782_24_CS_CAOS_RE1

Job Reference

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Position

Safety Critical Systems Software ? Research Engineer (RE1)

Data de tancament

Dimarts, 31 Desembre, 2024
Reference: 782_24_CS_CAOS_RE1
Job title: Safety Critical Systems Software – Research Engineer (RE1)

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 Computer Architecture and Operating System group at the Barcelona Supercomputing Center aims at carrying out research on programming models for critical embedded systems in charge of controlling fundamental parts of cars, airplanes and satellites. Our work is mainly performed in the context of bilateral projects with several processor companies as well as several European-funded projects. For a complete list of publications of the group in the last years, please visit: www.bsc.es/caos

The objective of this position is to develop software for safety critical systems for various projects within the CAOS group. The developed software will range from low-level system software i.e. compilers and middleware up to applications, including graphics and visualization. In the latter case, GPU programming will be used in order to accelerate these operations. In addition to development, the engineer is expected to setup and perform experiments, documentation activities and provide support in research activities, as well as in the publication of their outcomes.

Key Duties

- Develop safety critical software
- Participate in the execution of various projects, taking on development tasks
- Participate in the preparation of new project proposals and rapid prototyping for the proposal needs
- Develop demonstrators, especially related to graphics and visualisation.
- Participate in documentation activities related to the developed software
- Perform experiments using the developed software
- Support other engineers, including training

Requirements

- Education
    - Bachelor’s Degree in Computer Science, Computer Engineering or a related field
    - Master’s Degree in Computer Science, Computer Engineering or a related field ideally on safety critical and/or high performance systems
    - Demonstrated experience with safety critical systems through at least a semester-long project such as a Bachelor’s/Master’s thesis and/or internship
    - Demonstrated programming experience with GPU programming and/or Visualisation
    - Demonstrated programming skills with low level software

- Essential Knowledge and Professional Experience
    - C, C++, Python programming
    - at least one of OpenGL, OpenGL ES, Vulkan
    - LaTeX

- Additional Knowledge and Professional Experience
    - Experience with GPUs
    - Experience in GPGPU computing, using CUDA, OpenCL or OpenACC will be appreciated
    - Experience with real-time, critical systems and/or reliability is desired but not required
    - Experience with Safety Critical Graphics APIs will be appreciated
    - Previous research experience and scientific publications will be valued
    - Experience with game engines such as Unreal, Unity etc will be highly valued

- Competences

- Problem-solving, pro-active, result-oriented work attitude
- Ability to perform work both individually as well as in a team
- Good communication skills including a good command of the English language (written and spoken)

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: 01/01/2025

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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