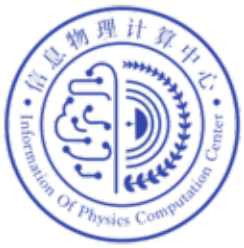

IFCC
信息物理计算中心

Quantum Generative Adversarial Network with Noise

Project Name: Quantum Generative Adversarial Network with Noise

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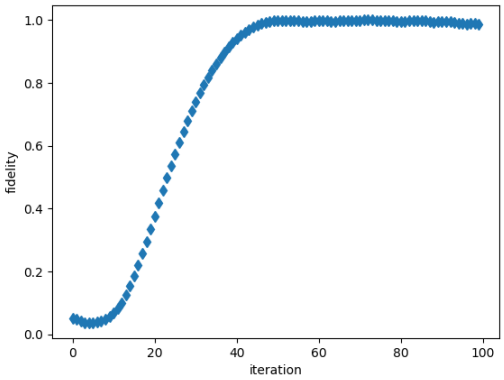
Contents

1 Experiment

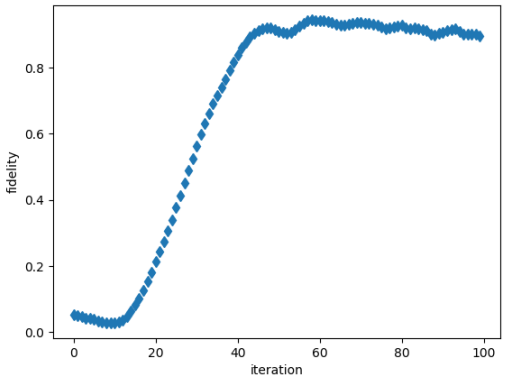
2 Results

1.Condition: C(T) = C(G) = C(D) = 1, 2qubit, probability of noise: 0.2

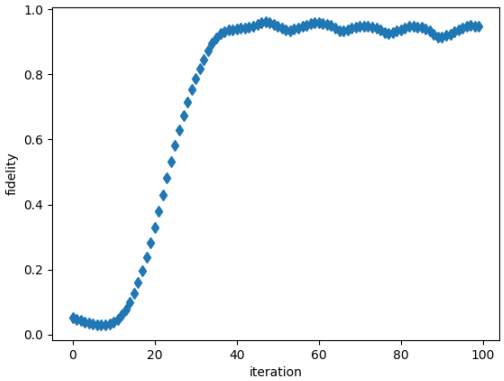
According to experiments, bit flip, phase flip and bit and phase flip all have an effect, but depolarizing basically has no effect.



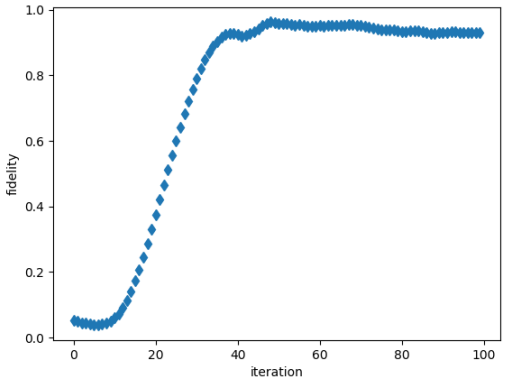
(a) without noise



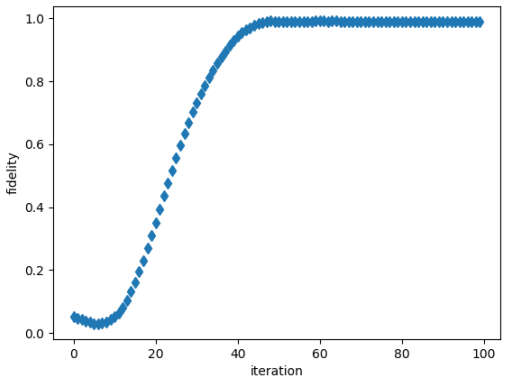
(b) bit flip



(c) phase flip



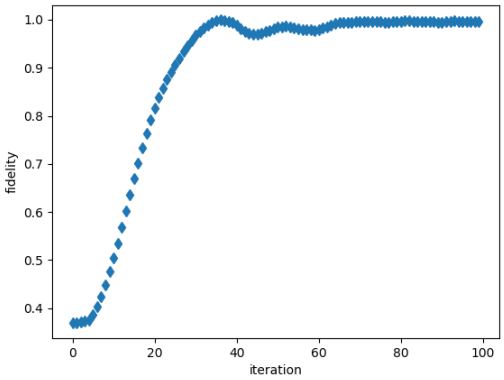
(d) bit and phase flip



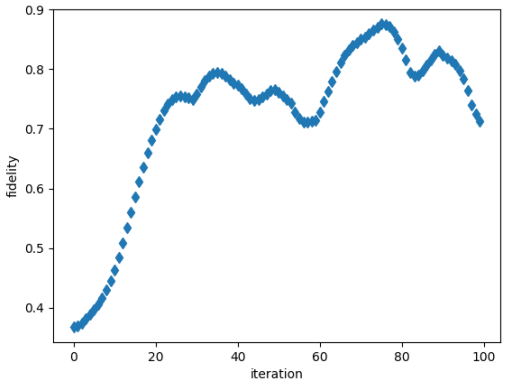
(e) depolarizing

Figure 1

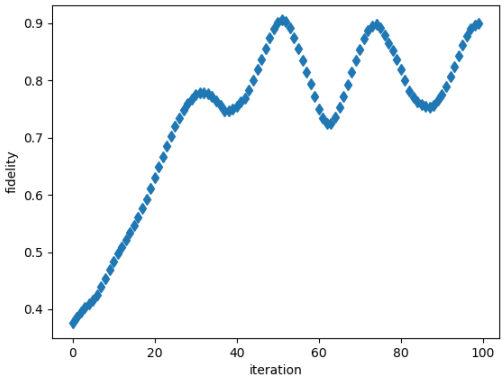
2.Condition: C(T) = C(G) = C(D) = 1, 2qubit, probability of noise: 0.4
Increasing the probability of noise, it can be found that noise will have a significant impact.



