Company Description

The Basque Center for Applied Mathematics - BCAM is an international research centre in the field of Applied Mathematics that was founded in 2008 by the Basque Government, the UVP/EHU and Ikerbasque. It also has the support of the Provincial Council of Bizkaia and Innobasque. It has a staff of more than 90 researchers of 25 nationalities working in various areas, from data science to mathematical modelling, and has twice been accredited as a centre of excellence "Severo Ochoa" by the State Research Agency, a distinction awarded to the best research institutions in the world in their field. www.bcamath.org

Information

📅 Deadline: 2019-09-13
🖥 Category: Business
🚩 Province: Bizkaia
💲 Country: Basque Country
🏛 City: Bilbao

Company

BCAM

Main functions, requisites & benefits

Main functions

Applications are invited for a postdoctoral position within the Modelling and Simulation in Life and Materials Sciences group at BCAM. The project "Predictive metabolic modelling of microbiomes and human metabolism through Monte Carlo sampling" is run in collaboration with the Quantitative Metabolic Modeling group at Berkeley National lab (LBNL). Our goal is to produce a predictive model of microbiome and human metabolism by leveraging high performance computing to efficiently sample the full metabolic phase space. For this purpose, we will use a novel Markov Chain Monte Carlo (MCMC) Bayesian inference (BI) approach enhanced through Deep Learning. Microbiomes (i.e. microbial communities harboured by human beings) are key players in human health: they can produce obesity, decrease autism symptoms or increase athletic performance. Microbiome engineering could replace medical treatment through external drugs by creating tailored engineered microbiotas. However, this requires the ability to predict microbiome behaviour. Genome-scale models (GEMS) can provide this predictive power by accounting for all metabolic reactions in an organism genome. We plan to apply novel deep learning methodologies to speed up the traditional Monte Carlo approach used to sample the metabolic space and produce testable predictions. More info: http://www.bcamath.org/en/research/job/postdoctoral-fellowship-in-metabolic-modelling

Requisites

· Applicants must have their PhD preferable in Applied Mathematics, Computational Statistics, Computer Science, Physics, Electrical Engineering or related fields.
· Good interpersonal skills.
· A proven track record in quality research, as evidenced by research publications in top scientific journals and conferences.
· Demonstrated ability to work independently and as part of a collaborative research team.
· Ability to present and publish research outcomes in spoken (talks) and written (papers) form.
· Ability to effectively communicate and present research ideas to researchers and stakeholders with different backgrounds.
· Fluency in spoken and written English. The preferred candidate will have:
● Strong background in applied math and machine learning.
● Demonstrated knowledge in Monte Carlo sampling and Bayesian inference.
● Good programming skills in Python, as well as good software development practices (i.e. version control software usage and embedded tests).
● Research experience in applied Statistics in interdisciplinary applications (e.g.: Health, Energy).
● Interest in metabolism and biochemistry.

Benefits