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# Quantum Generative Adversarial Network with Noise

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**Project Name:** Quantum Generative Adversarial Network with Noise

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# 1 Experiment

date: 2020.6.9

First,the input state of Generator changes from an zero state to a similar state.This change slows the convergence.

A dict save the input state and output state for directly generate without calculation after the data is calculated once. But there are some error in picture.

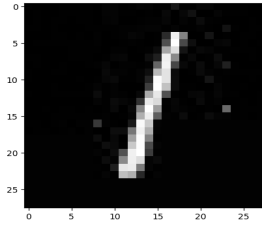


Figure 1: MINST image.

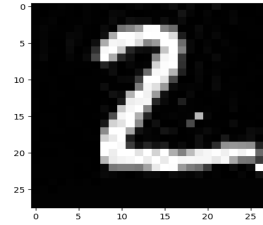


Figure 2: qGAN generate image.

Second,Calulation by simulating four qubits will retain more global information but extend computation time by ten times.

Third,teacher li asked me to write a paper. So,I will write a draft in next week.

## 2 Results

## 3 Next Plan

P: 1 write a draft

## 4 Reference

### References

- [1] BENEDETTI, M., GRANT, E., WOSSNIG, L., AND SEVERINI, S. Adversarial quantum circuit learning for pure state approximation. *New Journal of Physics* 21, 4 (2019), 043023.
- [2] SHENDE, V. V., MARKOV, I. L., AND BULLOCK, S. S. Minimal universal two-qubit controlled-not-based circuits. *Physical Review A* 69, 6 (2004), 062321.

## 5 Appendix

### A Source Code

just add core codes