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.

How to Apply: Please send an e-mail to careers@honda-ri.com with the following:
- Subject line including the job number(s) you are applying for
- A cover letter explaining how your background matches the qualifications
- Recent CV
- Topics you are interested in (optional)
Candidates must have the legal right to work in the U.S.A.

List of Jobs: Follow the link for detailed job description

Computer Vision Scientist: Language and Vision (Job Number: P19F04)
Computer Vision Scientist: Visual Scene Understanding (Job Number: P19F05)
Scientist: Intention Estimation for Teleoperation (Job Number: P19T04)
Scientist: Interaction Modeling for Robotic Manipulation (Job Number: P20T01)
Scientist: Visuo-Tactile Perception for In-Hand Object Manipulation (Job Number: P20T02)
Scientist: Perception of Articulated Object Properties for Manipulation (Job Number: P20T03)
Scientist: Deep Reinforcement Learning for Dexterous Object Manipulation (Job Number: P20T04)

Computer Vision Scientist: Language and Vision (Job Number: P19F04)
This position focuses on research problems that are at the intersection of vision and language for next-generation mobility systems. In particular, the work involves research and development of computer vision and machine learning algorithms toward visual scene understanding and linking the visual information to natural language for applications involving video captioning, vision-language navigation (VLN), and visual question answering (VQA).

Key Responsibilities:
- Conduct research and development on problems at the intersection of vision and language. The scenes are acquired from a mobile platform and involve a high degree of interaction between agents in the scene and the environment
- Design, develop, and integrate software systems and architectures necessary to realize research prototypes
- Develop and evaluate metrics to verify the reliability of proposed algorithms
- Participate in data collection, sensor calibration, and data processing
- Participate in ideation, creation, and evaluation of related technologies in various domains including traffic scenes and indoor robotics
- Contribute to a portfolio of patents, academic publications, and prototypes to demonstrate research value
Qualifications:

- Ph.D. or M.S. in computer science, electrical engineering, or related field
- Strong familiarity with machine learning techniques at the intersection of vision and language
- Familiarity with scene modeling and interpretation using spatiotemporal graphs, scene graphs, graph convolution networks, or similar graphical modeling techniques
- Familiarity with automatic generation of natural language descriptions from images and videos and/or familiarity with visual question answering research domain preferred
- Experience in open-source Deep Learning frameworks such as TensorFlow or Pytorch preferred
- Highly proficient in software engineering using C++ and Python
- Hands-on experience in handling multi-modal sensor data preferred
- Strong written and oral communication skills including development and delivery of presentations, proposals, and technical documents
- Strong publication record in computer vision or machine learning

Computer Vision Scientist: Visual Scene Understanding (Job Number: P19F05)

The position focuses on research and development of computer vision and machine learning algorithms toward the understanding of scenes and prediction of behavior for next-generation intelligent mobility systems. The goal is to determine the relative importance of agents and objects in navigation by interpreting the detailed semantics of visual scenes through explicit modeling of objects/agents, their attributes, relationships to other objects/agents and the environment, intention, and future destination.

Key Responsibilities:

- Research and development of video-based computer vision algorithms that enable interpretation and understanding of complex traffic scenes involving a high degree of interaction between road users and the environment for various driving assistance technologies
- Research and development of supervised and unsupervised mechanisms (e.g. attention) that identify “important agents” that potentially influence the ego-vehicle’s future trajectory and the driver’s decision-making process
- Design, development, and integration of software systems and architectures necessary to realize research prototypes
- Develop and evaluate metrics to verify the reliability of proposed algorithms
- Contribute to a portfolio of patents, academic publications, and prototypes to demonstrate research value

Qualifications:

- Ph.D. or M.S. in computer science, electrical engineering, or related field
- Strong familiarity with machine learning techniques pertaining to visual scene understanding
- Familiarity with scene modeling and interpretation using spatiotemporal graphs, scene graphs, graph convolution networks, or similar graphical modeling techniques
- Experience in open-source Deep Learning frameworks such as TensorFlow or Pytorch preferred
- Highly proficient in software engineering using C++ and Python
- Hands-on experience in handling multi-modal sensor data preferred
- Strong written and oral communication skills including development and delivery of presentations, proposals, and technical documents
- Strong publication record in computer vision or machine learning

Duration: 3 years
Scientist: Intention Estimation for Teleoperation (Job Number: P19T04)

Honda Research Institute USA (HRI-US) in San Jose, California, is looking for a postdoctoral scientist to work on intention estimation and behavior generation algorithms to realize dexterous robotic teleoperation combining statistical modeling, probabilistic inference, motion planning, and machine learning techniques.

