

论文

量子系统实现神经计算的理论分析

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摘要

该文通过量子系统的演化与人脑信息处理过程的比较研究,发现量子理论与神经网络理论中存在有许多相对应的数学表述,利用其中有关的公式提出一个广义的基于量子系统的Hebb学习规则,并结合量子点系统设计了一个神经计算的理论模型。

关键词 [量子信息处理](#) [神经计算](#) [量子系统](#)

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Theoretical analysis of the implementation of neural computation in quantum systems

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Abstract

Through the comparison between quantum systems and information processing in human brain it can be found that there are many similar mathematical expressions both in quantum theory and neural networks, with some formula a generalized Hebb learning algorithm is proposed based on quantum system, and its convergence performance is also certified. Finally, a quantum neural computational model in a quantum dot system is designed, after analysing it results in that this model can realize the learning of simple logic.

Key words [Quantum information processing](#) [Neural computation](#) [Quantum systems](#)

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