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Exploring Deep Convolutional Network Architectures for Quantum 1D Spin Chains[1] SHAH SAAD ALAM, LI YANG, YILONG JU, WENJUN HU, HAN PU, ANKIT PATEL, Rice Univ — Quantum Neural Networks incorporating Quantum Variational Monte Carlo have become a new tool to study quantum 1D spin chains. We discuss our work in studying the response of a deep convolutional neural networks hidden layers to the symmetries and structure of 1D spin chains such as an SU(N) model, and our analyses of modifying the architecture design on the learning rate of the model. We also discuss the response of the hidden layers to the symmetries of the SU(N) Hamiltonian, and extensions of the model to other 1D spin chains in inhomogenous traps.

[1]NSF, Welch

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