LaCaixa 2020 PhD Position @BCAM

Project title / Job position title:

Mathematical Modeling

Research Project / Research Group Description. max. 2,000 characters

PhD position in Mathematical Modeling

- **Objective:** Development of novel theoretical and computational tools for efficient and detailed simulation of multi-scale complex systems describing real life problems in biology, medicine, public health and society.

- **Applications:** Patient-specific simulation (cardiovascular, brain, cancer), neurodegenerative diseases, drug design, self-assembly in bio-chemical processes, energy materials modeling and uncertainty quantification. Targeted at biologists, clinicians and industries.

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

- **Optimising performance of Hamiltonian Monte Carlo (HMC) in molecular simulation and computational statistics.** Advisors: E. Akhmatskaya, J.M. Sanz Serna. Performance of HMC will be enhanced through the development of novel adaptive multi-stage multi-time-stepping splitting integration methods and importance sampling schemes. The resulting approach will be applied to the study of realistic models in molecular simulation and statistics.

- **Project Thesis Title:** Drug Discovery for Alzheimer's Disease via AI and Mini-brains. Supervisor: Serafim Rodrigues (MCEN). Description: This project develops a radical computational-experimental platform to screen for potent drugs against Alzheimer's Disease (AD), based on Artificial intelligence and human stem cell based mini-brains.
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 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 Mathematical Modeling 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 Applied 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

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