# Introduction to Quantum @IBM

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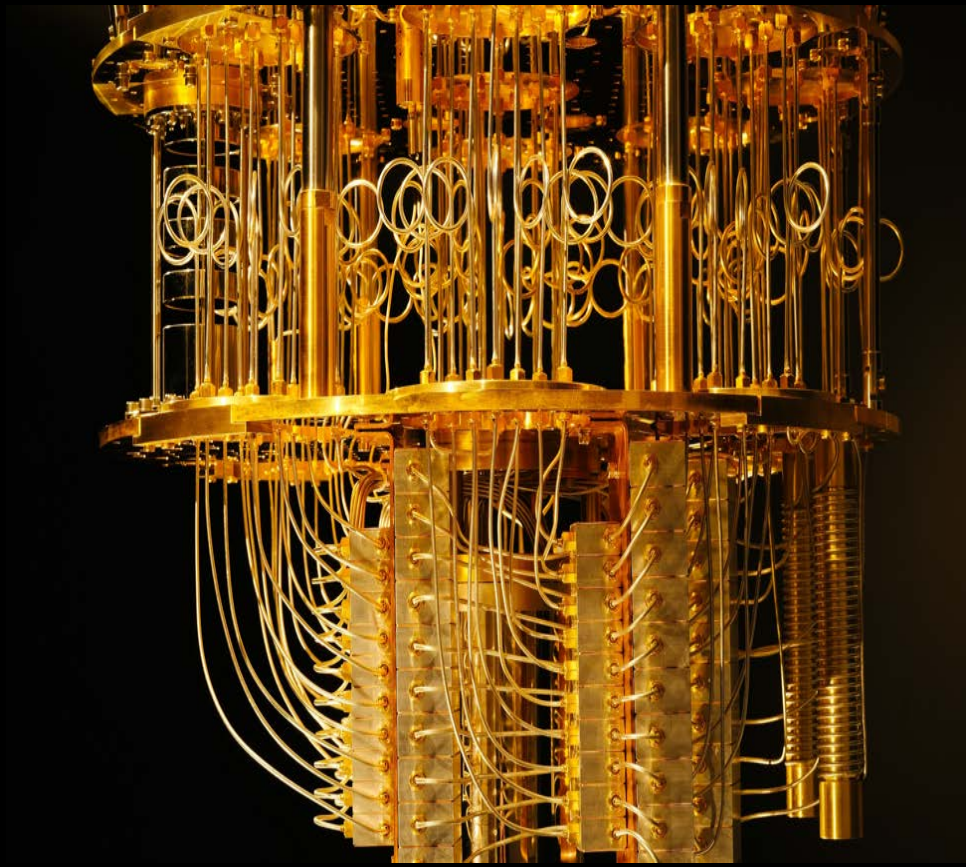
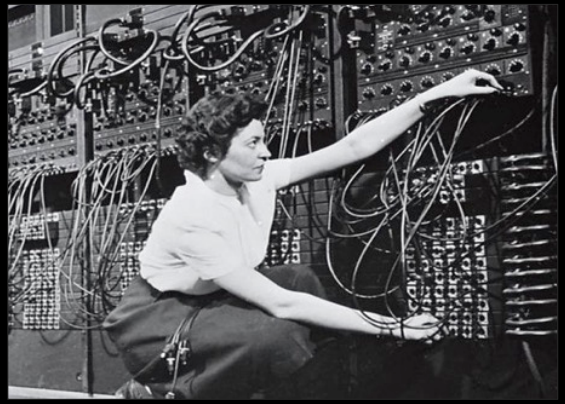
Vice President, IBM Quantum
CTO & VP, IBM Systems

