Quantum Information and Quantum Computing, Project 10

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Variational quantum algorithms

We have studied in class the notion of variational quantum algorithms for NISQ hardware, and we have seen examples of the VQE and QAOA algorithms.

The goal of the project is simply:

1. Review and understand the part on variational quantum algorithmsand present it. You may refer to this and this article.

2. Implement on the Qiskit platform (on the simulator) an instance of a VQA of your choice (either VQE or QAOA or, if you feel brave, a different VQA). Do not just repeat the hands-on exercise that we had in class: implement a different instance of the calculation, possibly with more qubits. Present the results and discuss the robustness of the instance of the problem against noise.