

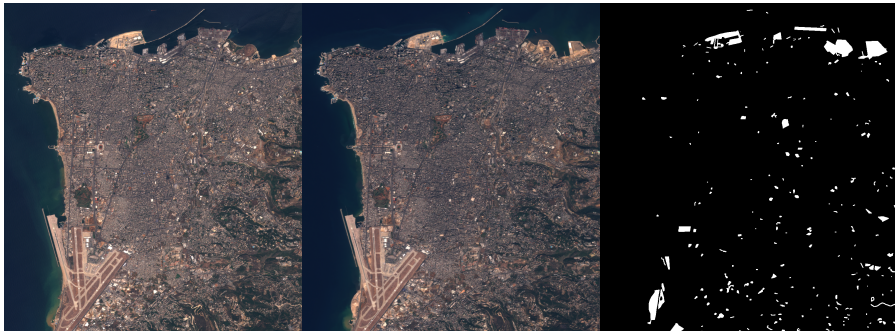
Quantum Computing @ CAMK

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22 I 2025





In short:

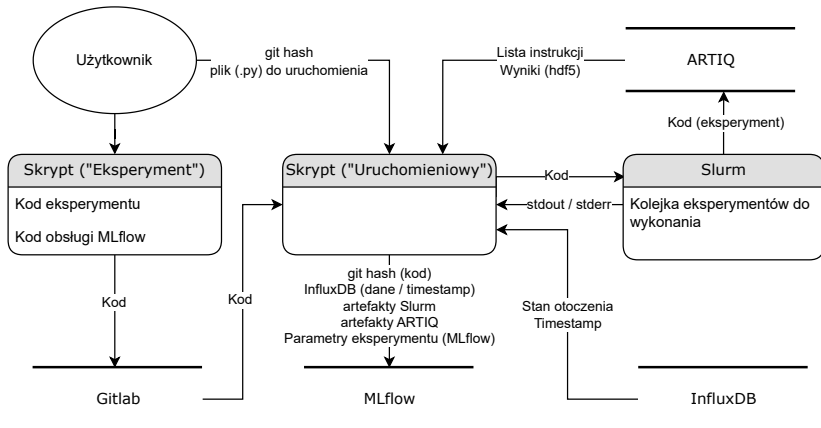
- Spectral Information Processing with Quantum Neural Networks
- Astronomical ;) work by **Manish K. Gupta**
- OSCD Dataset
- Running QML models on the real, gate-based quantum computers
- Quantum satellite images segmentation
- Engineering role



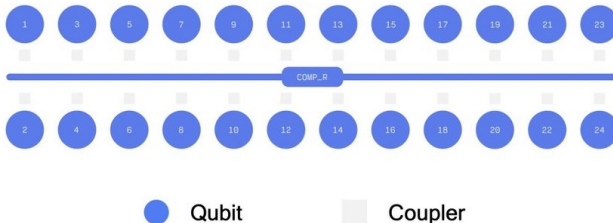
Modular Quantum Computer Infrastructure

In short:

- MIKOK (Polish acronym)
- Coding quantum compiler
- Designing numerical model
- Designing data/work flow



IQM Star 24



In short:

- Assessing quality of public quantum computers
- Ran on IBM & IQM devices
- Multiple tests designed with FUW physicists
- Lumi-Q Applicable

Tests:

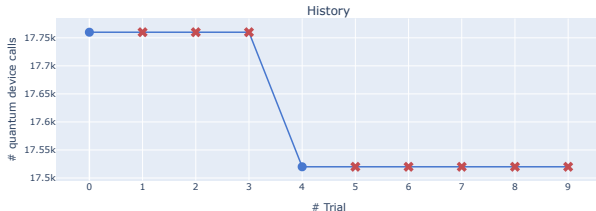
- Qubit rotation accuracy test
- Dimension leakage test
- Dimension witnesses
- No-signaling test
- Legett-Garg test
- Time order test



Quantum Computing Platforms

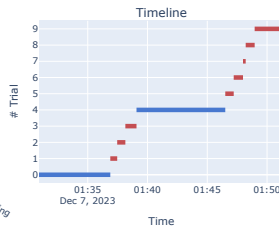
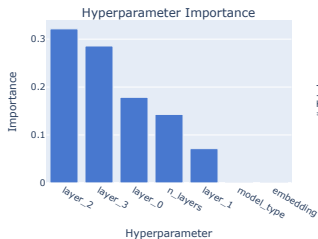
AQMLator:

- AutoQML
- QAS as optimization problem
- Layers as building blocks



Piquasso:

- BosonSampling (BS) Simulation platform
- Gaussian BS
- Lossy BS
- FPGA speedup



Thank you for your attention!

