Week 7: Theory Solutions

Solution 1

1. Take $s = 0$ and prepare the ground state of the initial Hamiltonian, H_{init} using VQE with the final parameter vector as θ_s

2. Add δs such that $s+ = \delta s$

3. Run VQE on $H(s_{i+1})$ using the parameters from the previous step.

4. If s=1, stop or go to step 2.

Solution 2

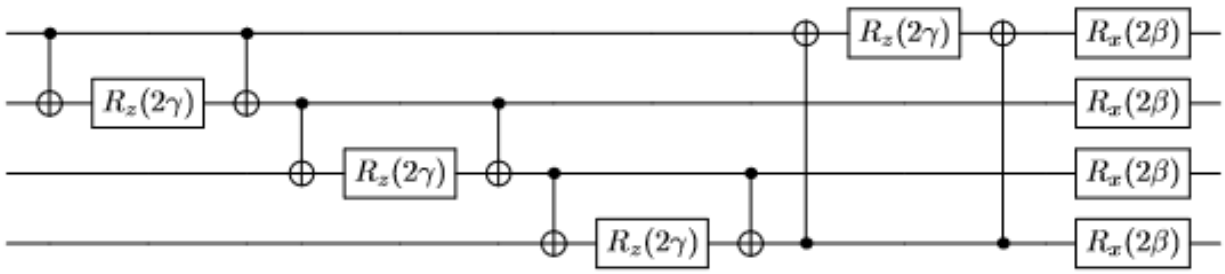

Figure 1: Sample QAOA Circuit for n=4, p=1

Solution 3

In AdaBoost, we do not add penalties for the convex landscape even if the complexity increases. This is not the case for QBoost which is based on penalties of the correlations and the l_0 norm is left unchanged. We also work in non-Convex landscapes in QBoost.