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**Title: Learning the separability-entanglement criterion with confusion**

**Abstract:**

An important question in the context of applications of machine learning methods in quantum physics is the question of detecting entanglement of quantum states. We consider a simple model of random two-qubit systems and two-qutrit, which can be determined as separable or entangled states by using a neural network. In this contribution, we implement a learning-by-confusion scheme for states that appear thermal to the entanglement classifier. In order to prepare a dataset, we use a map from the most entangled state space to a shared state space, by representing the state as terminal and using the decomposition of the Hamiltonians into local and nonlocal parts. This provides us with the formation of the necessary dataset and obtaining a universal W-shape for such a task.