

Location: Greater Vancouver – Simon Fraser University

Employment Group: Scientific Programmer

Job Category:

Classification Title:

Business Title: Bioinformatics Scientific Programmer

Department: Molecular Biology and Biochemistry

Salary: Commensurate with experience

Full/Part Time: Full-Time

Desired Start Date: ASAP

Job End Date: 1 year renewable

Funding Type: Grant Funded

Job Summary

Are you interested in developing software to enable real-time disease surveillance and outbreak investigations, and playing a critical role in a national and international collaboration involving academic researchers, industrial partners and provincial and federal laboratories? The Hsiao Laboratory (<https://pathology.ubc.ca/faculty/william-hsiao/>) at BC Centre for Disease Control Public Health Laboratory (academic affiliations with University of British Columbia and Simon Fraser University) has an immediate opening for a scientific programmer position.

The successful candidates will have close interaction with other researchers and scientific programmers in the IRIDA project (<http://www.irida.ca/>) - a Canada-wide collaboration with international partners to develop bioinformatics resources for genomic epidemiology. The candidate will also work with public health professionals (our end users and stakeholders) to ensure the tools we develop can directly benefit health care research and operations.

The primary responsibility of the candidate will be to make the IRIDA platform “cloud-compatible and deployable”. The candidate will explore the use of state-of-the-art cloud computing software and container technologies. The candidate will also help to design and develop new bioinformatics analysis workflows and may be involved in managing existing data sources, performing genomic epidemiology data analysis using the IRIDA platform as the basis. Lastly the candidate may be involved in the administration of our computing cluster. The candidate as part of a research group will participate in scientific conferences, presentations, and publications. In collaboration with other members in the Hsiao laboratory, use of ontology (<http://www.genepio.org/>) to integrate metadata will be explored. Knowledge in biology is not essential but interest in applying computer science and statistics to solve health care and biological problems is a must. Technologies used in the project include SQL, python, JAVA, RDF (resource description framework), OWL, JSON, semantic web, Javascript, virtualization (docker and VM), Galaxy (<https://galaxyproject.org/>), OpenStack, REST API, SPARQL, GitHub version control, Conda, Django framework, and the Java Spring framework.

Organizational Status

The job candidate will work independently and collaboratively and report to the Principal Investigator or designate. The primary work location will be Simon Fraser University located in Greater Vancouver. Simon Fraser University is surrounded by wonderful greenspace on the Burnaby Mountain Conservation Area approximately 5 km from the edge of the city of Vancouver (and a three-hour drive north of Seattle, Washington, in the U.S.). SFU has been consistently ranked by respected national surveys, such as Maclean's, as one of Canada's top three comprehensive universities for over 20 years. The candidate will also work part-time at BCCDC Public Health Laboratory. The candidate will interact with other Provincial Health Services Authority (PHSA) workers located at BCCDC and will be expected to observe both the UBC and PHSA policies and rules of conducts when working on-site at BCCDC.

Work Performed

- Design and develop a cloud-based solution for the IRIDA platform
- Develop cloud and semantic web enabled applications as part of the core IRIDA development team
- Design and implement new genomic epidemiology analysis pipelines using the IRIDA framework
- Package the analysis pipelines using container technologies

- Design and implement novel algorithms for microbial genomics and metagenomics analysis
- Setup bioinformatics software and other software packages needed for the project
- Participate in scientific discussions and presentations

Supervision Received

Supervision from Principal Investigator or designate through regular (bi-weekly) face-to-face meetings. Computer code will be reviewed by other project members. The code is expected to be released as open source software regularly. Semi-annual performance review to assess overall progress in meeting the project objectives will be conducted by the PI.

Supervision Given

May facilitate the PI in supervising undergraduate, research, programming and bioinformatics trainees.

Consequence of Error/Judgement

Due to the sensitive nature of dealing with health records and patient data, extreme caution is needed to ensure the security of sensitive and/or private data. Training will be provided to deal with patient records and breach of trust may result in job termination or litigation. Exercising professional judgment in overall data capturing and analysis is required. Errors in data analysis or data capture could have negative consequences in public health outbreak surveillance and investigations.

Qualifications:

- BSc or MSc in bioinformatics, computational biology, computer science, computer engineering, or relevant experience or certification.
- Documented experience with software development
- Proficiency in at least one of: C++, Java (preferred), Python (preferred), JavaScript and ability to write scripts to automate tasks
- Experience in working with complex samples a benefit, as is experience working with a multidisciplinary team.

Other Considerations:

- Experience in designing and building robust computational pipelines in a Unix-like environment
- Familiarity with molecular biology or genomics, and experience using the Illumina and Oxford Nanopore sequence platform and the associated computational analysis tools for assembly and annotation.
- Demonstrated open-source software development activities.
- Familiarity with cloud computing systems' (Amazon Web Services, Google Cloud Platform) and/or containerization technologies (Docker)
- Familiarity with semantic web technologies and ontology development preferred.
- Must have excellent communication skills and be fully fluent in spoken and written English.
- Must have strong self-motivation and be able to work in a multi-tasking and multi-disciplinary environment.

Contact:

Please send your cover letter, CV and names of two referees to William Hsiao (pubhealthbioinfo@gmail.com) with the subject line: **IRIDA_Dev1**

We hire on the basis of merit and is committed to employment equity. All qualified persons are encouraged to apply. We especially welcome applications from members of visible minority groups, women, Aboriginal persons, persons with disabilities, persons of minority sexual orientations and gender identities, and others with the skills and knowledge to engage productively with diverse communities. Canadians and permanent residents of Canada will be given priority.

Only qualified candidates will be contacted for interviews.