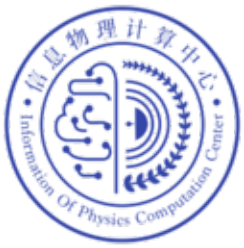

IFCC
信息物理计算中心

Quantum Generative Adversarial Network with Noise

Project Name: Quantum Generative Adversarial Network with Noise

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Contents

1 Experiment

In order to generate an image by qGAN,I want to encode a image in quantum state.Then we can use qGAN to generate a quantum state for approximate it.In quantum image processing,an image is encoded in a pure quantum state.This methods will use n qubits to encoding a 2D image.If an image have HW pixel,n equal to log HW.
In this way ,our computer can only simulator 4 qubits. That is a 4x4 image.
In the next plan,can we compress an image from 28x28 to 4x4 without lose a lot of information? can we use another quantum image representation to encoding image?

2 Results

3 Next Plan

P: 1 find some ideas

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