

Decide PQC configuration

1. Rotation gate(s)
2. Entanglement policy
3. Number of repetitions
4. Optimizer

Construct ansatz instance with a parameter vector (Θ) denoting the angles of the rotation gates.

Randomly initialize Θ as Θ_0 .

The final state prepared by a circuit with parameters as Θ_i is $|\psi_i\rangle$.

Compute the cost function
(Eg. Infidelity = $1 - \|\langle\psi_{\text{target}}|\psi_i\rangle\|^2$)

Use a classical optimizer to minimize this cost function over Θ .

The final parameter vector that minimizes the cost function is Θ_{final} and the corresponding prepared state is $|\psi_{\text{target}}\rangle \approx |\psi_{\text{final}}\rangle$

Setting $\Theta = \Theta_{\text{final}}$ in the ansatz gives the circuit that prepares the desired state $|\psi_{\text{target}}\rangle$.