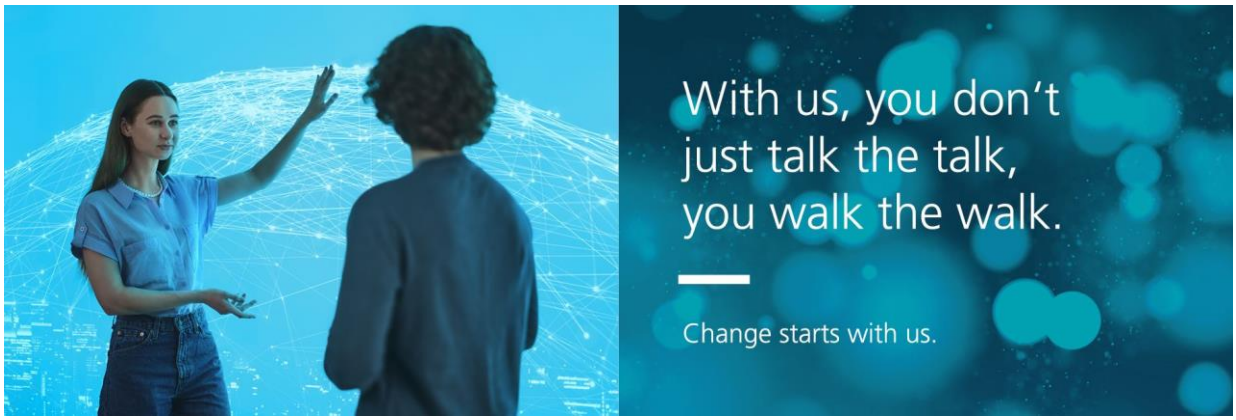
Fraunhofer IIS



Working Student (all genders) – Quantum Computing / Quantum Circuit Cutting

The **Fraunhofer-Gesellschaft** currently operates 76 institutes and research institutions throughout Germany and is the world's leading applied research organization. Around 30,800 employees work with an annual research budget of 3 billion euros.

The **»Quantum Compilation«** group at Fraunhofer IIS is part of the »Precise Positioning and Analytics« department and located at the institute's Nuremberg site. Our team members have diverse academic backgrounds from computer science and engineering to physics. We combine expertise in a range of advanced machine learning (ML) topics. Our research goal is to provide tools for robust algorithmic solutions towards improving and optimizing Quantum compilation stack in the early fault-tolerant Quantum computer with a focus on applications.
We research Machine Learning and Reinforcement learning to enable efficiency and adaptability to various tasks. The student will learn a lot about Quantum computing and Machine Learning and develop on the way.

What you will do

- **Shape the future of quantum computing**: You will work on topics related to quantum circuit compilation and quantum error correction.
- **Expand your expertise in the quantum realm**: You will update our literature overview on the state of the art in both RL-based quantum circuit compilation and LLMs as applied to quantum computing

What you bring to the table

- You are currently **studying** physics, mathematics or computer science program or a related field
- You are **familiar with few** of these topics: **auto-encoders, transformers, reinforcement learning, LLMs, Agentic AI, RAG and Chain of thoughts.**
- You have **first experience** in **python** programming and libraries like PyTorch and TensorFlow
- You are **familiar** with the **topic of quantum computing** and have experience with libraries like Qiskit
- You speak **English fluently**

What you can expect

- **Organize your schedule**: Benefit from flexible working hours that are perfectly compatible with your studies.
- **Become part of a creative team**: Experience an open and friendly working atmosphere in which your ideas mare valued.
- **Variety that inspires**: Look forward to divers tasks that inspire and challenge you.
- **Shape the future with us**: Take part in application-oriented research and put your theoretical knowledge to practice.
- **Innovation that inspires**: Exciting and pioneering projects that make a real difference.

We will agree your start date and weekly working hours with you individually (as a working student **10** to **15** hours per week or for an internship at least three months). You can reduce your hours before exams and increase them during semester breaks. You can set your working days flexibly. After your studies, there are attractive opportunities to join the institute on a full-time or part-time basis. You can flexibly determine the working days of your fixed-term employment contract.

We value and promote the diversity of our employees' skills and therefore welcome all applications - regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation and identity. Severely disabled people are given preference if they are equally qualified.

Ready for change? Then apply now and make the difference! (PDF: Cover Letter, Resume, Certificates).

Do you have questions about the application process? Our recruiter Andrea Dragon will be happy to assist you: Phone +49 911 58061-2314.