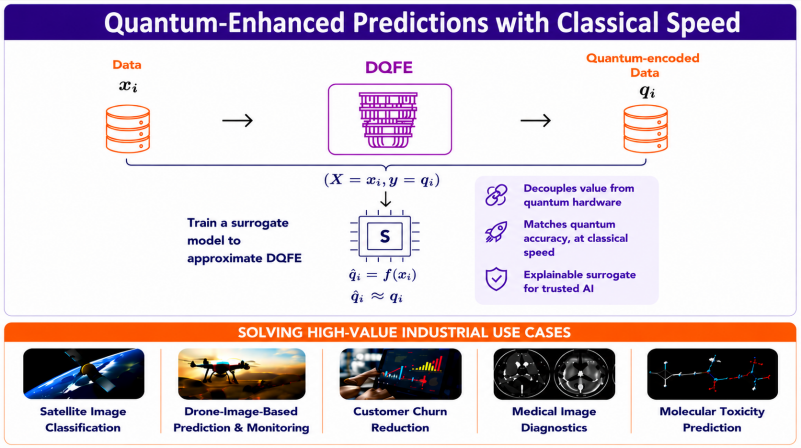
Kipu Quantum Makes Quantum-Enhanced AI Deployable in Production - Without a Quantum Computer in the Inference Loop

Kipu Quantum's quantum feature surrogate framework delivers peer-reviewed ML accuracy gains on IBM hardware — deployable at classical speed, cost, and scale.



The Off-line DQFE pipeline explained: quantum features extracted once, surrogate trained, inference at classical speed across high-value industrial use cases.

BERLIN, BERLIN, GERMANY, May 20, 2026 /EINPresswire.com/ -- Kipu Quantum today released a new hybrid quantum-classical framework that allows quantum-enhanced machine learning models to be trained on a quantum processor and deployed entirely on classical hardware - at the speed, cost, and operational profile that enterprise production pipelines require.

Quantum feature extraction has been delivering measurably richer data representations than classical feature engineering across multiple peer-reviewed studies, validated by Kipu Quantum and others on IBM quantum processors, including a 156-qubit IBM Quantum Heron r2 processor.

Current workflows can be slowed down by queue times. The new framework developed by Kipu Quantum changes the ability to extract useful features. The quantum processor is used only during a targeted training stage, where it learns the correlations that quantum feature extraction is uniquely good at producing. Those quantum derived representations are then transferred into a lightweight classical surrogate model. From that point on, deployment is fully classical: microsecond inference latency, retrainable on a normal MLOps cadence, and managed on the same procurement terms as any classical model. In practice, the quantum processor is run on as little as 20% of the classical training data — a representative subsample — delivering the same accuracy at one fifth of the quantum hardware cost, a ratio that improves further as data volumes grow. This is possible because quantum feature mappings are stable and reproducible

across hardware backends — consistent enough for a classical model to learn the mapping from a manageable set of training examples and generalize reliably at scale.

The role of the quantum computer changes in the process. It stops being an expensive real-time inference engine and is used once, where it adds unique value, then absent from the production system.

The predictive lift that quantum feature extraction delivers is preserved. The cost, latency and operational profile of the deployed model collapse to classical.

The framework has been demonstrated across commercially significant workloads — delivering approximately 10% accuracy improvement on molecular toxicity classification, a 0.932 AUC on medical image diagnostics against a 0.866 ResNet-50 baseline, and 3% on satellite imagery, all over strong classical baselines, with further validation across industrial monitoring, predictive analytics, and customer churn reduction. On a satellite benchmark, the surrogate model matched the full quantum result exactly, achieving 87% accuracy against a 84% classical baseline. The work is part of Kipu Quantum's Rimay product suite, within the company's quantum machine learning platform.

We are grateful for the trust and collaboration of the partners and customers who have worked closely with us to bring this from research into real industry settings — and for what they are building with it:

Scott Crowder, Vice President IBM Quantum Adoption — IBM Quantum:
"...a cost-effective way to run hybrid, QML workflows... IBM quantum hardware efficiently delivers accurate results across a wide range of applications — which we hope will generate more interest from industry in the kinds of problems quantum computing can help solve."

André König, CEO — Global Quantum Intelligence:
"Kipu's off-line surrogate framework achieves economic quantum advantage by capturing the 2–3% absolute accuracy gains of a quantum processor while running inference entirely on classical hardware. By processing only a small representative subsample on actual quantum hardware, the framework reduces expensive quantum executions by a factor of 5 or more."

Rika Nakazawa, Chief Commercial Innovation — NTT DATA:
"...quantum-derived representations with the classical infrastructure enterprises already own and trust... measurable accuracy gains, zero quantum dependency at inference, and seamless integration into existing production pipelines. We are ready."

Estela Vilches, Head of Digital Innovation — MOEVE:
"Through the Kipu Quantum Hub platform, we are achieving promising milestones that can optimize classical models in image classification for predictive maintenance... adopting hybrid classical-quantum technology for the early detection of issues in our energy parks."

Aaron Kemp, Senior Director Quantum Research & Enterprise Innovation — KPMG US:
"The scope of this technology is intentionally broad and industry-agnostic... from satellite image classification and advanced customer analytics to the rapid screening of pharmaceutical candidates — Kipu's approach allows enterprises to leverage the specific computational advantages of quantum systems across their entire portfolio of data-intensive challenges today."

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