



Cohort 2024/2025

**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 one-year scholarship program is now accepting applications for its second cohort, which will start on October 1st, 2024<sup>1</sup>.

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

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<sup>1</sup> 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.

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 integrated research and education project 'QuantWorld'. Within the research project, we are building 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 contribute to the Quantum Social Lab's interdisciplinary research, generating insights for and using synergies with the QuantWorld project. Each student gets assigned to a research track during their scholarship, based on their interests.

### **Mentoring:**

The Quantum Social Lab team mentors the students throughout the journey.

### **Customised Training:**

As part of the scholarship program, students participate in courses offered by the Quantum Social Lab and get access to additional learning materials for self-paced learning, based on a learning journey agreed upon with the Quantum Social Lab team. Thereby, students can extend their skillset in suitable areas such as programming, mathematics, quantum physics or political science.

### **Student Research Assistant Position:**

Students get hired with 7.5 to 15 hours a week for one year.<sup>2</sup>

### **Certificate:**

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

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<sup>2</sup> 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, embedded into QuantWorld's and the Quantum Social Lab's various research and outreach projects. Under the guidance of the Quantum Social Lab team, the students independently distribute their working time on the following four components of the YQSS program, aiming at an overall equal distribution.

- The scholarship holders are expected to work on the content and structure of the QuantWorld learning 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 scholarship holders will be assigned to research tasks related to second-generation Quantum technologies, getting experience in identifying research gaps and presenting systematic reviews.
- 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 Hyperskill. 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 maths and physics or, if the scholarship holder is already proficient in these disciplines, in political and social sciences. Additionally, the students participate in the Quantum Social Lab's courses on quantum technologies and their implications.
- The scholarship holders also contribute to creating repositories and databases for large-scale research projects.

Scholarship holders coming from different, interdisciplinary backgrounds are encouraged to work together and learn from each other. To encourage collaboration, we plan to have a weekly *jour fixe* to discuss the progress, open questions, and problems. Additionally, we plan to have 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 (*maths, programming and/or political sciences depending on your academic background*)
- Students need to be enrolled for at least the Winter Semester 2024/2025 and the Summer Semester 2025

### Information on the Application Process

Please fill out the [application](#) form<sup>3</sup>. There will be a short information and Q&A online event on the YQSS program, announced on the TUM Think Tank [website](#).

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#### **3 Declaration of Consent**

With your permission, your data will be collected, processed, and used for the following purposes:  
Application for the Young Quantum Social Scientists Cohort 2024/2025

Your personal data will be collected, processed, and used in the context of the aforementioned objectives in accordance with the Bavarian Data Protection Act (BayDSG). The collection, processing, and use of your data take place on a voluntary basis. Furthermore, you can revoke your consent at any time without any adverse consequences.

Please send any notice of cancellation to:  
Hochschule für Politik München an der Technischen Universität München; Richard-Wagner-Str. 1, 80333 München; E-Mail: stefan.jakob@hfp.tum.de

In the event of cancellation, your data will be deleted upon receipt of your notice.