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Quantum Gradient with Quantum Non-Demolition Measurement

We discuss a Quantum Non-Demolition Measurement protocol to estimate the derivatives of a cost function with a quantum computers. This is a key step for the implementation of a variational quantum circuits. The use of a quantum detector allows us to directly estimate the derivatives of an observable, i.e., the derivative of the cost function. This allows us to reduce the resources needed to run the variational quantum circuits with respect to the standard direct measurement approach. We estimate the reduction of number of iterations to implement the variational algorithm, the reduction of the logical gates needed and the average of complex operators such the one usually found in many-body quantum systems.

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Short summary of your poster content

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Poster printing

Yes

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