June

Milestone: faster quantum circuits

Week 1 and 2

* + 1. Design the scenarios that would be tested among the other quantum circuit solutions.
    2. Code the method that would measure the time of each previous quantum circuit scenario.
    3. Run the scenarios in QuTiP and measure times.

1.2.1. Set up environments to use other solutions.

1.2.2. Create the IPython Notebook importing the previous environments.

1.2.3. Test scenarios under the libraries of other solutions and measure those times.

Week 2 and 3

1.3.1. Set up the levels that QuTiP must overcome to be faster than other solutions.

1.3.2. Code calculations using C language.

1.3.3. Code calculations using parallel computing.

1.3.4. Seek for more alternatives to improve efficiency of the code.

1.4.1. Create the notebook with the report and the documentation of the work done in the month.

Important: there must be a reviewed commit by the end of this week.

Week 4 (First evaluation)

Fix bugs and solve setbacks to complete the milestone of the first month.

Note: Study QASM.

July

Milestone: import/export of quantum circuits to standard format and to other libraries

Week 1 and 2

2.1.1. See the exportation/importation format of other solutions.

2.1.2. Code functions to export/import objects from QuTiP to other solutions.

2.2.1. Code functions in QASM.

2.3.1. Make requests to the IBM’s API.

2.3.2. Code function to export/import circuits from Qiskit using its API.

Week 2 and 3

2.4.1. Make requests to the IBM’s API (since it’s a non-REST API this would take more time)

2.4.2. Code function to export/import circuits from Cirq using its API.

2.5.1. Create IPython Notebook with the documentation of the code products.

Important: there must be a reviewed commit by the end of this week.

Week 4 (Second evaluation)

Fix bugs and solve setbacks to complete the milestone of the second month.

Note: Study GSoC 2019 deeper.

August

Milestone: further development and extension of QuTiP – code submission

Week 1 and 2

3.1.1. Code a function to extend the GSoC 2019 project to stochastic dynamics.

3.2.1. Create a document with the new functions and methods added to the QIP module and the QuantumCircuit class along the past two months and half.

3.3.1. Create IPython Notebook with the documentation of the extension of GSoC 2019 and add the previous document.

Week 3 and 4 (Code submission)

Fix bugs and solve setbacks to complete the milestone of the third month.

Important: Start to prepare from week three the submission of the GSoC 2020 code (at least one commit must be in the development branch).