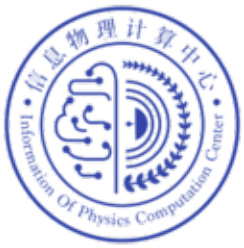

IFCC
信息物理计算中心

Quantum Generative Adversarial Network with Noise

Project Name: Quantum Generative Adversarial Network with Noise

Project member:

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Dodument Type: Report

Project Start Time: 3/01/2020

Sourcecode Version: 0.0.1

Keywords: Variational Quantum Circuit, Machine Learning

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Submitted by:

WH REN

Contents

Data type	Generator	Discriminator	Variable type	Implementation	Theory	real implement	pape
Q	Q	Q			Seth Lloyd and hu	Dallaire	
Q	C	Q			Seth Lloyd		
Q	Q	C					
Q	C	C			Seth Lloyd		
C	Q	Q	Any		Seth Lloyd and VQG		
C	C	Q			VQG		
C	Q	C	discrete		zeng and situ		
C	Q	C	continuous		VQG		
C	C	C			GANs		

In this table,Q is quantum . C is classical

1 Experiment

In this week,I have read some papers about quantum GAN.I wanted to find some ideas from them but I didn't get it. I looked up some papers trying to find out which structures haven't been studied.Maybe QQC hasn't been studied. next week,I want to find some other ideas.

2 Results

3 Next Plan

P: 1 finished quantum circuit code(finished)

2 checking gate gradient descent(finished)

3 the noisy channel don't work(why)

4 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