Job Reference

27_CASE_DDP_R2

Position

Optimization analyst (R2/R3)

Data de tancament

Dissabte, 31 Març, 2018

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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BSC-CNS Corporate Video

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Context and Mission

The Computational Applications in Science and Engineering department (CASE) works with industry and academia developing software and applications that leverage the power of High Performance Computing to solve real problems. In particular, a large line of research and development is focused on the energy industries. Inside the CASE department works the Data Analytics and Visualization group, whose role is to develop and apply advanced statistical and determinist models to extract valuable information from large data sets, and convert them into visual and useful tools and representations.
We are starting a pilot project with a large multinational company for applying machine learning and artificial intelligence algorithms for decision making in the energy markets, and especially the impact of alternative energies (mainly sun and wind). We aim at predicting the behavior of the energy markets using a variety of public and simulation data, and extracting useful actionable information from these predictions. If the pilot is successful, it will enter production mode and the team will be expected to continue research on more advanced models and predictions.

The role of this position will be to collect and organize data coming from predictor engines internal to the project, and, in collaboration with domain scientists and data scientists in the team, develop and implement optimization strategies of specific cost functions related to operation in the energy market.

**Key Duties**

- Work in collaboration with the other researchers and developers in the team
- Interact with domain specialists to understand the problems, the origin and nature of all pertinent data, and use this knowledge to construct sensible and correct target or cost functions to be optimized
- Develop and implement linear and non-linear (e.g. stochastic) optimization algorithms
- Collect, store, and organize the results obtained in order to be put into the evaluation chain of the system
- Produce periodic reports of project progress
- Collaborate with other members of the group to learn and transfer knowledge and technology that could be useful for other projects (safeguarding confidentiality and exclusivity agreements to be signed at arrival
- The candidate will work closely with the project team and the rest of the analytics and visualization group

**Requirements**

- **Education**
  - PhD in applied Mathematics, Physics, or Computer Science

- **Essential Knowledge and Professional Experience**
  - Experience with stochastic optimization, scheduling problems, and non-linear optimization methods
  - Experience on applied data science projects
  - Ample experience on popular languages for data scientists (R, Python)
  - Experience on machine learning best practice
  - Strong initiative to carry on a multidisciplinary research project involving talking to people on many different fields
  - Practical knowledge and experience to build machine learning projects that can be successfully deployed in a production environment
  - General knowledge of and experience on distributed and parallel computing, cloud, and big data infrastructures

- **Additional Knowledge and Professional Experience**
  - Knowledge of financial and energy markets
Experience with cloud and distributed deployment of machine learning infrastructure
Setting up machine learning projects in production

- Competences
  - Fluency in spoken and written English and Spanish, while fluency in other European languages will be also valued
  - Excellent communication skills, specially at the level of producing internal documentation (manuals, white papers) for reuse and reproducibility of results

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 hours, extensive training plan, tickets restaurant, private health insurance, fully support to the relocation procedures
- Salary: we offer a competitive salary commensurate with the qualifications and experience of the candidate and according to the cost of living in Barcelona
- Duration of the contract: 1 year with a test period of 6 months
- Starting date: asap

Applications Procedure

All applications must include:

- A motivation letter with a statement of interest, including two contacts for further references
- 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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