QWORLD HUAWEI 中国科学技术大学 University of Science and Technology of China

QBronze69

Welcome Meeting!

Quantum Computing & Programming Workshop | October 15-16 & 22-23 & 29-30, 2021

Introduction

- We will use QWorld's tutorial Bronze-ProjectQ released with the support of Huawei Technologies Co., Ltd.
- Bronze is an introductory tutorial on quantum computing and programming.
- We will have 5+1 online lectures by using Tencent meeting.
- Each student is expected to complete five assignments with success rate 70%.
    - The assignments will be taken on QWorld's Canvas server.
- There will be mentors from USTC and QWorld.
- We will use WeChat for communication.

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Bronze-ProjectQ

- Fully hands-on experience. Learning by doing.
- Several tasks on each notebook.
- Each student is expected to spend 15-30 hours.
- Sections
  - Basics of classical system
  - Basics of quantum systems
  - Quantum operators on a quantum bit
  - Entanglement and basics quantum protocols
  - Quantum search algorithm
- Repo: https://gitlab.com/qworld/bronze-projectq
  - Installation: https://gitlab.com/qworld/bronze-projectq/-/blob/master/installation.pdf
  - Video recording(s): Please check the Canvas

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Supplementary notebooks

- A quick review of Python
- A quick review of basic mathematics
  (vector, matrices, and basic operations on them)
- Exercises
- Reference notebooks for ProjectQ and Python
- Some project ideas

Online lectures

(GMT +8:00, Beijing)

18:30-19:00, Oct 15 | Welcome meeting

19:00-20:00, Oct 15 | Lecture 1: Basics of classical systems

19:00-20:00, Oct 16 | Lecture 2: Basics of quantum systems

19:00-20:00, Oct 22 | Lecture 3: Quantum operators on a quantum bit

19:00-20:00, Oct 23 | Lecture 4: Entanglement and basics quantum protocols

19:00-20:00, Oct 29 | Lecture 5: Grover’s search algorithm

19:00-21:00, Oct 30 | HiQ lecture “MindQuantum” by Huawei

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Assignments

Each participant is expected to complete five assignments.

If the total grade is 70 out of 100, then the participant will be awarded with a memorial QBronze diploma.

Each assignment will be an online quiz.

It can be attempted up to 4 times within the deadline.

Please use your full name on Canvas, which will be used on diplomas.

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Assignment schedule

Assignments	Topic	Available from	Until (deadline)
Quiz 1	Basics of classical systems	Friday, Oct 15	Saturday, Oct 23
Quiz 2	Basics of quantum systems	Saturday, Oct 16	Sunday, Oct 24
Quiz 3	Quantum operators on a quantum bit	Friday, Oct 22	Saturday, Oct 30
Quiz 4	Entanglement and basics quantum protocols	Saturday, Oct 23	Sunday, Oct 31
Quiz 5	Grover’s search algorithm	Friday, Oct 29	Saturday, Nov 6

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Code of Conduct

We all will do our best to provide a harassment-free teaching and learning experience for everyone!

If you are being harassed, notice that someone else is being harassed, or have any other concerns, please contact the organizers immediately!

For any concern regarding the organizers,
please contact the members of the Ethics Committee of QWorld.

https://qworld.net/code-of-ethics-and-conduct/

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Workshop team

Organizers: Abuzer Yakaryilmaz (QWorld) and Assoc. Prof. Zhaofeng Su (USTC)

Workshop Lead: Abuzer Yakaryilmaz

HiQ Lecturer: Dr. Xu Xusheng (Huawei)

Mentors:

Chen HongLin (USTC), Liu JiaWei (USTC), Jiang Yedong (USTC)

Vishal Bajpe (QWorld), Marija Šćekić (QWorld), Claudia Zendejas-Morales (QWorld)

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Q&A session

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