Zapata Quantum Introduces New Paradigm for Open, Verified and Explainable AI-Driven Quantum Research

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Community challenges with UMD use Shor's algorithm as a template to facilitate human understanding in the era of AI-driven scientific discovery

BOSTON, Nov. 18, 2026 (GLOBE NEWSWIRE) -- As AI accelerates scientific discovery, it has become increasingly critical that new results be both provably correct and explainable to humans. Zapata Quantum (OTCQB: ZPTA) ("Zapata", "Zapata Quantum" or the "Company"), a pioneer in quantum computing application and algorithm development, today announced ForShor.ai, an open challenge that demonstrates a new paradigm of AI-assisted quantum research that meets these requirements.

Developed with the University of Maryland (UMD) and built around a formally verified implementation of Shor's algorithm, ForShor invites anyone interested in AI-assisted quantum research to participate. Researchers can submit AI-generated solutions to the ForShor leaderboard, learn from interactive documentation, and join the community on a dedicated Discord server. The initiative aims to build a living resource of validated quantum knowledge, and contributors may become co-authors of a subsequent research paper.

Leveraging its quantum algorithm development expertise and top scientific advisers, including quantum legend Peter Shor, the initiative is a continuation of Zapata's ongoing collaboration with UMD focusing on quantum algorithm development in the era of AI-enabled research workflows. Peter Shor, Ph.D., creator of Shor's algorithm and MIT Professor, who recently joined Zapata's Scientific Advisory Board, said, "AI is going to reshape how quantum algorithms are discovered, but results that haven't been mathematically proven can't be trusted. ForShor puts formal verification, with humans in the loop, at the center of that process. This is a responsible way to bring AI into quantum research."

Shor's algorithm was chosen as the initial testbed subject because of its importance for quantum computing and cryptography research, as well as how the particular implementation used in ForShor exposes a well-defined search problem that is constrained and formally specified such that researchers can inspect, interpret and learn from AI-generated solutions.

"We designed ForShor to be a white-box learning and research environment, where human understanding and interpretability are prioritized when developing quantum algorithms and communicating scientific results," said Yudong Cao, CTO of Zapata Quantum. "This initiative is our blueprint for AI-driven quantum algorithm research: use formal verification to establish correctness, use AI to solve problems within the formally verified framework, and ensure results are explainable to humans so our understanding keeps pace with discovery."

"As AI increasingly becomes integrated into scientific research, establishing trust in the results it generates will be essential," said Runzhou Tao, Assistant Professor at the University of Maryland and Fellow at the Joint Center for Quantum Information and Computer Science (QuICS). "Rooted in mathematically proven formal verification, ForShor provides a framework that helps shape best practices for future AI-driven research by making it scientifically rigorous and reproducible."

While ForShor is built around a formally verified implementation of Shor's algorithm, the broader objective is to demonstrate a practical framework for AI-assisted approach that can be applied to any quantum algorithm. This initiative also builds on the Company's work with NVIDIA applying agentic AI to accelerate quantum algorithm development.

ForShor follows Zapata's collaboration with NVIDIA on agentic AI for quantum algorithm development. Formal verification is a key component of Zapata's recently announced software platform, Quantum Pilot™, which is designed to enable the discovery and development of commercially valuable quantum applications. ForShor serves as a proving ground for verification techniques in Quantum Pilot, ensuring that the applications developed through the platform are scientifically rigorous and trustworthy.

"Challenges and leaderboards like ForShor.ai are putting rigorous new tools in the hands of the open community of developers and researchers advancing quantum," said Ben Castanon, CEO of Unitary Foundation. "As a project that began with a Unitary Foundation microgrant it is also a testament to the importance of new open tools that can scale alongside the full quantum tech ecosystem. We're thrilled to be supporting a project that so effectively combines formal verification and explainability in an open challenge."

Quantum researchers, AI practitioners, software developers, and anyone who is curious to join the future of scientific discovery are invited to visit ForShor.ai to learn more and participate in the challenge.

The initial pre-print paper regarding the ForShor challenge can be found here. A blog post with more details can be found here.

About Zapata Quantum
Zapata Quantum is a leading hardware-agnostic, pure-play quantum software company focused on accelerating quantum application development. With a portfolio of more than 60 granted and pending patents developed over seven years, Zapata supports applications across cryptography, pharmaceuticals, finance, materials discovery, defense, and more. Spun out of Harvard's quantum lab in 2017, the Company is the only organization to have participated across all technical areas of DARPA's Quantum Benchmarking program and has worked with Fortune 500 enterprises and government agencies to translate quantum advances into real-world impact. The Company's study demonstrating the potential of quantum-enabled drug discovery was recognized as one of Nature Biotechnology's Top 10 Papers of 2025.

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