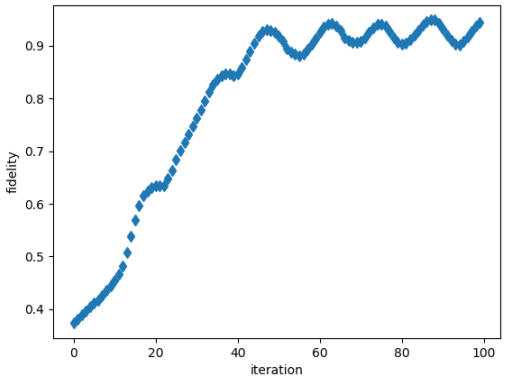
(a) without noise



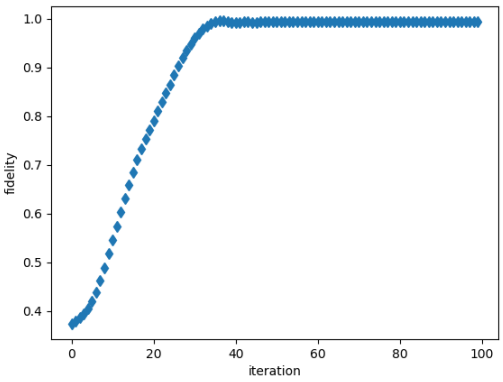
(b) bit flip



(c) phase flip



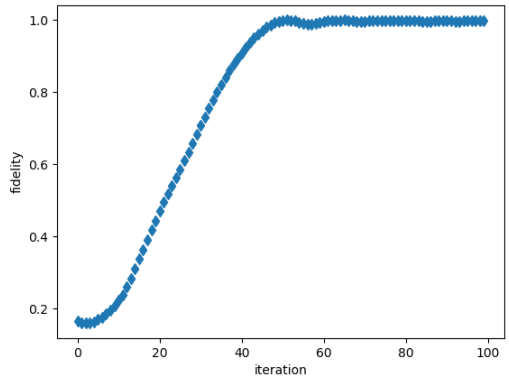
(d) bit and phase flip



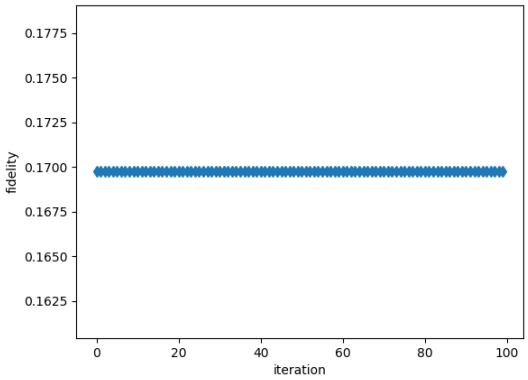
(e) depolarizing

Figure 2

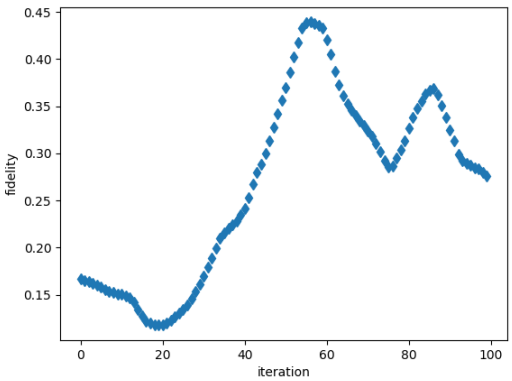
3.Condition: C(T) = C(G) = C(D) = 1, 2qubit, probability of noise: 0.5
Bit flip and phase flip will have a great impact under this condition.



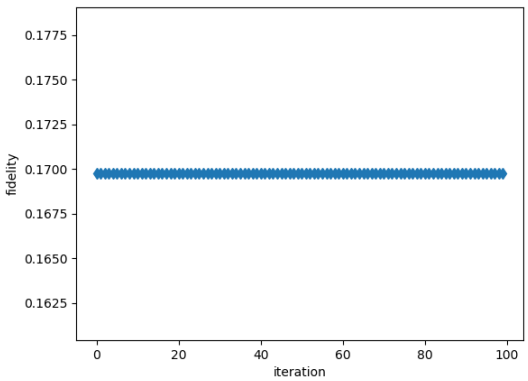
(a) without noise



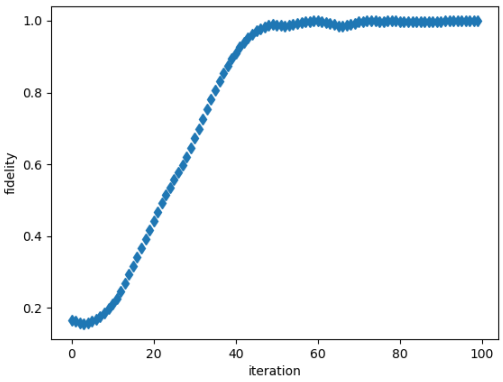
(b) bit flip



(c) phase flip



(d) bit and phase flip



(e) depolarizing

Figure 3

3 Next Plan

1.

4 Appendix

A Source Code