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Hamiltonian Meta Learning PRZEMYSLAW BIENIAS, JQI, QuICS, UMD, ALIREZA SEIF, JQI, UMD, PARAJ TITUM, APL, PATRICK BECKER, JQI, UMD, NORBERT LINKE, UMD, JIEHANG ZHANG, NYU, MOHAMMAD HAFEZI, JQI, UMD — Precise calibration of quantum devices is necessary for reliable quantum information processing. Full characterization and tuning a quantum system without making any assumption require resources that scale exponentially with the system size. Here, we assume a model for the noisy evolution of a quantum system, and by using a machine learning technique known as meta learning to train an optimizer that finds model parameters with less resources than other gradient based optimization algorithms. The training of our algorithm is done efficiently on smaller systems. However, the learned optimizer is transferable to larger systems.

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