

JOB VACANCY ANNOUNCEMENT

VAC-2025-61 – Optimal Control and Numerical Optimization Professional

Number of places: 1

Category: Innovation Developer 2 (ID2)

Workplace: Barcelona / Campus Nord UPC

Salary (gross): 8.839,74 €

Weekly working hours: 10 hours

Contract type: Permanent Contract for Scientific and/or Technical Activities

Duration: One year

Functions to be developed:

- Define and analyze optimal control problems arising in UAV trajectory planning and related dynamical systems.
- Implement and test optimization algorithms (e.g., shooting, collocation, adjoint-based methods) for fast and reliable solutions.
- Develop and validate approaches for control problems governed by differential equations.
- Design, benchmark, and refine numerical schemes aimed at reducing computational cost while preserving solution quality.
- Code, integrate, and document the implemented algorithms in the Swan open-source platform.

Required skills:

- Experience conducting research in the area of optimal control and numerical optimization, with emphasis on efficient algorithms for PDE- and ODE-constrained problems.
- Previous collaboration with research teams involved in scientific computing and control.
- Degree in Aeronautical Engineering
- Fluency in English and Spanish

Qualification system:

The requisites and merits will be evaluated with a maximum note of 100 points. Such maximal note will be obtained summing up the following points:

- **Academic qualifications:** 45%

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- Training and development: 5%
- Professional experience: 10%
- Knowledge of the Catalan language: 0%
- Knowledge of the English language: 10%
- Selective tests and interview: 30%

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 September 12th, 2025 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.

The contract is part of the action PCI2024-155060-2, funded by the Ministry of Science, Innovation and Universities, the Agency and, where applicable, the European Union (Project PCI2024-155060-2 funded by MICIU/AEI /10.13039/501100011033 / EU).

The employee's working time will be fully dedicated (100%) to carrying out research tasks within the framework of the project.

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.

Quota Reservation:

In line with our commitment to inclusion, we reserve a percentage of our workforce for people with disabilities. We especially encourage these individuals to apply.

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](#).

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