VAC-2019-58 – Severo Ochoa PostDoc Trainee Position in Large Scale Scientific Computing Group

CIMNE is a research centre, created in 1987 by consortium between the Catalan Government and the Technical University of Catalunya, devoted to the development and application of numerical methods to a wide range of areas in engineering. CIMNE has been accredited as a Severo Ochoa Centre of Excellence for the period 2019-2023. This is the highest level of recognition of excellence and leadership awarded to a research centre in Spain.

CIMNE is offering a research position that will be funded by the Severo Ochoa Programme.

Position details

Number of vacancies: 1

Category: Post Doc Trainee (PDOC2)

Workplace: Barcelona

Salary (gross): 31.289,84 EUR

Weekly working hours: Full time

Duration: 2 years

Functions to be developed:

CIMNE is looking for a **Postdoc Trainee** to be part of the Research and Technical Development (RTD) Group on “Large Scale Scientific Computing (LSSC)”. The LSSC research group at CIMNE is a highly interdisciplinary research team led by Prof. Santiago Badia. The group started with Prof. Santiago Badia’s ERC Starting Grant and its main research lines focus on the development of novel/advanced finite element (FE) discretization techniques and high performance algorithms and codes for the simulation of complex physical phenomena governed by Partial Differential Equations (PDEs). The members of the team have their expertise on applications in science/engineering, applied mathematics, numerical analysis, computer science, and their tight interdisciplinary collaborative effort. One of the most remarkable achievements of the group is FEMPAR, a parallel hybrid MPI+OpenMP framework for the massively parallel FE simulation of multi-scale, multi-physics problems governed by PDEs. FEMPAR can be considered one of the most scalable implementations of domain decomposition methods world-wide with a perfect weak scalability up to 458,672 cores, for which it has been included in the High-Q club of the most scalable European scientific

computing codes.

The functions assigned to the candidate will be:

- Plan and conduct high quality research under the supervision of Dr. Santiago Badia
- Collaborate with various research groups across Europe and elsewhere
- Document and disseminate the research results within CIMNE and externally
- Publish in high impact journals (a minimum of 2 papers/year is envisaged)
- Participate in research projects and contracts with industry of interest to the RTD Group
- Collaborate in the preparation of competitive RTD research proposals

Requirements

- Having obtained a PhD degree in computational mechanics, applied mathematics or related discipline.
- Good publication record (a minimum of 6 papers published in indexed journals)
- Good knowledge of English, both written and spoken.
- Good knowledge of the Finite Element Method and its high-performance implementation, in particular, embedded domain methods, error assessment and adaptive mesh refinement, and large-scale solvers for sparse systems of linear equations.
- Good knowledge of the scientific computing programing languages Julia and FORTRAN 2008
- Good knowledge of the HPC finite element framework FEMPAR

Other valued skills

- Previous research and/or academic experience in the field of the position
- Good programming skills
- Foreign language skills
- Good communication/Teaching skills
- Capacity to attract own funding sources proven by previous awards in competitive research fellowships.

Evaluation procedure

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

- Publication and career track (40%)
- Previous research and academic experience in the field of the position (20%)
- Programming skills (20%)

- Language skills (10%)
- Communication/Teaching skills (10%)

How to apply

Candidates must complete the "Application Form" on CIMNE website, indicating the reference of the vacancy and attaching the following documents:

- Curriculum vitae, including Researcher's ID or ORCID No.
- A motivation letter.
- Academic transcripts from all Undergraduate, MSc and PhD degrees.
- At least two reference letters.

The deadline for registration to the offer ends on **January 31, 2020 at 12:00 noon**.

Applications will be reviewed by the CIMNE Severo Ochoa selection committee. The shortlisted candidates may be called for an interview and must send to seleccio@cimne.upc.edu the proving documentation of the requirements and merits, if not already submitted during the application phase.

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.