JOB OFFER

Senior Quantum Application Research Engineer

Cenaero, situated in Gosselies, Belgium, is a private non-profit applied research center dedicated to supporting companies engaged in technological innovation. We provide advanced numerical simulation methods and tools to help invent and design more competitive products. Recognized internationally through our research partnership with the Safran Group and participation in various Horizon EU projects, Cenaero is primarily active in the aerospace, process engineering, energy, and building sectors. As a technology leader in modeling and numerical simulation, Cenaero aims to be a strategic partner for large global industries and a valuable 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**. Furthermore, 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 245th on the November 2022 Top500 list.

We work daily on challenging projects with our clients and research partners, often in a multidisciplinary context. **Passion drives us, and boldness propels us toward ambitious endeavors. Scientific rigor and intellectual curiosity fuel our quest for high-quality work.**

To bolster our expending research initiatives in the emerging field of quantum computing, we are seeking a Senior Research Engineer. We offer a permanent contract (CDI) within our team in Belgium.

Job description

Cenaero is currently seeking a Research Engineer (M/F) with **expertise in quantum computing, focusing on end-user application and algorithm development**. In this role, you will leverage your skills to:

- **Drive research towards resolving physics problems with quantum computing.**
- **Translate use cases into an appropriate quantum-friendly formalism.**
- **Implement and test proof of concepts in collaboration with colleagues and external stakeholders.**
- **Identify suitable HPC, data analytics and other relevant computing technologies to craft appropriate technology solutions.**
- **Disseminate and publish non-confidential results and attend international meetings/conferences.**

The primary fields of interest for quantum computing at Cenaero include computational fluid dynamics, solid mechanics, electromagnetics, machine learning, and optimization, all aimed at resolving physics problems through quantum computing.

This **permanent position** is available immediately. **You will be responsible for both technical progress and project management, in line with our Quality Management System (EN9100).**

Profile

We are looking for a candidate with the following experience/attributes. While it is not expected for one candidate to possess all these skills, a strong combination of the following is desired:

- PhD in a computing-related field including engineering, applied mathematics, computer science, physics, chemistry, or demonstrated equivalent experience.
- Demonstrable experience in several of the following:
  - Quantum computing device development.
  - Quantum computing stack architecture development.
  - Quantum algorithm development.
  - Quantum computing use case and applications development (e.g. in machine learning, chemistry, optimization, etc).
  - Quantum programming languages and platforms (such as Qiskit, Cirq, or Braket).
  - Quantum error correction techniques and fault-tolerant quantum computing.
  - Classical computing applications development.
  - Classical scripting, programming tools and languages (such as bash, object-oriented C++, Python, etc).
  - High-performance computing environments and parallel computing.
- Excellent analytical skills and solution-oriented thinking capabilities
- Autonomous working skills with an aptitude for teamwork
- Proven project management skills, especially in research and development projects.
- Publication record in relevant fields.
- Communication and presentation skills for effective dissemination of research results.
- Experience in collaborative research, particularly in multi-disciplinary and international projects.
- Industry experience, especially in sectors such as aerospace, energy, or materials science.
- Fluency in French and/or English

Offer

By joining Cenaero, you'll have the opportunity to take part in the challenging developments of different sectors, in direct contact with its economic actors and experts. Cenaero offers you a competitive salary and the opportunity to develop yourself in a dynamic and stimulating environment. We believe our **co-workers** are the source of our success. We care for the personal development of our collaborators and seek to make them harmoniously progress.

Application procedure

Interested candidates should send a cover letter, quoting the reference number of the offer (BE-JO-2024-06) and a resume to rh_be-jo-2024-06@cenaero.be.