**Project title / Job position title:**
Applied mathematics and Artificial Intelligence

**Research Project / Research Group Description.**

**PhD position in Artificial Intelligence.**
- **Objective:** The objective of this position is to carry out developments in the field of artificial intelligence. One is related with the analysis of health record and the other with the development of mathematical models in machine learning.
- **Description:** In the area of artificial intelligence we work on machine learning, heuristic optimization, reinforcement learning and social choice.
- **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):
- **Predicting risk and cost of patients.** Advisors: JA. Lozano. The goal of this thesis is twofold. We plan to develop specific algorithms to predict the cost of a patient in the health system in general, but also particularly in a disease. As a second objective we plan to evaluate the risk of a patient in different scenarios, for instance, the risk of re-entering the emergency room.
Job Position description.

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 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; 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](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](https://obrasociallacaixa.org/en/investigacion-y-becas/programa-de-becas-de-posgrado/inphinit/retaining)

How to Apply

1. Click in [https://candidate.lacaixafellowships.org/login](https://candidate.lacaixafellowships.org/login), Click in “New Users” – Please register your application and fill in all the personal data requested by the page for the creation of a new user.

2. Once you create the profile, you will receive a confirmation email and by clicking on the link you will be redirected to a page that tells you that your user is correctly completed.
3. Once you enter the platform with your user, the following screen will appear with some of your data and to choose the mode: Incoming or retaining:

4. Afterwards, you will be shown a page with all your data previously entered, and you will have to upload your passport, ID card and contact information:
5. After hitting the Save and Continue button, the following screen will appear in which you must enter the following data, choose the position you want and accept the 3 boxes below:
6. Below, on that same page, you choose the first option of the Physical sciences, Mathematics and Engineering Panel:

<table>
<thead>
<tr>
<th>Selected evaluation panel:</th>
<th>Physical Sciences, Mathematics and Engineering Panel</th>
</tr>
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<tbody>
<tr>
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<td>Physical Sciences, Mathematics and Engineering 1</td>
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<td>Theoretical and Applied Mathematics, Computer Sciences and IT</td>
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<td>Physical Sciences, Mathematics and Engineering 2</td>
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<td>Physical Sciences, Mathematics and Engineering 5</td>
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<td>Geology, Earth Sciences, Environmental and Atmospheric Sciences, Mining, Geological Engineering, Oceanography, Hydrology</td>
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<td>Civil and Construction Engineering, Energy, Nuclear and Renewable Energy Engineering</td>
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<td>Chemistry and Chemical Engineering</td>
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Click “Save” to assign the application to this panel, or click on another panel to change this assignment.
7. After giving to the button Save and Continue, fill in the Statement of purpose you give to Save and Continue:

8. From there, you will have to fill in the rest of the pages: Reference Letters, CV, Bachelor Studies, Other studies (if you have them), Academic records referring to higher studies relevant to the fellowship, Language required according to the programme terms and conditions, Language certificate, etc.

9. Once you have filled in all the fields you must click on FINISH and your application will be registered.