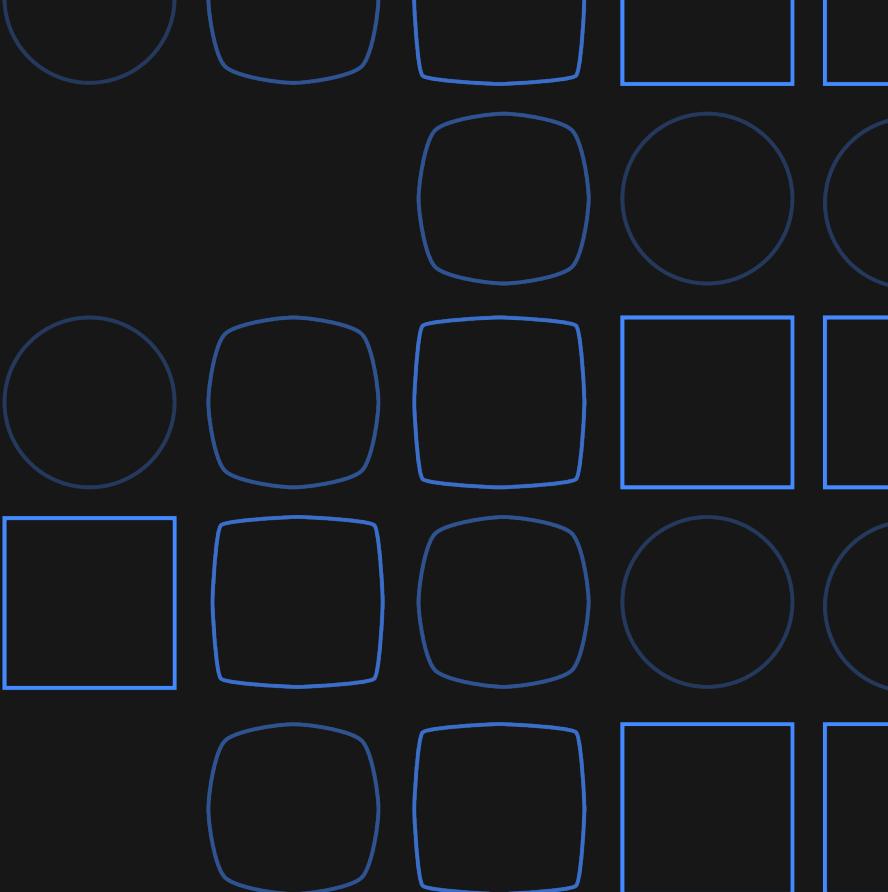


Qiskit community

Junye Huang

Quantum Developer Advocate





Qiskit

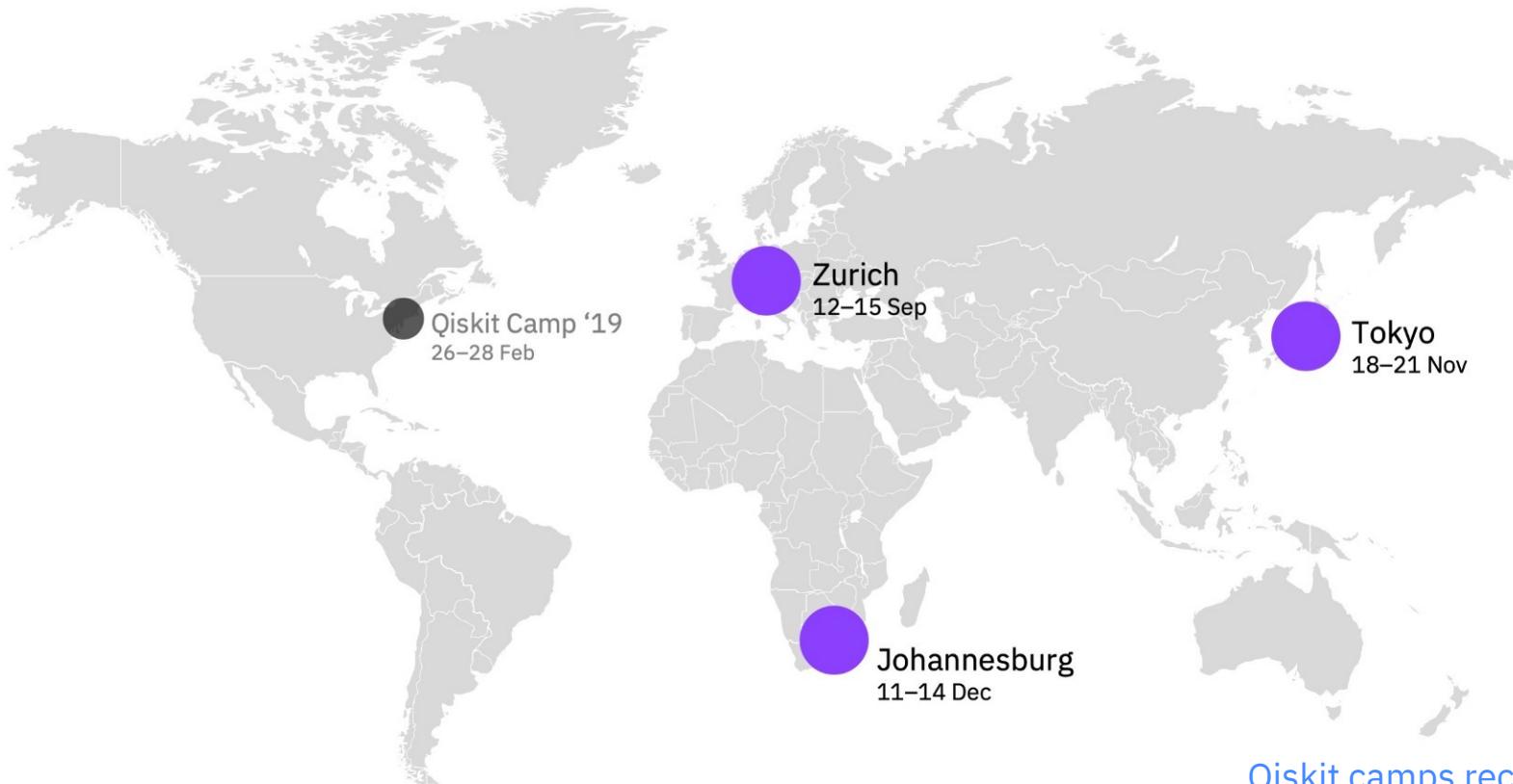
New *quantum* videos every week

[Welcome to the Qiskit Global Community Video](#)

Qiskit Camps

IBM Quantum





[Qiskit camps recap videos](#)

Oiskit Hackathons

IBM Quantum



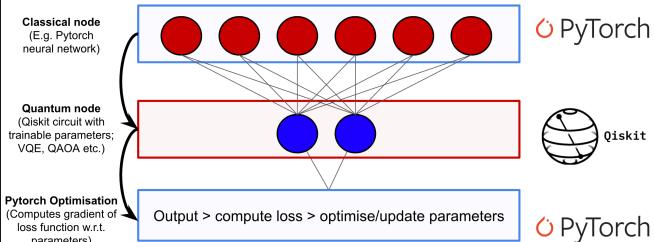
[Qiskit Hackathon @ SG recap article](#)

