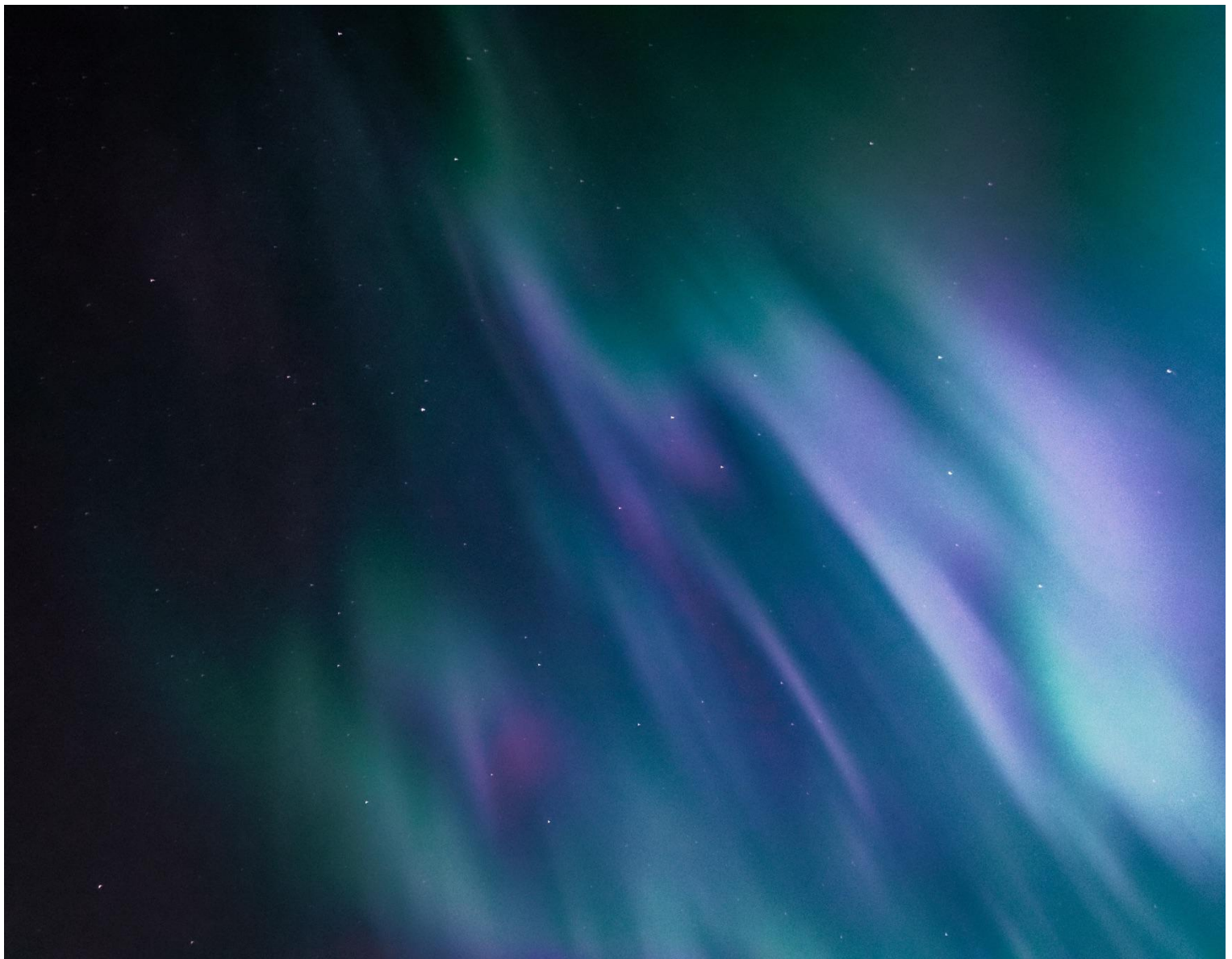




Cohort 2023/2024

**Young Quantum Social Scientists -
Scholarship Program**

Associated with the QuantWorld Project within
the Quantum Social Lab at the TUM Think Tank



Young Quantum Social Scientists - Scholarship Program

This guide outlines the Young Quantum Social Scientists (YQSS) program. The YQSS initiative started in the Summer Semester of 2023 at the Technical University of Munich. The scholarship program now launches on 01.11.2023 and is designed to last one year.¹

Motivation

In the ever-evolving landscape of technology, the emergence of second-generation quantum technologies stands as a monumental leap forward. On the one hand, these advancements are more than mere incremental improvements; they represent a paradigm shift, promising to reshape industries, spawn new ones, and redefine the boundaries of what we believe is possible. From ultra-secure communication networks to powerful quantum computers, these technologies have the potential to solve problems that were once deemed unsolvable and answer questions that have perplexed humanity for ages. On the other hand, we are currently still operating in the so-called NISQ era. In an era where access to quantum devices is quite limited, the current devices' capabilities are way behind the expectations of where they will be in the next decades.

