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Machine Learning in Science
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Uni Tübingen page – personal page

Our group builds artificial intelligence systems for
discovering new concepts, experiments and ideas in physics.

To accelerate this effort, we need your help!

We have
several fully-funded open PhD
and Post-Doc positions (m/f)

at the **University of Tübingen**, one of *Europe's most vibrant hub for artificial intelligence* research.

A list of concrete potential projects:

- Development of **modern auto-differentiation (JAX-based) physics simulators** for the discovery of new physics experiments (example here)

- **AI-driven discovery** of hardware for some of the most thought after **quantum information** technology, quantum-enhanced **microscopes and telescopes** (example here), and AI-driven discovery of **new physics experiments to test quantum-gravity** and observe **gravitational waves** (examples here and here)

- **Developing and testing state-of-the-art AI-driven exploration, optimization, and search algorithms** in extremely complex and enormously large spaces motivated by physics and chemistry

- Agentic frameworks (e.g. LLMs with tool-use) for **closed-loop idea generation** for physics (example here)

Other projects are certainly possible too. In general, we believe that building autonomous scientific systems is not just a technical question, but requires understanding and insights from the **philosophy of science** – see e.g. here.

If you are excited to use artificial intelligence techniques for scientific discoveries in physics, send us your application, including a CV, a short motivation letter, the names & contact of two potential references to **mario.krenn@uni-tuebingen.de**. **The opening will remain valid until 28.10.2025 (unless filled before).**

PhD positions will be for a duration of 3 years, post-doc positions will be for 2 years.
Requirements: Master/Bachelor in Physics, Computer Science or related fields (for PhD); Doctorate in Physics, Computer Science or related fields (for Post-Docs).

The positions are funded via the Cluster of Excellence (Machine Learning for Science), the ERC Starting Grant ArtDisQ and the University of Tübingen. Salary will be determined according to the German collective wage agreement in public service (E 13 TV-L). The University aims to increase the proportion of women and therefore urges suitable qualified women scientists to apply. The employment will be handled by the central administration of the University of Tübingen.

27.09.2025