



Electronic and Firmware Engineer

McGill University, Department of Physics, Faculty of Science

The McGill particle physics instrumentation group builds detectors that are used to study the nature of matter in our Universe using the most powerful particle accelerator in the world, the Large Hadron Collider (LHC) at the CERN laboratory in Switzerland. The technologies employed include gas/ liquid ionization detectors, cutting-edge FPGA electronics and digital signal processing.

Job Description:

We are seeking a passionate electronics engineer to develop and implement firmware for a new electronics readout system for the ATLAS experiment (<https://atlas.cern/>) Liquid Argon calorimeter detector. In addition, the successful individual will be expected to take on a leadership role in the management of this large international project scheduled for completion by 2025.

The successful candidate will

- Be an expert with state-of-the-art digital signal processing algorithms/technology and their implementation in firmware;
- Have a broad set of skills and/or experience in electronics beyond the ability to develop firmware;
- Have first-hand experience in the development of hardware test-benches and protocols for the testing of complex large multi-layer digital printed circuit boards;
- Have experience in the troubleshooting of operational anomalies in real time with no supervision;
- Have strong problem solving skills and attention to detail;
- Be self-motivated and have the demonstrated ability to work on different projects concurrently and to successfully manage deadlines;
- Have the ability to work in a fast-changing environment and to learn new tools and applications quickly and independently;
- Be willing and capable to learn new techniques and conquer new applications as part of a multi-disciplinary and international team;
- Work as an independent developer;

Other highly desirable skills/experience include:

- Familiarity with high-speed digital communication;
- Familiarity with Advance Telecommunications Computing Architecture (ATCA) specifications;
- Experience with ALTERA line of FPGAs and ISE/EDK software suites (i.e. Quartus);
- Implementation of DSP algorithms in VHDL;
- Experience with Questa Advanced Simulator from Mentor Graphics (or similar equivalent simulation tool).
- Knowledge of a software programming language such as C/C++ and Python.
- Familiarity with Linux operating system.

The educational requirement for this position is a Master's in Engineering or equivalent, and P.Eng license or equivalent.

The successful candidate will be based full-time at McGill University, Montréal, Canada. This is initially a limited term position with possibility of renewal subject to mutual agreement, suitability of project, and availability of funds. The initial appointment will be a 2 years contract.

Interested applicants should prepare an electronic application that contains the following documents merged into one PDF file (with file name *YourLastName-YourFirstName.pdf*):

- (1) a cover letter that includes the motivation for applying to this position,
- (2) curriculum vitae that includes a description of experience, projects and areas of expertise,
- (3) list of names of individual who can act as references.

The application should be submitted by e-mail to Ms. Louise Decelles (chairsec.physics@McGill.ca).

Inquiries about this position should be directed to Prof. Brigitte Vachon (Brigitte.Vachon@McGill.ca).

Review of applications will begin on 21 May 2018, but applications will be accepted until the position is filled. Please note that only candidates selected for an interview will be contacted.

All qualified applicants are encouraged to apply; however, in accordance with Canadian immigration requirements, Canadians and permanent residents will be given priority.