149_25_ES_CES_RE1

Job Reference

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Position

HPC Engineer for Earth Sciences applications (RE1)

Data de tancament

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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, was a founding and hosting member of the former European HPC infrastructure PRACE (Partnership for Advanced Computing in Europe), and is now hosting entity for EuroHPC JU, the Joint Undertaking that leads large-scale investments and HPC provision in Europe. 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 1000 staff from 60 countries.

Look at the BSC experience:
BSC-CNS YouTube Channel
Let's stay connected with BSC Folks!

We are particularly interested for this role in the strengths and lived experiences of women and underrepresented groups to help us avoid perpetuating biases and oversights in science and IT research. In instances of equal merit, the incorporation of the under-represented sex will be favoured.

We promote Equity, Diversity and Inclusion, fostering an environment where each and every one of us is appreciated for who we are, regardless of our differences.

If you consider that you do not meet all the requirements, we encourage you to continue applying for the job offer. We value diversity of experiences and skills, and you could bring unique perspectives to our team.

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 18 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

- The successful candidate will work on profiling and implementing computational optimizations for Earth Sciences applications running at a very high-resolution configuration using top European HPC platforms.
- The candidate will also be involved in developing the department's "common" tools: these include several applications whose interest is shared among different sub-groups in the Earth Sciences department and whose number of users can range from small groups to several institutions.
- This position involves close interaction with the other BSC 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 and/or SVN
  - Knowledge of HPC performance and profiling tools as Intel Vtune
  - Experience or knowledge in running and optimizing scientific codes on large HPC systems.
  - Experience or knowledge in HPC architecture and parallel programming (multi-threaded applications) will be valued
  - Experience or knowledge in the usage and support of Unix- or Linux-based HPC systems

- Competences
  - Excellent problem-solving skills
  - Proactive attitude
  - Learning capacity and motivation to maintain a learning progression
  - Good written and verbal skills and capacity to support Earth and Computational scientists
  - Fluency in English

Conditions

- The position will be located at BSC within the Earth Sciences Department
- We offer a full-time contract (37.5h/week), a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible working hours, extensive training plan, restaurant tickets, private health insurance, support to the relocation procedures
- Duration: Open-ended contract due to technical and scientific activities linked to the project and budget duration
- Holidays: 23 paid vacation days plus 24th and 31st of December per our collective agreement
- 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 submitted via the BSC website and contain:

- A full CV in English including contact details
- A cover/motivation letter with a statement of interest in English, clearly specifying for which specific area and topics the applicant wishes to be considered. Additionally, two references for further contacts must be included. Applications without this document will not be considered.

Development of the recruitment process

The selection will be carried out through a competitive examination system ("Concurso-Oposición"). The recruitment process consists of two phases:

- **Curriculum Analysis:** Evaluation of previous experience and/or scientific history, degree, training, and other professional information relevant to the position. - ***40 points***
- **Interview phase:** The highest-rated candidates at the curriculum level will be invited to the interview phase, conducted by the corresponding department and Human Resources. In this phase, technical competencies, knowledge, skills, and professional experience related to the position, as well as the required personal competencies, will be evaluated. - ***60 points.*** *A minimum of 30 points out of 60 must be obtained to be eligible for the position.*

The recruitment panel will be composed of at least three people, ensuring at least 25% representation of women.

In accordance with OTM-R principles, a gender-balanced recruitment panel is formed for each vacancy at the beginning of the process. After reviewing the content of the applications, the panel will begin the interviews, with at least one technical and one administrative interview. At a minimum, a personality questionnaire as well as a technical exercise will be conducted during the process.

The panel will make a final decision, and all individuals who participated in the interview phase will receive feedback with details on the acceptance or rejection of their profile.

At BSC, we seek continuous improvement in our recruitment processes. For any suggestions or comments/complaints about our recruitment processes, please contact