate is expected to work on one of the following topics:

- Infer salient objects/regions of the driving video that should attract driver's visual attention.
- Model driver situational awareness from scene saliency and driver gaze behavior.
- Supervised/unsupervised learning of driving behaviors.
- Supervised/unsupervised detection of anomalies.

Qualifications:

- Ph.D. /M.S. candidate in computer science, electrical engineering, or related field.
- Research experience in computer vision, machine learning and video analytics.
- Strong background in temporal and multimodal data (e.g. video + time series) processing.
- Experience designing deep neural networks using TensorFlow, Keras or similar tools.
- Excellent programming skills in Python (C++).
- Strong publication record in top tier conference/journal in computer vision and machine learning areas is a plus

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Computer Vision based Driving Scene Classification and Event Detection (Job Number: P17INT-02)

This title includes multiple positions which offer the opportunity to conduct innovative research in computer vision, machine learning and data analysis. The candidate is expected to work on one of the following topics:

- Automatic classification of various driving conditions and scenarios including place, weather, and traffic condition.
- Detection of driving scene events from video, including ego-centric events and events associated with other traffic participant behaviors.

Qualifications:

- Ph.D. or M.S. in computer science, electrical engineering, or related field.
- Research experience in machine learning, computer vision and/or driver behavior data analytics.
- Highly proficient in software engineering using C++ and Python.

Preferred Qualifications:

- Experience in Robot Operating System (ROS).
- Experience in open-source Deep Learning frameworks such as TensorFlow or Caffe.
- Strong written and oral communication skills including development and delivery of presentations, proposals, and technical documents.

Machine Learning / Computer Vision for 3D Scene Understanding/Reconstruction (Job Number: P17INT-03)

This title includes multiple positions which focus on research and development of computer vision, machine learning and optimization algorithms. The candidate is expected to work on one of the following topics:

- 3D traffic scene reconstruction from video.
- Joint 2D/3D Data Fusion for Dynamic Traffic Scene Analysis.
- Multi Lidar based localization.

Qualifications:

- Ph.D. or M.S. in computer science, electrical engineering, or related field.
- Strong familiarity with computer vision and machine learning techniques pertaining to 3D reconstruction, SLAM, visual recognition, and deep learning.
- Highly proficient in software engineering using C++ and Python.

Preferred Qualifications:

- Experience in open-source Deep Learning frameworks such as TensorFlow or Caffe.
- Hands-on experience in developing algorithms for 3D reconstruction, SLAM, and visual recognition.
- Experience in Robot Operating System (ROS).
- Strong written and oral communication skills including development and delivery of presentations, proposals, and technical documents.
- Strong publication record in one or more of the following areas: computer vision, machine learning.

Motion Planning / Decision Making (Job Number: P17INT-04)

This title includes multiple positions which focus developing algorithms to advance research in motion planning and decision making. The candidate is expected to work on one of the following topics:

- Develop RL algorithms to address tactical lane changing scenarios.
- Develop RL and IRL algorithms to address merging scenarios.
- Long-term motion prediction using probabilistic or learning-based methods.
- Develop temporal game theoretic models related to autonomous driving for interactive decision making.
- Identifying outliers when observing traffic vehicles.

Qualifications:

- Ph.D. or highly qualified M.S. students in computer science, electrical engineering, or related field.
- Excellent programming skills in Python and C++.
- Research expertise in machine learning related techniques, such as RL, IRL, SVM, CNN, RNN.

- Solid understanding of probabilistic methods, such as Kalman filters, Particle filters, HMM, DBN, SLDS.

Preferred Qualifications:

- Experience in Robot Operating System (ROS).
- Experience in open-source Deep Learning frameworks such as TensorFlow or Caffe.

Robotics Manipulation and Navigation (Job Number: P17INT-05)

This title includes multiple positions which focus on formulating and developing algorithms, and running experiments to advance research in robotics manipulation and navigation. The candidate is expected to work on one of the following topics:

- Robotics manipulation using mobile robot platform in the area of deformable object manipulation.
- Robotics manipulation using manipulator with tactile sensors in the area of tactile manipulation using machine learning.
- Robotics navigation using mobile robot platform that require close coordination between navigation planning and stability control.
- Robotics navigation in the area of real-time planning and decision making using mobile robot platform that navigates through a crowd of pedestrians.

Qualifications:

- Ph.D. or highly qualified M.S. candidate in computer science, electrical engineering, or related field.
- Experience in motion planning, manipulation/grasping, and machine learning.
- Experience in setting up simulation environment and executing real robot experiments.
- Good programming skills in either C++ or Python.
- Experience in Robot Operating System (ROS).

Simulation based Human Factors Study (Job Number: P17INT-06)

This position offers the opportunity to design and conduct human-factors study to prototype in-car HMIs on our experimental simulator setups.

Responsibilities:

- Design and conduct the human-factors study to evaluate our prototype HMIs.
- Data analysis to compare subjects' driving behavior and perception of each HMI.

Qualification:

- Ph.D. in human factor engineering, or related field.
- Research experience in automotive HMI evaluation.