Cenaero

Ref.: BE-JO-2025-01

JOB OFFER

Machine Learning & Optimization Research Engineer

Cenaero, located in Gosselies (Belgium), is a private non-profit applied research center providing to companies involved in a technology innovation process numerical simulation methods and tools to invent and design more competitive products. Our ambition is to be internationally recognized as a technology leader in modeling and numerical simulation, as well as in their hybridization through coupling of machine-learning strategies. Cenaero aims to be a strategic partner of large global industries as well as a real support to regional companies including innovative SMEs.

Cenaero offers expertise and engineering services in multidisciplinary simulation, design, and optimization across various domains, including mechanics (fluid, structural, thermal, and acoustics), electromagnetics, manufacturing of metallic and composite structures, as well as analysis of in-service behavior and life prediction of complex systems. Additionally, Cenaero provides software solutions through its massively parallel multi-physics platform Argo, the manufacturing process simulation and crack propagation platform Morfeo, and the design space exploration and optimization platform Minamo. Last but not least, Cenaero provides expertise in modeling techniques and digital-twinning assisted by deep learning architectures dedicated to represent and predict the behavior of complex dynamical systems.

Cenaero operates the Tier-1 Walloon supercomputing infrastructure named Lucia, which boasts a peak performance of approximately 4 PetaFLOPS through its CPU and GPU partitions. Notably, Lucia's GPU partition was ranked 388th on the November 2024 Top500 list.

To support the expanding research activities on **machine-learning based modeling** of complex dynamical systems, Cenaero is currently looking for **a Research Engineer (M/F)**. This permanent position is available immediately.

Position

You will contribute to both collaborative and industrial projects to bring innovative solutions to model real-world systems (from key aerospace, technological and manufacturing companies) synergizing physics-based knowledge and machine learning techniques. The candidate is expected to both adequately exploit existing (open-source) software tools and develop new tools and methods to reach the objectives.

Profile

Candidates should have the following qualifications:

- PhD (or MS. and equivalent working experience) in dynamical systems, mechanical engineering, machine learning or applied mathematics
- Strong background in multi-physics modeling and simulation for solid and/or fluid mechanics
- Strong background in machine learning, working experience with deep learning techniques (Neural Operators, PINNs, timeseries forecasters, …)
- Good programming skills (OOP in C++/Python is as valuable asset)
- Good analytical and problem-solving skills
- Working knowledge of Linux and pyTorch related packages will be considered as valuable assets
- Eager to work in an applied research environment, to solve challenging problems in the numerical field
- Good communication skills (written and spoken)
- Fluent in English and/or French
- Motivation, creativity and team spirit!

Offer

Cenaero offers a position in growing and technological sectors, a direct relationship with their business actors and technical experts both from the industrial and academic worlds, a competitive salary package and a stimulating and dynamic work environment. The successful candidate will benefit from outstanding supercomputing capacity with a brand-new Tier-1 facility at regional level and the possibility to access one of the most powerful supercomputers in the world through the LUMI consortium, in which Belgium has a significant share.

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Contact

Interested candidates should send a cover letter, quoting the reference number of the offer (BE-JO-2025-01) and a resume to: rh_BE-JO-2025-01@cenaero.be