



Rigetti Computing Awarded Innovate UK Grant to Enhance Quantum Machine Learning Methods for Anti-Money Laundering Detection

November 1, 2023

Rigetti will be joined by HSBC, the Quantum Software Lab based at the University of Edinburgh, and the National Quantum Computing Centre to work to improve the performance of quantum algorithms for anomaly detection, a critical method for identifying and preventing financial crime.

LONDON, Nov. 01, 2023 (GLOBE NEWSWIRE) -- Rigetti UK Limited, a wholly owned subsidiary of Rigetti Computing, Inc. (Nasdaq: RGTI) ("Rigetti" or the "Company"), a pioneer in full-stack quantum-classical computing, today announced that it was awarded an Innovate UK grant as part of the Feasibility Studies in Quantum Computing Applications competition. Joining Rigetti in this work is HSBC, the Quantum Software Lab (QSL) based at the University of Edinburgh, and the National Quantum Computing Centre (NQCC). Together, the consortium aims to enhance existing anti-money laundering techniques by using quantum machine learning techniques with the goal of improving the performance of current-state-of-the-art machine learning algorithms.

Money laundering poses a significant threat to financial institutions and society. Machine learning technology has the power to detect and prevent financial crime by flagging suspicious transactions and adapting to ever-changing criminal behavior. Quantum computing has the potential to enhance existing classical computing workflows, and in turn could offer improved machine learning methods. In this work, the consortium will aim to extend current anomaly detection quantum machine learning models to detect anomalous behavior indicating money laundering.

Rigetti is focused on addressing use cases that will help move the quantum computing industry towards narrow quantum advantage (nQA), the point at which a quantum computer is able to solve a practical, operationally relevant problem significantly better, faster, or cheaper than a current classical solution.

"Achieving nQA is the next inflection point for our industry," said Dr. Subodh Kulkarni, Rigetti Chief Executive Officer. "Tackling a real-world problem like money laundering with quantum computing would advance our ability to offer financial customers quantum machine learning solutions that could provide a competitive advantage, and in turn accelerate the development of our hardware and software capabilities."

In addition to leveraging Rigetti QPUs and quantum software, the consortium will also benefit from HSBC's deep domain knowledge, benchmarks and classical and quantum machine learning for anomaly detection expertise, with the University of Edinburgh's quantum algorithm expertise, and the National Quantum Computing Centre's (NQCC) extensive network of quantum computing opportunities and resources. In addition to improving anti-money laundering methods, the consortium aims to substantially strengthen the UK quantum ecosystem and the UK's global position as a leader in the quantum computing sector.

HSBC is already exploiting machine learning techniques to detect anomalous customer behavior, and believes improving its approach with quantum computing could significantly improve its services and reduce risk. Collaborating directly with academia and quantum computing vendors should enable HSBC to test quantum-enabled solutions faster and more efficiently.

"Applying quantum machine learning to detect fraudulent or criminal activity showcases the incredible opportunity this cutting-edge technology can bring to the financial services industry. We believe the depth of research expertise in quantum machine learning algorithms and quantum hardware execution brought by the University of Edinburgh, Rigetti Computing, and the NQCC, combined with industrial application breadth offered by HSBC, can bridge the gap between quantum research and industrial integration in the UK," said Dr. Mekena Metcalf, Quantum Computing Research Scientist at HSBC.

"The growing rates of financial crime and fraud globally means it is imperative that we find an enhanced way to stop people becoming a victim of fraudsters. Quantum computing has the potential to be a game changer in this arena – myself and the team are backing this one all the way," added Martin Brown, Senior Product Owner, UK Fraud Analytics at HSBC.

"We are delighted to join Rigetti and HSBC to explore a real-world use-case. This collaboration aligns with the NQCC's ambitions of exploring impactful early applications of quantum computing, showcasing the potential of the technology, stimulating user adoption, and shaping the UK's quantum computing user community. Launched in partnership with the NQCC in April 2023, the Quantum Software Lab (QSL) at Edinburgh is a unique space between academia and industry to accelerate innovation and commercialisation by turning industry pain points into relevant research solutions. This is one of the very first initial projects of the QSL and we are eager to use it as a working model for other projects to come." comments Professor Elham Kashefi, Chief Scientist, NQCC, and the Head of QSL, University of Edinburgh.

The project began on September 1, 2023 and will last 18 months.

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About Rigetti

Rigetti is a pioneer in full-stack quantum computing. The Company has operated quantum computers over the cloud since 2017 and serves global enterprise, government, and research clients through its Rigetti Quantum Cloud Services platform. The Company's proprietary quantum-classical infrastructure provides high performance integration with public and private clouds for practical quantum computing. Rigetti has developed the industry's first multi-chip quantum processor for scalable quantum computing systems. The Company designs and manufactures its chips in-house at Fab-1, the industry's first dedicated and integrated quantum device manufacturing facility. Learn more at www.rigetti.com.

About HSBC Holdings plc

HSBC Holdings plc, the parent company of HSBC, is headquartered in London. HSBC serves customers worldwide from offices in 62 countries and territories. With assets of \$3,021bn at 30 September 2023, HSBC is one of the world's largest banking and financial services organisations.