Community Projects

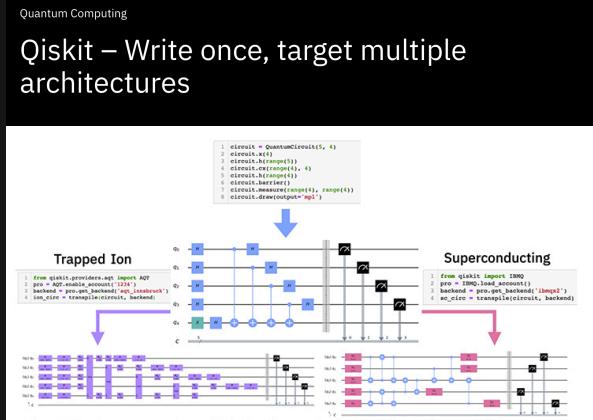


QPong

Hybrid quantum-classical Neural Networks with PyTorch and Qiskit



QizGloria



Ion Trap + Circuit Rewriting

YouTube Feature
Quantum Arcade machine
EU Quantum Flagship Exhibition

Qiskit textbook chapter

Integrated in Qiskit Terra
Trapped ion backend

Qiskit Advocates

100+ active community members around the world

IBMer



Robert Loredo
USA



Michele Grossi
Italy



Huang Junye
Singapore



James Wootton
Switzerland



Kifumi Numata
Japan

Non-IBMer



Samanvay Sharma
India



Vicente Pina Canelles
Spain



Amira Abbas
South Africa



Jack Woehr
USA



Desriee Vogt-Lee
Australia

IBM Quantum Challenge

4th anniversary of IBM Quantum Experience

4 quantum programming exercises to solve within 4 days (May 4-8)

Ex1: quantum circuits basics

Ex2: error mitigation using Qiskit Ignis

Ex3: BB84 quantum cryptography protocol

Ex4: circuit transpilation optimization

Participants

1745

Countries

45

Quantum systems

Quantum circuits

18

1B/day

IBM Quantum

AJ Rasmusson
@aj_rasmus

@IBResearch Tommy (2 years old) and I are working on the 2020 IBM qc challenge together. Thanks @csferrie for the great reference text!! #quantumphysicsforbabies #qiskit #QuantumComputing



3:44 am · 5 May 2020 · Twitter for Android

8 Retweets 42 Likes

Kiran | Johns
@theronjohnson

Me after #IBMQQuantumChallenge ended



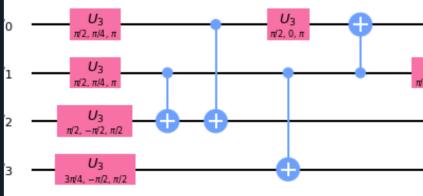
10:56 pm · 8 May 2020 · Twitter for Android

1 Retweet 8 Likes

IBM Quantum / Qiskit workshop for PC5228 / August 21, 2020 / © 2020 IBM Corporation

Carlo Cascio
@casciocarlo

I always wanted to try to write a blog post. The IBM Quantum Challenge gave me the topic and the motivation :) #quantum #ibmquantumchallenge



IBM Quantum Challenge 2020: my approach to get the magic 46!

A place where words matter

link.medium.com

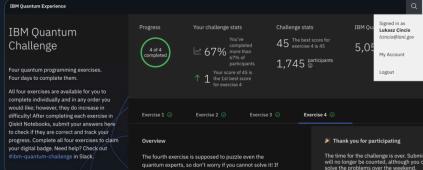
3:32 pm · 14 May 2020 · Twitter for Android

15 Retweets 95 Likes

Patrick Coles
@PatrickColes314

My coworker Lukasz Cincio completed exercise 4 with a top score of 45. Lukasz used the machine-learning approach outlined in our paper:

arxiv.org/abs/1803.04114. Thanks to IBM for this exciting challenge #IBMQQuantumChallenge
@ElisaBaumer @abe_asfaw



11:26 pm · 8 May 2020 · Twitter Web App

33 Retweets 135 Likes

Frederico Muñoz
@fredericomunoz

Add to be done :D Congrats for the scope, looking forward to read the detailed explanation
#IBMQQuantumChallenge

Join the IBM Quantum Challenge

Do the intro and BB84 quantum crypto, get badged.

