CIMNE
EXCELENCIA SEVERO OCHOA
International Centre for Numerical Methods in Engineering

cimne@cimne.upc.edu
+93 401 74 95
CIMNE - Edifici C1 Campus Nord UPC
C/ Gran Capità, S/N
08034 Barcelona, Spain

JOB VACANCY ANNOUNCEMENT

VAC-2023-74 – Postdoctoral researcher position in Computational tools to enable the design of smart soft materials

Number of places: 1

Category: Post Doc – PDOC 2

Workplace: CIMNE (Barcelona)

Salary (gross): 33.329,98 €

Weekly working hours: 40h/week

Duration: 24 months

Functions to be developed:

Open Post-Doctoral researcher position to work on the Project "ComPutatiOnal Tools to Enable the desigN of smarT soft materIALs" (POTENTIAL), funded by the Ministry of Science and Innovation. Our general objective of POTENTIAL is the development of a computational platform yielding a true step forward in the design and optimal control of EAP and MAP-based soft composites, permitting the real-time simulation of these materials, as well as the real-time determination of the required external actions (electric/magnetic fields) to achieve complex actuation configurations.

Meeting the objectives and challenges of the proposed project requires leading expertise in a wide range of fields such as multi-physics finite strain solid modelling, optimal control, topology optimisation, physics informed data-driven machine learning and reduce order modelling amongst others.

The candidate will join a multidisciplinary (namely, Continuum Mechanics, Computational Mechanics, Applied Mathematics, Material discovery and applications) team of professors and researchers based in UPCT at Cartagena (Professors Jesús Martinez Frutos and Rogelio Ortigosa Martínez) and CIMNE-UPC at Barcelona (Professors Javier Bonet and Alberto García González) in close collaboration with European institutions such that Swansea University, University of Glasgow and Technische Universität Darmstadt.

The candidate will be in charge of of implementing the algorithms developed as part of the different tasks of the project. Also it is expected to be active part of the team in terms of knowledge transfer research activities developed during this period: papers writing, congress participation, seminars, workshops among others.

Required skills:

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- Formación: Degree in Engineering, Mathematics or related disciplines. PhD in Computational Continuum Mechanics (or similar), with a strong numerical focus on mathematical modeling.
- Knowledge of numerical methods, computational mechanics and simulation.
- Good programming skills, in particular Matlab, Python, C++.
- Good written and oral communication skills in English.
- Able to work independently and willing to be based Barcelona and travelling to the different involved institutions in this project.

Other valued skills (not mandatory):

- Knowledge of machine learning methods.
- Knowledge of topology optimization and multiphysics material modelling.
- Knowledge of Finite Elements in the context of large deformation solid mechanics.

Qualification system:

The requirements and merits will be valued with a maximum grade of 100 points. This maximum score will be obtained by adding the following points:

- Academic and/or scientific/technical career: 40%
- Scientific/technical contributions: 35 %
- Mobility and internationalization: 5 %
- Candidate's willingness to develop the research activities of the job offer: 15%
- Language skills in English: 5%
- Interview: 40%

Candidates must complete the "Application Form" on our website, indicating the reference of the vacancy and attaching the required documents.

The deadline for applying for the vacancy is January 9th, 2024 at 12:00 noon.

The pre-selected candidates may be asked to send the documentation required in the "Requirements" and "Merits" sections, duly scanned, and may be called to go through selection tests (which may be of an eliminatory nature) and / or personal interviews.

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