Autonomous Quantum Competitive Learning

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Abstract : Real-time learning is an important goal that most of artificial intelligence researches try to achieve it. There are a lot of problems and applications which require low cost learning such as learn a robot to be able to classify and recognize patterns in real time and real-time recall. In this contribution, we suggest a model of quantum competitive learning based on a series of quantum gates and additional operator. The proposed model enables to recognize any incomplete patterns, where we can increase the probability of recognizing the pattern at the expense of the undesired ones. Moreover, these undesired ones could be utilized as new patterns for the system. The proposed model is much better compared with classical approaches and more powerful than the current quantum competitive learning approaches.
Keywords : competitive learning, quantum gates, quantum gates, winner-take-all
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