Helmholtz-Zentrum Dresden-Rossendorf e.V.

With cutting-edge research in the fields of ENERGY, HEALTH and MATTER, around 1,500 employees from more than 70 nations at Helmholtz-Zentrum Dresden-Rossendorf (HZDR) are committed to mastering the great challenges facing society today. The Center for Advanced Systems Understanding (CASUS) is a German-Polish research center for data-intensive digital systems research. CASUS is looking for a Postdoc (f/m/d) in Machine Learning for Quantum Computing and Simulation of Quantum Matter.

Postdoc (f/m/d) in Machine Learning for Quantum Computing and Simulation of Quantum Matter

City: Görlitz; Starting Date: 01/05/25; Duration: 24 months; Renumeration: TVöD-Bund; Reference number: 2025/27; Closing date: 27/02/25

Working field

The Scope of Your Job

The successful candidate (f/m/d) will be part of the interdisciplinary DRESDENconcept Research Group "AI4Quantum", which develops and applies novel machine learning (ML) methods to study complex quantum systems relevant to the green energy transition. The focus is developing novel Neural Quantum States, deep learning approaches to design quantum computing (QC) algorithms, and AI and ML techniques to improve state-of-the-art quantum Monte Carlo methods. The main work location is Görlitz with 50% attendance at the ScaDS.AI Dresden office required. If you want to know more about the project and the group you can have a look here: https://dobrautz.github.io/projects/ai4quantum/

Your tasks

- Basic and/or applied research in artificial intelligence and deep machine/reinforcement learning for optimizing quantum computing algorithms and simulation of quantum materials
- Development of efficient ML/AI/QC/HPC software solutions
- Preparation of publications for internationally renowned journals and presentation of research results at (top ML) conferences
- Cooperation with project partners at ScaDS.AI
- Preparation of grant applications and community building focused on ScaDS.AI/CASUS research (optional)

Requirements

- Completed university studies (PhD) in the field of Computational Physics or Chemistry, Computer Science with a focus on Artificial Intelligence/Machine Learning methods

(preferably applied to natural science), Quantum Technologies with a focus on near-term and early-fault tolerant quantum
algorithms , or a related field
- Knowledge in several areas: Machine Learning, neural networks, deep learning (particularly deep reinforcement learning), quantum physics, quantum chemistry, quantum computing/algorithms, high-performance computing, and Monte Carlo methods
- Experience with ML software solutions (PyTorch, TensorFlow, NetKet, or similar) and/or quantum computing software packages (Qiskit, Pennylane, Cirq, or similar)
- Strong motivation to work in a collaborative environment and a high level of commitment and organizational skills
- Excellent programming skills in languages like Python, Julia, Rust, C++, Fortran or similar
- Excellent communication skills in English and in a professional context (presentation of research results at scientific meetings, colloquial discussions, writing of manuscripts)

What We Offer

- A vibrant research community in an open, diverse and international work environment
- Scientific excellence and extensive professional networking opportunities
- Salary and social benefits in accordance with the collective agreement for the public sector (TVöD-Bund) including 30 days of paid holiday leave, company pension scheme (VBL)
- We support a good work-life balance with the possibility of part-time employment, mobile working and flexible working hours
- Numerous company health management offerings
- Employee discounts with well-known providers via the platform Corporate Benefits
- An employer subsidy for the "Deutschland-Ticket Jobticket"

Application
We look forward to receiving your application documents (including cover letter, CV, diplomas/transcripts, etc.), which you can submit via our online-applicationsystem: https://www.hzdr.de/db/Cms?pNid=490&pLang=en&pOid=73944

Weitere Informationen unter https://stellenticket.de/191396/
Angebot sichtbar bis 27.02.2025