Opportunity Title: ORNL Distributed Software Post-Master's Research Associate
Opportunity Reference Code: ORNL19-87-NCCS

Organization Oak Ridge National Laboratory (ORNL)

Reference Code ORNL19-87-NCCS

Description Oak Ridge National Laboratory (ORNL) is the largest U.S. Department of Energy science and energy laboratory, conducting basic and applied research to deliver transformative solutions to compelling problems in energy, environment, and security.
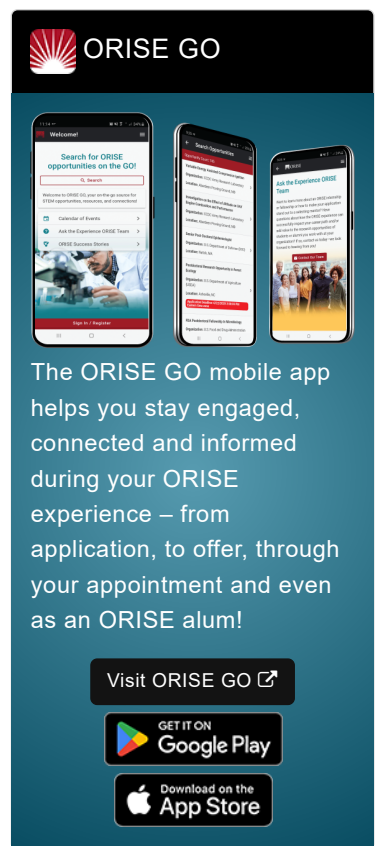
There is an emerging need for scientific data access and management across geographically distributed experimental, compute, and analytics environments. Data-centric scientific research within a cross-facility context (or a "super facility") involves complexities associated with data identification/tracking, efficient data movement, varying user identities and permissions, and varying data storage and network topologies. Without mitigation, this complexity threatens to dominate the often limited resources available to scientific researchers. DataFed is a novel distributed scientific data management system that addresses these complexity by providing a common and simple "data backplane" that is accessible from within a federation of scientific facilities. While simplifying data access, DataFed also encourages FAIR data principles and loosely-coupled collaboration through community-driven data schemas, data search and discovery, and data publication/subscription.

Within this project, candidates will be mentored regarding the rationale, design, and implementation of the DataFed distributed software system. Candidates will then participate in the design and development of new capabilities related to data schemas, discovery, and dissemination. This effort will involve software design and implementation primarily in C++ with some HTML/CSS/JavaScript and Python development.

Qualifications The candidate should have completed a master's degree in computer science, computer engineering, or electrical engineering.

Preferred Skills

- Programming experience with C++ and standard libraries is required.

- Experience with multi-threaded programming, HTML/CSS, JavaScript, and Python is desired.

- Experience working on distributed and/or multi-tier software architectures is desired.

- Knowledge of software revision control tools is required (Git is preferred).

- Experience working with big data and Globus file transfer service is desired.

- Excellent communication (oral and written), strong interpersonal skills, and working effectively as a team member are essential.

- The eagerness and ability to learn new software methodologies and

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technologies is essential.

Living in East Tennessee: While the opportunity to work at ORNL is an amazing experience in itself, it's easy to overlook everything else East Tennessee has to offer if you haven't had the opportunity to spend time here. From spending your weekends downtown at Knoxville's farmers market, the Rhythm n' Blooms Music Festival, or the Dogwood Arts Festival, to some of the best hiking, kayaking, and camping in the U.S, East Tennessee has something to offer everyone.

The ORNL Post-Master's Research Associate Program is administered by Oak Ridge Associated Universities through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education (ORISE).

Eligibility Requirements	• **Degree:** Master's Degree received within the last 60 month(s). • **Discipline(s):** ○ **Computer, Information, and Data Sciences** (16 👁) • **Age:** Must be 18 years of age

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