

Quantum Elements to Launch Orbit as Qiskit Function, Bringing Advanced Error Suppression to IBM Quantum Users

Orbit makes decades of dynamical decoupling research accessible through a Qiskit Function

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QUANTUM ELEMENTS

[Quantum Elements](#), a provider of AI-

powered digital twins for quantum computing developers, today announced that Orbit, an advanced quantum error suppression tool, will be available through the IBM Qiskit Functions Catalog. The launch will make Orbit directly accessible to IBM Quantum Network member organizations, giving researchers, developers and enterprise quantum teams a new way to

improve quantum circuit performance while reducing the time, cost and workflow friction often associated with error mitigation and suppression methods.

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Orbit was built to give users practical access to advanced error suppression without complicating the workflow.”

*Izhar Medalsy, CEO and
cofounder of Quantum
Elements*

Orbit is designed to help users apply advanced error suppression techniques without requiring deep specialization, while improving circuit execution, and avoiding added processing overhead and extended compiling time. For users in the IBM Quantum Network working to improve outputs for a given budget, that

efficiency is non-trivial. Quantum runtime remains one of the field’s most valuable resources, especially for scientific computing teams, enterprise groups evaluating quantum algorithms, and academic researchers. By reducing workflow friction and unnecessary overhead, Orbit helps users run more circuits, test more ideas, extract more value from available quantum computing time, and run many more circuits within limited quantum computing budgets.

The function is also compatible with mid-circuit measurements and dynamic circuits, both of which are essential for fault-tolerant quantum computing; a distinguishing feature of Orbit is its ability to apply dynamical decoupling to these dynamic-circuit workflows, helping suppress noise in settings that traditional static-circuit techniques, such as error mitigation, do not easily address.

“Quantum computing performance gains need to be practical, accessible and cost-conscious,” said Izhar Medalsy, CEO of Quantum Elements. “Orbit was built to give users practical access to advanced error suppression without complicating the workflow. Users can see the resulting circuit, keep their circuit intact and avoid the classical and quantum overhead that can slow down experimentation and make it more expensive.”

The function launch also reflects Quantum Elements’ broader mission to translate foundational quantum research into practical software tools for real users. Orbit builds on decades of work in dynamical decoupling, a technique originally developed in nuclear magnetic resonance and later adapted for quantum computing to protect fragile quantum states from noise.

Quantum Elements co-founder and Chief Science Officer Daniel Lidar, a leading figure in quantum computing, helped develop the theoretical and practical foundations behind these error suppression methods. Through Orbit, Quantum Elements is making that research available in a form that can be used by non-quantum experts as a solution in the Qiskit Functions Catalog.

“By making Quantum Element’s Orbit available in the Qiskit Functions Catalog, we are making advanced error suppression easier to access, test, and integrate into real quantum workflows for our global community of IBM Quantum Network members,” said Scott Crowder, Vice President, IBM Quantum Adoption and Business Development.

As a Qiskit Function, Orbit will give IBM Quantum Network members a streamlined path to incorporate Quantum Elements’ error suppression capabilities into their existing workflows. The function is intended for a wide range of users, from academic scientists and algorithm researchers to enterprise teams exploring quantum applications in chemistry, materials, cryptography, optimization, and financial modeling.

About Quantum Elements

Founded in 2023 in Los Angeles, Quantum Elements seeks to transform the quantum computing industry by making the path to real-world commercial applications more efficient and cost-effective through its proprietary, AI-native software stack and world-leading quantum Digital Twins.

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