

Quantum Generative Adversarial Network with Noise

Project Name: Quantum Generative Adversarial Network with Noise

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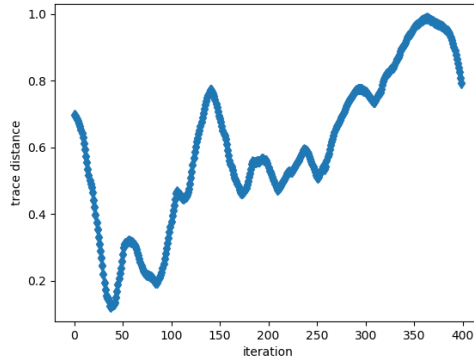
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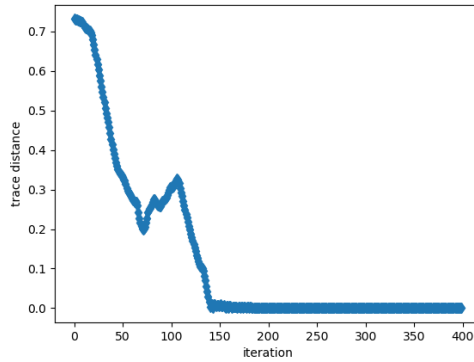
1 Experiment

I tested the program this week and improved the program, but the results of the operation still did not meet expectancy. When simulating a randomly generated target state, the trace distance couldn't converge; but for a simple, non-entangled two-qubit target state, the trace distance was possible to drop to 0 and converged. The reason might be that the correct update rule was not used, causing the evaluator to give the generator wrong learning information.

2 Results



(a) entangled target states



(b) non-entangled target state

Figure 1: For randomly generated entangled target states, the trace distance was difficult to converge. For non-entangled target states, the trace distance was possible to drop to 0 and converged.

3 Next Plan

1. Change parameter update rules, modify hyperparameters, and observe the learning curve.

4 Appendix

A Source Code