However, as with all revolutionary innovations, second-generation quantum technologies bring forth a unique set of societal challenges. Their profound implications stretch beyond the technical realm, delving into ethics, policy-making, education, and even the fabric of our socio-economic structures. Questions about data privacy, security, and the potential disruption of traditional industries emerge, demanding careful consideration. Moreover, as these technologies become more accessible, there is an imperative need for a well-informed public equipped to understand, adapt to, and engage with the quantum future responsibly. The unique structure of the technology makes it harder to

¹ Thereby, a scholarship holder can spend at most three months abroad as the students are expected to work together at the university / TUM Think Tank. We legally cannot pay the students during these three months and must pause the payment. However, students are supposed to continue their work within the scholarship program.

predict the technological trajectory of the technology and to revise the innovation cycles and development.

As we stand on the cusp of this new quantum age, we must embrace its potential and thoughtfully navigate its challenges. As we explore this exciting frontier, we must proceed with curiosity and caution, understanding its potential and acknowledging its challenges. Our scholarship program aims to support those eager to contribute to this journey with enthusiasm and a grounded understanding.

What we offer

Hands-on Project Experience:

Students work hands-on in the state-of-the-art research project 'QuantWorld'. Within the research project, we will build a new learning platform to teach citizens who are not working in quantum or quantum-related topics the basics of second-generation Quantum Technologies.

Software Package:

Students get a one-year premium subscription to different working tools: Overleaf, Notion, JetBrains (Hyperskill)

First Guided Research Experience:

Students will do research within the areas of interdisciplinary analysis. Each student gets assigned to one of three research tracks during their scholarship and one QuantWorld topic based on their interests.

Mentoring:

The Quantum Social Lab team will mentor the students throughout the journey.

Customised Training:

Students in the scholarship program will agree with their supervisors on a tailored learning experience, extending their skillset in the area of programming, math, or quantum physics

Student Research Assistant Position:

Students get hired with 7.5 hours a week for one year.²

Certificate:

At the end of the program, each scholar gets a certificate for the successful completion of the program.

² In case of an exchange semester we have to pause the contract due to legal reasons for the time the student is actively spending in a foreign country. The students will, however, continue with the program and the contract will be continued immediately when the student returns to Germany.

More Details on the Scholarship Program

The scholarship aims to give the students a highly diverse learning environment. The work is structured in weeks to ensure enough time to delve into the different working parts. Every month is thereby organised as follows:

- Starting in the first week of every month, the scholarship holders are expected to work on the material and build the platform. This contains content research and platform architecture. Students can thereby delve deeper into topics related to Quantum technologies and build a learning environment targeted for multiple levels of knowledge on quantum computing. The scholarship holders are encouraged to think creatively and develop ideas on how learning experiences of the future should and can look like. At the same time, they are learning the technical skills of deploying a platform.
- The second week of each month is dedicated to research. The scholarship holders will be assigned to research tasks related to second-generation Quantum technologies, getting experience in identifying research gaps and presenting systematic reviews.
- In the third week, scholarship holders get the chance to improve their skills systematically. Students with a social science background are encouraged to improve their programming skills using the platform Hyperskills. Each student is assigned to different learning experiences to profit from one another. Students with more proficiency in programming are encouraged to deepen their knowledge in math and physics or, if the scholarship holder is already proficient in these disciplines, in political and social sciences.
- In the last week of each month, scholarship holders are working on building up repositories and databases for large-scale research projects. Scholarship holders coming from different, interdisciplinary backgrounds are encouraged to work together. They can learn from each other by assigning them similar tasks. Furthermore, every week, there will be a journal fix to discuss the progress, open questions and problems. On top of that, there will be a monthly pitch where scholarship holders can present their progress and exciting findings.

Application Process

Applying was never so easy! Please check if you are eligible and fill out our application form.

Eligibility

- Students with a keen interest in Quantum Technologies
- Demonstrated academic excellence and passion for innovation
- Willingness to commit to the program's requirements and timelines. This specifically means to take part in the skills development program (*math, programming and/or political sciences depending on your academic background*)
- Students need to be enrolled for at least the Winter Semester 2023/2024 and the Summer Semester 2024

Information on the Application Process

Please fill out the [application](#) form.