QCLab

Qiskit Training Dr. K Saha (ksaha@nd.edu) Dr. W Jiang (wjiang2@nd.edu)



CENTER for RESEARCH COMPUTING

Week	Date (2 - 3 pm EST)	Qiskit Hands-on Training Plan (1 hour per class, 2 classes per week)
1	12/02/2020, W	Intro to Qiskit, installation, testing jupiter notebook with simple python code
1	12/04/2020, F	Concepts: Quantum states, qubits, single qubit gates
2	12/09/2020, W	Concepts : Continue with single qubit gates, and introducing quantum circuits. Tutorial : "x" flips a single state, visualize the Circuit, State vector, probability of the state
2	12/11/2020, F	Concepts: Multi-qubit gates, tutorials
3	12/16/2020, W	Concepts : Continue with multiple qubit gates Tutorial : "h" create the superposition of two states and their probability
3	12/18/2020, F	Concepts and tutorial: CNOT, Quantum entanglement, Bell State
		Christmas and New Year Break
4	01/06/2021, W	Concepts: Two quantum-friendly neural computations - by Dr. W Jiang
4	01/08/2021, F	Tutorial : End-to-end design for neural network on quantum circuit - by Dr. W Jiang
5	01/13/2021, W	Concepts and tutorial: Quantum Teleportation
5	01/15/2021, F	Concepts and tutorial: Bernstein-Vazirani Algorithm (finding a secret number)
6	01/20/2021, W	Concepts and tutorial: Quantum Fourier transform (QFT)
6	01/22/2021, F	Concepts and tutorial: Adding number with and without using QFT
7	01/27/2021, W	Concepts and tutorial: Quantum Phase Estimation (QPE)