The Combustion Institute
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Postdoctoral Associate in Computational Combustion

The Scientific Computing Group at the Oak Ridge National Laboratory's (ORNL) Leadership Computing Facility (OLCF) seeks a highly motivated postdoctoral research associate to develop leading-edge computational combustion software for the next generation high performance computing (HPC) architectures. The OLCF has the charge to develop and apply transformational science capabilities in support of dramatic advances in our understanding of the physical world and using that knowledge to address the most pressing national and international concerns.

The candidate will be expected to contribute to the development of algorithms and software for the simulation of turbulent reacting flows with multiphysics models such as sprays, soot and radiation. The candidate will also have the opportunity to exercise the software using the latest HPC architectures such as the OLCF systems and publish the results. Specific responsibilities include the use of generic programming techniques for developing performance portable software modules suitable for modern architectures such as graphics processing unit (GPU) and many-core processors. The candidate will also be expected to collaborate with an interdisciplinary team composed of combustion and computer scientists.

Essential Requirements

Basic Qualifications:

This position requires a Ph.D. in a relevant scientific discipline with a Mechanical, Aerospace or Chemical Engineering degree. The position also requires extensive experience in the development and application of software tools for direct numerical simulation (DNS) or Large Eddy Simulation (LES) of reacting flows. The Ph.D. degree should have been earned no more than five years prior to the date of the application and all requirements must be complete before starting the appointment. Excellent interpersonal skills, oral and written communication skills, organization skills and strong personal motivation are necessary.

Preferred Qualifications:
- Experience with C++, generic programming and scripting languages
- Experience with parallel programming for scientific computing
- Experience conducting simulations using large scale HPC systems
- Parallel algorithm and software development, including message-passing (MPI) and programming models for multicore and GPU architectures (OpenMP, CUDA)
- Familiarity with adaptive mesh refinement (AMR) frameworks such as BoxLib or SAMRAI.

ORNL is an equal opportunity employer. All qualified applicants, including individuals with disabilities and protected veterans are encouraged to apply. UT-Battelle is an E-Verify employer.

How to Apply

Apply at www.ornl.gov/careers

This position will remain open for a minimum of 5 days after which it will close when a qualified candidate is identified and/or hired.

We accept Word(.doc, .docx), Excel(.xls, .xlsx), PowerPoint(.ppt, .pptx), Adobe(.pdf), Rich Text Format(.rtf), HTML(.htm, .hmtl) and text files(.txt) up to 2MB in size. Resumes from third party vendors will not be accepted; these resumes will be deleted and the candidates submitted will not be considered for employment.

If you have trouble applying for a position, please email ORNLRecruiting@ornl.gov.

Notice: If the position requires a Security Clearance, reviews and tests for the absence of any illegal drug as defined in 10 CFR 707.4 will be conducted by the employer and a background investigation by the Federal government may be required to obtain an access authorization prior to employment and subsequent reinvestigations may be required.

If the position is covered by the Counterintelligence Evaluation Program regulations at 10 CFR 709, a counterintelligence evaluation may include a counterintelligence-scope polygraph examination.
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