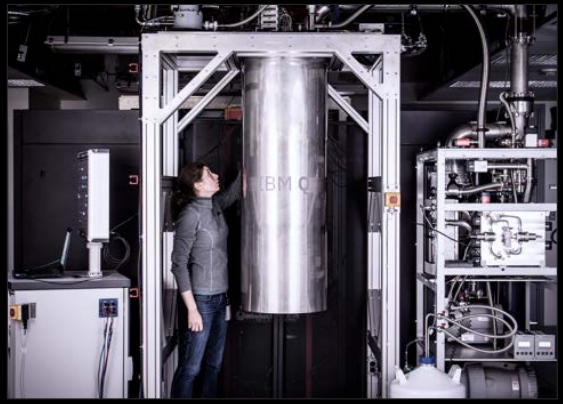


# We are at the beginning of a new age of computation



## ENIAC

First universal electronic digital programmable computing device



## IBM Quantum

First quantum computing device made available to the public

# What builds a quantum workforce?

## Open Access

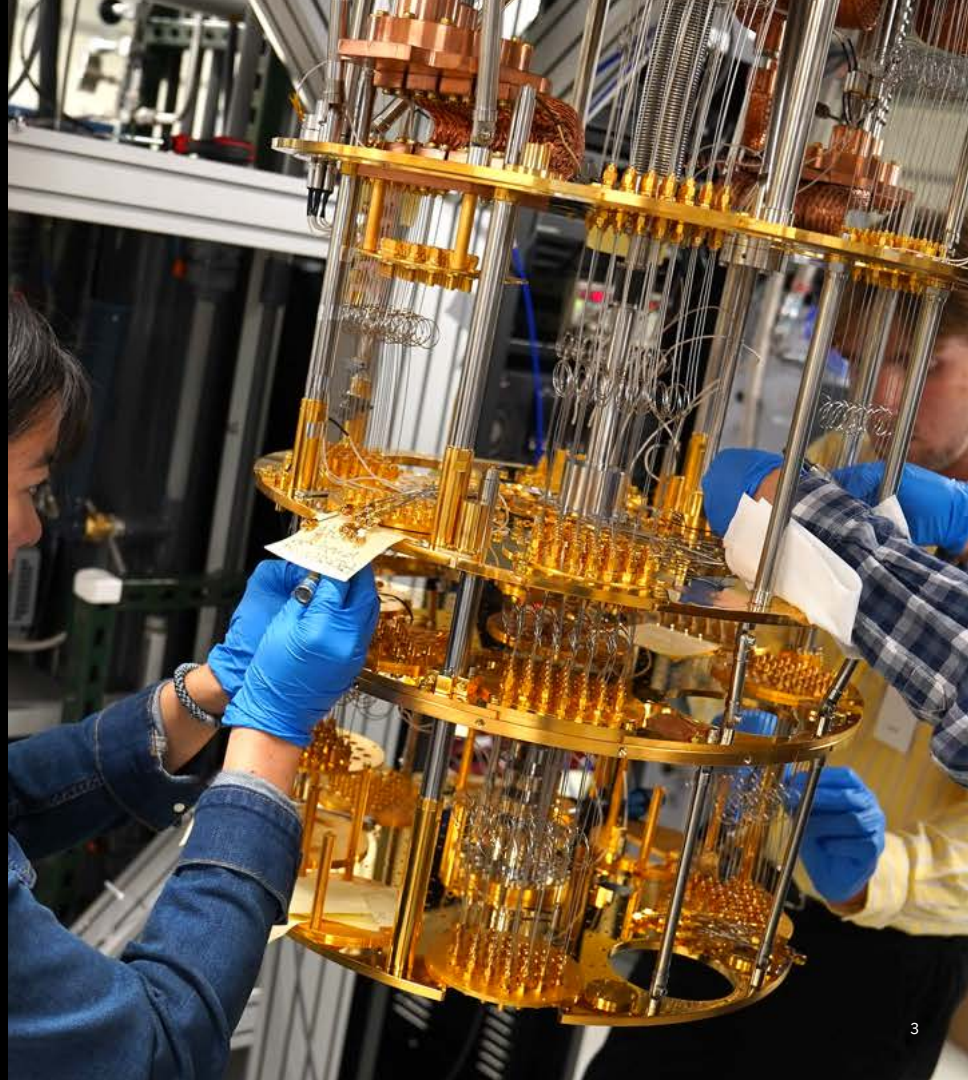
IBM has for 4 years offered access to our real quantum computers via the IBM Cloud.

## Open Source

Written in Python and maintained on GitHub, Qiskit is designed to make quantum computing software tools and frameworks available to everyone.

## Education

Now is the opportunity for us all to give back and support building a diverse community of researchers, students, educators, and developers.



