

Research Scientist Machine Learning for Experimental Automation

Location: Weiterstadt, Germany / hybrid

Department: R&D

Employment: Full-time

Role / field: Computer sciences

Who we are

At neQxt, we build full-stack ion-trap quantum computers, striving for excellent performance and scalability. With decades of expertise in ion-trap technology, neQxt was spun out of Mainz University, and it is headquartered in Germany's Frankfurt Metropolitan area. Our team of leading talent from Europe and beyond covers the entire value chain, from the basic hardware to end-user software level. Join our passionate team of ambitious scientists, engineers, technicians and quantum enthusiasts, building top-tier fault-tolerant quantum computers together!

Job description

You will focus on using machine-learning methods to automate the operation of a running experiment. The scope includes automated tune-up and auto-maintenance of optomechanical setups without human input, as well as auto-calibration routines for quantum systems using classical and quantum sensing. The job is particularly suited to a machine-learning or AI expert with an understanding of AMO-related experimental environments. You will collaborate with product owners, the engineering and experiment teams, and external partners.

Responsibilities

- Develop machine-learning methods for automation and optimization of experimental operation
- Automate tune-up and auto-maintenance of optomechanical setups without human input
- Develop auto-calibration routines for quantum systems using classical and quantum sensing
- Incorporate realistic measurement budgets and experimental constraints into optimization strategies
- Coordinate implementation with experiment, AMO, QCVV, and software teams

Requirements

- Degree in machine learning, computer science, physics, engineering, or a closely related field
- Strong background in machine learning for automation or optimization
- Good knowledge of machine learning in the application areas of automation and optimization
- At least basic understanding of experimental implementation, constraints, and measurement budgets in realistic scenarios
- Ability to design robust auto-tune, auto-maintenance, or auto-calibration workflows
- Ability to work at the interface between ML/AI, experimental physics, and software implementation
- Proficiency in written and spoken English

Nice to have

- Experience applying ML/AI to laboratory automation, control systems, AMO physics, or quantum technologies
- Background in atomic physics or Quantum Characterization, Verification, and Validation (QCVV)
- Willingness to acquire the required domain knowledge within reasonable scope
- Experience with experiment-control software or data-driven optimization in laboratory settings

Who you are

- High motivation and agility, and a sense of responsibility
- Leadership skills: form, build, and grow the team
- Stakeholder management: Find compromises in conflicts and persuade effectively.
- Strong team player with a collaborative, ownership-oriented mindset.
- Continuous willingness to learn and teach.
- Ability to explain difficult concepts in a simple way to different stakeholders.
- Solution-oriented approach and ability to converge on actionable decisions
- You can manage complex and demanding technical challenges independently

What we offer

We focus on true technological advancement rather than unrealistic roadmaps. With a pragmatic, no-nonsense approach, we move fast and avoid bureaucracy. We value your individuality and offer a flexible environment tailored to your lifestyle.

- Results-oriented environment with flat hierarchies and a passionate team
- Competitive salary with automatic inflation adjustment
- Flexible working hours, hybrid/remote work and full overtime compensation
- Career development in an emerging tech field
- German language courses, if needed
- Company pension scheme
- Choice of a flexible mobility budget or company car
- Default (mandatory) German employment benefits (e.g. health / pension / unemployment insurance, paid sick leave, maternity protection, parental leave, ...)

How to apply

To apply, please submit your CV, a cover letter including your preferred starting date, and any relevant publications, project details or other supporting documents via e-mail to: career@neqxt.org.

Applications will be reviewed on a rolling basis until positions are filled.