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Building a superconducting quantum computer

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Quantum computers offer the potential to address complex problems that exceed the capabilities of current high-performance computers. Although fault-tolerant quantum computers have yet to be realized, numerous countries are actively engaged in their development. Among the various platforms under consideration, superconducting quantum computers utilizing Josephson junction qubits emerge as particularly promising candidates. In this presentation, I will delve into the fundamental principles of quantum gates and elucidate the construction process of a 5-qubit superconducting quantum computer. Additionally, I would like to discuss an open topic regarding the future integration of QPU with diverse data processing technologies, involving CPU, GPU and TPU, to expand the landscape of our current problem-solving capabilities.

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