Expression of Interest – UPM Supervisor

Marie Skłodowska Curie Action –Postdoctoral Fellowship 2022 (MSCA-PF-2022)

Contact Person/Scientist in charge *(datos del IP del grupo de investigación o responsable científico)*	Name	Julio
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Department /Institute /Centre *(datos del centro/departamento donde estaría ubicado el investigador a contratar)*	Name	Department of Naval Architecture, Shipbuilding and Ocean Systems (DACSON). CEHINAV Research group.
	Address	ETSI Navales. Avenida de la Memoria, 4. C.P. 28040.
	Province	Madrid (Spain)
Research Area *(en base a las 8 áreas científicas establecidas en MSCA. Se podrán seleccionar entre una y tres áreas científicas por EOI)*		Information Science and Engineering (ENG) Mathematics (MAT) Physics (PHY)
Brief description of the Centre/Research Group *(Max. 1600 caracteres con espacio: información sobre el centro / grupo de investigación / personal científico, destacando los aspectos más relevantes de los mismos. Incluir URL si es posible.)*		CEHINAV is an interdepartmental research group of Universidad Politécnica de Madrid, specialized in the development and application of **experimental and computational solutions for solving practical problems in naval architecture, marine and ocean engineering**. CEHINAV is made up of **three units**: - ETSIN lab, which includes a 100 x 3.8 x 2.2m model basin specialized in experimental hydrodynamics campaigns. - HRL, devoted to mooring operation modelling, data management and IoT. - JRU CIMNE-UPM, specialized in the development and application of computational methods, assessment tools and machine learning methodologies. In the experimental field, CEHINAV has participated from 1988, in more than 260 projects commissioned by both national and international companies. The group has also has actively participated in EC projects funded by **FP6, FP7, H2020, INTERREG** and **EIT-Climate KIC** Programmes. CEHINAV **research team** is currently integrated by: 1 emeritus professor, 3 full professors, 3 professors, 1 associate professor, 2 assistant professor, 1 senior PhD researcher, 4 predoctoral researchers, 1 graduated researcher, 1 lab technician, 1 R&D manager. Between its **main infrastructures and facilities** stand out: - Model basin (Length: 100m; Width: 3.8m; Depth: 2.2 m). - Towing carriage: Max. Speed: 4 m/s. - Wave Generator, regular and irregular waves. - Forced oscillation system for measurement of damping and added masses. - Optical tracking tools for models motion recording – OptiTrack. - Milling facilities (5 axes) for models construction.

	• High performance computing capabilities, including access to UPM-CESVIMA supercomputing center. CEHINAV's Quality Management System is certified by LGAI Technological Center, S.A. under No. EC-4738/09 in accordance with the requirements of **ISO 9001:2015.**
Project description *(Max. 1800 caracteres con espacio: breve descripción sobre el proyecto /línea de investigación en el que se acogería al investigador/a Marie S.Curie.)*	CEHINAV is looking for a postdoctoral researcher to join CIMNE-UPM Joint Research & Technology Transfer Unit. JRU CIMNE-UPM's activities are related to the development and application of computational methods and assessment tools in the fields of naval architecture, marine and ocean engineering. The postdoctoral researcher will be involved in an ambitious research line aimed at creating a step change in the design and engineering of vessels and offshore platforms (including offshore wind energy) as well as extending their lifespan by developing advanced maintenance procedures. The selected candidate will be involved in the development of digital twin models of processes and structures, based on the application of machine learning techniques such as model order reduction or deep learning and their integration with sensor networks on IoT platforms. Specifically, he/she will work on the development of structural health monitoring methodologies and predictive maintenance strategies, integrating the above mentioned solutions, to support the extension of the lifespan of ships and platforms. **Keywords**: Machine learning, Model Order Reduction, Structural Health Monitoring, Hydro-elasticity, Seakeeping, Internet of the Things
Applications: documents to be submitted and deadlines *(Indicar qué documentación deberá remitir el /la investigador/a interesado/a al centro para establecer el contacto: CV, letter of motivation, letter of references, etc., así como la fecha límite para el envío de la misma. Recomendado: Hasta finales de abril 2022)*	CV and letter of motivation (reference letters are also recommended). **Deadline: 2022/04/30.**