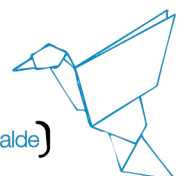


Postdoctoral Fellowship in CFD Modelling and Simulation

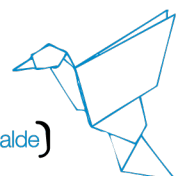
| Job Offer | |
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| Topics: | <p>In the framework of the BCAM “<i>Maths & Artificial Intelligence</i>” strategy, a series of projects in this field will be launched in different areas of Applied Mathematics. This project entitled “<i>Multiscale particle simulations in fluid dynamics using machine-learning techniques</i>” 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.</p> <p>The objective of this project is to explore the use of Machine Learning techniques to derive data-driven closure relations for efficient multiscale computations. In particular, the candidate will use advanced active learning strategies to couple mesoscopic and macroscopic particle-based descriptions of complex fluids using Dissipative Particle Dynamics and Smoothed Particle Hydrodynamics methods.</p> <p>The new postdoc working on this project will interact both with the “CFD” Group and the “Machine Learning” Group at BCAM. The project will be performed also in collaboration with Prof. P. Español (Department of Theoretical Physics, UNED Madrid).</p> |
| PI in charge: | Prof. Marco Ellero (Ikerbasque Research Professor) |
| Salary and conditions: | <p>The gross annual salary of the Fellowship will be 28.000 - 32.000€.</p> <p>It will then be on your own responsibility to make your yearly income declaration at the Bizkaia Treasury Agency.</p> <p>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.</p> <p><i>Free access to the Public Health System in Spain is provided to all employees.</i></p> |



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| No Positions offered: | #1 |
| Contract and offer: | 14 months (starting in November 2019) |
| Deadline: | September 13th 2019, 14:00 CET (UTC+1) |
| How to apply: | Applications must be submitted on-line at: http://www.bcamath.org/en/research/job |

| Scientific Profile Requested | |
|------------------------------|--|
| Requirements: | <ul style="list-style-type: none"> • Promising young researchers. • Applicants must have their PhD completed before the contract starts. • PhD degree preferable in Physics, Applied Mathematics, Computer Science. |
| Skills and track-record: | <ul style="list-style-type: none"> • Good communication and interpersonal skills. • Ability to effectively communicate and present research ideas to researchers with different background (e.g., mathematicians and engineers). • Ability to clearly present and publish research outcomes in spoken (talks) and written (papers) form. • Good command of spoken and written English. |
| Scientific Profile: | <p>The preferred candidate will have:</p> <ul style="list-style-type: none"> • Background in fluid mechanics, rheology, particulate systems or complex fluids. • Experience in Machine Learning algorithms. • Experience in modelling and simulation of multiphase flows using meshless particle methods such as smoothed particle hydrodynamics (SPH), dissipative particle dynamics (DPD) or Molecular Dynamics (MD). • Knowledge of C/C++ or Fortran programming languages is required. • Experience in parallel programming for HPC is desirable. |

| Application and Selection Process | |
|-----------------------------------|---|
| Formal Requirements: | <p>The selected candidate must have applied before the application deadline online at the webpage http://www.bcamath.org/en/research/job</p> <p>The candidates that do not fulfil the mandatory requirements will not be evaluated with respect to their</p> |



**IC2019_AI BCAM
International Call**

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|----------------|---|
| Application: | <p>scientific profile.</p> <p>Required documents:</p> <ul style="list-style-type: none"> ▪ CV ▪ Letter of interest ▪ 2 recommendation letters ▪ Statement of past and proposed future research (2-3 pages) |
| Evaluation: | <p>Based on the provided application documents of each candidate, the evaluation committee will evaluate qualitatively: the adaption of the previous training and career to the profile offered, the recommendation letters, the main results achieved (papers, proceedings, etc.), the statement of past and proposed future research and other merits; taking in account the alignment of these items to the topic offered.</p> |
| Incorporation: | <p>November 2019 or as soon as possible thereafter</p> <p><i>The BCAM postdoctoral contract will start when the selected candidate has finished the PhD, i.e. after dissertation defence.</i></p> |

