Physics Parallel Software Developer, 2 Years Position at LAL (Paris area)

The Linear Accelerator Laboratory (LAL) is a high-energy physics laboratory of the IN2P3 French institute, involved in large particle physics experiments (CERN), astro-particles and cosmology. To address these scientific challenges, the laboratory is also strongly implicated in computing R&D.

Its Computing Division (32 people) is involved in the European H2020 project AIDA2020 (Advanced European Infrastructures for Detectors at Accelerators), a R&D project about future high energy physics detectors, that includes an activity on detector-related software. LAL is particularly involved in framework parallelization and in designing and implementing new algorithms for tracking.

The open position is a two year temporary position, starting in January 2016. You will work in the group in charge of software development (16 people) at LAL, you will be part of one LHC collaboration (ATLAS or LHCb, to be discussed) and you will collaborate with physicists and software engineers in both collaborations. Activities

* Propose and implement solutions to allow an efficient scheduling of algorithms in experiment frameworks like Gaudi, taking into accounts the I/O cost of algorithms to prevent bottlenecks.
* Develop new parallelized tracking algorithms on accelerators like GPU or Xeon Phi.

Requirements

* Hold a PhD, preferably in Computer Science or in High Energy Physics, or an engineer degree
* Good expertise in advanced programming with C/C++ and Python, the main languages used in high energy physics
* Good knowledge, and possibly some experience, of parallelization technics, in particular threads
* Knowledge and experience with many-core processor architectures (GPU and/or Xeon Phi) would be a plus
* Good practice of software engineering tools like versioning systems, debuggers, code analysis and profiling
* Comfortable in teamwork
* English : fluent (both for reading/writing documentations and for participating to meetings)
Salary

Depending on your experience, your net salary will be between 2000 Euros and 2400 Euros per month. Contact and application

For more information or to apply to the position, send an email to Michel Jouvin, aida2020-wp3@lal.in2p3.fr. When applying, please join a detailed CV, a cover letter, and if possible up to 3 reference letters.