257_25_CS_BPPP_RE2

Job Reference

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Position

Parallel performance analist (RE2)

Fecha de cierre

Miércoles, 09 Abril, 2025
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Job title: Parallel performance analist (RE2)

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

The BePPP group is seeking a candidate to do performance analysis of parallel applications running at supercomputers and clusters.
The candidate will analyze production HPC codes with the goal of identifying bottlenecks and possible optimizations, the analysis will be done closely with the user or developer of the code.
Codes provided will be written in high-level languages (C, C++, Fortran) parallelized with OpenMP and MPI.
The work will be done in the context of different competitive projects and collaborations with companies.

Key Duties

- Performance analysis of parallel applications
- Proof-of-concept of suggested optimizations
- Document and disseminate developments and findings

Requirements

- Education
  - MsC in Computer Sciences, Computer Engineering, Telecommunication Engineering or equivalent

- Essential Knowledge and Professional Experience
  - An intimate knowledge of OpenMP and MPI
  - Experience using performance analysis tools (Extrae, Paraver, Score-P, Scalasca, vtune)
  - An intimate understanding of distributed-memory and shared-memory parallelism
  - A thorough understanding of high performance computing architectures.

- Additional Knowledge and Professional Experience
  - Knowledge about version-control software (preferably Git) will be valued
  - Knowledge about profiling tools (e.g., gprof, oprofile, perf) will be valued
  - Knowledge about Linux debugging tools (e.g., gdb, valgrind) will be valued
  - Knowledge about low-level programming will be valued
  - Experience in GPU programming will be valued
  - Experience supporting and collaborating with external partners.

- Competences
  - Fluency in spoken and written English (Spanish will be valued)
  - Good communication and presentation skills
  - Ability to learn and adapt to multiple programming languages easily
  - Ability to work independently and in a team

Conditions

- The position will be located at BSC within the Computer 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