

462_24_CS_PPC_RE1

Job Reference

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Position

Researcher Engineering - Edge and cloud computing technologies (RE1)

Data de tancament

Dimecres, 31 Juliol, 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](#)

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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

Internet of Things (IoT) involves massive numbers of sensing devices with different capabilities, ranging from low-complexity sensors to smart cameras and actuators, generating huge volumes of data, which can be transformed into valuable knowledge through Artificial Intelligence (AI) and big data technologies. In this context, an effective combination of edge and cloud computing technologies (a.k.a. compute continuum) has been rising as an emerging paradigm that: (1) allows bringing computation closer to the data sources, bringing down latency and energy consumption with respect to cloud computing, enabling novel real-time services for domains such as smart city; and (2) provides high-performance capabilities for data intensive algorithms. Moreover, the advent of newest communication technologies (e.g., 5G) can offer the necessary bandwidth, ultra-low latency, and massive device connectivity needed to distribute applications across the compute continuum, and also supports novel architectures for Multi-access Edge Computing (MEC). Unfortunately, edge and cloud computing and networks technologies have been evolving in parallel, and they are not fully integrated, leaving a gap that must be addressed to jointly leverage the compute computing capabilities.

The research activities will be focused on one or several of the following topics, among others:

1. Design of orchestration policies that meet specific application requirements, jointly taking into account computing and communication resources in a distributed edge/cloud computing environment.
2. Explore architectures and protocols to support the integration of edge computing in 5G and beyond communication systems.
3. Development of advanced data analytics pipelines, addressing different application domains, including but not limited to smart mobility, precision agriculture, etc.

Key Duties

- Support the research on policies and architecture design for edge computing in 5G, leveraging advanced edge devices (featuring GPUs, many-core, FPGAs, etc.) and a 5G testbed
- Develop system prototypes featuring advanced data analytics pipelines, for the smart mobility, precision agriculture, etc.
- Support the execution of ongoing research projects by attending technical meetings and writing technical reports
- Generate scientific outcomes (journal and conference paper writing and presentation)

Requirements

- Education
 - Bachelor degree or MSc in Computer Science or Communications or related discipline
- Essential Knowledge and Professional Experience
 - Python and edge/cloud computing technologies
- Additional Knowledge and Professional Experience
 - Knowledge of optimization and AI/ML techniques for resource management will be considered an asset
 - Knowledge about parallelism and HPC systems will be considered an asset
 - C/C++ programming
 - Fluent English both written and spoken
- Competences

- Candidates should be proactive and self-motivated, with positive work attitude
- Ability to take initiatives, prioritize tasks and work under set deadlines
- Ability to work both independently and within a team
- Analytical thinking, problem-solving and result-oriented attitude

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: August 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](#)

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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