VAC-2018-11 - PhD Pos.-ProTechTion-Static and dynamic global stiffness analysis for automotive pre-design (ESR#1)

Number of positions: 1

Professional Category: PhD Student

Place of Work: CIMNE Barcelona and Swansea University

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

In car design, Body-in-White (BiW) refers to the phase in which the final contours of the car body are worked out. During the development process, the design of the components has to be continuously adapted according to the results of styling, simulation, prototyping and manufacturing. This can only be achieved through simultaneous engineering by a team specially dedicated to the project.
The objective of this research project is to devise computational tools as support for decision making to the BiW designers, in particular for performing the static and dynamic global stiffness analysis.
The scope of the project includes Reduced Order Modeling for linear static and dynamic analysis in parametric automotive structures. Attention will be paid to sensitivity analysis with respect to the different design parameters. The final goal of the project is to produce a compact computational vademecum displayed in a portable device to be used by the design engineer in situ and in real time.

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

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 orcarried 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
  - Relevance of the followed master courses
  - Adequacy of candidate profile for the programme
  - Work experience
  - Academic experience
  - 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

[1] Science, Technology, Engineering, Mathematics