

Weekly Log 1

Calista Carey, AJ Hanus, Andrew Hancock, Jordan Cowen, Austin Garcia, Jake Shedenhelm

Group Work

Sept 2019

Scheduled our first meeting with our advisor Professor Tyagi. In this meeting Tyagi introduced the group to basic ideas of Quantum Computing. We also discussed how we could apply past experience in internships and course work to our project.

Sept 19, 2019

We had our first meeting with our client, Victory. During this meeting, he gave us a more in depth description of Quantum Computing. He introduced the Cirq repository to us, and assigned the members an issue each and gave deadlines for these issues. He stressed how important it is to keep up with the lectures he sent us so we have a good idea of how to implement Quantum Computing when we get assigned our main issue.

Sept-October

Since we got assigned this assignment, we have all been teaching ourselves about Quantum Computing. We have been attended talks suggested Tyagi and watching/reading the lectures provided by Victory. We have also been completing various assignments that have been assigned throughout the semester

Individual Work

Calista Carey

Hours Worked: 8 hours

For the beginning part of this course, I have been teaching myself python as well as keeping reading/listening to the lectures on Quantum Computing that Victory sent us.

I was assigned issue #1642 [Add links to issues next to TODO comments](#). For this issue, I had to search all of the TODO statements in the code and add a new issue for it. I also had to make a pull request correcting a spelling error in the current repo. Victory assigned me a simpler issue since I am still in the process of learning python. He wants to ensure that I know the language before giving me an issue that requires me to write code.

Austin (AJ) Hanus

Hours Worked: 8 hours

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To start this semester, I am completely new to Quantum Computing so I began watching the Carnegie Mellon University lectures on the topic. I also forked and downloaded the Cirq repository to be able to create my own branches and submit code to the master repo.

I was also assigned #2022 [Add docstring to cirq/contrib/paulistring/init.py](#). This issue was a very basic issue where I added a docstring to one of the libraries. This provided more documentation for the paulistring module but also gave me a test run on how to submit to the Cirq repository. It also showed me the process for getting a new issue assigned to me.

I was also assigned #2134 [Implement the quantum part of Shor's algorithm](#). This issue ended up being difficult since I am not knowledgeable in Quantum Computing so we decided to work on it as a team. I've also been reading (and rereading) lecture notes on how Shor's algorithm is implemented using Quantum Computing.

Andrew Hancock

Hours Worked: 8

I was assigned issue [#998 Test cirq.testing.assert_equivalent_repr on every class with a __repr__ exposed by cirq](#). This relates to testing coverage in Cirq. Basically, each class has a `__repr__` function which provides a string of code that would be used to replicate that instance of the class. For some classes, this `__repr__` method wasn't being tested. I went through and searched for the classes whose `__repr__` method wasn't being tested and added testing for them. I then made sure the code was formatted correctly and all tests passed.

Outside of the issue I have been working on, I have been reading through lecture notes online as well watching quantum computing lectures on Youtube from CMU. I have been learning a good amount through these resources.

Austin Garcia

For the first period of this project, I have been focusing on learning Python and information about quantum computing. I have watched lectures regarding both subjects in preparation for work on the project. I have also cloned the Cirq repository and am currently working on correctly setting up my development environment so I can begin contributing deliverables to the project.

Jordan Cowen

Thus far I have done mostly learning and environment setup. I have experience or knowledge of Quantum Computing and have been reading lecture notes to learn the material.

I was assigned "[Add cirq.sample_final_wavefunction method #1740](#)" but have been unable to make progress on it because I've been unable to get the development environment setup on my windows

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machine. The framework doesn't support development very well for windows so I am moving to installing a linux virtual machine on my laptop at which point I will begin progress on the issue assigned above.

Jacob Shedenhelm

Hours Worked: 8

Due to not having any prior knowledge of Quantum Computing, the beginning part of this class has been spent doing a lot of learning. I have been watching/reading the lectures provided to us by our sponsor Victory.

I was assigned issue [#2147 Move 'Cirq/cirq/vis/examples/' to Cirq/examples/](#). This issue relates to the file structure of the repo and keeping the examples in sync. It was a good beginning issue because it let me get used to the repo and how the examples work. As well, I was able to learn how to run `pylint` and `pytest` to make sure that the code is formatted correctly and all the tests still pass. Up next, I will be working with the group to implement Shor's algorithm which AJ discussed in his weekly update.