CAPONNETTO
HUEBER

PERFORMANCE PREDICTION ENGINEER AND DEVELOPER – MARITIME & WASP (CH FRANCE)

Reference	**: CH_JOB_24_04_PPP_MAR_FR**
Publication Date	: 2024-04-10
Education Level	: Master or PhD
Contract	: Full Time Job
Seniority	: more than 2 years of experience in the maritime or nautical industries
Start date	: 2024 Q2 or Q3
Location	: France – Nice Area (alternatively Valencia, Spain)
Answer to	**: jobs@caponnetto-hueber.com**

COMPANY PRESENTATION

Background:

Caponnetto Hueber (CH) is a scientific laboratory and a consulting company specialized in fluid dynamics, energy efficiency and R&D for the nautical and maritime industries. The company provides fluid dynamics services and develops innovative concepts and "efficient designs" for the maritime world.

Over the years, Caponnetto Hueber has become a reference in racing, foiling, and efficient yacht design and ship optimization.

By combining its innovative-driven mindset, and its state-of-arts analysis and optimization software and expertise, CH is able to develop disruptive solutions aimed at lowering the 0-emission of the nautical and maritime industries.

Caponnetto and Hueber have competed in the last five America's Cup editions and have won it in 2010 and 2013.

The design office is located within the Marina of Valencia, Spain, in a former America's Cup base. CH is currently setting up a subsidiary dedicated to the maritime industry in France.

R&D Lab:

Caponnetto Hueber develops innovation, software and expertise though its innovation and technological Laboratory and in particular develops analysis software and design solutions to decarbonize the nautical and maritime industries.

CH main R&D topics are:

- Wind Assisted Ship Propulsion (WASP) systems design.
- High Fidelity Wind Assisted Ship Propulsion (WASP) systems power, emissions and performance predictions software and systems emission reduction evaluation tools.
- Propulsion and energy harvesting systems through fluids motions.
- Innovative and efficient hydrodynamic concept, design and solutions for yachts, vessels and ships
- Machine Learning based solutions for design optimization, performance prediction, emission reduction and operation optimization software.

Services:

Caponnetto Hueber offers innovative services in the field of fluid dynamics and naval engineering. Using high-end methodologies and tools, CH is able to improve design, performance and efficiency for naval

architects, yacht designers and shipyards, and deliver lower fuel consumption and emissions design for ship owners.
CH services include:

- Computational Fluid Dynamics (CFD).
- Hydrodynamic and aerodynamic design and optimization.
- Efficient and foiling yacht concept development.
- Hulls, appendages and foils design.
- Low and 0-emission yachts and vessels.

Caponnetto Hueber is expanding its activities and is currently setting up a subsidiary in France to develop its activities in the Maritime, Wind Assisted Ship Propulsion (WASP) and Floating Offshore Wind Turbine (FOWT) Industries.

COLLABORATOR PROFILE

Profile:

- **Performance Prediction engineer and developer or CFD Engineer** with a MSc Degree or a PhD in one of the following fields:
  - Computational Fluid Dynamics, Hydrodynamics, Aerodynamics.
  - Naval or Aeronautical engineering.
  - Physics, Mathematics or numerical simulations.
  - Data Science and Machine Learning.

Experience:

- **More than 2 years of experience**, as a Performance Prediction engineer, CFD engineer or software developer, developing and writing codes in python and/or C++ such as:
  - Power Prediction Program and/or Velocity Prediction Program.
  - Performance Analysis program and tools.
  - Dynamic Velocity Prediction Program and/or Simulator.
  - Seakeeping and dynamic analysis tools.
  - Weather routing or ship route optimization program.
- With a strong academical background in physics, engineering and fluid dynamics.
- With experience in software, full stack, front and/or back-end development.

Job Description:

Main topics of research:

- WASP Power Prediction and Performance Program development and programing;
- WASP Performance Prediction analysis and comparison of the systems performance;
- Design, analysis and optimization tools and codes development for the Innovation Lab and the Service group;
- Propulsion and energy harvesting systems.
- You will develop and improve the in-house analysis (Power Prediction Program “PPP”, Velocity Prediction Program “VPP” and Emission Reduction Prediction Program) and design codes, methodologies and workflow, dedicated to WASP, Energy Saving Devices (ESD) and ship decarbonation devices. In addition to the PPP and VPP, you will likely be involved in developing, or coupling, sailing ship routing programs or sailing ship simulators. **(WASP Analysis and Design Codes Development)**.

CAPONNETTO
HUEBER

- You will create hydrodynamic and aerodynamic models (RSA, Surrogate models) and database, and analyze them to further improve the design, the performance analysis or the understanding of the phenomenon involved (**Data Analysis and Data Intelligence**).
- You will improve, develop and implement optimization methods to improve the software and predictions tools (**Optimization**).
- You will carry performance predictions studies on WASP. You will analyze and criticize the results, help and guide the R&D group to improve the design and predictions, and compare the innovation against current systems. You will write comprehensive technical reports and guidelines. **(WASP Performance Prediction Analysis)**.
- You will work with our R&D engineers and designers on R&D, conceptual and design projects and will develop your creativity and engineering skills to develop and validate new concepts and innovative solutions (**R&D**).

Technical Requirements ("MUST"):

- Deep knowledge of physics, mathematics and numerical methods.
- Deep knowledge of codes, programs, software and/or Web-based application development.
- Proficient in python and/or C++.

Technical Skills Appreciated ("PLUS"):

- Strong academical background and deep knowledge in fluid dynamics, Computational Fluid Dynamics (CFD) and maritime engineering.
- Deep knowledge of dynamics modeling.
- Deep knowledge of optimization methods.
- Experienced in software development (Github, Python, Java, Fortran, …).
- Experienced in web applications dev. (JavaScript, Plotly, graphics and data visualization).
- Experienced with optimization software such as ModeFrontier, HEEDS or Dakota.
- Experienced with Machine Learning technics and AI applied to numerical simulations.
- Experienced with database and data Manipulation Language.
- Experienced with numerical modeling, model fitting, data analysis and Machine Learning.
- Knowledge in naval engineering and propulsion systems.
- Knowledge in Wind Assisted Ship Propulsion systems.

Other Requirements ("MUST"):

- Fluent in English and French.
  - Italian or Spanish knowledge would be a plus.
- EU resident or in possession of an EU work permit.
- Dynamic, pro-active, organized, rigorous, autonomous and flexible.
- Open-minded with the ability to adapt to innovate.
- Passionate about innovation, technology, the ocean and water activities.

CH values candidates who have a real passion and interest for making a meaningful impact in the maritime and nautical sectors by actively contributing to decarbonization efforts.

If you are willing to be part of an international group who aim to lead the innovation, the technology development and the transformation of the nautical and maritime industries towards more efficient, cleaner and more sustainable industries, please contact us at **jobs@caponnetto-hueber.com** using the offer reference in the tittle and include your **CV and references in English**.