



UK-USA Partnership in Health Applications for Quantum Technologies

Summary

On Thursday 6 June 2024 the Cleveland Clinic (CC) [announced](#) a new partnership with Science and Technology Facilities Council (STFC) Hartree Centre and IBM to develop advanced computing applications for healthcare and life sciences. The collaboration has begun with two core projects, focussing on applied AI and quantum computing respectively, which will leverage Cleveland Clinic's large repositories of multiplexed patient data (e.g. imaging and tissue samples) generated at Cleveland Clinic's hospitals in Ohio and London, along with the computational Research & Development (R&D) strengths of Hartree and IBM Research. The projects are being funded through the [Hartree National Centre for Digital Innovation](#), a £210M, 5-year STFC-IBM collaboration which aims to grow the UK economy by equipping industry to take advantage of digital technologies. In addition to contributing expertise from its UK-based scientific computing teams, IBM will provide access to their quantum computing platform on the cloud.

The Hartree-CC-IBM partnership is the first major outcome of a coordinated outreach and influencing campaign led by SIN USA on quantum and health.

Impact

Since 2023, SIN USA has strategically and intentionally targeted key healthcare and life sciences stakeholders in the US such as CC—the only organisation with a dedicated IBM quantum computer for health and life science (HLS) research—as well as federal biomedical research funders like the National Institutes of Health. This has been aided by our longstanding trusted relationships with major UK stakeholders such as STFC Hartree. In April 2024, SIN USA delivered a quantum and health mission supported by the DSIT Tactical Fund, in which expert delegates from DSIT Office for Quantum, DHSC, STFC Hartree, the National Quantum Computing Centre, and UK academia visited Cleveland Clinic for high-level meetings with CC and IBM leadership. During the visit, SIN coordinated a meeting between Hartree, CC and IBM to identify project areas for fruitful collaboration, which now form the basis of the new partnership.

Cooperation between Hartree and Cleveland Clinic sends a strong signal about the UK's leading capabilities to support quantum and other modalities of advanced computing for the healthcare and life sciences sector. This partnership has the potential to generate important new insights for the benefit of UK patients, complementing Cleveland Clinic London's strong collaboration with the NHS and National Research Ethics Service (unique for a private

healthcare provider) to serve as a site for clinical studies. Moreover, the collaboration could unlock further investment into the UK by the Clinic and other HLS investors. Going forward, SIN USA continues to work with CC to support deeper linkages with the UK quantum ecosystem, in tandem with tactical engagement to strengthen CC-UK links in other areas, such as through new fellowship programmes for UK physician-scientists in training. SIN US will also use these outcomes to further influence US biomedical funders towards agreeing new joint R&D programmes in quantum for health.



The SIN USA Quantum for Health delegation with IBM Quantum System One at the Cleveland Clinic (L to R: Kate Royse, STFC Hartree Centre; Faiyaz Amin, DSIT Office for Quantum (OfQ); Tom Newby, OfQ; Ross Grassie, Quantum Software Lab, University of Edinburgh; Julieanne Bostock, DHSC; Melissa Mather, University of Nottingham and GO-Science; Sonali Mohapatra, NQCC; Keith Norman, Quantum Computing and Simulation Hub, University of Oxford; Charles Knowles, Cleveland Clinic London; Kyle Dolan, SIN USA; Johann de Silva, OfQ; Adam Hammond, IBM UK)