Honda Research Institute USA, Inc.

http://www.honda-ri.com

Call For 2006 Summer Interns

The computer science research section of Honda Research Institute USA (HRI-US), located in Mountain View, California and Boston, Massachusetts, has several openings for internships this summer in the following areas:

- Computer Vision and Graphics,
- Humanoid Robotics, and
- Human-Level AI

It is expected that the summer internship will produce working concepts as well as publications, under close collaboration with Honda researchers.

The application deadline is February 28, 2006; hiring decisions are expected by the end of March. Interested students should send an e-mail to intern@honda-ri.com including a cover letter stating your research interests, a CV, and two letters of recommendations.

The subject line of your email should contain "2006 intern application: yyy" where yyy is the area you are applying for. Name your attachments like "john.smith.stanford.cv.pdf" - not like "honda.pdf". Failure to follow these instructions may result in delay in processing your application.

Computer Vision

Research topics include human motion tracking and understanding, pose estimation, visual tracking and learning, novel sensing devices, stereo, 3-D imaging, 3-D reconstruction, and human-robot interaction.

Human motion understanding (several positions)

- Interns will assist researchers in developing human action and pose recognition and tracking algorithms to recognize human activities based on various sensing modalities to produce symbolic level descriptions.

  Qualifications: include solid background in computer vision and pattern recognition, solid programming skills in C/C++ and Matlab, and familiarity in machine learning.

Object recognition and classification (2 positions, in Boston)

- Development of pose and illumination invariant techniques for object recognition.

  Qualifications: Solid background in computer vision, good programming skills in C++, good mathematical background, basic knowledge of signal processing. *Desirable skills:* Familiar with Matlab, machine learning.

- Development of an object recognition system which is trained on 3D models of objects.

  Qualifications: Solid background in computer graphics, good programming skills in C++, experience in OpenGL and Mesa. *Desirable skills:* Familiar with Matlab, computer vision.

Human-level AI (several positions)

- Interns will contribute to research in extracting knowledge from the web, human-level AI and knowledge representation. Web knowledge extraction is performed via learning syntactic patterns from text using machine learning techniques. Experience with Java/C++ and Perl is desirable.
- For causal reasoning and knowledge representation, relationships are learned among text description of perceptions provided by a vision system. We are also interested in making high level decisions on responding to everyday situations. Experience with Java/C++ and graphical models is desirable.

Humanoid Robotics (several positions)

Humanoid Control

- Inverse kinematics control of redundant articulated mechanisms.

  Qualifications: Solid background in robotics and inverse kinematic control and good programming skills in C++ and Matlab. Desired skills are familiarity with QT, OpenGL, and computer animation.

- Dynamics and balance control of humanoid robots.

  Qualifications: Strong background in dynamics and control of robots, both theoretical aspects and implementation skills. C++ and Matlab programming skill.

Integrated Robotics

Interns will work on data-driven systems for motion understanding. Candidates must have good to excellent C++ implementation skills and experience working in teams. We look for candidates with the following skill sets:

- Experience in machine learning and/or statistics, with a strong background in data clustering and classification, time-series analysis, function approximation and basis function representations. Knowledge of system identification is a plus.
- Experience in motion analysis and synthesis, with a strong background in human/humanoid modeling, robotics, dynamic simulation and/or physics-based graphics animations. Familiarity with signal processing and control theory is strongly recommended.
- Experience in developing scalable collaboration environments, with a solid grasp of design paradigms and general system integration. Background in distributed systems is a must. Superb coding skills: Python, Perl, C++ and Java development in both Windows and Linux.

Brief Summary of HRI-US Internship Program Benefits

The HRI-US internship program is designed to give students hands-on experience in developing new research ideas. Each intern has at least an HRI researcher to work with and in general is expected to generate prototypes and scientific publication as a result of the internship.

The general time frame for these positions typically overlap with academic summer months; depending on the project involved, the interns may have longer or shorter stay.

HRI-US pays interns competitive salaries with benefits (e.g. paid company holidays) and provides for a comfortable yet competitive research environment with regular opportunities of learning as well. Interns from outside of the local areas are eligible for relocation assistance. Details will be made available to high potential applicants.