FDA Digital Library of Modeling and Simulation

Research Project Description

Opening Date: November 25, 2013

Closing Date: Open until filled

Office of Science and Engineering Laboratories
Center for Devices and Radiological Health
U.S. Food and Drug Administration
Silver Spring, MD

Project Description:

This is an interdisciplinary project to develop digital library software to enable management, preservation, and online discovery of scientific data and software. The project will develop the FDA Digital Library of Modeling and Simulation repository. This will involve deployment of a new repository and web application using the Hydra technology stack (http://projecthydra.org), which includes Fedora Commons Repository Software, Ruby on Rails, Java, and SQL. The project will design and implement the architecture, workflows, and applications for the FDA Digital Library. In addition, the project will implement a website to give the scientific community access to material in the FDA Digital Library.

Working closely with the Digital Library team and team leaders, the project will include specifying, documenting and developing the architecture of a prototype repository and management system for digital preservation.

Specific duties include:

- Work closely with the FDA team to understand the requirements and develop specifications for the digital library architecture.
- Design and implement a repository infrastructure, using open source software, that supports the ingestion, preservation, and delivery of digital objects (text, xml, images, videos, binary).
- Develop and implement workflows to extract and repurpose metadata and digital objects.
- Customize user interface to open source repository applications for end-user delivery.
- Keep abreast with the digital library software and infrastructure development communities.
- Write and maintain documentation.

Qualifications:

Applicants must have a B.S. in Computer Science, or a related field, from an accredited U.S. college or university, and be within 5 years from the awarding of their degree.

The program is open to all qualified individuals without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran. U.S. citizenship or lawful permanent resident status is preferred (but can also hold an appropriate visa status, however, an H1B visa is not appropriate). The participant must provide proof of medical insurance. **The participant does not become an FDA employee.**

The appointment will be full-time for one year and may be renewed for up to three additional years upon recommendation of FDA and subject to availability of funds.

The appointment will be served at the FDA facility in Silver Spring, MD. The participant will receive a monthly stipend, commensurate with experience.

Desired Knowledge and Skills:

- Demonstrated understanding of Internet technologies including HTML, CSS, JavaScript and XML (particularly XSLT, XPath and RDF).
- Ability to work independently on a project from specification to launch.
- Expertise in Ruby and Ruby on Rails both for application development and in engineering an enhanced framework, including plug-ins, engines and gems, for developing library and repository applications.
- Experience with relational database design and management. Experience implementing database applications for SQL Server, Oracle, or MySQL.
- Effective communication skills: orally and in writing, working with all levels of staff.
- Quick and self-bootstrapping learner. Adept at quickly learning new scripting and programming languages.
- Demonstrated experience with library applications and technology, including experience participating in relevant library open source efforts.
- Demonstrated success working in a team environment applying user-centered design and agile development practices.
- Knowledge of metadata standards (MODS, METS and PREMIS).
- Candidates should be prepared to share and discuss their programming portfolio.

About OSEL/ CDRH/ FDA:

A research project training opportunity is currently available at the Office of Science and Engineering Laboratories, Center for Devices and Radiological Health, Food and Drug Administration (FDA) in Silver Spring, MD. The Center for Devices and Radiological Health (CDRH), part of the U.S. FDA, ensures that medical devices are safe and effective as authorized by the 1976 Medical Device Amendments to the Federal Food, Drug, and Cosmetic Act, helps reduce unnecessary exposure to radiation from medical, occupational, and consumer products as authorized by the Radiation Control for Health and Safety Act of 1968, and assures the quality of mammography as authorized by the Mammography Quality Standards Act of 1992.

The Office of Science and Engineering Laboratories (OSEL) is the laboratory of CDRH of the FDA. OSEL performs product testing; develops reliable standardized test methods for CDRH and industry use; performs anticipatory scientific investigations on emerging technologies; contributes laboratory data to national and international standards used in CDRH decision making; provides scientific and technical training for CDRH staff members; and maintains laboratory collaborations and relationships with scientific researchers in academia and other Federal laboratories. OSEL also coordinates and oversees CDRH's activities that support the development of national and international standards.

How to Apply:

To apply, please send a copy of your resume or CV to Donna Lochner, Associate Director, OSEL/CDRH/FDA at donna.lochner@fda.hhs.gov.