



MAISON DE LA SIMULATION

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Software Engineer, design and development of HPC IO libraries

In the framework of EoCoE, a recently accepted European Centre of Excellence for HPC, la Maison de la Simulation proposes a **three years contract** for a computer science engineer.

The general purpose of the EoCoE project (Energy oriented Centre of Excellence) is to provide support to HPC (High Performance Computing) applications that belong to scientific communities having potential impact on technologies linked to energy. The consortium gathers 23 partners from 8 European countries and offers a wide spectrum of services and skills like, numerical analysis, parallel algorithms implementation and HPC libraries improvement and integration in applications.

The recruit will work on activities linked to Input/Output (IO) for HPC applications on two aspects:

- developments in XIOS, a parallel IO library used in the climate scientific community, to adapt it to other communities' needs ;
- design and development of an interface to unify data exports performed from HPC applications. This tool will enable to plug existing libraries that perform disk access, in-situ visualisation, fault tolerance, etc. The objective is to decouple software technology choices from the heart of HPC applications.

She/he will be part of teams of HPC experts from Maison de la Simulation and will benefit from a rich environment and will contribute substantially to the design of the developed software.

Required skills:

- PhD or master's degree in computer science ;
- operational knowledge of techniques and programming language (C, C++, Fortran90) for application development ;
- Software design and engineering (UML, ...)
- skills to work in a team.

In addition, knowledge or experience in one of the following domain will be appreciated:

- parallel and distributed computing ;
- knowledge of scripting languages (Python, bash, ...).

Localisation :

La Maison de la Simulation is situated on the Saclay research campus in the Digitéo building of the CEA/Saclay institute.

Please send your application (CV, motivation letter et references) as well as your potential requests for additional information to info@maisondelasimulation.fr



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La Maison de la Simulation :

La Maison de la Simulation (<http://www.maisondelasimulation.fr>) is a joint project of five partners (CEA, CNRS, INRIA, University of Orsay and University of Versailles-StQuentin) with the status of a "Unité de Service et de Recherche" (Service and Research Unit), whose aim is to support and stimulate the scientific community in order to get the best out of supercomputers, in particular those managed by the French GENCI and the European PRACE programs. La Maison de la Simulation promotes the emergence in France of a HPC community, and develops the strong synergies between researchers and engineers from various fields necessary for the important scientific breakthroughs expected from HPC to materialize. These initiatives are targeted to the current HPC users, as well as to the research of new application fields for the HPC.

To fulfil its missions, la Maison de la Simulation is organized around three axes:

- **A multidisciplinary research centre** focused on numerical simulation. La Maison de la Simulation hosts multidisciplinary research teams working on projects strongly linked to HPC, from mathematics, numerical methods, algorithms, computer science, software engineering to the physics of the studied phenomenon. These teams lead their own research activities and foster the emergence and the usage of common numerical tools.
- **A service and expertise unit** opened to scientific communities. La Maison de la Simulation hosts also a team of HPC specialists able to provide expertise and support to high level application developments to accepted projects. This expertise concerns parallel algorithms, development and optimisation of codes as well as data post-treatment and visualisation.
- **A HPC training centre and scientific animation hub.** La Maison de la Simulation is a HPC training centre and a scientific animation hub on the Saclay research campus that spans, thanks to its regional partners, from initial studies in partnership with universities to in-service training programs.

In order to fulfil its missions, La Maison de la Simulation is made of multidisciplinary teams gathering researchers, assistant professors, engineers, PhD students and post-docs working together on long term activities.