

Forschungspraxis, Master's Thesis

# **[quantum] Quantum Machine Learning for Communication**

As part of an ongoing project with Huawei we are looking into quantum machine learning algorithms applied to decoding at the end of an optical fiber in the non-linear regime.

So far we have tried only the quantum version of k-mean clustering, however the goal is to test further quantum algorithms, in particular quantum support vector machines next, and their classical quantum-inspired counterpart.

The projects will involve reading the literature on quantum machine learning algorithms and quantum-inspired algorithms, find or come up with an implementation (this will involve the use of quantum libraries, in particular so far we have use qiskit), and benchmark the performance.

## **Prerequisites**

Knowledge of quantum mechanics or quantum information is highly recommended.

## **Advisors**

Roberto Ferrara