Developed 10 years ago, in use today: Software for quantum computers receives award

📰 29 January 2025

News   Quantum Software

Quantum computers are increasingly becoming a reality. However, special software is required to ensure that they can be used smoothly. The basis of such software, developed 10 years ago, has now been honoured with a '10-year Retrospective Most Influential Paper Award'.

Robert Wille (left) from TU Munich and Rolf Drechsler (right) from Uni Bremen.

In order for users to be able to work with quantum computers, they need special software, in particular compilers, which convert the problem to be solved into a description that the quantum computer can 'understand'. This software is not developed overnight, but requires years of basic research. Members of the School for Computation, Information and Technology at the Technical University of Munich (TUM) and Munich

Quantum Valley have now been honoured for this research.

Specifically, the award recognises work that was published and presented ten years ago at the ASP Design Automation Conference and in which TUM professor Prof. Robert Wille played a key role. Together with Aaron Lye and Rolf Drechsler, he developed the first compilers for so-called 'Multi-dimensional Nearest Neighbour Quantum Circuits' at the University of Bremen. This research laid the foundations for software as it is developed and used today, for example in Munich Quantum Valley and the Munich Quantum Software Stack.

This continues a success story: In addition to other prizes, Wille already received a '10-year Retrospective Most Influential Paper Award' three years ago, also for work in the field of quantum computing. His basic research from back then laid the foundation for extensive software packages such as the Munich Quantum Toolkit – an open source project that has now been downloaded over 2 million times and is widely used in both academic and industrial contexts. Based on this, Wille and his team are currently also founding an associated start-up: the Munich Quantum Software Company.

Further information
Quantum Computing Software at the chair of Prof. Wille:
https://www.cda.cit.tum.de/research/quantum/

Munich Quantum Toolkit
https://mqt.readthedocs.io

Munich Quantum Software Company
https://munichquantum.software

Contact
Prof. Dr. Robert Wille
robert.wille(at)tum.de
Tel: +49 176 23 44 09 64