

Development of quantum machine learning algorithms and experimental realization

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Abstract

Applying quantum computers to machine learning tasks is an exciting new area of research. In this talk, I will first present our experimental demonstration of a quantum machine learning algorithm called quantum kernel method. Using an NMR quantum simulator, we successfully employed ~25 qubits for machine learning tasks. Secondly, I will present an algorithm called a quantum recurrent neural network, which is an extension of the classical recurrent neural network to a quantum setting. Its algorithm details and properties will be discussed.
