

JOB DESCRIPTION

Ref: 14_LS_CG_DevBigData

Job Title: Developer - Big Data in Cancer (Bioinformatics)

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 460 staff from 44 countries.

Look at the BSC experience:

[BSC-CNS YouTube Channel](#)

[BSC-CNS Corporate Video](#)

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Context and Mission

The group of Computational Genomics at the Barcelona Supercomputing Center is intensively involved in several world-wide initiatives that aim to understand the genomic basis of disease, in general, and of Cancer, in particular, to ultimately contribute to the generation of personalized diagnosis, prevention and treatment protocols for health. This activity takes place within the BSC, which hosts one of the largest supercomputers in Europe: the MareNostrum, around which we develop HPC-based tools, as well as tools linked to other technologies and architectures, like GPUs and GPFAs. Among the major scientific achievements, we can highlight the design of the SMUFIN software for the fast identification of somatic variants in cancer genomes, and its application for the analysis of chromosomal alterations in Chronic Lymphocytic Leukemia genomes. These, and other related activities, have now positioned our center among the top computing institutions in the world involved in the analysis of disease genomes (some selected publications: Puente et al, Nature 2011; Moncunill et al, Nature Biotech. 2014; Bønnelykke, et al Nature Genetics, 2014; Puente et al, Nature 2015; Horikoshi, et al Nature 2016; Heyn H, et al, Genome Biol. 2016). The BSC is currently one of the few computing centres around the world with the task of analyzing up to 3000 tumor genomes within the world-wide and largest cancer genomics project: ICGC-PanCancer project (www.icgc.org). In addition, the BSC is also actively contributing to the design and establishment of a new medical and computational frame based on personalized and genomic-based clinical protocols within the public healthcare systems of Catalunya and Spain. All this activity is carried out within a dynamic and multidisciplinary group that cover biomedical, biological and computer expertises, as well as strong collaborations with different hospitals and other centers.

From our group, we open one position for researchers or technicians with a computer-related background for the design and development of software integrated solutions for the analysis of disease genomes in close collaboration with biological and biomedical colleagues. In particular, the selected candidate will be responsible of two main tasks. On one hand, the candidate will be part of a subgroup in charge of the development of pipelines and software solutions in the context of HPC for the analysis of big data. This involves the handling of thousands of genomic sequences and biomedical data, which offers a great opportunity to enter and evolve within the expanding field of Bioinformatics and Biomedicine, which currently have strong computational needs and provides many interesting challenges. On the other hand, the candidate will also be in charge of data management and front-end and back-end web development on existing and emerging technology platforms.

The BSC environment also offers computer scientists an opportunity to work within one of the first supercomputing centers in Europe that combine different expertise, covering from computer architecture to programming models and software development and implementation, in collaboration with scientist with biological and biomedical expertise.

We will give priority to highly motivated and proactive candidates with a computer-related background and with the ambition to develop his/her carrier around the field of computational genomics and biomedicine.

More information about the group and the activity can be found at: <http://www.bsc.es> and <http://cg.bsc.es/cg/>

Key Duties

- To Research, test and implement bioinformatics tools that meet the analysis needs of the group and collaborative projects
- Development and automation of genomic data analysis pipelines
- Management and integration of the results of different pipelines
- Development and management of non-relational databases and their Web portals

Requirements

- **Education**
 - Diploma/Bachelor degree in Computer Science, Physics, Mathematics or related discipline
- **Essential Knowledge and Professional Experience**
 - Knowledge of UNIX/Linux environments
 - Experience with some of the following:
 - Scripting languages: Perl, Python, Bash, R
 - Programming languages: Java, C, C++
 - Web-related programming languages: HTML5, AngularJS, Javascript/JQuery, bootstrap, php
 - Relational and non-relational databases: mysql, postgresSQL, elasticsearch, mongoDB
- **Other Knowledge**
 - Familiarity with docker is an asset
 - Knowledge of bioinformatics/cancer genomics is an asset but not essential
 - Experience in high performance computing is an asset
 - Knowledge of MVC is an asset

Competences

- Good written and verbal communication skills in English
- Ability to take initiatives, prioritize the tasks and work under set deadlines
- Ability to work both independently and within a multidisciplinary environment
- Desire to contribute to all parts of the development process

Conditions

- The position will be located at BSC within the Life Sciences Department
- We offer a full-time contract, a good working environment, flexible hours and a medical assurance
- Salary will depend on the qualifications and experience of the candidate

Applications Procedure

All applications must include:

- A motivation letter
- A full CV including contact details

You can send your application to rrhh@bsc.es or apply directly in our webpage at: <https://www.bsc.es/join-us/job-offers/job-offers-list/14lscgdevbigdata#>

Diversity and Equal Opportunity Employment

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.