

**Job Code:..... 101302**  
**Position#: ..... (PSA) (E)**  
**Developed by:..... MM**  
**Reviewed by:MM, GF, LK**  
**Approved by:..... LK**  
**Date: ..... 07/10/21**

**UNIVERSITY OF RHODE ISLAND**

Position Description

**TITLE:** Computational Scientist, High Performance and Research Computing

**DIVISION:** Academic Affairs (Information Technology Services)

**REPORTS TO:** Associate Director, Information Technology Services (ITS)

**GRADE:** 15

**SUPERVISES:** Staff and Student employees as needed

**BASIC FUNCTION:**

Work directly with faculty and students to develop or improve specialized programming and algorithms for high performance and research computing, including big data processing to ensure good use of computational resources as well as good results for faculty and students. Backup to High Performance Computing (HPC) Manager for server administration and HPC Core Facility maintenance.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

Database, software, and data workflow installation, maintenance and support.

Provide support for the development, use and modification of algorithms and other analysis software (data mining, machine learning, signal processing, mathematical) for the understanding and interpretation of data.

Provide assistance to scholars in determining the appropriate and cost-effective environments in which to carry out their research (cloud computing, regional or national data repositories and supercomputers, other federal and institutional research computing resources, etc.), including optimization of research computing software and algorithms.

Participate in the training of scholars and students on campus for the use of the HPC and research computing facilities to support research, education and outreach to industrial and governmental partners.

Administer, maintain, and program high performance and research computing environment that may include cloud-based systems, as well as local physical and virtual systems.

Work with the HPC Manager to proactively and reactively identify and solve operational and software problems.

Install and test new equipment and upgrades, as well as cloud-based solutions.

Install and develop tools as necessary for system administration.

Collaborate with URI Information Security to properly secure the environment and any related information services: cloud-based or on premise.

Partner with and assist researchers in grant applications, as appropriate.

Collaborate with appropriate university HPC and Research Computing Directors, Council(s) and Committee(s) to ensure understanding of research and educational needs, hardware and software needs, options and tradeoffs.

Provide user training workshops and online documentation.

Respond to user problems and requests.

Assist the CIO and appropriate university Council(s) and Committee(s) in budget development and with short and long-range planning for high performance and research computing.

Supervise student workers, as needed.

**OTHER DUTIES AND RESPONSIBILITIES:**

Perform other duties as assigned by supervisor.

**LICENSES, TOOLS AND EQUIPMENT:**

Computer clusters and servers.

**ENVIRONMENTAL CONDITIONS:**

This position is not substantially exposed to adverse environmental conditions.

**QUALIFICATIONS:**

**REQUIRED:** Bachelor's degree in a computer science or discipline requiring analytical and computational skills; Minimum three years' experience in programming in at least one of: C, FORTRAN, Python or other major scientific computing language; Demonstrated strong interpersonal and verbal communications skills; Demonstrated proficiency in written communication skills; Demonstrated data and large file systems management; Demonstrated troubleshooting skills; and, Demonstrated ability to work with diverse groups/populations.

**PREFERRED:** Master's and/or Ph.D. in computer science or STEM discipline; Demonstrated experience in a large scale (1000+ CPU cores) high performance computing environment; Minimum of two years' experience in Linux systems administration; Demonstrated experience in a university environment; Demonstrated familiarity with schedulers such as SLURM (Simple Linux Utility for Resource Management); Demonstrated familiarity with design of HPC systems; Demonstrated experience scripting in Perl, R, Python or Bash; Demonstrated advanced knowledge of programming languages such as FORTRAN, C or C++; Demonstrated advanced knowledge of parallel programming with OpenMP, MPI, and CUDA; Demonstrated familiarity with virtualization environments for running background research applications; Demonstrated familiarity with Big Data applications; Demonstrated experience with hardware installation and; Minimum one year experience in HPC user support and training.

**ALL REQUIREMENTS ARE SUBJECT TO POSSIBLE MODIFICATION TO REASONABLY ACCOMMODATE INDIVIDUALS WITH DISABILITIES.**

