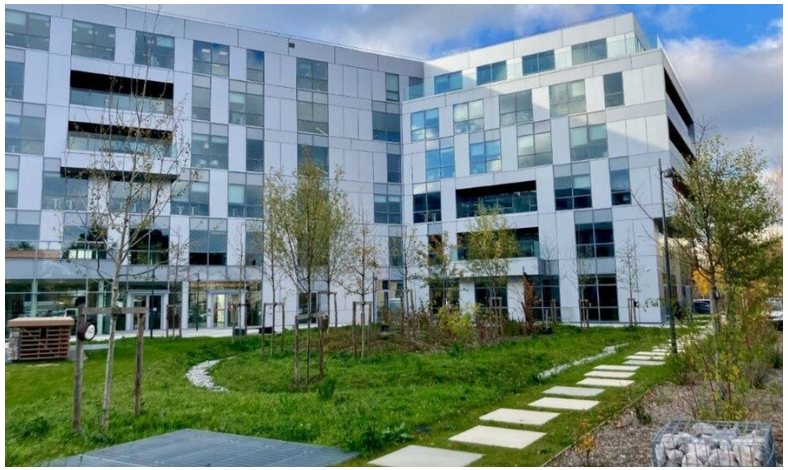
ESR2: REAL-TIME RULE INDUCTION IN FRAUD DETECTION AND HEP

LAURA BOGGIA

MY BACKGROUND

- BSc in Physics at EPFL
- MSc in Physics at ETH:
  - Focus on theory, e.g. QFT and GR
  - Thesis on QML for HEP with IBM Research Zurich
- Now: PhD at Sorbonne University and IBM France



MY PROJECT: OVERVIEW

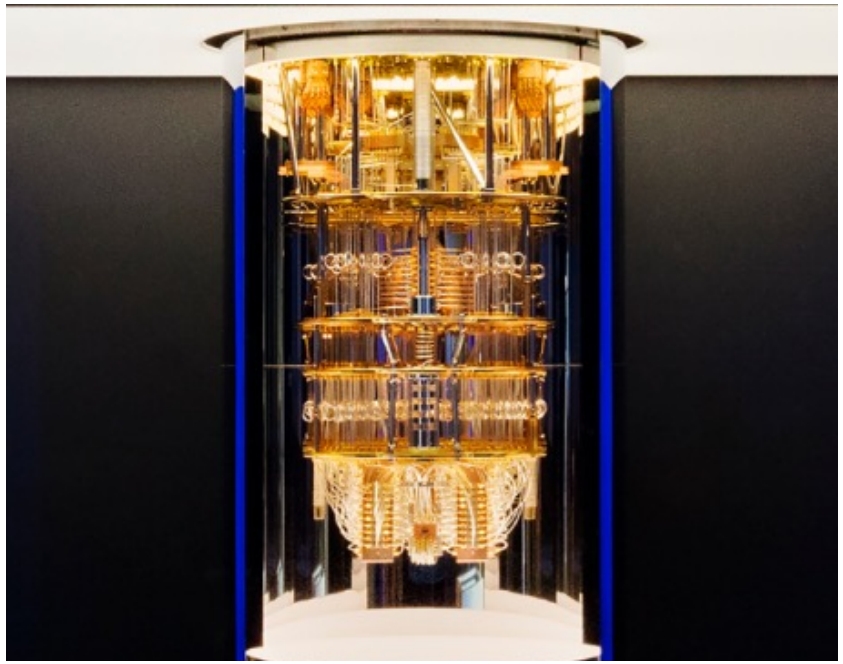
- Despite success of Neural Networks their approach raises interpretability and explainability challenges
- Symbolic ML tries to make models more interpretable,
  - e.g. expressing a model's decision rules (rule induction)
- Combine this with anomaly detection for HEP using knowledge-based models

MY PROJECT: CURRENT WORK

- Reading up on 'Jet Calibration'
- Data Analysis at 'ATLAS Software Tutorial'
- Learning about 'Machine Learning', 'Rule Learning' and 'Physics informed NN'
- Eventually trying to implement this in qualification task
  - Possibly doing jet calibration with ML

MY ACADEMIC INTERESTS

- Particle Physics
- Quantum Information & Computing



OTHER INTERESTS

- Dancing
- Snowboarding
- Traveling