Seminarankündigung

Donnerstag, 9. Januar 2020
14:00 Uhr

ZNN, Seminarraum EG 0.001

"Achieving quantum supremacy using a programmable superconducting processor"

The promise of quantum computers is that certain computational tasks might be executed exponentially faster on a quantum processor than on a classical processor. The task of quantum supremacy is to demonstrate that a real quantum computer can outpace the world's most powerful classical computers, and is a key milestone towards practical quantum computing. In this talk, I will discuss the development of a programmable quantum processor named Sycamore, which consists of 53 qubits with state of the art operational fidelities. We benchmark the performance of Sycamore on randomly generated quantum circuits which are significantly more complex than any previous quantum computation, and the largest of these circuits are intractable on even the world's most powerful supercomputers, thus demonstrating quantum supremacy. We also show that the performance of the Sycamore device is well predicted by a simple model, confirming that the principles of quantum computing work at scale and paving the way for future developments. Finally, I'll discuss what is Google's future roadmap, and opportunities for academic collaborations for EU institutions.

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