



Quantum Finance Hackathon

Information Booklet

19 - 20 March 2020 | UCL BaseKX, London

Sponsored by:



Quantum Finance Hackathon

Welcome to UCLQ's Quantum Finance Hackathon! Together with our sponsors we want you to hack, innovate, and learn about the applications of quantum computing.

This booklet contains lots of useful information about the event, but if you have any more questions please don't hesitate in contacting us.

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What, When, Where?

What's happening, when it's happening and where it's happening.

Thursday 19 March 2020

1000 - 1100	Registration
1100 - 1200	Introduction and talks
1200	Competition begins
1200 - 1300	Find your team
1300 - 1400	Lunch
1700 - 1800	Dinner
2000 - 2030	BaseKX closes

Friday 20 March 2020

0800 - 0900	BaseKX opens and breakfast
1200	Competition closes
1200 - 1300	Lunch
1300 - 1400	Presentations
1430 - 1530	Winners announced

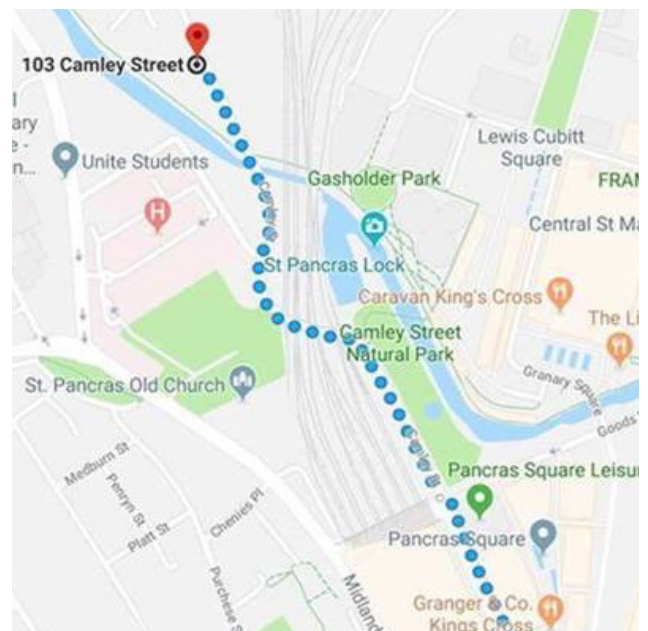
UCL BaseKX, London

[BaseKX](#) has been designed to give people the creative and collaborative space they need to get their ideas off the ground. It's home to the Hatchery, UCL's incubation programme for its most promising entrepreneurs.

It is a 15 minute walk from from Kings Cross St Pancras.

BaseKX will not be open overnight.

UCL BaseKX
103c Camley Street
London
N1C 4PF



Get ready, Set, CODE!

What to do, install and explore before arriving at our Hackathon.

Apply to attend

Our hackathon is open to students, and members of the finance and quantum industries.

We only have a limited number of places available at our hackathon. To ensure your spot please complete our [application form](#).

Applications will be available from Monday 23 February until 11:59 PM Sunday 1 March 2020.

Once the application window closes we will contact all applicants with the outcome of their application and place those unsuccessful onto a waitlist.

While our applications are open to everyone, we do expect you, or some members of your team, to have some prior knowledge in programming with Python.

To encourage cross-disciplinary team formation during our speed networking session, we will group participants in three different categories - quantum scientist, quantitative finance expert, and coder (Python 3.6 or above).

On the day you will also need to bring your own laptop for coding!

Get Qiskit ready

Before you arrive please register through the [IBM Q Experience](#) and start playing around with the circuit composer. Every hackathon participant will need to have an IBMid created in order to participate, so this is a good early activity.

You will also need to [install and run qiskit](#) – for advice [watch this video from qiskit](#).

To help you get up to speed with qiskit, take a look through the [Coding with Qiskit YouTube series](#) and [open source qiskit textbook](#).

Qiskit Finance

To help prepare you for our quantum finance hackathon take a look at the [finance tutorials available on Qiskit's github](#). Here there are resources and tutorials for portfolio optimization, option pricing and credit risk analysis.

For participants that are more experienced in finance and less so in quantum algorithms, take a look at the [tutorial for High-level modelling of quadratic binary optimization problems to be solved with quantum heuristics such as QAOA/VQE](#).

Rules of Participation.

Here you will find all the terms and conditions for our hackathon – judging criteria, submission requirements, awards, IP, and our code of conduct.

