CONVOCATÒRIA PER A LA PROVISIÓ DEL LLOC DE TREBALL

VAC-2018-12 - PhD Pos.-ProTechTion - Sensor data assimilation supporting decision making in the assessment of embankment dams (ESR#2)

Number of positions: 1

Professional Category: PhD Student

Place of Work: CIMNE Barcelona and Ecole Centrale Nantes

Annual Gross Salary: 34.893,87 €, and 6.000 of family allowance (if applicable)

Working schedule: 40 hours/week

Tipus contracte: Pre-doctoral contract

Expected duration: 36 months

Scope and functions:

A monitoring program provides measurements of different parameters including pore water pressure in different locations of a tailing dam. These data are obtained in near-real time from a wireless sensor network and have to be used to assess the integrity of the dam. The information obtained from the raw data is often insufficient for decision making and has to be complemented by the knowledge provided by a model. The objective of the project is to design computational tools that assimilate in real time the data obtained into a computational model. This will allow enhancing the quality of the information at hand and make educated decisions on the control and maintenance of the dam. The computational strategy to be devised in based on the use of reduced order models and different tools for model updating.

Obligations of ESRs
- Completion of the PhD programme
- Be highly committed with quality research, training and management. The successful candidate is expected to become a future leader on the development and application of advanced computational methods for industry
- Take part of the mobility programme both in academia and industry
- Participate on the dissemination and outreach activities associated to the project
- Attend international conferences and present the research undertaken
- Contribute to the writing of articles in high impact international journals

Centre Internacional de Mètodes Numèrics a l'Enginyeria (CIMNE)
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Consorci: **Generalitat de Catalunya**   UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH   En col·laboració amb: UNESCO

Required skills:

Prerequisites
- To have a strong undergraduate and MSc degree (or equivalent) in Engineering, Mathematics, Physics or a related field and a good level of English
- To have an enthusiastic attitude to conduct research, being hard-worker and critic
- To demonstrate knowledge of some programming languages such as Matlab and Fortran
- To have some experience with Finite Element analysis

Eligibility
- Applicants shall, at the time of recruitment by CIMNE, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when a researcher obtained the degree, which would formally entitle him/her to embark on a doctorate, irrespective of whether or not a doctorate is or was ever envisaged.
- At the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in SPAIN for more than 12 months in the 3 years immediately prior to the reference date.

Selection Procedure

1- Shortlisting of the candidates. The first phase of the selection procedure is a shortlisting of the candidates to be interviewed. This process is based on the information and documentation provided by candidates and done by the coordinator. At least two members of the Supervisory Board are involved in the ranking of the candidates using following criteria:

	Data	Range
DC	Degree classification (marks)	Normalized. 0
DI	Degree. Recognition of awarding	0 to 1
MC	Master classification (marks)	Normalized 0 to
MI	Master. Recognition of awarding	0-1
MR	Relevance of master	0, 0.5, 0.95, 1
CV	Curriculum Vitae	0, 0.5, 1
L	Motivation Letter	0, 0.5, 1
R	Recommendation Letter	0, 0.5, 1

The ranking is build based on the following formula:

Ranking = **DC*DI***20 + **MC*MI*MR***35 + **CV***20 + **L***10 + **R***15

The evaluation of each one of these fields is as follows:

- **Degree and Master marks** are taken from application form and checked against transcripts
- **Institutions recognition** are provided by Swansea.

- **Relevance of the Master** is marked as follows:

  Value 1: Computational Mechanics or most courses related to CM

  Value 0.95: Mechanical/Civil/Aeronautical/Applied Math

  Value 0.5: Any other STEM[1] not listed above

  Value 0: not STEM.

- **Curriculum Vitae** are marked as follows: default value is 0.5. Value is increased or decreased based on any positive/negative aspects. Take into account

  o Relevance of the followed master courses

  o Adequacy of candidate profile for the programme

  o Work experience

  o Academic experience

  o Activities since master award

- **Motivation Letter**. Default 1. Value is decreased for negative aspects: not mentioning any relevant topic, using a generic letter, etc.

- **Recommendation Letter**. Default 0. If know professor in the field 1.

Second round of interviews. Second round of interviews could be needed.

Closing date:

 Until position is filled

How to apply:

 http://www.lacan.upc.edu/ProTechTion

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[1] Science, Technology, Engineering, Mathematics