

Noisy Intermediate-Scale Quantum Computers

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The immense power of quantum computation is illustrated by flagship quantum algorithms that solve problems, such as factoring, much more efficiently than classical algorithms. The building of a quantum device with error rates well below the fault-tolerance threshold poses a challenge to the implementation of these quantum algorithms on near-term devices. In this talk, I will present the physics of superconducting circuits, one of the most promising technology for building Noisy Intermediate-Scale Quantum (NISQ) computers. In particular, I will explain the single qubit control, parametric entangling gates, and how these come together in a cloud deployed system. Finally, I will present an unsupervised machine learning algorithm that we have run on our quantum processing unit [1].

[1] <https://arxiv.org/pdf/1712.05771.pdf>

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