

Post-Master's or Post-Bachelor's Science Software Developer

Neutron Scattering Science Division Oak Ridge National Laboratory Oak Ridge, Tennessee

ORNL09-75-NSSD

Project Description:

To develop software which facilitates performing single crystal experiments on the SNS instruments by enabling scientists to work in reciprocal space coordinates translating sample positioning into instrument coordinate space. This person will work closely with the ToF Inelastic, Single Crystal, and Triple Axis Science groups, the Data Acquisition and Control group, and the Scientific Computing group.

Major Duties/Responsibilities:

- Works closely with instrument scientists and science team members building upon their work defining and developing an integrated software system which facilitates performing single crystal experiments on SNS inelastic and single crystal diffraction instruments. This software will enable users to work with their sample mounted at the instrument in reciprocal space translating sample positioning into instrument coordinate space.
- Will draw upon existing applications such as SPICE and ISAW to produce an integrated sample data visualization and positioning software system which integrates with the instrument data acquisition system (DAS).
- In addition to working closely with the science teams this person will also work closely with the Scientific Computing group, Data Acquisition System (DAS) group, and instrument teams to produce applications for users – candidate must be willing to work in as a team member in a cross-functional team and able to take direction from team leaders.
- Verifies that requirements are met by interacting with instrument scientists and their team members.
- Has a basic understanding of neutron scattering science and can draw upon this understanding for producing software.
- Is able to utilize existing tool boxes or libraries to pull together higher level applications for users.
- Is capable of developing Graphical User Interface for scientific applications which others can use.
- Writes appropriate sections of user's guides, reference manuals, and help files.
- Is involved with testing software to ensure proper functionality.
- Able to represent SNS at conferences and/or workshops presenting software development methods and application use.
- Will periodically train internal users (Scientific Associates, Instrument Scientists, etc.) and facility users on how to use software.
- Some domestic and/or foreign travel may be required to support collaboration or attend conferences or workshops.

- Maintains own applications and incorporates identified improvements, participates in identifying and evaluating proposed application changes to assess effort, impact, and benefit, and maintains other code as required.

Qualifications:

Successful candidate must have a Bachelor's Degree in computer science, computer engineering, physics, or other engineering or scientific discipline with at least two years experience developing analysis related software which others have used, or equivalent combination of education and experience. Has worked in a scientific computing environment and has an understanding of user needs for performing analyses with scientific data and can develop tools and GUIs to meet these user needs. Works well with other members of the development team, takes direction from project leaders, foresees and addresses communication needs, and takes initiative as necessary. Also works well independently to efficiently accomplish assigned tasks. Capable of working closely with scientists and their team members, Scientific Computing, DAS, and SNS IT personnel. Experience with Labview, Java, and python. Experience with IDL, Matlab, C++ a plus, and should have a working knowledge of XML. Must be proficient in working with both Microsoft Windows and Linux operating systems.

Prefer candidate to have a background in engineering or physics with experience working with raw scientific data and data reduction. Has experience controlling large scientific instruments. Utilizes a structured software development process and software development tools such as SVN and Trac. Considerable experience working with and processing scientific data – particularly with instrument related data. Has a working knowledge of file formats for scientific data such as NeXus, HDF, and other formats. Has experience developing Labview/SPICE and ISAW applications, and experience with other community developed applications such as DAVE, LAMP, GSAS, GumTree, etc. Has considerable experience developing GUI applications for scientific users.

Applicants cannot have received the most recent degree more than five years prior to the date of application and must complete all degree requirements before starting their appointment.

How to Apply:

Qualified applicants must apply online at https://www2.ornl.gov/ORNL_POST/. All applicants will need to register before they can begin the online application. For complete instructions, on how to apply, please see the instructions at <http://www.ornl.gov/orise/edu/ornl/ornl-pdpm/application.htm>. When applying for this position, please reference the position title and number.

This appointment is offered through the ORNL Postgraduate Research Participation Program and is administered by the Oak Ridge Institute for Science and Education (ORISE). The program is open to all qualified U.S. and non-U.S. citizens without regard to race, color, age, religion, sex, national origin, physical or mental disability, or status as a Vietnam-era veteran or disabled veteran.