LibKet: Cross-Platform Library for Running Quantum Algorithms on NISQ processors

IEEE Quantum Week 2022

September 18-23, 2022

Matthias Möller[1] and Carmen G. Almudever[2]

[1]Delft University of Technical (m.moller@tudelft.nl)

[2]Technical University of Valencia (cargara2@disca.upv.es)

|Lib⟩

Who we are
Carmen G. Almudever

Distinguished Researcher – Quantum Computing Architectures

Computer Engineering Department, Technical University of Valencia (UPV)

- Quantum software, mapping of quantum algorithms
- QEC and FT quantum computation
- Architecting and benchmarking of quantum computers
- Scalability of quantum computing systems

Who we are
Matthias Möller

Associate Professor of Numerical Analysis,

Department of Applied Mathematics
Delft University of Technology, NL

- Heterogeneous high-performance scientific computing
- Quantum software and early applications
- Quantum machine learning

Funding and support

https://tinyurl.com/3vw4zdc8

IEEE International Conference on Quantum Computing and Engineering – QCE22

Tutorial at IEEE QCE22, September 18-23, 2022

LibKet: A Cross-Platform Library for Running Quantum Algorithms on NISQ Processors

Organizers: Carmen G. Almudever, Matthias Möller

Session 1: Sunday, September 18, 10:00 AM – 11:30 AM MDT (UTC-6)

Time	Content	Lecturer	Slides	Binder
10:00-11:00 am	Hands-on Introduction to Quantum Computing	Carmen	slides	tutorial 01
11:00-11:30 am	Libket - The Basics	Matthias	slides	tutorial 02

Session 2: Sunday, September 18, 12:00 AM – 1:30 PM MDT (UTC-6)

Time	Content	Lecturer	Slides	Binder
1:00-1:45 pm	LibKet - Advanced Features	Matthias	slides	tutorial 03
1:45-2:30 pm	Variational Quantum Algorithms	Carmen/Matthias	slides	tutorial 04

Click **now** since first launch can take some time

ILib

https://tinyurl.com/3vw4zdc8

Starting repository: mmoelle1/LibKet/master

Your session is taking longer than usual to start!
Check the log messages below to see what is happening.

Build logs hide

```
 ---> 29bf3cb5b44f
Step 48/51 : RUN ./postBuild
 ---> Running in 9345aed0e8bf
Cloning into '/home/jovyan/LibKet'...
warning: redirecting to https://gitlab.com/mmoelle1/LibKet.git/
Submodule 'external/OpenQL' (https://github.com/QE-Lab/OpenQL.git) registered for path 'external/OpenQL'
Submodule 'external/QuEST' (https://github.com/QuEST-Kit/QuEST.git) registered for path 'external/QuEST'
Submodule 'external/armadillo' (https://gitlab.com/conradsnicta/armadillo-code.git) registered for path 'external/armadillo'
Submodule 'external/optim' (https://github.com/kthohr/optim.git) registered for path 'external/optim'
Submodule 'external/pegtl' (https://github.com/taocpp/PEGTL.git) registered for path 'external/pegtl'
```

https://tinyurl.com/3vw4zdc8