

Machine Learning and Implementation of KNN Algorithm in a Quantum Setting

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ABSTRACT

Popular classical machine learning classification algorithms such as K-Nearest Neighbors learning algorithm can be implemented in a quantum setting and remarkable speedups can be observed in comparison to its classical counterparts. Performance evaluation of quantum KNN (or QKNN) algorithm in comparison to classical KNN algorithm has been made. The performance of the observed quantum machine learning algorithm is much better than the classical machine learning algorithm in terms of complexity and accuracy. A comparison table comparing Classical KNN with Q-KNN is given along with a graphical representation of the accuracies of KNN in the two settings. As quantum computers are not widely available as of now to analyze and evaluate quantum computation algorithms properly, it is not possible to know the actual computational power of the quantum algorithms.

