
Can we learn from events at



about 'Quantum'?
[and LOTS more]

Of course.....



BCS
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London Branches Community

Enabling the
information society

Initiative Lead:
Kate Marshall MBCS

Initiative: 'Quantum'

Helping make IT good for Society





What is Quantum Computing? | BCS London Central and North Branches

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What is Quantum Computing?

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#BCSTalks
@BCSLondon

Evert Geurtsen

Co-Director (User Engagement), UK
National Quantum Computing &
Simulation Hub

QUANTUM LEAP FORWARD?

**WEDNESDAY 19TH FEB – 6:30PM – BCS LONDON
BOOK NOW ON EVENTBRITE**

<http://londoncentral.bcs.org>



Video link 19.2.2020: [/www.youtube.com/watch?v=ELpLVIS3_Ik](https://www.youtube.com/watch?v=ELpLVIS3_Ik)


Quantum Computing & Simulation's use

- Enables faster computation and can solve 'hard problems':
 - Factoring: decryption
 - Simulation and solving or optimising complex systems: chemistry, bio-informatics, material science
 - Exponential speedup of classic computing problems: M/L, modelling, digital simulation
- Can mimic 'real world' quantum processes

Fertilizer synthesis costs companies \$100-300B per year...
 ...and alone consumes 3-5% of the world's natural gas

Finding an alternative has been impossible because simulating the key catalyst would take 820,000 years on a classical computer...

On an (error-corrected) quantum computer?



Less than 24 hours

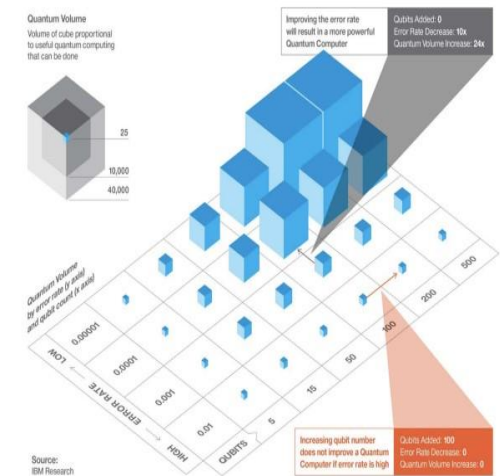


Source: The Business Potential of Quantum Computing, BCG @ Q2B, Dec 2019



But not so fast ...

- QC's and Qubits are fragile, difficult to control, difficult to read, full of errors, slow and expensive
- Quantum Error Correction (QEC) enables a Fault Tolerant Universal Quantum Computer (UFT) with 'logical qubits' but requires large numbers of physics qubits
- The QEC 'overhead' depends on the quality of the physical qubits



(Source: IBM, 2018)





BCS London Quantum Interest Group

What is Quantum Computing?

Presentation and Questions with guest speakers from IBM, QURECA and Riverlane

Tuesday 23rd May 2023 18:30-19:30 UK time

Free hybrid event. All welcome. Registration via nlondon.bcs.org 'Events'



Kate Marshall
Software Engineer &
Global Technical Quantum
Ambassador Lead



Kate is an IT architect, developer and DevOps engineer with a deeply technical background in Physics, and specifically quantum theory, communication and computation. She is currently working as a software engineer for IBM Quantum, building the software used to facilitate experiments and programmes run on real IBM quantum hardware. Kate also leads the global team of technical IBM Quantum Ambassadors, working directly with clients to help them understand the industry impact of quantum computing. Outside of IBM, she is a member of the BCS London committee and leads the *Global Tech Advocates* Quantum Working Group.



Rossy Nhung Nguyen
Senior Product Manager



Rossy is an experienced technical product manager in the deep tech industry with a track record of successfully developing and productizing advanced AI and ML solutions. She has collaborated with diverse clients in various sectors such as banking, credit insurance, and electricity transmission. At Riverlane, she is driving the development of the company's quantum error correction solutions. Rossy is dedicated to accelerating Riverlane's customers' progress towards achieving fault-tolerant quantum computing sooner. In addition to her work at Riverlane, Rossy is the president of OneQuantum Vietnam and a mentor for Women in Quantum (WIQ), deeply committed to promoting a diverse and inclusive quantum community and empowering the next generation of female leaders.



