Rigetti Computing Awarded DARPA IMPAQT Contract to Advance Quantum Algorithms for Solving Combinatorial Optimization Problems

October 3, 2023

Rigetti was selected by the Defense Advanced Research Projects Agency (DARPA) to advance the state-of-the-art in quantum algorithms for solving combinatorial optimization problems as part of the Imagining Practical Applications for a Quantum Tomorrow (IMPAQT) program

BERKELEY, Calif., Oct. 03, 2023 (GLOBE NEWSWIRE) -- Rigetti Computing, Inc. (Nasdaq: RGTI) ("Rigetti" or the "Company"), a pioneer in full-stack quantum-classical computing, today announced that it was awarded a Defense Advanced Research Projects Agency (DARPA) project as part of the Imagining Practical Applications for a Quantum Tomorrow (IMPAQT) program to advance the state-of-the-art in quantum algorithms for solving combinatorial optimization problems. Rigetti's project, "Scheduling Problems with Efficient Encoding of Qubits" (SPEEQ), seeks to develop a novel and efficient encoding of optimization problems onto qubits, with the goal of enabling larger problems to be mapped to currently available NISQ-era quantum computers. The project will specifically address scheduling problems, which are among the best-known and most pervasive types of combinatorial optimization problems across numerous industries, as well as some of the most challenging to solve.

Current quantum algorithms are limited in the size of the problems they can solve by the available number of qubits on a QPU. One of the main objectives of the SPEEQ project is to enable quantum algorithms to solve larger problems so that better comparisons can be made to current classical heuristic algorithms. The problems solved by current benchmarked hybrid quantum-classical algorithms are about 100 times smaller than those solved by classical algorithms, which means it is difficult to determine how these hybrid algorithms will perform at relevant scale.

The SPEEQ project emerged from findings in Rigetti's project for the DARPA ONISQ program, "Scheduling Applications with Advanced Mixers" (SAAM). In partnership with NASA and USRA, Rigetti is implementing hybrid quantum classical algorithms for solving binary optimization problems by mapping these problems to quantum processors at increasing scales. The team is observing that the algorithmic performance improves with an increased number of quantum operations. However, the problem size in the SAAM project can still be solved efficiently with classical heuristic algorithms, which are capable of solving problems with up to 10,000 variables. The SPEEQ project will leverage the findings and benchmarks from the SAAM project to address a central question regarding the trade-off between number of qubits used and number of quantum operations used, which is critical in designing new algorithms.

"One of Rigetti's main goals is to develop practical applications for quantum computing. Being selected to work on the DARPA IMPAQT program gives us the opportunity to go further with our algorithm research, in this case with optimization problems - a class of problems with a broad impact on society. Advancements in algorithms for hybrid quantum-classical quantum computing systems will be very important in reaching narrow quantum advantage," says Dr. Subodh Kulkarni, Rigetti Chief Executive Officer.

The qubit-efficient encoding scheme proposed in this project has potential for numerous benefits beyond solving scheduling problems. Novel algorithms that solve hard combinatorial optimization problems could have a profound impact on supply chains, logistics, and other industries with complex operations.

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.

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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 related to DARPA's IMPAQT program and Rigetti's SPEEQ project, including the development of a novel and efficient encoding of optimization problems on qubits with the goal of enabling larger problems to be mapped to currently available NISQ-era quantum computers; expectations with respect to Rigetti's goal of developing practical applications for quantum computing, including potential uses, advancements, benefits, and ability to solve problems; the potential for quantum computing generally and Rigetti's efforts to reach narrow quantum advantage. 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.