Leibniz Supercomputing Centre
of the Bavarian Academy of Sciences and Humanities

SPEAKER

Sabine Keravel

Sabine Keravel is currently in charge for the Product Management of the Atos Quantum Learning Machine (QLM). In this role, she collaborates with the Atos Quantum R&D team and Atos' worldwide sales and presales community to continuously improve and promote the world-class quantum simulator. Sabine started working for Atos in 2017, launching a new Marketing Intelligence cell for the Mission-Critical Systems division. She has both a Business & Administration and a Computer Science background.

October 22, 2019

17:30-18:30

LRZ

OCTOBER 22, 2019 | 17:30-18:30 | LRZ

IMPACTS OF QUANTUM COMPUTING ON COMPUTATIONAL BIOLOGY AND HEALTHCARE

THIS TALK WILL BE PRESENTED IN ENGLISH

Joint special lecture presented by LRZ

ABSTRACT

The first quantum revolution, led in the early twentieth century by young Europeans of the likes of Einstein, Heisenberg and Planck, gave birth over the years to major inventions including the transistor, the laser, MRI and GPS. Today, taking advantage of Atos' expertise in supercomputers and cyber security, Atos is fully committed to the second quantum revolution that will disrupt all of our clients' business activities in the coming decades, from medicine to agriculture through finance.

However, the computer research community has come to realize that no General Purpose Quantum Computing (GPQC) will be available on the market for 10 to 15 years. In the meantime, a lot of research and engineering steps are needed, both in terms of the hardware and software environment. In order to help its customers prepare for this new computing era, Atos launched its Quantum program in 2016, that includes research on quantum simulation, quantum algorithms, quantum accelerator and quantum-safe cryptography.

The first realization of this visionary strategy is the Atos Quantum Learning Machine, that was launched at the Atos Tech Days in July 2017. The QLM is a quantum simulator that allows customers to get acquainted with quantum programming, build and test their quantum algorithms without having to wait for actual quantum computers to be available. The Atos QLM has been a huge success so far as many universities, research centers and industries have been seduced by this vendor-lock-in-free approach to quantum programming.

Building on this expertise, Atos has been collaborating with some of its customers to help them evaluate the impact of quantum computing on their business. The Proof of Concept that was carried out in collaboration between Bayer, RWTH Aachen University and Atos on improving the effectiveness of data clustering is a great example of how customers can benefit both from Atos' expertise in quantum computing and our Atos QLM simulation capabilities.

Quantum computing will definitely have a huge impact on computation biology and the healthcare ecosystem worldwide as more application speedups are detected and proven such as chemistry, improved protein folding simulation and Quantum Machine Learning (QML).

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