Competition Rules

By entering, you agree to accept these terms and conditions, and warrant that you meet the entry requirements.

Registrants must have completed the UCLQ Hackathon Application and act on any follow up emails that then proceed afterwards. Registrants are free to choose their teams on the day, but it is encouraged to have a diversity of talent in a single team. **Teams are limited to a maximum of 5 people.**

Professors are allowed to act as mentors and/or support participants during the hackathon but should not be a contestant of the hackathon.

The following persons are not eligible to participate in the Hackathon:

1. IBM employees, officers, and directors, and their “immediate family members” (meaning parents, siblings, spouse, and children, including step and foster relations, and/or individuals living in the same household (whether or not related));
2. Participating advertising and promotion agencies, their subcontractors, and those individuals and entities involved in the preparation of materials for, administration and/or execution of this Hackathon and their immediate family members;

3. Government Owned Entities (defined below) and their employees and immediate family members, with the exception of employees engaged in teaching or research at accredited educational institutions that grant college/university (or equivalent) degrees (such excepted employees shall be “Permitted GOE’s”). As used above “Government Owned Entity” (“GOE”) is defined as an organization/ individual who meets any of the following criteria: governmental bodies and employees - national, state, provincial, local, municipal government - and any department, agency, public enterprise or instrumentality of a government (but excluding those persons expressly excepted above); national or state owned hospitals, schools, utilities; national or state owned enterprises (whether wholly or partly owned); public international organizations; private companies controlled fully or partly by or under common control with any of the above; a political party or party official, or any candidate for political office. GOE also includes GOE customers who may consist of: utilities and organizations licensed to provide public services; public international organizations, such as the United Nations or World Health Organization; entities subject to public procurement laws and regulations; other entities, even those

that are privately held and those that are publicly traded, if a government, a public international organization, an entity subject to public procurement laws or a government official, owns or has the ability to exercise control over such entity; and U.S. Federal Clients, including: (1) executive, legislative and judicial branches of the U.S. Federal government; (2) U.S. Government-affiliated corporations (e.g., Tennessee Valley Authority); (3) quasi-governmental organizations (e.g., The Smithsonian Institution); (4) commercial business enterprises operating under a U.S. Federal government power of attorney, or with Management Operating Contractor (MOC) status.

Judging

The Hackathon competition judges will choose all winners. All submissions must be completed by Friday 20 March 2020 at 12 pm, preceded by participant presentations and judging for up to 3 hours after the submission time. No requests for extensions will be considered.

Project submissions must use the IBM software development kit (known as Qiskit) in some way. To be eligible for prizes, submission of content must use the Google folder and GitHub provided. No correspondence will be entered into after decisions by the judges are made. Judges are not eligible to compete for prizes.

All Hackathon entries will be judged by the Hackathon Competition Judging Panel against certain criteria. The criteria includes:

- **Originality and Uniqueness (25%)**
Compared to what you've seen before, how unique is this project? How much does it challenge the assumptions of classical computing? How interesting do you find it?
- **Usefulness and Complexity (25%)**
Will other people be able to use this project? Was the project thoughtful in

how it was designed? Can you picture yourself helping build this code further?

- **Quantum Community Benefit (25%)**
Will this project help the community at large? Will this project spark interest and get others involved in quantum? Will this project help others learn and understand quantum computing?
- **Presentation (25%)**
Did the team represent their project well? Was the team able to explain why they made certain decisions? Did the entire team get a chance to speak?

Winners and awards

To be eligible for prizes, team members must be present when winners are announced. Judges' discretion applies to special circumstances. Each winning entrant must provide their details to the Hackathon organisers. Prizes must be evenly split between all team members of winning teams.

Submissions

Please engage with the contest in the 'Hackathon spirit' and in good faith. You must not enter a submission that:

- Is potentially libellous, false, defamatory, privacy invasive or overtly political
- Includes material which is potentially confidential, commercially sensitive, or which would cause personal distress or loss
- Has any commercial endorsement, promotion of any product, service or publication;
- Has language which is offensive, obscene or otherwise inappropriate
- Is misleading, deceptive, violates a third party's rights or is otherwise contrary to law.

We reserve the right to reject submissions that do not comply with the letter and spirit of these rules.

Ownership

Under these terms and conditions, **you must publicly publish all intellectual property in the material you create pursuant to your involvement in this competition to GitHub.**

You agree that all Competition IP that you create pursuant to this competition is original in nature and hasn't been copied or reproduced from any third party.

