



The HDF Group provides a unique suite of technologies and supporting services that facilitate the management of large and complex data collections. Its mission is to develop, advance and support HDF (Hierarchical Data Format) technologies and ensure long-term access to HDF data.

The HDF Group is a non-profit 501(c)3 spinoff from the University of Illinois, where it developed HDF technologies at the National Center for Supercomputing Applications from 1988-2006. The HDF Group contracts to provide customized consulting, software development, and advanced support services to organizations with challenging data-management requirements.

HDF technologies are used in virtually every industry and scientific domain to meet mission critical data management needs. Examples of the uses of HDF technologies include understanding global climate change, special effects in film production, flight testing, weather prediction, viewing medical images, analyzing DNA, designing vehicles, simulating thermonuclear explosions in space, and volcanology.

Job summary

The Software Engineer will be part of a team that develops and supports Hierarchical Data Format (HDF) technologies and will work on a project [“Hermes: Extending the HDF Library to Support Intelligent I/O Buffering for Deep Memory and Storage Hierarchy Systems”](#) performed in collaboration with IIT. The successful applicant will also participate in development and maintenance of HDF5 software. The applicant for this position should have interest in HPC, deep memory hierarchies, storage, data workflows, API design and implementation, performance optimization, problem solving, and must be comfortable working with other team members and collaborating with scientists and application developers that use HPC systems. Experience with C and MPI is required. Experience with all aspects of the software life cycle is preferred. Travel to client sites, workshops, and conferences may be required.

Essential job functions and key responsibilities

- Participate in design and development of Hermes, a new, intelligent, heterogeneous-aware, multi-tiered, dynamic, and distributed I/O buffering system.
- Design and implement new features in the HDF5 library to enable applications to seamlessly and efficiently use Hermes software.
- Design and run benchmarks to identify I/O bottlenecks in Hermes and HDF5 software.
- Fix software bugs in the HDF5 library relevant to the Hermes work.
- Write technical documentation.
- Experiment with new technologies relevant to the area of development; recommend improvements to techniques, procedures or other aspects of technical development.
- Provide input for preventing future problems as well as incorporating solutions to current concerns.
- Attend technical conferences as requested.
- Work on assigned projects under supervision of Senior Staff member.

Qualifications

Minimum requirements

- A Bachelor's degree is required, preferably in computer science or software engineering (Master's degree is preferred); experience and/or training may be considered depending on the nature and depth of the experience as it relates to current technologies.
- Excellent knowledge of C and C++ 11.
- Experience with developing production quality software.
- Good understanding of MPI concepts.
- Experience with running applications on HPC systems.

Knowledge, Skills, and Abilities required

- Strong theoretical background in data structures, computer architectures, compilers and algorithms.
- Ability to learn quickly new concepts and techniques.
- Ability to communicate clearly to all types of audiences – from the inexperienced to highly technical users.
- Strong organizational skills.
- Strong oral and written communication skills.
- Self-motivation and creativity.
- Problem solving and analytical skills necessary to carry out essential job functions and key responsibilities.

Knowledge, Skills, and Abilities preferred

- Experience with software development and maintenance.
- Experience with “agile” software development.
- Experience with file system design.
- Experience with Deep Memory and Storage Hierarchy.
- Experience with MPI and MPI I/O.
- Experience with software performance evaluation and enhancement.
- Experience working with HDF5 software.
- Experience using GNU autotools and CMake build systems.

The HDF Group offers a comprehensive collection of benefits including paid time off and health/dental/vision insurance, as well as company matching 401k to name a few. The HDF Group is an Equal Opportunity Employer and has a strong commitment to diversity. In keeping with that commitment, individuals with disabilities, minorities, females, and veterans are encouraged to apply.

To ensure full consideration, please submit a resume, cover letter, and references to HPC@hdfgroup.org.