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Exploring the quantum acceleration of machine learning in neural data analysis

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Abstract

Recent advances in machine learning algorithms have enabled the extraction of inherent information in neural activities, the so-called neural decoding technique, providing us with in-depth knowledge of mechanisms of information processing in the brain. However, their application to high-dimensional data is limited due to their sizeable computational complexity. To tackle this problem, we have developed scalable machine-learning algorithms using computational techniques developed in quantum computation. In this short presentation, we will present recent results obtained with these quantum-inspired machine learning algorithms and discuss future perspectives.