Disclaimer

University College London and the sponsors of this event make no representations or warranties of any kind, expressed or implied, including warranties of accuracy, in regard to any submissions or links published on the Hackathon website. UCL reserves the right to modify, suspend or cancel the Hackathon if it cannot be run due to any reason beyond UCL's control, or if UCL determines that the integrity or administration of the event has been adversely affected due to circumstances beyond its control. UCL may also disqualify any individual who tampers with the process.

UCL will not be liable for any loss, expense, damage or injury sustained by any entrant in connection with this event, the prize or redemption of the prize, except for any liability which cannot be excluded by law (in which case, that liability is limited to the minimum allowable by law). Any personal information you provide to UCL while entering the competition will be dealt with by UCL in accordance with these terms and conditions and the University's Privacy Plan.

Code of conduct

By participating in the Hackathon, as an observer or competitor, you agree to the following:

- **Be respectful to others**
Be kind to others and treat others with respect. Do not abuse, stalk, harass or threaten others. Offensive comments

related to gender, sexual orientation, disability, physical appearance, body size, race or religion will not be tolerated. Do not disrupt other people or the event. Do not make inappropriate physical contact or pay unwelcome sexual attention to other participants. If you feel uncomfortable, are being harassed, notice that someone else is being harassed or have any other concerns, contact a Hackathon organiser immediately.

- **Be thoughtful**
In the spirit of innovation and inclusiveness, be mindful of others. Do not swear or make sexist, racist, or other exclusionary jokes which may be offensive to those around you. Only submit competition material that is suitable for anyone to view.
- **Be respectful of the event**
Keep the venue clean and tidy and use the rubbish and recycling bins as appropriate. Let the organisers know if there are any issues. Follow the competition rules. Check the website and/or have a chat with one of the organisers if you are unclear on the competition rules. Remember, the Hackathon crew created this event for you. Do not do anything to ruin it or engage in any behaviour that violates this code of conduct. The Hackathon organisers may take any action they deem appropriate, including warnings or expulsion from the Hackathon event. If you are removed from the event due to inappropriate behaviour, you will no longer be eligible to compete for Hackathon prizes.
- **Be amazing and enjoy yourself**
Hack, innovate, create, and have a good time. Creating something meaningful within such a short amount of time can be stressful, but we would like to encourage everyone to take a break every now and then to relax and enjoy the event.

Working Together.

This hackathon was made possible by a big group of people from industry and academia coming together.

The event is sponsored by:



IBM Q Network is a community of Fortune 500 companies, academic institutions, startups and national research labs working with IBM to advance quantum computing. The IBM Q Network is collectively forging the path to quantum advantage. Participating organizations access IBM's most advanced quantum systems through the IBM cloud and have access to proprietary Qiskit extensions. Qiskit is an open source, modular, and extensible quantum programming framework. IBM Q is a limited co-sponsor of our event. Qiskit™ is a trademark of International Business Machines Corporation.



Santander Group is a Spanish multinational commercial bank and financial services company based in Madrid and Santander in Spain. Additionally, Santander maintains a presence in all global financial centres as the 16th-largest banking institution in the world. Although known for its European banking operations, it has extended operations across North and South America, and more recently in continental Asia.



The UK Quantum Computing & Simulation Hub (QCS) is an EPSRC Technology Hub, part of the UK National Quantum Technologies Programme. It brings together UK research teams from 17 leading Universities to accelerate the development of quantum computing both in the UK and internationally. Working in collaboration with industry partners, the Hub is at the cutting-edge of creating practical, realisable quantum computers that will address a wide range of real-world challenges.



The UCL Quantum Science and Technology Institute delivers world-class research that probes and harnesses the quantum laws of nature to develop new technologies for the benefit of society and the economy. Situated in central London UCLQ brings together a rich cross disciplinary community, providing a forum for new collaborative research as well as a platform to engage the public, users and policy makers. The institute unites over 150 researchers from six departments at UCL and works with over 20 industrial partners, to form an unrivalled breadth of expertise in the sector.

Contact Us.

Got a burning question? Need some advice about the event?
Want to check one of the rules?

Please don't hesitate to contact us.

Email: quantumadmin@ucl.ac.uk

Phone: +44 (0)20 7679 0604

Web: ucl.ac.uk/quantum