Key Responsibilities:
- Develop, implement, and validate modeling and inference algorithms for human intention estimation, and behavior generation algorithms for robotic teleoperation both in simulation and on hardware
- Collaborate with local and international researchers and engineers within and outside the Company
- Compile written and oral reports for executives within the Company
- File patents on developed technologies
- Publish research results at top-tier conferences and journals in robotics as well as machine learning

Qualifications:
- Ph.D. in computer science, robotics, or a related field
- Experience in robot manipulation, planning, and motion control
- Experience in statistical modeling and probabilistic inference of human behavior and intention
- Strong programming skills in C++ or Python
- Strong written and oral communication skills
- Preference for candidates with experience working with Bayesian methods and Probabilistic Programming Language (PPL)
- Preference for candidates with experience working with robot hardware using ROS

Duration: 3 years

Scientist: Interaction Modeling for Robotic Manipulation (Job Number: P20T01)

Honda Research Institute USA (HRI-US) in San Jose, California, is looking for a postdoctoral scientist to work on the unsupervised inference of relationships among the environment, objects, and actions through observation and interaction, with application to human-robot collaborative manipulation planning.

Key Responsibilities:
- Develop, implement, and validate inference and planning algorithms both in simulation and on hardware
- Collaborate with local and international researchers and engineers within the Company
- Compile written and oral reports for executives within the Company
- File patents on developed technologies
- Publish research results at top-tier conferences and journals in robotics as well as machine learning

Qualifications:
- Ph.D. in computer science, mechanical engineering, robotics, or a related field
- Experience in robot kinematics, dynamics, and control
- Experience in machine learning
- Strong programming skills in C++ or Python
- Strong written and oral communication skills

Duration: 3 years
Scientist: Visuo-Tactile Perception for In-Hand Object Manipulation (Job Number: P20T02)

Honda Research Institute USA (HRI-US) in San Jose, California, is looking for a postdoctoral scientist to investigate and implement algorithms that exploit vision and tactile feedback for robotic in-hand object manipulation. The focus of the research is to develop perception algorithms to estimate object states such as 6D pose and finger-object contact states such as slip that can be used by a high-level planner to perform manipulation tasks.

Key Responsibilities:
- Development of multi-modal perception algorithms focused on computer vision and tactile sensing for object grasping and manipulation
- Deploy algorithms on a robotic platform and demonstrate their application on a set of tasks (e.g. in-hand repositioning of objects)
- Collaborate with local and international researchers and engineers within the company
- File patents on developed technologies
- Publish research results at top-tier conferences and journals in robotics as well as machine learning

Qualifications:
- Ph.D. in computer science, robotics, or a related field
- Experience with deep learning and deep learning platforms such as TensorFlow and PyTorch
- Experience with temporal approaches such as LSTMs
- Strong programming skills in C++ or Python
- Familiarity with ROS and developing end-to-end systems
- Experience training and testing machine learning algorithms and deploying models on a robotic platform
- Experience with computer vision and multisensory perception is a plus
- Experience with robotic manipulation, tactile sensing, and grasping is a plus
- Experience with sim-to-real approaches is a plus

Duration: 3 years

Scientist: Perception of Articulated Object Properties for Manipulation (Job Number: P20T03)

Honda Research Institute USA (HRI-US) in San Jose, California, is looking for a postdoctoral scientist to investigate and implement algorithms for articulated object manipulation. The focus of the research is to develop algorithms to perceive geometric properties and interpret the kinematics and functionality of an articulated object. The perceived properties and functionality are then used by a planner to enable manipulation tasks such as assisted teleoperation and tool usage.

Key Responsibilities:
- Development of multi-modal perception algorithms for articulated object manipulation
- Deploy algorithms on a robotic platform and demonstrate their application on a set of tasks (e.g. use an articulated object as a tool)
- Collaborate with local and international researchers and engineers within the company.
- File patents on developed technologies
- Publish research results at top-tier conferences and journals in robotics as well as machine learning

Qualifications:
- Ph.D. in computer science, robotics, or a related field
- Experience with deep learning and deep learning platforms such as TensorFlow and PyTorch
- Experience with temporal approaches such as LSTM
- Strong programming skills in C++ or Python
- Familiarity with ROS and developing end-to-end systems
- Experience training and testing machine learning and deploying models on a robotic platform
- Experience with computer vision and multisensory perception
- Experience with robotic manipulation and grasping is a plus
- Experience with sim-to-real approaches is a plus

**Duration:** 3 years

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**Scientist: Deep Reinforcement Learning for Dexterous Object Manipulation (Job Number: P20T04)**

Honda Research Institute USA (HRI-US) in San Jose, California, is looking for a postdoctoral scientist to investigate sample-efficient deep reinforcement learning approaches to dexterous manipulation of objects. Research topics include incorporation of human expertise through imitation learning, learning from videos, and primitive skill reuse through hierarchical reinforcement learning.

**Key Responsibilities:**
- Development of deep reinforcement learning algorithms for dexterous manipulation
- Implementing the algorithms in simulation and on multi-fingered robot hand hardware
- Collaborate with local and international researchers and engineers within the company
- File patents on developed technologies
- Publish research results at top-tier conferences and journals in robotics as well as machine learning

**Qualifications:**
- Ph.D. in computer science, robotics, or a related field
- Experience with deep learning reinforcement learning
- Familiarity with deep learning platforms such as TensorFlow and PyTorch
- Experience with simulation engines such as MuJoCo and PyBullet
- Familiarity with ROS and developing end-to-end systems
- Experience with deep reinforcement learning deployed on a robotics platform is a plus
- Experience with robotic manipulation, control, and dynamics
- Experience with sim-to-real approaches is a plus

**Duration:** 3 years

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