

Software Engineer

CHU Sainte-Justine Research Centre

Equity, diversity and inclusion are at the heart of collaboration, open innovation and interdisciplinary creativity that characterizes the Smith laboratory. We believe that a diverse and inclusive environment is essential to the development of innovative analytical and biomedical solutions that meet the needs of society. The Smith Lab subscribes to an equal opportunity program and strongly encourages women, members of visible and ethnic minorities, people from indigenous communities and those with disabilities to apply.

Work environment

The Sainte-Justine University Hospital Center (CHU) is the largest mother-child center in Canada and one of the four largest pediatric centers in America. Its 5,000 employees and 500 doctors, dentists and pharmacists work in a highly innovative and respectful environment, placing patients and their family at the heart of medical practice. Through its association with the University of Montreal, CHU Sainte-Justine is the largest pediatric training center in Quebec and a leader in Canada, welcoming over 4,000 students and interns each year.

The [CHU Sainte-Justine Research Center](#) hosts more than 1200 scientists, including over 210 principle investigators, 110 clinicians and more than 450 graduate and postdoctoral students. Driven by a vision of research excellence, the center strives to ensure that Quebec remains as world leader in healthcare and biomedical research benefiting mothers, children, and adolescents. The Centre's mission is focused on advancing scientific knowledge while delivering faster and less invasive strategies for the prevention, diagnosis, prognosis, treatment, and long-term follow-up of patients—from the conception until adulthood.

About the team

Dr Martin Smith's laboratory (www.therealsmithlab.com) harmonizes genomic technologies and artificial intelligence to realize the enormous potential of nanopore sequencing in precision medicine. Our research group specializes in the development and implementation of precise, practical and economical applications for nanopore sequencing in clinical, academic and commercial environments. In particular, the laboratory is currently focusing on the implementation of a new computational solution for rapid, precise and cost-effective diagnosis of pediatric leukemias based on real-time gene expression profiling (transcriptomics).

The Smith lab is part of the Cancer and Immune Disorders Research Axis of the CHU Sainte-Justine Research Centre and is affiliated with the bioinformatics program at the University of Montreal.

Position description

We are recruiting a software engineer (full stack developer) to join our multidisciplinary team. The incumbent will be responsible for the implementation of computational systems surrounding a novel diagnostic workflow that integrates genomic data produced in real-time. Under the supervision of the research director and in collaboration with local medical, laboratory and IT staff, the candidate will be responsible for developing "full stack" IT and software solutions for the processing, management and delivery of clinical reports in real-time.

Specific duties include:

- Implement and optimize a robust and efficient data processing workflow in a clinical research environment;

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✉ 3175, chemin de la Côte-Sainte-Catherine, Montréal (Québec) H3T 1C5

recherche.chusj.org



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- Build software solutions to support the production and dissemination of confidential diagnostic results;
- Manage computing hardware, operational logistics and data warehousing;
- Establish standard operating procedures pertaining to data analysis and storage;
- Implement a laboratory information management system (LIMS);
- Ensure the confidentiality of clinical and research data;
- Develop a basic user interface;
- Maintain the archiving of software and its documentation according to best practices;
- Participate in data analysis, research projects and other laboratory activities;
- Participate in the supervision and training of technicians, students and research interns;
- Communicate and interact regularly with the research laboratory, the information technology department of the research center and CHU Sainte-Justine, the IT infrastructure department, the molecular diagnostic laboratory, clinicians and any other stakeholders that may be involved in the project;
- Contribute to the drafting of figures, reports and other documents;
- Perform any other related task conferred by the research director and associated researchers.

Qualifications:

- Undergraduate degree in software engineering, computer science or in a relevant discipline
- Ability to communicate in French (a basic understanding of French is recommended). Excellent knowledge of English (spoken and written).

Skills and aptitudes:

- Familiarity with workflow engines (e.g. NextFlow, SnakeMake, etc);
- Expertise with Unix/Linux and Git;
- Familiarity with issue and project tracking software (e.g. JIRA);
- Excellent communication skills;
- Proactive and able to work with minimal supervision;
- Excellent time and priority management;
- Interest in scientific research, genomics, artificial intelligence and/or
- Sense of organization and responsibility;
- Concern for confidentiality.

Employment conditions

CHU Sainte-Justine Research Center Employees Union ([SECR](#))

Reporting to: Dr Martin Smith

Type: Regular, full-time (35h/week)

Start date: Immediately

Duration of mandate: 2 years

Important notice

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Foreign candidates must have a valid work permit for the CHU Sainte-Justine. Any work permit with the following condition will not be eligible: "Not authorized to exercise a job related to childcare, primary or secondary education, healthcare". In addition, the candidate must be adequately protected against COVID-19 (mandatory vaccination).

Please apply via the online form (French) available at <http://www.chusj.org/fr/Emplois-benevolat/Emplois-disponibles> or by directly sending a CV and cover letter to martin.smith.hsj@sss.gouv.qc.ca



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