Qiskit Advocate Mentorship Program (QAMP)

Qiskit

Qiskit Advocate Squad

Agenda

Qiskit

- **QAMP Overview**
  - QAMP Summary
  - QAMP Github & Slack
  - Highlights

- **QAMP Fall 22**
  - Timeline
  - Program Features
  - Mentee Selection Process
  - Mentor Checklist

- **Q&A**

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What is QAMP?

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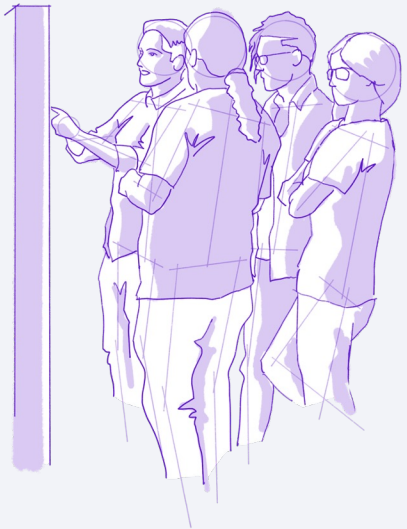
Qiskit Advocate Mentorship Program (QAMP) is a program focused on bringing new contributors into Qiskit **open-source** software development where **Qiskit Advocates** work on a **3-month** projects under the guidance of mentors.

QAMP Summary



Outstanding outcomes

Three Cohorts

193 applications

78 mentors

152 mentees

82 projects

Contributions

100+ PRs

30+ new contributors

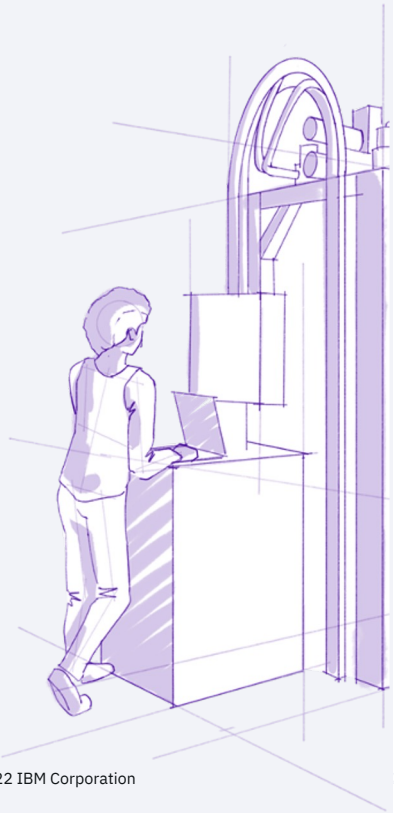
20+ blogs

3 preprint paper

Fantastic feedback

- Participants rated the experience over **4.6/5** for every cohort.
- **100%** of responding mentors agreed or strongly agreed that the program was a worthwhile use of their time
- **95%** of responding mentees agreed or strongly agreed that the program improved their quantum skills
- **84%** of respondents reported that they continued working with their mentor/mentee even after the cohort ended

Github & Slack



Github Repos

QAMP Fall 2022: https://github.com/qiskit-advocate/qamp-fall-22

QAMP General: https://github.com/qiskit-advocate/qamp-general

Qiskit Slack Workspace

Channels

#qamp-fall-22

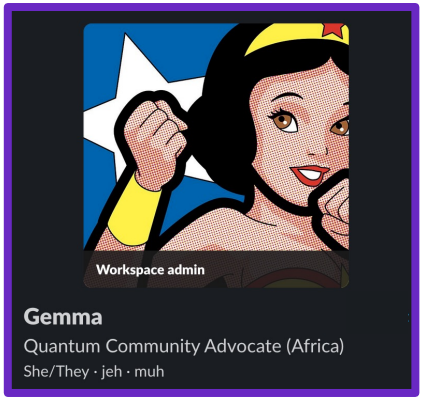
#qamp-fall-22-mentors

Admins

@Junye

@Gemma

@advocate-squad



Project highlights

JOSS
The Journal of Open Source Software

rustworkx: A High-Performance Graph Library for Python

Matthew Treinish [1], Ivan Carvalho [2], Georgios Tsilimigkounakis [3], and Nahum Sá [4]

1 IBM Quantum, IBM T.J. Watson Research Center, Yorktown Heights, USA
2 University of British Columbia, Kelowna, Canada
3 National Technical University of Athens, Athens, Greece
4 Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil

DOI: 10.48550/arXiv.2110.15221

Software
- Review
- Repository
- Archive

Submitted: 28 October 2021

In *rustworkx*, we provide a high-performance, flexible graph library for Python. *rustworkx* is inspired by *NetworkX* but addresses many performance concerns of the latter. *rustworkx* is written in Rust and is particularly suited for performance-sensitive applications that use graph representations.