# IBM Quantum Experience

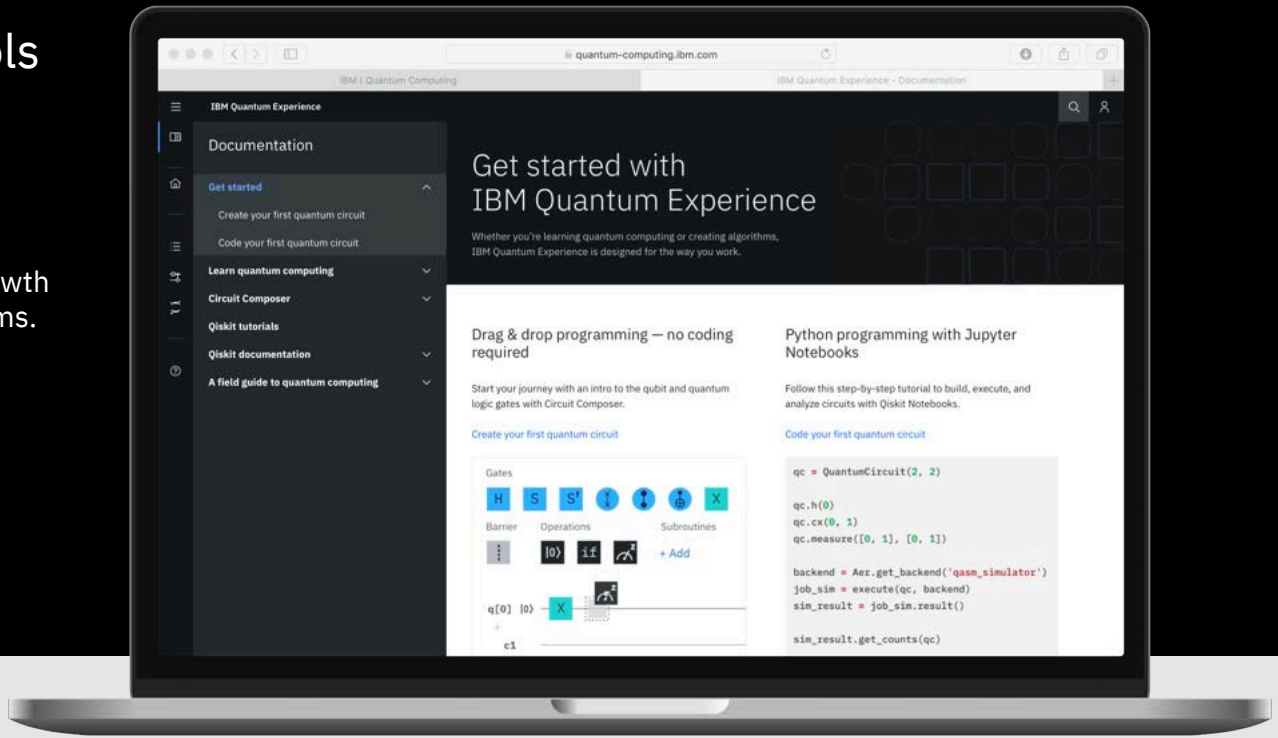
## Powerful programming tools for powerful hardware

### Open Access

Available to public users to promote the growth of the community and the use of IBM systems.

### Premium Access

Available to the IBM Quantum Network to provide differentiated capability to develop for quantum computing.



# 4 years after our launch ...

Over 225,000 registered users have run ...

over 175 BILLION quantum circuits in total, and users run ...

over 1.2 BILLION quantum circuits in a single day on ...

18 quantum computing systems on the IBM Cloud.

# Qiskit YouTube Series


Hosted by Abe Asfaw

**Coding with Qiskit**



| March | April | May | June |
|---|---|---|---|

**March**

**Qiskit Live**

- **Circuit Sessions**
- 1 episode per week
- **Seminar Series**
- 1 episode per week


**April 13**

**1 Minute Qiskit**

1 episode per week

**Hosted by Frank Harkins**

**June**

**Global Community Pilot**

1 episode per month

**May 29**

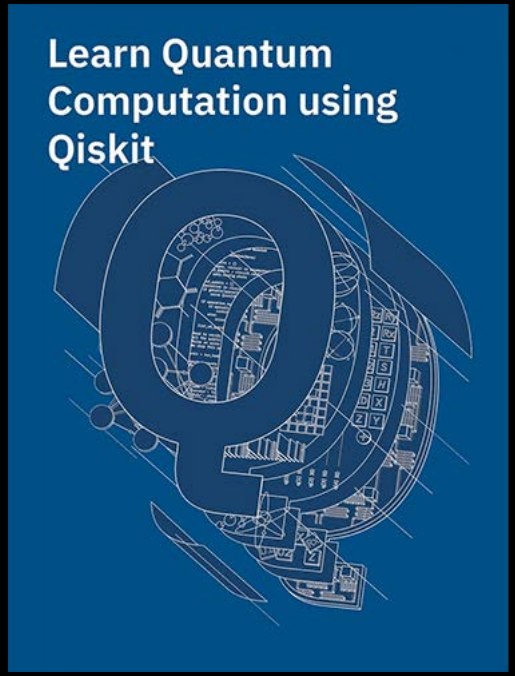
**SuperPosition**

2 Episodes per month


**Hosted by Amira Abbas**

# Education: Open-Source Qiskit Textbook






*Traditional Quantum Computation Course*

Linear Algebra Quantum Mechanics → Quantum Algorithms → Quantum Hardware

*Learn Quantum Computation using Qiskit Textbook*

Python Qiskit → Quantum Programming → Quantum Algorithms on Today's Hardware

## Chapters:

0. Prerequisites
1. Quantum States and Qubits

2. Single Qubits and Multi-Qubit Gates
3. Quantum Algorithms
4. Quantum Algorithms for Applications

5. Investigating Quantum Hardware Using Qiskit

6. Implementations of Recent Quantum Algorithms

# Access a real Quantum Computer today

Build your knowledge and skills in quantum computing by accessing the IBM Quantum Experience today.

Learn more:
ibm.com/quantum-computing

# Learn how to program Quantum Computers

The Qiskit open source textbook introduces coder to python-based programming of quantum computers.

Get started:
qiskit.org/education#textbook

# Thank you

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