Research positions available in joint HLRN project

October 2016

The HLRN

The North-German Supercomputing Alliance (HLRN) operates a massively parallel supercomputing Tier-2 system at the two sites Zuse Institute Berlin (ZIB) and Leibniz Universität IT Services (LUIS), University Hannover. The HLRN is constituted by the seven northern German states. Its consultants represent many of the Tier-3 HPC centers in these states, including the centers at Göttingen, Hamburg, and Rostock, which will contribute to this project, so that operational experiences from both Tier-2 and Tier-3 will influence the project results.

The project: ProfiT HPC

More and more scientists start using HPC resources, without having a good understanding of the working of such systems. At the same time, the complexity of HPC resources increases. This leads to a knowledge gap, which especially pertains to the performance parameters of HPC jobs and the importance of performance engineering. Therefore several institutions (see below) participating in the HLRN initiated a project which, funded by the DFG, works toward closing this gap.

In “ProfiT HPC – Profiling Toolkit for HPC in Tiers-2 and 3” our approach is to raise awareness for performance issues by providing systematic, unified, and easily understandable information on performance parameters to users across all scientific communities. In order to accomplish this, the project will implement a framework to automatically gather performance information for each HPC job, present in an easily understandable form and link to pertinent documentation.

Positions

A position in the project offers the opportunity to contribute to the field of HPC, one of the most dynamic and innovative fields of computer science. You will be embedded in the organization operating one of Germany’s biggest HPC resources. Positions
in the project are available at each of the participating sites, and each institution will publish its own job posting. The project is funded for three years, starting January 2017.

**GWDG (Göttingen):** The "Gesellschaft für wissenschaftliche Datenverarbeitung Göttingen mbH" (GWDG) is the IT center of the University of Göttingen and an IT competence center of the Max Planck Gesellschaft. It provides HPC services to both constitutions. The full position offered here is mainly concerned with the implementation of the information presentation.

Contact: Christian Boehme (cboehme@gwdg.de)

**Zuse Institute Berlin (ZIB):** The Zuse Institute Berlin provides supercomputer resources together with HPC consulting since over 30 years. Today, ZIB is operating the HLRN-III system jointly with LUIS, and offers its expertise over the broad range of aspects in preparing and conducting large-scale compute and data-intensive projects.

Contact: Thomas Steinke (steinke@zib.de)

**Universität Hamburg, Regionales Rechenzentrum (RRZ):** The HPC team at Regionales Rechenzentrum operates a 396 node Linux cluster and more than 2 PByte of disk storage. HPC activities (locally and for HLRN) include user support, user education (in parallel programming and single-processor optimization) and benchmarking. Job advertisement: https://www.uni-hamburg.de/uhh/stellenangebote/wissenschaftliches-personal/15-11-16-398rrz.pdf

Contact: Hinnerk Stüben (hinnerk.stueben@uni-hamburg.de)

**University of Rostock, Chair of Modeling and Simulation (LeMoS):**

The research at the Chair of Modeling and Simulation covers a wide range of applications in the area of mechanical engineering and naval architecture. Most of these applications require the solving of coupled transport equations using HPC technologies. The chair uses two powerful compute clusters which are currently operated by team members and staff from the IT- und Medienzentrum (ITMZ) of the University of Rostock. Additionally, the research group is a long-term member of the North German Supercomputing Alliance (HLRN) and nowadays responsible for CFD consulting with special focus on the CFD framework OpenFOAM.

Contact: Johann Turnow (johann.turnow@uni-rostock.de)

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**Applicants profile**

Applicants need to have a master degree on a subject with a strong computing component (computer science, nature science with simulation aspects, etc). Good knowledge of the Linux operating system and at least one programming language are also required. Depending on the position, knowledge of profiling tools, database design, user interface design and especially familiarity with HPC systems provide additional benefit.