Job Reference

412_22_ES_CES_RE1

Position

Research Engineer - Optimization of I/O performance and data compression (RE1)

Data de tancament

Dimecres, 16 Novembre, 2022

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About BSC

The Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC-CNS) is the leading supercomputing center in Spain. It houses MareNostrum, one of the most powerful supercomputers in Europe, and is a hosting member of the PRACE European distributed supercomputing infrastructure. The mission of BSC is to research, develop and manage information technologies in order to facilitate scientific progress. BSC combines HPC service provision and R&D into both computer and computational science (life, earth and engineering sciences) under one roof, and currently has over 770 staff from 55 countries.

Look at the BSC experience:

BSC-CNS YouTube Channel

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Context And Mission
Within the Barcelona Supercomputing Center the Earth Sciences Department, led by Prof Francisco Doblas-Reyes, aims to deliver novel, advanced, and well-evaluated high-resolution global climate models capable of simulating and predicting climate estimations with unprecedented reliability. The successful candidate will be part of the Performance Team, a sub-group in the section of Computational Earth Sciences.

This team, composed of 10 members but steadily growing, performs R&D tasks in the field of Earth System Modelling (ESM) performance: its goal is to identify model bottlenecks and research how to remove them. The team has at its disposal cutting-edge performance tools, able to evaluate and represent different performance metrics. Having identified those areas in the code, the experts in the team proceed to modify them without impacting the final results. Possible solutions can go from using more efficient numerical algorithms to modifying the way the model exploits the HPC infrastructure.

**Key Duties**

- Analyze and tune the I/O server computational performance of different Earth Science applications
- Explore and apply lossy compression techniques to the output data
- Collaborate in the development of the department's "common" applications
- Interact with the Climate Variability and Change group and external collaborators/software vendors

**Requirements**

- **Education**
  - Having a Bachelor in Computer Science, Engineering, Mathematics, Physics or related discipline
  - Having a Master’s degree will be valued

- **Essential Knowledge and Professional Experience**
  - Excellent computing skills in high-level computer languages (especially FORTRAN or C/C++) and experience with UNIX/LINUX environments and scripting languages (bash, Python, etc)
  - Programming skills to manage big and collaborative projects and experience with git
  - Knowledge of Input/Output approaches and tools as IO servers
  - Experience or knowledge in running and optimizing scientific codes on large HPC systems.
  - Experience or knowledge in HPC architecture and parallel programming (MPI and/or OpenMP) will be valued
  - Experience or knowledge in Data compression will be valued.
  - Experience or knowledge in the usage and support of Unix- or Linux-based HPC systems

- **Additional Knowledge and Professional Experience**
  - Fluency in English

- **Competences**
  - High Performance problem-solving skills and proactive attitude to address new challenges
  - Advanced learning capacity and motivation to maintain a learning progression during the project
  - Good written and verbal skills
  - Coordination with members from other institutions
Conditions

- The position will be located at BSC within the Earth Sciences Department
- We offer a full-time contract, a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible working hours, extensive training plan, tickets restaurant, private health insurance, fully support to the relocation procedures
- Duration: Open-ended contract due to technical and scientific activities linked to the project and budget duration
- Salary: we offer a competitive salary commensurate with the qualifications and experience of the candidate and according to the cost of living in Barcelona
- Starting date: asap

Applications procedure and process

All applications must be made through BSC website and contain:

- A full CV in English including contact details
- A Cover Letter with a statement of interest in English, including two contacts for further references - Applications without this document will not be considered

In accordance with the OTM-R principles, a gender-balanced recruitment panel is formed for every vacancy at the beginning of the process. After reviewing the content of the applications, the panel will start the interviews, with at least one technical and one administrative interview. A profile questionnaire as well as a technical exercise may be required during the process.

The panel will make a final decision and all candidates who had contacts with them will receive a feedback with details on the acceptance or rejection of their profile.

At BSC we are seeking continuous improvement in our recruitment processes, for any suggestions or feedback/complaints about our Recruitment Processes, please contact recruitment [at] bsc [dot] es.

For more information follow this link

Deadline

The vacancy will remain open until suitable candidate has been hired. Applications will be regularly reviewed and potential candidates will be contacted.

OTM-R principles for selection processes

BSC-CNS is committed to the principles of the Code of Conduct for the Recruitment of Researchers of the European Commission and the Open, Transparent and Merit-based Recruitment principles (OTM-R). This is applied for any potential candidate in all our processes, for example by creating gender-balanced recruitment panels and recognizing career breaks etc.
BSC-CNS is an equal opportunity employer committed to diversity and inclusion. We are pleased to consider all qualified applicants for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, disability or any other basis protected by applicable state or local law.
For more information follow this link
Barcelona Supercomputing Center - Centro Nacional de Supercomputación