



MAISON DE LA SIMULATION

Maison de la Simulation

High Performance Computing Specialist

In the framework of EoCoE, a recently accepted European Centre of Excellence for HPC, la Maison de la Simulation proposes **two contracts of three years each** for HPC specialists.

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.

More specifically, the two recruits will be in contact with scientific communities and will bring direct support to HPC applications. In a first phase, the work will consist in evaluating the performance of the different applications and, when it is possible, in proposing guidelines to improve them. In a second phase, the objective will be to modify some of the applications in order to improve their performance and/or their software quality.

They will be part of teams of HPC experts from Maison de la Simulation and will work in collaboration with international scientific communities. They will have the opportunity to work on several production level HPC codes, to use the most advanced performance evaluation tools running on the most powerful European supercomputers.

Required skills :

- PhD or master's degree in a scientific domain strongly connected to HPC ;
- operational knowledge of techniques and programming language (Fortran90, C or C++) for application development ;
- good experience in application parallelization (MPI, OpenMP) and scientific codes optimization on various architectures (SMP, MPP) running in Unix environment ;
- skills to work in a team.

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

- usage of performance analysis and debugging tools on parallel applications ;
- knowledge of computer architectures ;
- 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.