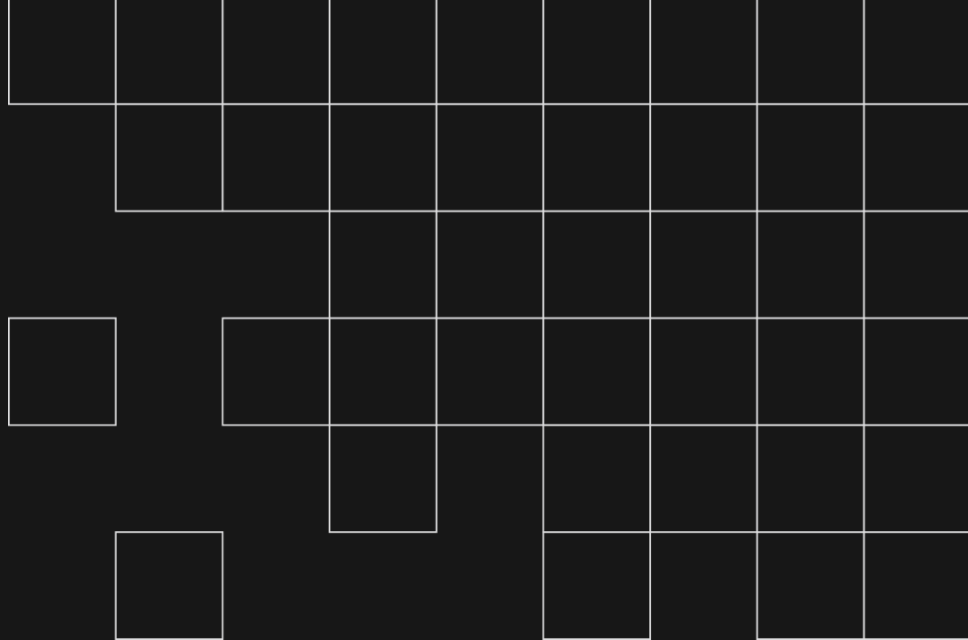


Issue #43: Real-World QML Algorithms

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Real-World QML Algorithms

Find us on Slack!

@Alex Pozas-Kerstjens
@Elena PT



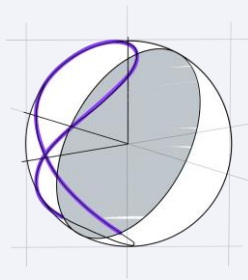
Idea

Benchmark recently proposed **QML algorithms** using **real-world examples**:

- Implement them using qiskit-machine-learning
- Find 1 or more real-world tasks
- Select relevant metrics/criteria & compare

Candidate Algorithms:

- Universal Quantum Classifier by [Salinas et al. \(2019\)](#)
- Quantum Self-Supervised Learning by [Jaderberg et al. \(2021\)](#)
- Transfer learning models from [Mari et al. \(2020\)](#)
- Kernel methods from [Havlicek et al. \(2019\)](#)



Candidate Criteria:

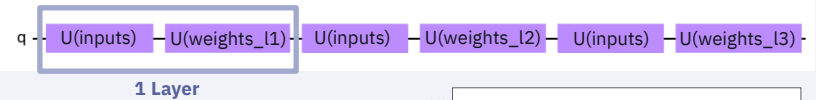
Accuracy | Training time | Performance in real HW | Ability to generalize

Deliverables:

- Potential PRs to **qiskit-machine-learning**
- Report/ poster/ publication summarizing our findings

Early Progress:

1st Qiskit implementation of single-qubit Universal Q. Classifier



→ **Using Fidelity Cost Function:**

- **Test on Circle Dataset: 90 % Accuracy**
- **Preliminary Test on Credit Card Fraud Dataset: 80% Accuracy**