Understanding what's wasked for circuit decomposition

Simplify the circuit and getting an advanced badge

Finding a quantum circuit decomposition lower than the target answer

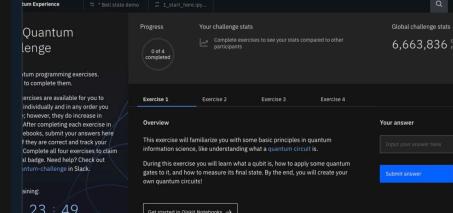


Kyungjoo Noh
@kyungjoo_noah

My partner @sunnieuhyoung (who hasn't taken physics courses since high school) is killing it so far. Clearly I've talked too much about #QuantumComputing (more than she wanted me to..) and it's paying off!

Hanhee Paik @HanheePaik · 4 May

IBM Quantum Challenge has started; go to ibm.co/quantumchallenge to join! May the fourth be with you!



6:56 am · 5 May 2020 · Twitter for Android

1 Retweet 17 Likes

Luciano Pereira Valenzuela
@Luplaciango

I did not sleep, but I made it. It was a great and fun challenge! #IBMQQuantumChallenge



9:51 pm · 8 May 2020 · Twitter Web App

23 Retweets 148 Likes

Qiskit Global Summer School

IBM Quantum

2-week Summer school on quantum computing
4000+ students around the world participated

Thanks again to everyone who attended the Qiskit Global Summer School. Read about some of the attendees' experiences here. #QiskitGSS

Quantum Enthusiasts Around The World Recount The Lasting Impact of the Qi...
Compiled by Josie Kies and Ryan F. Mandelbaum
medium.com

2:34 am · 14 Aug 2020 · Twitter Web App

20 Retweets 116 Likes 4 Quotes

#qgss is so cool! I'm so lucky to be able to participate in the fantastically lucid lectures and add to my quantum crypto notes as we go. Can't wait to work on the labs after next week <3 <3

QFT is a circuit composed directly from QFT's eigenvectors definition. Let's recall the operation:

$$|x\rangle = \frac{1}{\sqrt{N}}(|0\rangle + |1\rangle^{(1)} + |2\rangle^{(2)}) = |0\rangle + e^{\frac{2\pi i x}{N}}|1\rangle^{(1)} + e^{\frac{4\pi i x}{N}}|2\rangle^{(2)}$$

Each qubit swap from $|x_1\rangle$ to $|x_1 + \frac{1}{2}\rangle$

$$|x\rangle = \frac{1}{\sqrt{N}}(|0\rangle + |1\rangle^{(1)} + |2\rangle^{(2)})$$

There are two observations: one, $|x\rangle$ contains terms like $|0000\dots 0\rangle$ and $\langle 0000\dots 0|$ and $\langle x|\frac{1}{2}|0000\dots 0\rangle$

Secondly for the $|1111\dots 1\rangle$ term, the phase is $e^{-i\pi x}\frac{N}{2}$.

In the phase is color-dependent.

To do it correctly, we need the Hadamard gate and the Unitary $H|y_1\rangle = \frac{|y_1\rangle + |N-y_1\rangle}{\sqrt{2}}$

For the Unitary, it's defined as:

$$U_{HOT}(|x\rangle) = \frac{1}{\sqrt{N}}\sum_{y=0}^{N-1}e^{\frac{2\pi i xy}{N}}|y\rangle$$

In practice, $U(HOT)|0\rangle = |0\rangle$ and $U(HOT)|1\rangle = \frac{1}{\sqrt{2}}(|0\rangle + |2\rangle)$

QFT is:

$$QFT = \frac{1}{\sqrt{N}}\sum_{x=0}^{N-1}\sum_{y=0}^{N-1}e^{\frac{2\pi i xy}{N}}|y\rangle\langle x|$$
$$= \frac{1}{\sqrt{N}}\sum_{x=0}^{N-1}|x\rangle\langle x + \frac{1}{2}|$$
$$\text{Counter}$$
$$QFT|0\rangle = \frac{1}{\sqrt{N}}\sum_{x=0}^{N-1}|x\rangle\langle x + \frac{1}{2}|$$
$$= \frac{1}{\sqrt{N}}(|0\rangle + |2\rangle + \dots + |N-2\rangle)$$

doomer cato @yourhammervir - Jul 25
thank you to everyone who has made this opportunity available at home and all over the world. definitely saved my stuffy summer break :))

doomer cato @yourhammervir
the fact that this is SO well done (shared lecture notes, discord chat, always keeping us up to date) has restored my faith in online learning. thank u @qiskit ❤️ 😊

