Research Fellow Programmer/Software Engineer – Particle Physics Group - 57693

UNIVERSITY OF BIRMINGHAM

Job Summary

To create and contribute to the creation of knowledge by developing software to support the particle physics group's commitments within the ATLAS and LHCb experiments at the CERN Large Hadron Collider.

Main Duties

- To contribute to the development of a major research project for the particle physics group through the development of new techniques and solutions, implemented in highly specialised software.
- To take the technical lead on the software development; this will involve coordinating with other colleagues both within the group and internationally.
- Regular communication will be required to understand the constantly developing priorities and requirements as the project evolves, and to ensure that the necessary solutions are found.
- To monitor the effectiveness of the procedures in use for the project development and recommend improvements accordingly.
- To apply knowledge in a way which develops new intellectual understanding.
- Work within specified research grants and projects.

- Specific duties will include the following.
    - Expert support for the ATLAS experiment's first level calorimeter trigger (L1Calo) offline and simulation software, including primary responsibility for the development and maintenance of the 'ByteStream' raw-to-object data converter and monitoring packages and support for other ATLAS trigger developers.
    - Primary responsibility for the L1Calo software validation package, as well as continual development of monitoring and debugging tools and of the off-line database software for specifying detector conditions and calibration constants in both data and Monte-Carlo simulations.
    - Maintenance and development of scripts to automatically run L1Calo calibration tasks whenever dedicated calibration runs are taken.
    - Provision of expert Grid support to the LHCb experiment, including distributed data management and ongoing production shifts.
    - Development and maintenance of release and regression testing framework for LHCb simulation software.
    - Support for other LHCb developers as part of the simulation testing framework
    - Support for Particle Physics Group web-site development.

Person Specification

<u>Essential criteria</u>

- Extensive programming experience in C++, Python and Linux.
- First degree in Physics or a related subject.
- Proven ability to work effectively both as part of a team and independently.
- Good time and priority management.
- Willingness to spend long periods of time at CERN as required

<u>Desirable criteria</u>

- Higher degree in Particle physics or a Related subject
- Experience with software environments, techniques and methods in use by ATLAS and/or LHCb
- Experience of Geant4 simulation.
- Experience of web-site design and development.
- Ability to work to deadlines/schedule within a project.
- Good presentation/communication/interpersonal skills.