Job Posting

Job ID:

24283

Location: Vancouver - Point Grey Campus

Employment Group:

Management&Professional (AAPS)

Job Category:

Information Systems & Tech

Classification Title:

Info.Sytems&Technlgy, Level C

Business Title:

Software Developer

VP/Faculty:

Faculty of Science

Department:

Physics & Astronomy

Salary Range:

$63,227.00 (minimum) - $75,901.00 (midpoint) - $91,083.00 (maximum)

Full/Part Time: Full-Time

Desired Start Date:

2016/09/15

Job End Date:

2018/09/14

Funding Type:

Grant Funded

Closing Date:

2016/09/15

Available Openings:

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Guiding principle: "Midpoint" of the hiring salary range means the individual possesses full job knowledge, qualifications and experience.

**Job Summary**

This successful applicant will join a small group in the Department of Physics and Astronomy at the University of British Columbia (UBC) and the larger CHIME FRB (Fast Radio Burst Project) collaboration, consisting of research groups at four institutions in Canada, including McGill University, the University of Toronto and the Dominion Radio Astronomy Observatory, as a programmer leading the development of a high-performance computing (HPC) system for data acquired with the CHIME radio telescope. The HPC system will include data transfer and processing, advanced web applications and backend services, storage architecture and database. The HPC system will enable the CHIME FRB team to calibrate, analyze, search, store and mine the vast amount of data generated by the CHIME telescope. The CHIME telescope is at a site that is remote from the University and the expectation is that it will run 24/7. The applicant will be expected to deliver a system for remote monitoring and control of the HPC, as well as a robust data storage system that will securely write and store all data recorded. Tasks will include consulting with users, scientists and engineers to determine requirements and specifications for data processing and storage, also the design, development, installation, testing and maintenance of the system including both software and hardware and providing end users with support to understand and operate the system. This position in planned to last for a period of two years.

**Organizational Status**

Reports to the UBC Principal Investigator of the CHIME FRB Project (Faculty, Professor) and to the Project Manager of the CHIME FRB Project (located at McGill University) and the Principal Investigator of CHIME FRB. Also interacts with, but does not report to, a programmer to be hired at UBC, as well as with scientific staff and programmers on the CHIME FRB project at UBC, McGill University, University of Toronto and the Dominion Radio Astronomical Observatory.

**Work Performed**

The CHIME telescope will generate ~ 6 Tb of data per second or one billion TB per year. The data must be mined in real time to search for transient signals from astronomical sources and also reduced, for storage, to a more manageable level of ~ one thousand TB per year. The successful applicant will lead the design and development of the data reduction pipeline for storage of analyzed data and also a subset of the raw data from the telescope. The successful applicant also: consults with users, scientists and engineers to determine specifications and requirements of the HPC system and its associated infrastructure. Designs, develops, installs and maintains systems for remote control and monitoring of the HPC system and its associated infrastructure, including software and hardware, using web and mobile-based platforms. Develops and maintains methods for compiling statistics on the performance of the HPC system and its associated infrastructure. Analyzes and evaluates technology for the HPC system including data storage. Designs and develops testing and documentation procedures. Installs, manages, maintains the HPC monitor and control system and the data storage. Develops procedures and methods for transfer of data from remote, and bandwidth limited site, to Compute Canada. Interfaces with end users to provide understanding of operating systems and procedures. Participates weekly in consortium teleconferences and meetings; develops and delivers presentations on the project.

Supervision Received

Much of the work will be performed in a team environment. Overall supervision will come from the UBC faculty member and from the Project Manager of the CHIME FRB Project. The employee will also be expected to interact constructively with his/her counterparts at McGill University and the University of Toronto and the Dominion Radio Astronomical Observatory.

Supervision Given

The applicant will not directly supervise anyone, though will need to work with UBC CHIME FRB research group members at all levels, and train them in the use of software.

Consequence of Error/Judgement

Good judgment on the part of the employee will result in greater ease of use and faster development of the CHIME FRB project, and should allow the more rapid identification of new fast radio bursts. Good design decisions will result in well-written code, with clear software implementation of algorithms, which is easy to test, enhance and maintain. Poor judgment in either of these aspects will result in delays and reduced productivity for the entire CHIME FRB collaboration.

Qualifications

Undergraduate degree in a relevant discipline. A Bachelors in Computer Science or Computer Engineering preferred with three years of relevant experience. MSc in Physics, an asset. Minimum of three years experience or the equivalent combination of education and experience. Strong knowledge of C application development and maintenance. In depth understanding on how Unix/Linux operating systems work. Expertise on C++ programming language. Demonstrated experience with PHP, Python and Shell scripts, SQL, HTML, JSON and web-based programming. Experience with real-time systems and networks (asset). Experience with concurrent programming, in particular to run large scientific calculations (asset). Experience in troubleshooting operational anomalies in real time with no supervision. Ability to work in a fast changing environment and to learn new tools and applications quickly and independently. Strong problem solving skills and attention to detail. Good team player with strong focus on delivering results to meet the scientific needs. Self-motivated and demonstrated ability to work on different projects concurrently and to manage deadlines. Excellent communication, organizational, and interpersonal skills in English (spoken and written).

UBC hires on the basis of merit and is strongly committed to equity and diversity within its community. We especially welcome applications from visible minority group members, women, Aboriginal persons, persons with disabilities, persons of minority sexual orientations and gender identities, and others with the skills and knowledge to productively engage with diverse communities. All qualified candidates are encouraged to apply; however Canadians and permanent residents will be given priority.