Adriana Tan
Recruitment &
Relationship Manager



Adriana is a client-centric person that comes from a background in HR and Client Relations. She started her career with the biggest bank in Malaysia over fifteen years ago and has since moved on to work in various industries over three continents. She is passionate about building relationships, making a difference in people's lives, and supports Qureca in the areas of Recruitment and Relationship Management.



BCS London Quantum Interest Group *What does it mean to be Quantum Safe?*

Panel Discussion and Questions with guest speakers from IBM & Vodafone.

Tuesday 25th July 2023 18:30-19:30 UK time

Free webinar. All welcome. Registration via nlondon.bcs.org 'Events'

What has *Quantum* got to do with Cryptography?

Quantum computers are maturing at pace... and will eventually solve classically intractable problems. This comes with a global challenge: quantum computers may break some of the most widely-used security protocols in the world.

Join us to discuss the impact that this has on cryptography as we understand it today, and the steps organisations must take to become *Quantum Safe*.

Video link 25.7.2023: [/www.youtube.com/watch?v=YQxYGdfj1v8](https://www.youtube.com/watch?v=YQxYGdfj1v8)

Meet the Expert:

Zygmunt Lozinski

STSM Quantum Safe Networks and Quantum Ambassador, IBM Research

Zygmunt wants to make the world's networks Quantum safe, including 10 billion devices and 25 million network elements. Previously he has worked with clients in 44 countries on Telco Cloud, NFV infrastructure, Edge Computing, Security and IN. Zygmunt is a Member of the IEEE and an alumnus of Imperial College London.





BCS London Quantum Interest Group *The UK Quantum Computing Industry*



Panel Discussion and Questions with guest speakers from the NQCC, the QCS Hub, EPSRC and UK Quantum.

Monday 6th November 2023 18:30-20:00 UK time
Free webinar. All welcome. Registration via nlondon.bcs.org 'Events'

Video link 6.11.2023: [/www.youtube.com/watch?v=_G4YBP3i2rQ](https://www.youtube.com/watch?v=_G4YBP3i2rQ)

Meet the Experts:



Jonathan Legh-Smith
*Executive Director,
UKQuantum*



Dr Sonali Mohapatra
*Quantum Innovation
Sector Lead
National Quantum
Computing Centre*



Dr Liam Blackwell
*Deputy Director for
Quantum
Technologies, EPSRC*



Dr Keith Norman
*Technology Associate,
Quantum Computing
and Simulation Hub*

Join us to discuss how the Quantum Computing industry in the UK is growing and changing, how UK businesses should engage in this competitive market and the role of the UK in the global Quantum Computing ecosystem.



BCS London Quantum Interest Group

Are we ready for Quantum Advantage?



Join the conversation to discuss the meaning of *Quantum Advantage*, and whether we are ready for this new era of compute.

Tuesday 5th December 2023 18:30-19:30 UK time
Free webinar. All welcome. Registration via nlondon.bcs.org 'Events'

Join the discussion:

Michael Schwitters
Founder and Managing Director of SchwittersAssociates



Michael focuses on advising clients and investors on emerging technologies, including quantum computing. Previously Michael has been a partner with EY leading the firm's UK Technology Strategy and Emerging Tech competency as well as being EY's UK Quantum Computing lead. Michael has a PhD in Physics with a specialisation in quantum physics, with his PhD being about lab grown synthetic diamonds for quantum applications. He was formerly part of DeBeer's industrial diamond research team that pioneered the use of lab-grown gem stones for quantum computing.

Kate Marshall
Software Engineer and the Global Technical Ambassador Lead, IBM Quantum



Kate leads a global team working directly with clients to help them understand the industry impact of quantum computing. Kate has a deeply technical background in Physics and passion for quantum theory, communication and computation. She originally started her career as a DevOps engineer and IT architect, but recently moved into a role that combined both of these passions and areas of experience. Outside of IBM Quantum, she is a member of the *TechUK* and *BCS Quantum Working Groups* and leads the *Global Tech Advocates Quantum Working Group*.



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[North, Central & South London Branches]

Learn, Benefit, Contribute, Enjoy
IT's the Place to Be!

Enabling the
information society

Initiative: 'Quantum'

Initiative Lead:
Kate Marshall MBCS

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Chairman of London Branches Community



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Secretary, BCS London Central Branch