6:30 AM · Jul 25, 2020 · Twitter for iPhone

NIKHIL GUPTA @nikhil_0105 - 1h
I am thankful the @qiskit_ibm for two weeks of exciting and enlightening journey into the Quantum computing. Before this I was not sure where to start and how. Thanks for doing that.

doomer cato @yourhammervir - 1h
I will always remember my first step into the field was with awesome mentors on the #QiskitGSS. @ElisaBaumer @abe_asfaw @nickbronn @zlatko_minov @nickbronn @decodoku @A_Mezzacapo and Abhinav. Thanks for giving so much to learn in just a span of few hours daily.

NIKHIL GUPTA @nikhil_0105
Thanks and congratulations to the admin and the hosts for making this Global School a successful one. All of our favourite @Bingmanson @JustTheJosie @suzie_mae. Those quizzes were fun. Also thanks to the Quantum Computing community for such amazing time. Looking forward to more!

Bishal Shrestha @OfficialBishal - 6h
Being from the part of the world where people are not much influenced about quantum computing, this was all I needed. Qiskit Global Summer School is going to be major part of my student life. Thank you @qiskit @Bingmanson @JustTheJosie @suzie_mae and all for such amazing hosts.

Qiskit Global Summer School
Commencement

Qiskit on Social Networks

Follow @Qiskit



[Twitter](#)



[YouTube](#)



[Slack](#)



[Medium](#)

Coding with Qiskit



1 minute Qiskit (every Monday)



SuperPosition



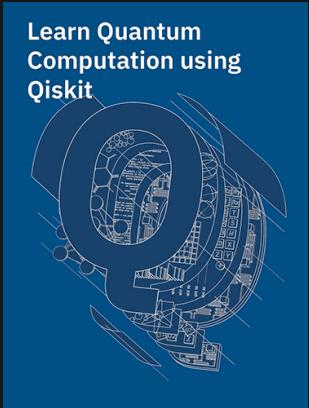
Qiskit Live (every Wednesday and Friday)



Charlie Bennett
Seminar Series



Qiskit Learning Resources



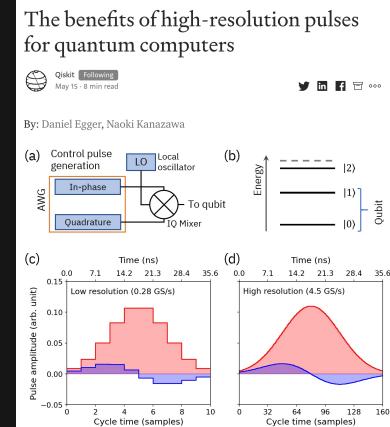
Qiskit textbook

The screenshot shows the 'Qiskit Tutorials' section of the IBM Quantum Experience web interface. It features the Qiskit logo and the tagline 'Elements for building a quantum future'. Below the logo, there are sections for 'Getting started with Qiskit' and 'Qiskit Tutorials'. A sidebar on the left provides navigation links for the Quantum Experience platform.

Qiskit tutorials

This screenshot shows the 'Get started with IBM Quantum Experience' page. It includes sections for 'Drag & drop programming – no coding required' (using Qiskit Terra), 'Python programming with Jupyter Notebooks' (using Qiskit Aer), and 'Circuit Composer' (a graphical interface for circuit creation). A sidebar on the left lists various documentation resources like 'Qiskit documentation', 'Circuit Composer', and 'Qiskit Notebooks'.

IQX documentation



Qiskit Medium

This screenshot shows a blog post titled 'IBM Quantum Challenge results: Billions and billions of circuits'. It includes a summary of the challenge, statistics (May 4 to May 8, 2020), and a call to participate in the next challenge. The sidebar on the left lists other posts under 'Quantum Computing'.

IBM Research Blog