

**Opportunity Title:** HPC Systems Engineer Post Bachelor

**Opportunity Reference Code:** ORNI16-18-NCCS

**Organization** Oak Ridge National Laboratory (ORNL)

**Reference Code** ORNI16-18-NCCS

**Description** Purpose:

The National Center for Computational Sciences (NCCS) at the Oak Ridge National Laboratory (ORNL) is seeking a postmasters/post bachelors candidate to investigate, evaluate, and build new systems software, non-volatile memory and file systems solutions for HPC systems. NCCS is home to some of the fastest supercomputers and storage systems in the world. This position is in the Technology Integration (TechInt) Group within NCCS.

**Major Duties/Responsibilities:**

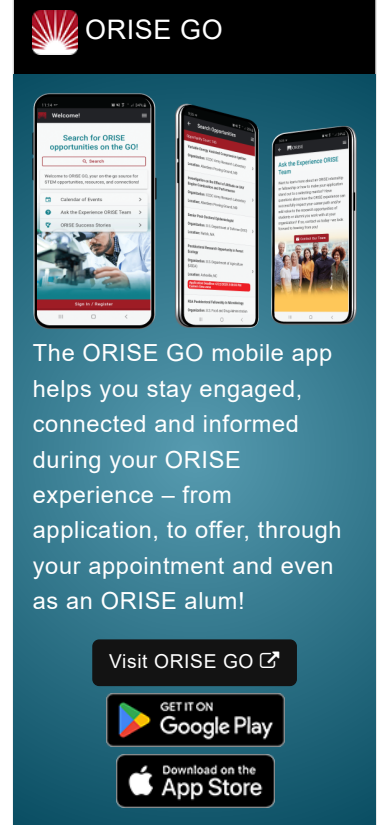
The candidate will actively participate in systems software, non-volatile memory (NVRAM) and file systems research and development projects within the TechInt group. The TechInt group is charged with delivering new solutions in a variety of areas such as NVRAM, file and storage systems, data management, architecture and networking for leadership-class HPC systems such as the 27 petaflops Titan machine, the future 150 petaflops Summit machine, and the Lustre-based parallel file system (Spider).

TechInt staff work on many projects with varying responsibility. Below are some examples of the diverse projects that our staff works on.

- Deploying and performance tuning large-scale parallel file systems
- Benchmarking and technology evaluations of new or emerging memory hierarchy, file and storage systems, and network technologies
- Building large-scale, SSD-based distributed storage system software
- Novel use of non-volatile memory for HPC systems
- Building scheduling strategies to minimize runtime variability
- Studying the reliability of large-scale machines and devising strategies to improve efficiency
- Efficient use of multicores and GPUs towards end-to-end application performance
- Scientific data management for hundreds of thousands of files from HPC simulations
- Studying storage system reliability

**Qualifications** Minimum Qualifications Required:

- A Masters or Bachelors in Computer Science
- In-depth systems programming experience
- Expertise in any one of areas such as file systems development, Linux kernel programming, SSDs, large-scale data management, distributed storage systems, memory systems, multicores
- Extensive programming experience in C
- Ability to articulate research and development results in scientific publications
- Occasional travel required



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**Preferred Qualifications:**

Other preferred qualifications for this position include, but are not limited to, the following:



- BS in Computer Science with 2-5 years of experience or MS in Computer Science with 2-3 years of experience
- In-depth systems programming experience by way of Linux kernel, device driver, memory management or file systems development
- Experience with large-scale HPC systems
- A deep understanding of file and storage systems concepts a plus (e.g., Lustre)
- Experience with NVRAM architectures
- Experience with shared memory programming, MPI
- Ability to work in uncharted territory and drive an idea from conception to implementation
- Good oral and written communication skills.

For more information about TechInt, NCCS and computing at ORNL, see:

<http://techint.nccs.gov/>, <http://computing.ornl.gov/> and <http://www.olcf.ornl.gov/>

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

This appointment is offered through the ORNL Postgraduate Research Associates Program and is administered by ORAU through 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.

- Eligibility Requirements**
- **Degree:** Bachelor's Degree received within the last 36 month(s).
  - **Discipline(s):**
    - **Computer, Information, and Data Sciences** ([16](#) )
    - **Engineering** ([1](#) )

**Affirmation** I certify that I have completed coursework towards a degree in science, technology, engineering, mathematics, or a related field.