LaCaixa 2020 PhD Position @BCAM

Project title / Job position title:

Data Science & Artificial Intelligence

Research Project / Research Group Description. max. 2.000 characters

PhD position in Data Science.

- **Objective:** The increase in data generation (Big data) and problem sizes has made indispensable the development of new statistical and machine learning methods and algorithms for knowledge extraction and optimization.

- **Description:** In the applied statistics field, the main topics of our research are semi-parametric regression, multidimensional smoothing, (Bayesian) hierarchical models, computational statistics...Regarding Machine learning, we work on supervised and unsupervised classification of massive data, probabilistic graphical models, time series, Bayesian optimization, etc. In optimization we pursue the developments of efficient metaheuristics methods.

- **Applications:** Massive data and optimization problems from financial to social media, marketing, medical domains (diagnosis and prognosis), genetics, environmental modelling, demography and biostatistics, logistics, scheduling and planning.

Specific research PhD project thesis (choose one of them):

- **Open supervision for machine learning.** Advisors: S Mazuelas and JA. Lozano. Short description: Training data obtained in practice is formed by examples with types that often deviate from those in the prediction stage. This thesis will develop novel machine learning techniques that effectively utilize such general training data.

- **Semi-parametric regression modelling for biomedical applications.** Advisors: DJ. Lee, MX. Rodriguez. Recently, there has been an avalanche of biomedical information collected. This requires a new paradigm about how data are generated, managed, analyzed and ultimately communicated. The aim of this project is devoted to develop new statistical methodology for biomedical applications using flexible semi-parametric regression to account for complexity.

- **Time Series Mining. Advisor: JA Lozano.** The goal of the thesis is to develop machine learning algorithms to deal with problems where data come in a streaming fashion and there is a temporal correlation between the data: time series streaming.
**Job Position description.** max. 2,000 characters

**BCAM** is a world-class research center in the field of Applied Mathematics located in Bilbao (Spain). **It obtained the Severo Ochoa Center of Excellence award in 2013 and 2018** given by the Spanish Ministry of Science, Innovation and Universities. BCAM is part of the ERCOM European Research Centers on Mathematics [http://www.ercom.org](http://www.ercom.org) networks. BCAM has endorsed the **Charter & Code** in 2008 and has been awarded the **HR Excellence in research Logo** in 2016.

The candidate will be part of the **Data Science** research area at BCAM.

The candidate must have solid knowledge and experience.

The research environment is international and open to national and international collaborations, the candidate must have willingness to team working and traveling.

**Requirements:**
- Master degree (preferable in Mathematics, Physics, Engineering or Computer Science).
- Applicants must have an excellent academic record.

**Skills:**
- Good communication and interpersonal skills.
- Ability to effectively communicate and present research ideas to researchers with different background (e.g., mathematicians and engineers as well as employs of forest service).
- Ability to clearly present and publish research outcomes in spoken (talks) and written (papers) form.
- Good command of spoken and written English.

Additionally, in terms of **transferable & complementary skills**, BCAM is carrying out the **Action Plan** within Human Resources Strategy for Researchers (HRS4R) BCAM action plan available here [https://bit.ly/2MH1R9S](https://bit.ly/2MH1R9S), so, the fellow will benefit of this training program composed by: **Leadership, Ethic and Research, Effective Communication/Teamwork, Gender Balance, Research Integrity, Citizenship Science, etc.** The fellow will receive all the needed support from BCAM to be fully integrated in the group and in the center.
INPhINIT Offer, eligibility requirements, evaluation and selection process

Incoming: https://obrasociallacaixa.org/en/investigacion-y-becas/programa-de-becas-de-posgrado/inphinit/incoming

Retaining: https://obrasociallacaixa.org/en/investigacion-y-becas/programa-de-becas-de-posgrado/inphinit/retaining

How to Apply

1. Click in https://hosts.lacaixafellowships.org/finder, click in RESEARCH CENTRE and choose “Basque Center for Applied Mathematics - BCAM"

2. Click in “SEARCH” and the displayable will list the positions offered
3. Click in the selected PhD Offer and click in “START THE APPLICATION”.

4. The system will open a new window with the application website https://www.lacaixafellowships.org/index.aspx. Click in “Please register” for new applicants.
5. After the registration, the system will send to you the confirmation email and the link to access into the system. Now you are in the position to access into the application system. Please choose **INPhINIT: Doctorate in Spanish Research Centre of Excellence**
6. Now you are in the position to fill the application form, upload the required documents and choose the project thesis. To choose the project thesis, click in “Studies to be Pursued”, choose the centre and the position.