800_24_OP_US

Job Reference

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Position

Master Student - HPC Support & HPC benchmarking

Data de tancament

Dissabte, 30 Novembre, 2024
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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

The Operations Department ensures the continuous daily functioning of the RES supercomputers and remote access by users both within Spain and internationally. In addition to all the routine maintenance and operations tasks, the Department staff is also heavily involved in planning and designing new systems and support facilities.

We are offering a position for a Master Student to release the Master thesis with us in topics related with HPC and system architecture benchmarking.

Key Duties

- Develop a Comprehensive Benchmark Suite: Create a series of benchmarks to analyze the performance of different architectures deployed at BSC, including x86, ARM processors, GPUs, and other accelerators.
- Analyze Application Behavior Across Architectures: Study the performance behavior of a variety of applications on different architectures, including x86, ARM, and GPU-based systems, to identify strengths and limitations.
- Cross-System Performance Comparison: Compare BSC's architectures with similar high-performance computing (HPC) systems to understand relative performance and scalability.
- Assess Memory Hierarchies and Bandwidth: Study the effects of different memory hierarchies and bandwidths on application performance across x86-DDR, x86-HBM, ARM, and accelerator-enhanced systems.

Requirements

- Education
  - Master's student specializing in computer science, computer engineering, or a related discipline

- Essential Knowledge and Professional Experience
  - Knowledge of Linux systems and MySQL
  - Knowledge of parallel programming models (MPI, OpenMP, threads,...) is an advantage but not a requirement

- Additional Knowledge and Professional Experience
  - Good level of English

- Competences
  - Capacity to interact and build strong relations with the team
  - Good written and verbal communication skills

Conditions

- The position will be located at BSC within the Operations 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: 01/12/2024

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 a 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](#)

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