Two research technician positions at the Basque Center for Applied Mathematics - BCAM

We are looking for 2 research technicians to join the Basque Center for Applied Mathematics’ Knowledge Transfer Unit. Candidates will collaborate in knowledge transfer projects with industry and research entities. They should have a Master’s degree in Statistics, Computer Science, or a closely related field and a strong background in Statistics and Mathematics. Specifically, the selected candidates will work on the following projects:

1) Research Technician in Heuristic Optimization for Emergency Healthcare

This project deals with the analysis of the ambulances service in order to identify its strengths, weaknesses, opportunities, and threats related to its attention planning management. The allocation of a limited set of resources (ambulances) to a large and random set of services (attention) is obviously a problem that requires mathematical and computational techniques for its analysis and optimization. Some of the more frequent problems are the system saturation, optimal allocation decisions, efficient localization of the bases, optimal transport routes, among others. Since they are, in general, NP-hard problems, heuristic algorithms have been developed for solving them in a reasonable time.


2) Research Technician in Applied Statistics - Estimation of the distribution of the accumulated cost per patient in the presence of censored data

This project deals with the estimation of the distribution of the accumulated cost per patient according to diseases, the received medical allowance, etc. The objective is not to estimate the, e.g., average cost, but to estimate the entire distribution. This will allow us to fully characterize the population of interest, which will provide information that we seek to further explore and study in detail. In addition to defining the methods for estimating the accumulated cost per patient, the project aims at defining and automating the workflow that will allow obtaining the data in the appropriate format for the subsequent analyses. In doing so, we seek to allow the routine use of the proposed methodology.


- **Contract and offer:** 14 months (starting in November 2019)
- **Deadline:** September 13th 2019, 14:00 CET (UTC+1)
- **Salary:** The gross annual salary of the Fellowship will be 18,000 - 26,000€. There is a moving allowance for those researchers that come from a research institution outside the Basque Country from EUR 500 to EUR 1,000 gross.
- **How to apply:** Applications must be submitted online at www.bcamath.org/en/research/job
- **Contact:** recrutiment@bcamath.org
Five postdoctoral fellowships at the Basque Center for Applied Mathematics - BCAM

We have also launched 5 postdoctoral positions for promising researchers to join our research groups and work on the following topics, related to Artificial Intelligence:

1) **Postdoctoral Fellowship in Simulation of Wave Propagation: Deep Learning Based Inversion with Energy Applications**

Applications are invited for a postdoctoral position within the Simulation of Wave Propagation group at BCAM. The project, entitled “Deep Learning Based Inversion with Energy Applications”, deals with Solving inverse problems in computational mechanics using deep learning algorithms with applications to geophysics.


2) **Postdoctoral Fellowship in Metabolic Modelling: Predictive metabolic modelling of microbiomes and human metabolism through Monte Carlo sampling**

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 Modelling group at Berkeley National lab (LBNL).


3) **Postdoctoral Fellowship in Machine Learning Driven Atomistic Simulations for Energy & Health**

The project “Machine-Learning-Driven Atomic Simulations for Energy and Biomedical Applications” will be led by the group of Modelling and Simulation in Life and Material Sciences at BCAM (Basque Country) and the MS2Discovery Interdisciplinary Research Institute at Wilfrid Laurier University (Waterloo, Canada). Both groups are involved in the International Consortium on Multiscale Modelling of Advanced Energy Materials and collaborate extensively with physicists, mathematicians, theoretical/experimental chemists and engineers from a number of institutions around the world. The objective of the aforementioned project is to enable efficient and tractable simulations of several important classes of complex atomistic systems through the use of novel Machine Learning (ML) techniques, paying particular attention to those cases where state of the art Molecular Dynamics (MD) algorithms are lagging behind the current needs of challenging applications in energy and health.


4) **Postdoctoral Fellowship in Artificial Intelligence in prediction for clinical practice**

This fellowship will deal with research projects of health services research in chronic diseases that are currently being carried out at the Galdakao-Usansolo Hospital which would integrate complex techniques of data analysis and artificial intelligence in their development.
5) Postdoctoral Fellowship in CFD Modelling and Simulation - Multiscale particle simulations in fluid dynamics using machine-learning techniques

This project deals with the multiscale simulation of complex fluids/materials using data-driven closure models obtained through active learning techniques. In particular, the governing equations describing the macroscopic flow of complex fluids - such as polymer-colloidal suspensions etc – generally involve a significant degree of physical approximations, which make continuum constitutive models valid only in a limited subclass of flows.


- **Contract and offer:** 14 months (starting in November 2019)
- **Deadline:** September 13th 2019, 14:00 CET (UTC+1)
- **Salary:** The gross annual salary of the Fellowship will be 28,000 - 32,000€. There is a moving allowance for those researchers that come from a research institution outside the Basque Country from EUR 1,000 to EUR 2,000 gross.
- **How to apply:** Applications must be submitted online at www.bcamath.org/en/research/job
- **Contact:** recruitment@bcamath.org