

JOB VACANCY ANNOUNCEMENT

VAC-2024-55 – PhD position in physics-informed data-driven techniques for supporting the energy transition of European cities (FPI 2023)

Number of places: 1

Category: PhD Student

Workplace: Barcelona, Campus Nord UPC

Salary (gross): 25.000 €¹ to 30.000 €

Weekly working hours: 40h/week

Contract type: PhD

Duration: 4 years

Planned start date: February 1st 2025 as maximum²

Functions to be developed:

A doctoral thesis in the framework of the research project entitled OMELET: Advanced semantic knowledge graph methods for the massive integration of renewables and storage in electrical distribution networks at the district level, with reference PID2023-152461OB-I00. Principal investigators: Prof. Jordi Cipriano Lindez and Prof. Stoyan Viktorov Danov.

To develop and implement physics-informed machine learning algorithms to analyse and interpret complex data from cities and energy communities. Collaborate with other researchers to develop computational models integrating physical principles with data-driven approaches. Conduct research to advance the field of physics-informed data-driven methods, including developing new algorithms and techniques. Contribute to scientific publications and presentations to disseminate findings and advancements in the field.

Additional information about the project is available at: CIMNE RTD Project: [OMELET](#)

¹ The first annual salary is 25.000 € and the second, third and fourth annual salary will be 28.000 €.

² This date is subject to the adjustment of the final concession resolution.

The candidate will join the research group of Bee Group: Building, Energy and Environment

This contract is financed by the announcement of Proyectos de Generación de Conocimiento 2023 of the Ministerio de Ciencia, Innovación y Universidades: Proyectos de Generación de conocimiento 2023| Agencia Estatal de Investigación (aei.gob.es)

Required skills:

- At the moment of the contract's formalisation, the candidate must have a Master's degree (or equivalent) in Computational Mathematics, Computer science, Mathematics, or Data Science and be able to enrol in a PhD programme.
- The candidate must have a previous background in statistical learning and functional analysis
- The candidate must have excellent coding skills in at least one programming language, preferably Python
- The candidate must have previous knowledge of machine learning (ML) techniques and open-source frameworks for developing ML models such as TensorFlow.
- The candidate must have a high level of English, both in writing and speaking

Other valued skills (not mandatory):

- Excellent leadership and communication skills
- Previous knowledge of data modelling and database design, including graph-based databases (Node4j)
- Spanish or Catalan
- Strong analytical and problem-solving skills

Qualification system:

The evaluation process must comply with the following criteria and sub-criteria:

1. Academic and/or scientific-technical background of the candidate (up to 50 points).
 - Scientific-technical contributions (up to 45 points). The candidate's academic record and other curricular merits will be evaluated, as well as their suitability to the tasks to be performed based on the candidate's training and professional experience.
 - Mobility and internationalization (up to 5 points). The relevance and impact of the candidate's stays in national and international centers and/or in the industrial sector on his/her research career will be assessed, taking into account the prestige of the entity receiving the stay and the activity carried out therein.
2. Criterion 2. Adequacy of the candidate to the research activities to be developed (up to 50 points). The suitability of the person to the program, project or research activities to be carried out will be assessed according to his/her previous training and experience. For this purpose, the added value that the completion of the project will represent for his/her research career will be taken into account, as well as the value contributed to the center and to the receiving team.

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

The deadline for registration to the offer ends on November 22nd, 2024 at 12 noon.

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

Commitment to inclusivity:

At CIMNE, we champion workplace equity, diversity, and inclusion. We're committed to fostering a culture where everyone can thrive, leveraging diverse talents and backgrounds. We welcome all applicants regardless of color, religion, gender, origin, abilities, gender identity, sexual orientation, pregnancy or any other characteristic. Join us in building a community that values, celebrates, and respects every individual.

HR Excellence in Research:

CIMNE welcomes and supports the principles of European Commission's [European Charter for Researchers](#) and the [Code of Conduct for the Recruitment of Researchers](#), embracing a transparent, attractive, and open labour market in research. The centre's Human Resources Strategy for Researchers (HRS4R) includes an action plan with actionable short and long-term actions to support a high-quality working environment for all. Further information can be found [here](#).

(*It is mandatory to provide the CV in the official form of the Spanish Ministry, which can be downloaded from the following link: <https://www.cimne.com/cvdata/cntr2/spc2/dtos/mdia/People/CV-abreujat.pdf>

Reference to the research project funded by MCIN/AEI/10.13039/501100011033 /10.13039/501100011033 and by FEDER, EU