About Quantum Software Lab, Edinburgh

The Quantum Software Lab (QSL) is a collaboration between NQCC and the University of Edinburgh, hosted in the School of Informatics. QSL is a world-leading research centre with 30+ scientists developing software for quantum computers. QSL works with end-users to investigate practical ways of using quantum computers to solve incredibly difficult problems. Many of which cannot be solved on today's classical computers. The objective of QSL is to create useful applications of quantum computers that benefit our economy and society.

The University of Edinburgh is consistently ranked among the best 30 universities in the world – it's ranked 22nd in the most recent QS World University rankings. The School of Informatics is one of the largest of its kind and is 1st in the UK for research breadth and quality based on Times Higher Education Computer Science and Informatics power ranking based on REF 2021 results. QSL is part of multiple UK and EU-wide quantum networks. QSL has strong research expertise in algorithms, programming languages, semantics, security, and verification. EPCC, a founding member of QSL, is pioneering hybrid classical-quantum computing application development, providing HPC resources and expertise on the project, including 40+ qubit quantum emulation on the ARCHER2 system.

About the National Quantum Computing Centre

The NQCC is the UK's national centre for quantum computing, dedicated to accelerating its development by addressing the challenges of scaling up the technology. Our vision is to enable the UK to solve some of the most complex and challenging problems facing society by harnessing the potential of quantum computing. The centre is working with businesses, the government and the research community to deliver quantum computing capabilities for the UK and support the growth of the emerging industry.

The NQCC's programme represents a £93m investment and is being delivered jointly by the research councils, EPSRC and STFC, as part of UK Research and Innovation. The centre will be headquartered in a purpose-built facility, which is due for completion in 2023, within STFC's Rutherford Appleton Laboratory site at the Harwell Campus in Oxfordshire.

The NQCC is part of the National Quantum Technologies Programme, which involves substantial public and private sector investment to develop and deliver quantum technologies across the areas of sensing, timing, imaging, communications and computing.

Cautionary Language Concerning Forward-Looking Statements

Certain statements in this communication may be considered "forward-looking statements" within the meaning of the federal securities laws, including statements with respect to expectations of the development of quantum machine learning (QML) solutions in collaboration with Innovate UK, HSBC, the University of Edinburgh, and the UKRI National Quantum Computing Centre, including the timing thereof; expectations with respect to Rigetti's QML applications, including potential uses, advancements, benefits, ability to solve problems, ability to simplify follow-on machine learning processing, and ability to advance the development of applications related to probability distribution classification; the potential for quantum machine learning applications continuing to be promising candidates for quantum advantage research; the potential for Rigetti's QML applications to accelerate businesses' ability to create valuable quantum applications; the Innovate UK consortium's goal to enhance anti-money laundering techniques with the goal of improving the performance of current state-of-the-art machine learning algorithms; and expectations with respect to the Innovate UK consortium. Forward-looking statements generally relate to future events and can be identified by terminology such as "commit," "may," "should," "could," "might," "plan," "possible," "intend," "strive," "expect," "intend," "will," "estimate," "believe," "predict," "potential," "pursue," "aim," "goal," "outlook," "anticipate," "assume," or "continue," or the negatives of these terms or variations of them or similar terminology. Such forward-looking statements are subject to risks, uncertainties, and other factors which could cause actual results to differ materially from those expressed or implied by such forward-looking statements. These forward-looking statements are based upon estimates and assumptions that, while considered reasonable by Rigetti and its management, are inherently uncertain. Factors that may cause actual results to differ materially from current expectations include, but are not limited to: Rigetti's ability to achieve milestones, technological advancements, including with respect to its roadmap, help unlock quantum computing, and develop practical applications; the ability of Rigetti to complete ongoing negotiations with government contractors successfully and in a timely manner; the potential of quantum computing; the ability of Rigetti to obtain government contracts and the availability of government funding; the ability of Rigetti to expand its QCS business; the success of Rigetti's partnerships and collaborations; Rigetti's ability to accelerate its development of multiple generations of quantum processors; the outcome of any legal proceedings that may be instituted against Rigetti or others; the ability to meet stock exchange listing standards; costs related to operating as a public company; changes in applicable laws or regulations; the possibility that Rigetti may be adversely affected by other economic, business, or competitive factors; Rigetti's estimates of expenses and profitability; the evolution of the markets in which Rigetti competes; the ability of Rigetti to execute on its technology roadmap; the ability of Rigetti to implement its strategic initiatives, expansion plans and continue to innovate its existing services; the impact of the COVID-19 pandemic on Rigetti's business; disruptions in banking systems, increased costs, international trade relations, political turmoil, natural catastrophes, warfare (such as the ongoing military conflict between Russia and Ukraine and related sanctions against Russia), and terrorist attacks; and other risks and uncertainties set forth in the section entitled "Risk Factors" and "Cautionary Note Regarding Forward-Looking Statements" in the Company's Annual Report on Form 10-K for the year ended December 31, 2022, the Company's future filings with the SEC, including the Company's Quarterly Report on Form 10-Q for the three months ended June 30, 2023, and other documents filed by the Company from time to time with the SEC. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and the Company assumes no obligation and does not intend to update or revise these forward-looking statements other than as required by applicable law. The Company does not give any assurance that it will achieve its expectations.