PhD Position in Disaster Risk and Resilience Group (VAC-2021-27)

Title of the PhD project: Disaster risk assessment for earthquake-induced hazards

INTRODUCTION:

The International Centre for Numerical Methods in Engineering (CIMNE, www.cimne.com) is a research centre, created in 1987 by consortium between the Catalan Government and the Universitat Politècnica de Catalunya (UPC-BarcelonaTech), devoted to the development and application of numerical methods to a wide range of areas in engineering. CIMNE has been selected as a Severo Ochoa Centre of Excellence for the period 2019-2023, the highest level of recognition of excellence and leadership awarded to a research centre in Spain.

POSITION DETAILS

Number of vacancies: 1
Category: PhD (PHD2)
Location: Barcelona
Yearly salary (gross): 17.563,14 EUR
Working hours: Full time
Duration: 3 years
Starting date: No later than Sept 2021

FUNCTIONS TO BE DEVELOPED BY THE APPLICANT

CIMNE is looking for a **PhD Researcher** to be part of the Research and Technical Development (RTD) Group on Disaster Risk and Resilience.

The functions assigned to the candidate will be:

- Complete a PhD on Earthquake Engineering and Structural Dynamics at Universitat Politècnica de Catalunya – Barcelona Tech. The candidate is expected to complete the PhD thesis in a maximum of three years.
- Collaborate with various research groups within CIMNE and worldwide.
- To publish a minimum of two papers in JCR journals during the PhD period, author and co-author articles in high-impact international journals.
- Carry out quality research, training and management.
- Participate on the dissemination and outreach activities associated with the project.
- Participate in international conferences presenting her/his work.

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DESCRIPTION OF THE PHD PROJECT:

Earthquakes can trigger secondary hazards such as landslides and tsunamis. The triggering process, the occurrence of simultaneous losses, and how to quantify the variation in the structural vulnerability of buildings and infrastructure need to be well captured to provide robust multi-hazard risk results. Besides knowing the baseline risk conditions, there is a growing interest in performing assessments for future scenarios on which the variations of the characteristics of exposure, population, and vulnerability need to be forecasted.

The Ph.D. student will conduct research related to multi-hazard risk assessments, focusing on earthquakes as triggering events, aiming to use the modeling results as support for risk-informed decision-making processes and the improvement of risk governance.

The Ph.D. student will model the interrelations between primary and secondary events exploring the impact(s) of dynamic exposure and vulnerability characteristics. We invite applications for this Ph.D. opportunity to improve the understanding of multi-hazard risk assessment and cutting-edge research on disaster risk reduction.

References

Lantada N., Carreño M.L., Jaramillo N. Disaster risk reduction: A decision-making support tool based on the morphological analysis, International Journal of Disaster Risk Reduction, Vol. 42, 101342, 2020.

Marulanda M.C., Cardona O.D., Marulanda P., Carreño M.L., Barbat A.H. Evaluating risk from a holistic perspective to improve resilience: the United Nations evaluation at global level. Safety Science 127 104739, 2020.

Salgado-Gálvez M.A., Zuloaga Romero D., Velásquez C.A., Carreño M.L., Cardona O.D., Barbat A. Urban seismic risk index for Medellín, Colombia, based on probabilistic loss and casualties estimations, Natural Hazards, vol.80(3), 1995-2021, 2016.

REQUIREMENTS

1. The PhD position suits a student with strong physical sciences background who holds a civil engineering degree and a master's degree in civil, structural and/or earthquake engineering.
2. Previous experience in earthquake risk assessment (deterministic and/or probabilistic) is preferred.
3. Strong written and oral communication skills in English and Spanish.
4. Programming skills (such as VB.NET, Matlab, Python or R).

EVALUATION OF CANDIDATES

The requirements and merits will be evaluated with a maximum mark of 100 points. Such maximum mark will be obtained by adding up the points obtained in the following items:

- Academic record (60%)
- Previous research and academic experience in the field of the position (20%)
- Programming skills (10%)
- Language skills (10%)

HOW TO APPLY

Candidates must complete the "Application Form" form on our website, indicating the reference of the vacancy and attaching the following documents **in English**:

- Curriculum vitae
- A motivation letter
- Academic transcripts from all Undergraduate and MSc degrees
- Name and institutional contact information of two possible referees

The deadline for registration to the offer ends on 31st May, 2021 at 12 noon.

The shortlisted candidates may be called for an interview. They may also be required to provide further supporting documentation.

CIMNE is an equal opportunity employer committed to diversity and inclusion. We are pleased to consider all qualified applicants for employment without regard to race, colour, religion, sex, sexual orientation, gender identity, national origin, age, disability or any other basis protected by applicable state or local law. CIMNE has been awarded the HRS4R label.

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