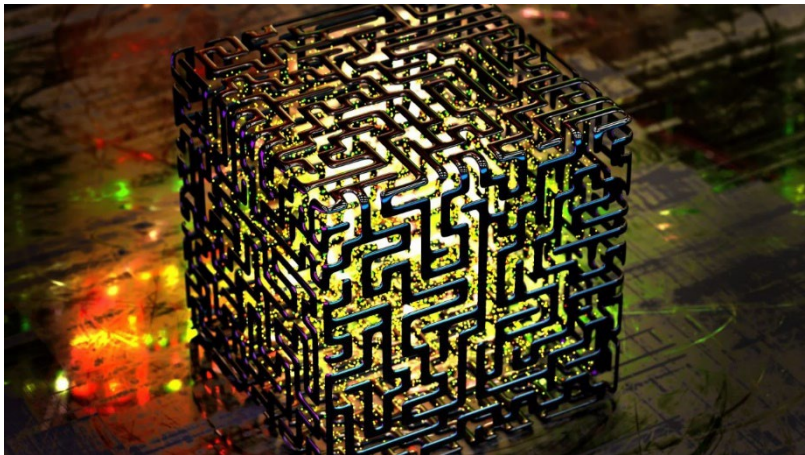


NTU Singapore: Quantum Cybersecurity Initiative

- [Alita Sharon](#)
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Nanyang Technological University (NTU) Singapore has officially unveiled a groundbreaking research programme focused on [quantum cybersecurity](#), supported by a substantial gift from a leading German non-profit organisation dedicated to charitable causes. This initiative, known as the Quantum Sovereignty and Resilience (QUASAR) programme, marks a significant step in addressing the cybersecurity challenges posed by advancements in quantum technologies.



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Technological University Singapore

The QUASAR programme will be developed in collaboration with the Technical University of Munich (TUM), further strengthening the long-standing partnership between the two institutions. In a parallel development, NTU President Professor Ho Teck Hua and TUM President Professor Thomas Hofmann signed an agreement to establish a Flagship Partnership between NTU and TUM.

Professor Ho Teck Hua expressed gratitude for the generous support, emphasising the importance of the QUASAR programme in safeguarding the global digital economy.

“We are immensely grateful for the foundation’s support in enabling the creation of the Quantum Sovereignty and Resilience programme,” Professor Ho stated. “This programme is poised to make significant contributions to cybersecurity, ensuring that our digital systems remain secure amidst evolving threats.”

“We are thrilled to partner with NTU and TUM on this pioneering cybersecurity research programme,” said the foundation’s Science Professor Reinhold Geilisdörfer. “Our collaboration underscores the foundation’s commitment to advancing technologies that benefit society. We are confident that this partnership will lead to important discoveries that enhance the security and resilience of our digital infrastructure.”

The Flagship Partnership with TUM represents a major milestone in NTU’s international collaboration efforts. Professor Thomas Hofmann expressed enthusiasm about the expanded partnership, stating, “Our longstanding and successful cooperation with NTU, both in education through TUM Asia and research through TUMCREATE, has paved the way for this Flagship Partnership. We are excited to integrate NTU into our global network of top technical universities, alongside institutions such as Imperial College London, Tsinghua University, and the University of Queensland. This partnership will foster collaboration across education, research, innovation, and entrepreneurship.”

The QUASAR programme addresses the imminent cybersecurity threats posed by quantum computing. Quantum technologies have the potential to break traditional encryption algorithms, which are essential for securing sensitive data. To counteract this risk, the programme will focus on several key areas:

Quantum Cryptanalysis: Research will investigate quantum algorithms capable of breaking encrypted messages, assessing the vulnerabilities of existing cryptographic systems.

Post-Quantum Encryption: The programme aims to develop encryption methods resistant to quantum attacks, ensuring robust security even in a post-quantum world.

Quantum-Safe Hardware: The development of secure hardware incorporating quantum cryptographic modules will be a priority, enhancing the security of physical systems.

System Integration: Researchers will work on integrating quantum security modules into existing system architectures, facilitating the seamless adoption of new technologies.

The potential impact of the QUASAR programme extends to critical infrastructure sectors, including telecommunications, banking, finance, logistics, and advanced manufacturing. By addressing the cybersecurity challenges of the quantum era, the programme aims to ensure that these vital domains remain secure and resilient.

The gift will support various aspects of the programme, including research activities, talent development, and student scholarships. The funding will enable the recruitment of PhD students and post-doctoral research fellows, as well as provide opportunities for undergraduate and postgraduate students to engage in research projects, internships, and exchange programmes.

In addition to the QUASAR programme, the expanded Flagship Partnership between NTU and TUM will explore new collaboration opportunities in fields such as sustainability in agriculture, health and biomedical engineering, space research, and artificial intelligence for manufacturing. The partnership may also introduce a double degree programme, allowing students to study at both NTU in Singapore and TUM in Munich.

Both institutions are excited about leveraging their innovation and startup ecosystems, exploring mutual access to funding, incubation, and student entrepreneurship opportunities such as hackathons.