Quantum Simulation Scientist

Quantum Software Solutions

QPerfect is an ambitious DeepTech quantum computing startup, spun-off from the prestigious European Centre for Quantum Sciences (CESQ) in Strasbourg. Our primary goal is to develop a Quantum Logic Unit (QLU), a full hardware and software system to control quantum computers and unlock the power of fault-tolerant quantum computing. Our first product, MIMIQ, is a high-performance quantum circuit simulation SaaS platform featuring advanced simulation engines that are a core focus of our R&D efforts.

We are seeking a talented and highly motivated Quantum Simulation Scientist to join our core Development Team. You will be instrumental in advancing the capabilities of our MIMIQ quantum simulation engines, translating cutting-edge research into high-performance, scalable tools.

Your Mission

As a Quantum Simulation Scientist, you will be at the heart of our core technology. You will:

- Take a leading role in the development of QPerfect's quantum simulation engines (state vector, Matrix Product State, etc.).
- Research and implement novel numerical methods to simulate quantum systems with higher accuracy, speed, and scale.
- Translate theoretical models into efficient, robust code, primarily in C++, optimizing for performance on modern HPC architectures.
- Collaborate closely with our engineering teams to integrate new simulation capabilities into the MIMIQ framework.
- Profile, benchmark, and validate simulation engines to ensure correctness, performance, and scalability.
- Stay at the forefront of research in quantum simulation, numerical physics, and high-performance computing.
- Contribute to scientific outputs through technical documentation, research publications, and presentations at conferences.

Your Profile

Must-Have:

- A PhD in Quantum Physics, Computational Science, or a related field with a strong focus on the numerical simulation of quantum systems.
- A strong track record of developing and implementing complex numerical algorithms for scientific applications (e.g., tensor networks, quantum dynamics).
- Expert-level programming skills in a performance-critical language (C++ is strongly preferred).
- Hands-on experience with High-Performance Computing (HPC) environments, including parallel programming (e.g., MPI, OpenMP).
- An excellent ability to translate complex physical problems into high-performance computational models.
- Strong communication skills in English, both written and verbal.
- Eligibility to work in France.

Bonus Points

- Postdoctoral research or working experience in a relevant field.
- Deep expertise with Matrix Product State (MPS) or other tensor network methods.
- Experience with GPU programming (e.g., CUDA).
- Knowledge of the Julia programming language.
- A track record of publications in reputable scientific journals.

What we offer

- A unique opportunity to contribute to the core technology of a startup at the forefront of fault-tolerant quantum computing.
- The chance to engage in cutting-edge research at the intersection of quantum physics, computer science, and numerical mathematics.
- A passionate, innovative, and talented team of scientists and engineers in an agile startup environment.

- Competitive salary, comprehensive benefits, and significant opportunities for professional growth and learning.
- Flexible work arrangements and the chance to enjoy life in Strasbourg, a highly liveable city in the heart of Europe.

The recruitment process

- **Initial Screening:** A conversation with our CTO to discuss your research background and the role.
- **Technical Seminar & Interview:** An opportunity for you to present your work to the team, followed by an in-depth technical discussion.
- **Final Interview:** A final conversation with the leadership team to ensure a perfect match for both sides.

Don't let a few missing qualifications stop you. If you're a strong candidate for the core of this role, we want to see your application.