

The code for this project is located in a Github Repository:

https://github.com/epelofske/quantum_optimization

There is a Readme file in the main directory, which includes some of the descriptions for required installations as well as some of what the scripts do. The scripts which actually access NISQ computers are specifically marked as such, all other results use from classical simulators. This code includes code for additional NP-Hard problems such as Minimum Vertex Cover problem, and in the future more NP-Hard problems will be added, potentially using some prebuilt Grove and Qiskit Aqua functions.

The directory `utils` contains some useful functions such as Quil to QASM quantum machine language converter, the undirected graphs of some NISQ computers, and QUBO generators.

The directory `graphing` contains pdf and jpg files of some problem instances graphical results (some of which are not included in the paper).

The directory `single_tests` were left in, but it is not incredibly useful because those do not include any results averaging.

The directory `main_results` include several txt files which are simply raw unaveraged results.

The directory `D-Wave` shows the scripts which access and solve using D-Wave Leap.

The directory `qml` includes raw QASM and Quil codes.

The directory `classical_approximation_ratio` performs random approximation ratio averaging.

The directory `qaoa_average` shows script which average qaoa applied to several NP-Hard problems, using 2 different simulators.

The directory `nisq` includes examples which attempt to run QAOA on IBM NISQ computers.