WON0008 – Introduction to Quantum Computing (Cohort) – Spring 2023

QC Seminar 4

Assignments – Quantum Error Mitigation with Zero Noise Extrapolation

Run the notebook **notebook_mitiq_error.ipynb:**

1. Change **noise_strength** in Cell 2 to 0.2 and expand the list of **scale_factors** to [1,2,3,4,5]. Observe how the output values of the **folded_circuits** in Cell 12 change.
   Re-plot the fitting curve in Cell 14 and determine the new zero-noise extrapolated value for the circuit (Cell 13).

2. Repeat the steps in 1. for **n_layers=2** and **n_layers=3**, respectively (Cell 3). What changes?

3. Re-run the chemistry example for the H_2 example for **n_wires=6** and replot the ideal, noisy and error-mitigated curves.