

Looking for new challenges in supercomputing? Join our interdisciplinary team at ZIB!



25.06.2020

The Supercomputing Department of the Zuse Institute Berlin (ZIB) needs to fill the temporary position for one year - with the option of extension subject to the approval of further funding - as

HPC Scientist “Agent-Based Modeling” (f/m/d) **Reference WA 47/20** **100% - TV-L, E13**

for the next possible date.

The Zuse Institute Berlin (ZIB) is an interdisciplinary research institute for applied mathematics and data-intensive high-performance computing. Its research focuses on modeling, simulation and optimization with scientific cooperation partners from academia and industry. As part of its scientific service, ZIB operates supercomputers at the top performance level. The HLRN-IV system of the North German Supercomputing Alliance (www.hlrn.de) is a distributed supercomputer system operated at ZIB/Berlin and University of Göttingen.

The HLRN-IV system enables scientists to perform complex computational and data-intensive tasks. With more than 200.000 compute cores, 800 TB distributed memory and 16 PB online persistent storage the HLRN-IV is one of the top supercomputers in Germany. The HLRN-IV complex “Lise” at ZIB provides today a peak performance of 8 PFLOP/s and is ranked at position 40 in the worldwide TOP500 list of supercomputers.

The applicant will join an interdisciplinary project team of mathematicians, computer scientists, theoretical biologists and HPC experts at ZIB, TUB and HUB. The project aims to build efficient processing pipelines using agent-based modeling methods among others to predict the complex dynamics of socio-economic phenomena at different geographical levels. One focus is the SARS-CoV-2 infection dynamics modeled by mobile interacting agents (persons) and the evaluation of the impact of different external conditions due to changes in regulations. The applicant will contribute to new methodological developments and improves existing implementations to achieve optimal performance and predictive power using HPC resources like the HLRN-IV system “Lise” at ZIB.

We are seeking for a candidate who is highly motivated in working with innovative technologies and their efficient use on current and next-generation HPC architectures and consulting the HPC user community.

Your Responsibilities:

- contribute to new methodological development of a processing pipeline based on agent-based modeling to enable the optimal use of HPC system architectures,
- remove bottlenecks in existing implementations by optimizing critical sections of the pipeline,

- enable the efficient integration of data management into the computational workflow,
- contribute to quality control of the managed data,
- support the setup and runtime control of the overall processing pipeline to maximize throughput and performance on HPC clusters,
- moderate the communication between the project team and the HPC consultants and system administrators at ZIB.

Candidates need to provide:

- a university degree in computer science or a related field,
- a good technical background on parallel computer architectures (manycore processors, high-performance interconnects, memory hierarchies, and storage systems)
- expertise in parallel programming models (SIMD, multi-threading, MPI), desirable also for heterogeneous platforms with GPUs and/or FPGAs,
- good programming skills in C/C++,
- desirable is a background in theory and implementation of agent-based modeling methods and experiences in runtime profiling and the use of performance analysis tools,
- a strong focus on self-responsibility, pro-activity, the ability to work in a team and creativity.

We offer

a dynamic and state-of-the-art working environment and a family-friendly working atmosphere,

plus

- a future-proof workplace with a diverse area of responsibility,
- training and courses to develop and improve personal skills,
- additional pension scheme (VBL),
- 30 days annual leave, flexible working hours (flexi time),
- payment in accordance with TV-L (Collective Agreement for the Public Service of the federal states), taking into account the relevant professional experience and annual special payment,
- discounted use of the cafeterias and the sports activities offered by the Freie Universität Berlin (FUB).

The candidature of women is encouraged. Since women are underrepresented in information technology, ZIB is trying to increase the proportion of women in this research area.

Persons with disabilities will be given preference when equally qualified.

Please send your complete application with a tabular CV and the usual documents electronically by **27.07.2020** (date of receipt), quoting reference **WA 47/20** to: jobs@zib.de. Please send your documents as PDF only.

Our private policy statement regarding application data is available at www.zib.de/impressum.

For more information about the area of responsibility, please consult the HLRN webpage www.hlrn.de or contact Dr. Thomas Steinke (steinke@zib.de).

For further job offers please visit our website at www.zib.de.