(Q)ParticleTransformer application in EW coupling of top quark at CEPC

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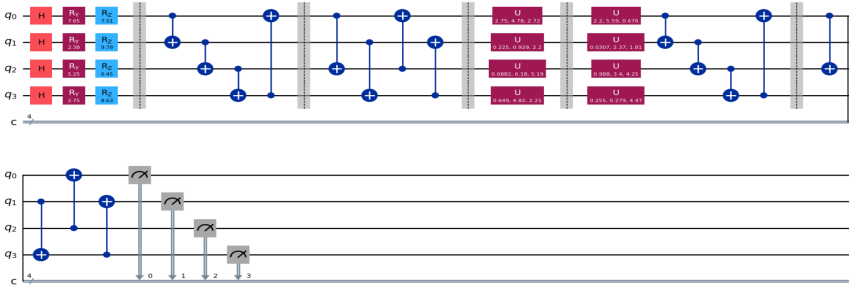
Outline

- The decoding part of Quantum-Block
- Some conjectures about the data set

First Section

- The decoding part of Quantum-Block

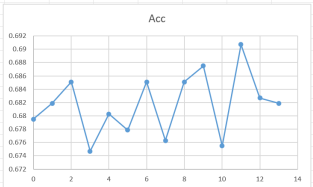
My circuit



- Encoding Part :cir.rylayer(input)+cir.rzlayer(input*input).
- Traning Part: Three layers of U Gate(3*2*num_qubit parameters).
- Decoding Part : Expected tanh value for z-axis projection.(Using nn.Tanh() as decoing function)

Training Figure

epoch	Loss	Acc
0	0.61998	0.67949
1	0.62469	0.68189
2	0.62486	0.6851
3	0.62712	0.67468
4	0.627	0.68029
5	0.6213	0.67788
6	0.61976	0.6851
7	0.61978	0.67628
8	0.62344	0.6851
9	0.63066	0.6875
10	0.62517	0.67548
11	0.62738	0.69071
12	0.6247	0.68269
13	0.6259	0.68189
		0.66587



- From the figure ,the best epoch set is 6.
- Poor Acc and Poor score result.
- Because I oberseve the output of QuantumPart is basically less than 10 which is too small.In other words, it is too slow to grow from the expectation of [-1,1] to the output in the range R.
- My current idea is to change the decoding part, because this part is the part that maps the data from [-1, 1] to R.