Harvard University

Summer 2014
June 9 - August 16

Research Experiences for Undergraduates in Computer Science & Scientific Computing

We are pleased to announce summer research opportunities for undergraduates with interests related to computer science and scientific computing. Students will work with faculty in highly interdisciplinary groups on projects to develop new algorithms and systems that aid in the visualization of complex data sets, and contribute to security and privacy of data.

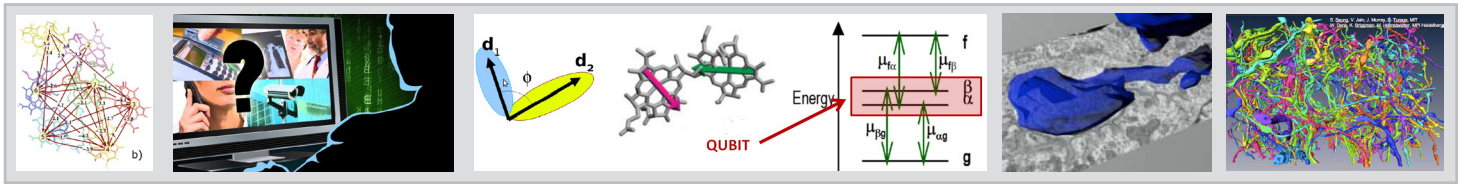
Quantum chemistry simulation of thousands of molecules, including the search for advanced materials. Quantum chemistry calculations are ubiquitous in many fields such as bioprocesses, catalytic design, and optimization of reaction mechanisms. The solution of the electronic Schrödinger equation scales exponentially with the size of the system under study, resulting in the need for high-throughput/compute-intensive tools. For more information, see http://aspuru.chem.harvard.edu/research.

Analysis of high-resolution electron microscope brain images in computational neurobiology. Extraordinarily thin slices of brain tissue are imaged using high-throughput scanning electron microscopy, generating hundreds of petabytes of image data each year. Extracting details of neural structure from this amount of data requires petaflops (or exaflops) of processing and software to enable semi-automated segmentation. For more information, see http://gvi.seas.harvard.edu/node/281.

The Privacy Tools for Sharing Research Data project is a broad, multidisciplinary effort to help enable the collection, analysis and sharing of personal data for research in social science and other fields, while providing privacy for individual subjects. We are actively looking for students in Computer Science, Statistics, Math, and Quantitative Social Science to work on projects that can include theoretical, programming, and/or empirical work, as well as potential interactions with law, policy, and social science. For more information, see http://privacytools.seas.harvard.edu/.

The Institute for Applied Computational Science also offers team-based projects in collaboration with industry partners. Student teams work with a Harvard mentor and industry partner on a real-world project that uses applied mathematics, computational science and computer science skills. For more information, see http://iacs.seas.harvard.edu/opportunities.

Participants are part of a larger, diverse research community through organized and informal interactions with students, mentors, and faculty in the summer research internship programs based in the Harvard School of Engineering and Applied Sciences. Students receive a stipend of $5000 and a $350 travel allowance, as well as on-campus housing at no additional charge.



Program Deadline: February 28

Apply for all opportunities on-line at reusite.seas.harvard.edu/application.

For more information:

Kathryn Hollar, Director of Educational Programs
Harvard School of Engineering & Applied Sciences
E-mail: reu@seas.harvard.edu
www.eduprograms.seas.harvard.edu

Program Requirements:

US Citizen or Permanent Resident (except IACS projects)
Currently Enrolled Undergraduate at time of program

This REU opportunity is supported through the auspices of the National Science Foundation. Information on other NSF undergraduate research opportunities can be found on the web at http://www.nsf.gov/home/crssprgm/reu/start.htm