

# COURSE AGENDA

## 1 Introduction to Quantum Computing

- What is Quantum Computer
- History of Quantum Computing
- What is Qubit
- Superposition of Single Qubit
- Entanglement of Multiple Qubits
- Measurement and Copenhagen Interpretation
- Applications of Quantum Computer
- Quantum Decoherence
- Commercial Quantum Computers
- Quantum Supremacy

## 2 Quantum Gates

- Quantum Gates
- Measurement
- Pauli Gates
- Matrix and Bloch Sphere Representation of Quantum Gates
- Hadamard Gate and Superposition
- Controlled-NOT Gate and Entanglement
- Quantum Phases and Phase Change Gate

## 3 Tensorflow Quantum

- Install Tensorflow Quantum
- Basic Operations of Tensorflow Quantum

## 4 Quantum Machine Learning

- MNIST Classification
- Quantum Convolutional Neural Network