Quantum programming in Python

https://github.com/groundhogstate/quantum-pycon

Why?

- “Quantum advantage”

  https://quantumalgorithmzoo.org/

- Security implications and opportunities

  RSA compromised!

- Fundamental research

  E.g. quantum chemistry & condensed matter

- Modern devices are “noisy, intermediate-scale” quantum computers

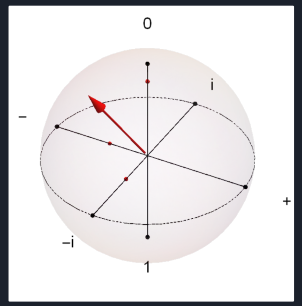
  The hunt is on for near-term commercial advantage

Where?

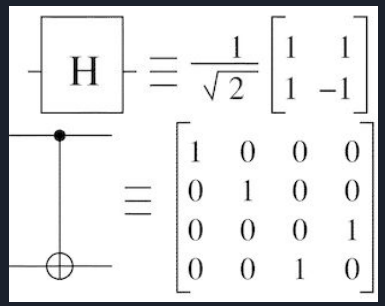
	Quantum Hardware	Open Source Software
	Yes (But not for you)	https://github.com/quantumlib/Cirq
	Yes! (Q Experience)	https://github.com/Qiskit
	Yes! (Quantum Cloud Service)	https://github.com/rigetti
	Yes (For the chosen ones)	Nope!
	Yes! (Starship Engine)	https://github.com/xanaduai
	Nope!	https://github.com/Microsoft/Quantum

What?

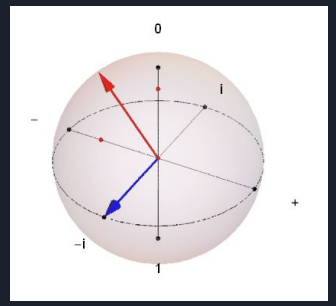
State : Qubits



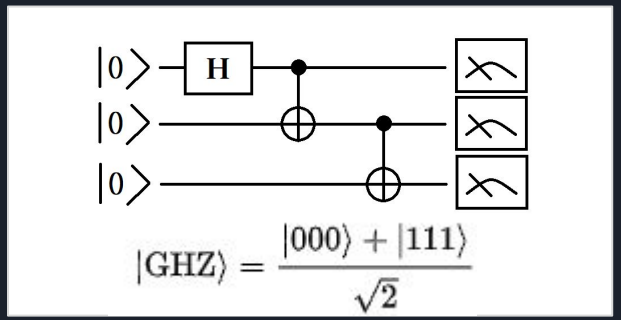
Operations : Gates



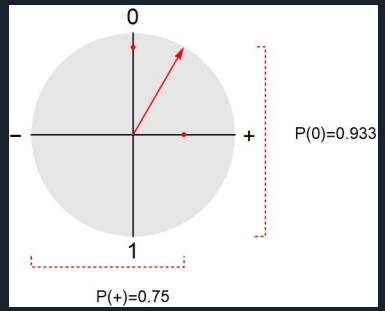
Francois Impens



Programs : Circuits



Measurement



https://catappy.com

Get entangled!

@groundhogstate

PennyLane documentation https://pennylane.readthedocs.io/

An Introduction to quantum computing - Kaye, Laflamme & Mosca
https://bit.ly/2LPG57a

Quantum Machine Learning - Peter Wittek @ University of Toronto
https://www.edx.org/course/quantum-machine-learning-2

https://github.com/groundhogstate/quantum-pycon