173_LS_AI_RRE

Job Reference

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Position

Researcher in Artificial Intelligence applied to life sciences (RRE)

Data de tancament

Divendres, 15 Març, 2019
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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, 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 500 staff from 44 countries.

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Context And Mission

The Life Sciences Department at the BSC integrates the independent research of senior scientists that work on various aspects of computational biology, ranging from bioinformatics for genomics to computational biochemistry and text mining. The Computational Biology group is involved in multiple projects in collaboration with experimental groups generating state-of-the-art genomics and epigenomics datasets, actively participating in the International Human Epigenome Consortium and with the general aim of enabling new approaches in personalized medicine. Current efforts involve integration of different types of omics data, with a particular emphasis on epigenomics. We are establishing methods to study genome architecture exploiting interdisciplinary tools such as machine learning and network theory.

The mission of the Computer Science Department at the BSC is to influence the way machines are built,
programmed and used: computer and system architecture, programming models and performance tools, resource management, Big Data and artificial intelligence. The HPAI (High Performance Artificial Intelligence) research group is part of the Computer Science department, and it performs research in Artificial Intelligence, focused on the solutions, problems and infrastructure provided by High Performance Computing. The group actively collaborates with researchers from other fields, with the goal of applying machine learning to challenging problems in a wide variety of domains. HPAI has active collaborations with several large tech companies, pursuing lines of research of common interest. The group is also involved in multiple research projects, both European and national. Although the HPAI is open to all aspects of AI, currently its main lines of research are deep neural networks and graph analytics.

The post holder will collaborate with the Life Sciences department and the HPAI research group in the Computer Science department, with the goal of finding AI solutions to life sciences challenges. This will include working closely with researchers from both areas, programming, testing and dissemination of the research. The candidate will be able to develop an independent research programme within the broad topics mentioned above.

The Researcher will work in a highly sophisticated HPC environment, will have access to state-of-the-art systems and computational infrastructures, and will establish collaborations with experts in different areas both at the local and international levels.

**Key Duties**

- Development of AI solutions, with special emphasis on machine learning methods, for the analysis and interpretation of biological data
- Use predictive computational methods based on statistical and inference approaches to model complex biological processes
- Integration of heterogeneous data sources using advanced data mining techniques

**Requirements**

- **Education**
  - PhD in computer science or bioinformatics with a strong AI component.
  - OR Alternatively, an MSc on AI or Bioinformatics, with a strong computer science background, or background on applied mathematics/physics with demonstrated experience in AI methods.

- **Essential Knowledge and Professional Experience**
  - Experience in AI methodologies
  - Interest in the life sciences area

- **Additional Knowledge and Professional Experience**
  - Knowledge and experience in life sciences research
  - Knowledge and experience in AI methodologies:
    - Data pre/post-processing (feature selection, feature reduction, plotting and visualization)
    - Supervised and unsupervised learning (classification, clustering, regression)
    - Knowledge representation
    - Complex networks (graph-based representation, graph analytics)
    - Deep learning (TensorFlow, PyTorch, Caffe, word embeddings)
  - Programming: Python (scikit-learn, numpy, matplotlib), Matlab, R, Java, C, C++, Git

- **Competences**
Fluency in spoken and written English, while fluency in other European languages will be also valued
Capacity to explore new research lines
Good communication and presentation skills
Ability to work both independently and within a team

Conditions

- The position will be located at BSC within the Life Sciences Department
- We offer a full-time contract, a good working environment, a highly stimulating environment with state-of-the-art infrastructure, flexible hours, extensive training plan, tickets restaurant, private health insurance, fully support to the relocation procedures
- Duration: Temporary - 1 year renewable
- 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

Applications Procedure

All applications must include:

- A motivation letter with a statement of interest, including two contacts for further references - Applications without this document will not be considered
- A full CV including contact details

Deadline

The vacancy will remain open until suitable candidate has been hired. Applications will be regularly reviewed and potential candidates will be contacted.

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.

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