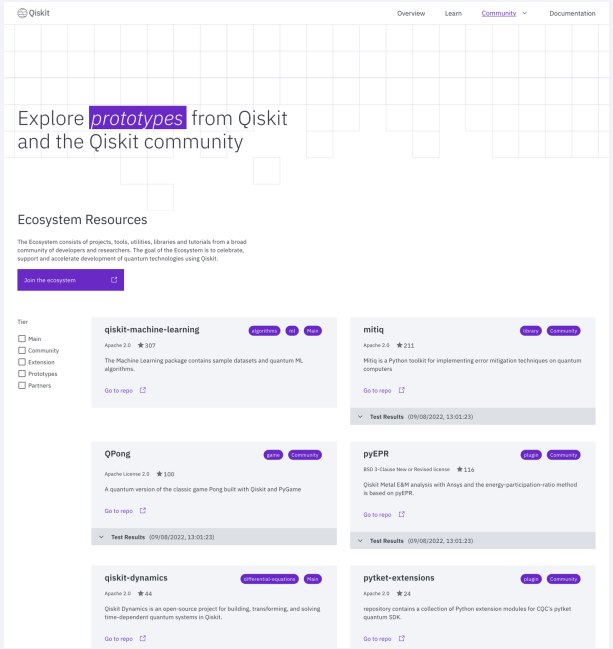
Statement of need

rustworkx is a general-purpose graph theory library focused on performance. It wraps low-level Rust code (Matsakis & Klock, 2014) into a flexible Python API, providing fast implementations for graph data structures and popular graph algorithms.

rustworkx is inspired by the *NetworkX* library (Hagberg et al., 2008), but meets the needs of users that also need performance. Even though *NetworkX* is the de-facto standard graph and network analysis library for Python, it shows performance concerns. *NetworkX* prefers pure Python implementations, which leads to bottlenecks in computationally intensive applications that use graph algorithms.

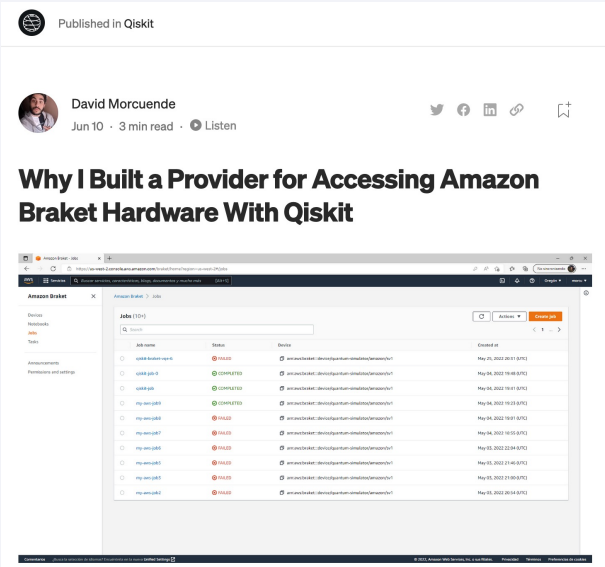
rustworkx addresses those performance concerns by switching to a Rust implementation. It has support for shortest paths, isomorphism, matching, multithreading via rayon (Stone & Matsakis, 2021), and much more.

Rustworkx (prev. retworkx)
Mentor: Matthew Treinish
Mentee: Ivan Carvalho, Georgios Tsimigkonakis, Nahum Sá



Qiskit Ecosystem
Mentor: Iskandar Sitdikov
Mentee: Michaël Rollin, Balaji Seetharaman

Qiskit-braket-provider
Mentor: Iskandar Sitdikov
Mentee: David Morcuende



Qiskit jobs run on Amazon Braket (Screenshot: David Morcuende)

QAMP timeline

https://github.com/qiskit-advocate/qamp-fall-22#important-dates

Application open (Aug 16 - 28)

Kick-off (Sep 8)

Checkpoint 1 (Oct 6)

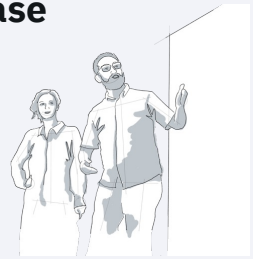
3-minute proposal presentation

Checkpoint 2 (Nov 3)

Written report (500-1000 words)

Final showcase (Dec 8)

Final demo presentation

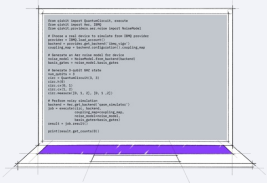


Aug | Sep | Oct | Nov | Dec

Mentor mentee matching (Aug 28 - Sep 6)

