Universal algorithms for quantum data learning

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(Dated: July 10, 2023)

Quantum inspired technologies process, store, and manipulate information encoded in the quantum mechanical degrees of freedom of physical systems. Despite the notorious fragility of quantum information, as well as its lack of copying [**?**], broadcasting [2], adding [3] or deleting [4], its capacity for information processing far exceeds its classical counterpart. Due to the afore mentioned limitations, obtaining information from quantum datasets requires a total rethink in our approach of data learning. Here I review how to best obtain structural properties of quantum data sets—such as obtaining the various distinct types of data present in a dataset, or the relationship between data in a dataset—and provide the best universal quantum algorithms for learning this information [5]. I give a paradigmatic example of how these algorithms can be applied for the case of supervised [6] and unsupervised [7] quantum learning algorithms.

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