A Comparative Analysis of Classical and Quantum Machine Learning Approaches in Healthcare Data Analytics

Abstract

People in the technological era are always focused on technical growth, which might lead them to lose sight of the importance of healthcare. Given the growing population and limited time for healthcare, pre-diagnosis and early treatment are critical, and this is a hotly debated research topic. The classical machine learning is one of the best solution for the same. As the amount of nonlinear and heterogeneous data produced per second owing to population growth increases, CML has some constraints that enable quantum machine learning in putting forward the steps. Quantum machine learning is a technique that uses the principles of superposition and entanglement to analyse data more quickly and accurately than CML, which will be explored in this paper. The QML has a higher complexity tolerance than the CML, which offers up new possibilities for evaluating complicated data in a shorter period of time, making it more relevant in the digital era where everything must be faster and more precise. As the study explains, QML uses qubits as opposed to bits in CML. This review study investigates and analyses quantum machine learning models and how they might help with healthcare data analytics. This is the first review paper to explore how QML models can help with healthcare analytics, which is a significant advance for both the medical and technology industries as human lives become safer through early detection, drug discovery, and so on.