First meeting with mentor (Sep 8 - 15)

Working on the project



Program Features

Qiskit

- Trial period (from Kick-off to Checkpoint 1)

- Mentor Support
  - Training session
  - Mentor checklist

- More opportunities to showcase the projects
  - **DemoDay** presentation
  - **Qiskit Medium** publications
  - **Unitary Fund** microgrant application assistance

- Workshops (examples from Spring 22)
  - GitHub PR
  - Technical writing

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Mentees selection process

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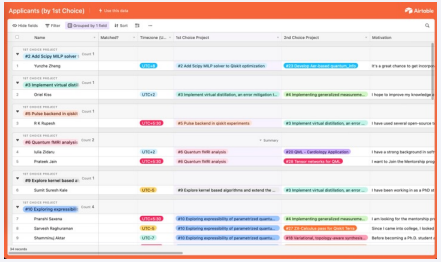
- See the list of applicants in this airtable view (password: **qiskitadvocate**)
- The list is grouped by 1st choice by default, you can also group it by 2nd choice to applicants that choose your projects as 2nd choice.
- Read the “Motivation”, “Background”, “Programming level” fields to get to know the applicants
- Contact applicants that you are interested in via Slack or email. Get to know them better by asking questions. Try your best to check the applicants:
  - understand the project idea
  - are interested in working on the project
  - have the skills level that matches your expectation
  - able to devote enough time to work on the project in the next 3 months



Mentor checklist

A handy checklist to cover the basics of your new mentorship when you meet with mentees for the first time.

https://github.com/qiskit-advocate/qamp-general/blob/main/Mentor%20Resources/Mentor%20Checklist.pdf

Qiskit

Mentor Checklist: Use this quick checklist to cover the basics of your new mentorship.

- [ ] Introduce yourself! Tell your mentee about your background and career
- [ ] Get to know your mentee.
    - [ ] Mentee introduces themselves and their background experience
    - [ ] What does the mentee want to get out of the mentorship?
    - [ ] Does the mentee have any concerns or worries about the mentorship?
- [ ] Schedule regular meetings. How often are you meeting?
- [ ] Discuss upcoming vacations or other obligations or commitments (work, study, family).
- [ ] Discuss how you plan to communicate asynchronously outside of your meetings. Is there a preferred platform, such as slack, that is a reliable means of communication?
- [ ] Agree on number of hours to spend on this project per week
- [ ] Discuss the scope of the project
- [ ] Discuss the timeline and be aware of all major milestones, including the two checkpoints. See the important dates here.
- [ ] Put checkpoints and major milestones on your calendars
- [ ] Discuss and share resources / documentation / materials you would recommend for your mentee on your project.

Common questions

Common questions and answers are also listed in the mentor checklist

https://github.com/qiskit-advocate/qamp-general/blob/main/Mentor%20Resources/Mentor%20Checklist.pdf

Common Questions

How do I choose a mentee?

1. You are always welcome to set up a Slack or Webex chat with a potential mentee to explore whether it's a good fit before you pick a mentee.
2. Consider your respective time zones and if it will prevent a good working relationship or cause problems communicating on the project.
3. Make sure mentees have the background and skills required for your project, but also keep in mind that the mentorship is meant to help mentees grow their skills and learn from you.

What do I do if things aren't going as expected?

1. Schedule a meeting with your mentee to discuss
2. Ask the @advocate-squad for help
3. The trial period ends at Checkpoint 1. If the issues have not been resolved, you may dissolve the mentorship relationship.

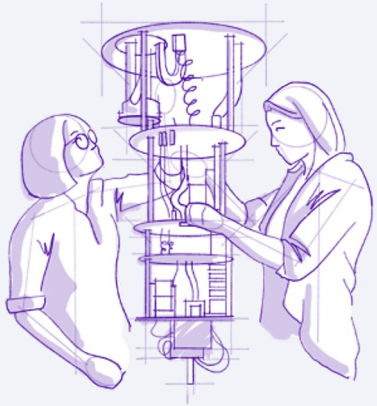
What are some possible causes for termination the mentorship?

1. Mentee not showing up for scheduled meetings
2. Not following through on the commitment the mentee agreed to at the beginning.
3. Unexpected circumstances prevent either party from meeting their commitments.

Should the mentorship include career advice?

1. Yes! If your mentee is interested in career advice, this is a great topic to discuss.

Q&A



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Slack

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Mentee Selection

Airtable View

https://airtable.com/shrq1zJQdtg8pZuGx

Password: qiskitadvocate

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