276_22_CASE_PNM_RE2

Job Reference

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Position

CI/CD Research Engineer (RE2)

Data de tancament

Dilluns, 31 Octubre, 2022
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Job title: CI/CD Research Engineer (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, and is a hosting member of the PRACE European distributed supercomputing infrastructure. 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 770 staff from 55 countries.

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

Context And Mission

The mission revolves around Alya, a high-performance computational mechanics code developed within the CASE department to solve complex coupled multiphysics/multi-scale/multi-domain problems, which are mostly coming from the engineering realm. Among the different physics solved by Alya, we can mention incompressible/compressible flows, non-linear solid mechanics, chemistry, particle transport, heat transfer, turbulence modelling, electrical propagation, etc.
For a couple of years, the development of Alya follows a CI/CD scheme based on Gitlab tools (issues, merge requests, etc.), pipelines, and API. The complexity of the CI/CD pipeline has increased with the addition of new features, the integration of multiple third-party libraries, and the deployment of Alya on new platforms that require more “exotic” compilers or compilation options. We want to optimize the pipeline as much as possible to reduce the potential bottlenecks hindering development and preventing daily code integration. In particular, much effort will be put into optimizing the regression test framework that runs thousands of tests...
on various HPC platforms.

The candidate will participate in deploying and maintaining the GitLab infrastructure, i.e. the physical machines and the OpenStack virtual machines running the self-hosted GitLab server, as well as the GitLab runners executing the pipeline jobs.

The candidate will also be involved in improving the build system based on CMake and help the developers integrate new third-party libraries and extend the compilation options. Work will also be focused on improving the architecture of Alya and providing support for git and GitLab to the developers and the users.

**Key Duties**

- CI/CD management of the HPC code Alya and its tools
- Maintaining and optimizing the CI/CD pipeline
- Deploying and maintaining the Gitlab infrastructure
- System administration of the machines (physical, virtual, and cloud) hosting Gitlab and its runners
- Build system improvement and integration of third-party libraries
- Architecture design and improvement of the HPC code Alya
- Support to the users and developers using GitLab and git

**Requirements**

- **Education**
  - Bachelor or equivalent degree in Computer Science or another qualification provided that the candidate can justify having acquired the needed capabilities and skills for the vacancy.

- **Essential Knowledge and Professional Experience**
  - CI/CD, DevOps, Git, Gitlab
  - Python, C++
  - CMake, CTest
  - Software design knowledge
  - Clean, scalable, and maintainable code
  - Please indicate in your CV your GitHub/GitLab account or any link where we can access your projects and the code you have written.

- **Additional Knowledge and Professional Experience**
  - MPI
  - HPC platforms, slurm
  - Web (HTML, CSS, JavaScript)
  - Fortran
  - Since the team is international, speaking foreign languages will be an asset.

- **Competences**
  - Rigour, autonomy, autodidactism, organizing skills, problem-solving, and interaction skills.
Conditions

- The position will be located at BSC within the CASE Department
- We offer a full-time contract, a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible working hours, extensive training plan, tickets restaurant, private health insurance, fully support to the relocation procedures
- Duration: Open-ended contract due to technical and scientific activities linked to the project and budget duration
- 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 - October

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 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](https://www.bsc.es/ca/join-us/job-opportunities/27622casepnmre2)

This position is reserved for candidates who meet the requirements and have the legal status of disabled persons with a degree of disability equal to or greater than 33%. In case there are no applicants with disabilities that meet the requirements, the rest of the candidates without declared disability will be evaluated.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación