

Introduction to Quantum Computing



Kitty Yeung, Ph.D. in Applied Physics

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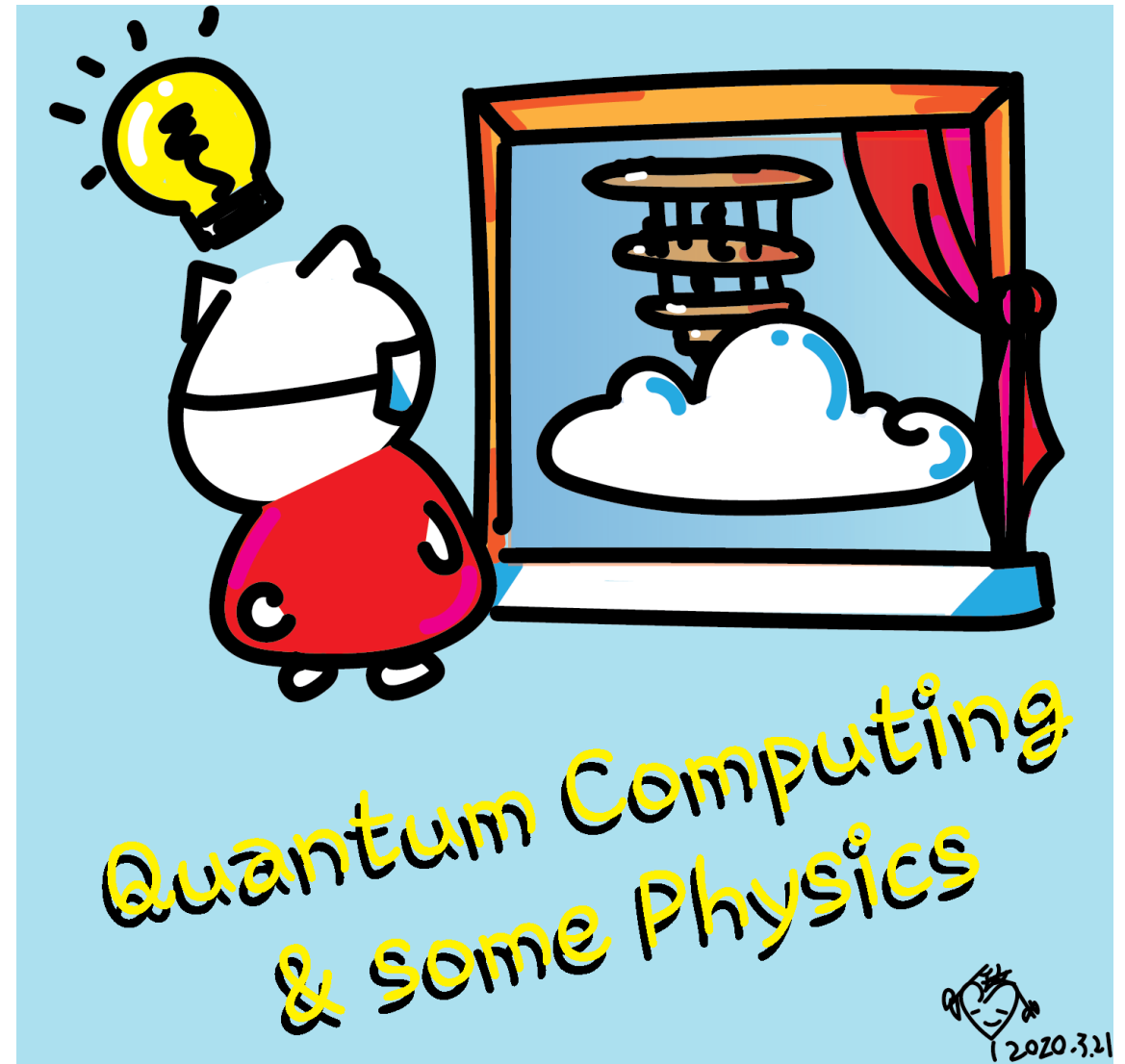
August 23, 2020

Hackaday, session 19

Other communities, session 11

Class structure

- [Comics on Hackaday – Quantum Computing through Comics](#) every Sun
- 30 mins – 1 hour every Sun, one concept (theory, hardware, programming), Q&A
- Contribute to Q# documentation
<http://docs.microsoft.com/quantum>
- Coding through Quantum Katas
<https://github.com/Microsoft/QuantumKatas/>
- Discuss in Hackaday project comments throughout the week
- Take notes



Seen on Forbes

- <https://www.forbes.com/sites/gilpress/2020/08/18/microsoft-says-you-can-have-quantum-computing-impact-today>

EDITORS' PICK | 1,700 views | Aug 18, 2020, 06:30am EDT

Microsoft Says You Can Have Quantum Computing Impact Today



Gil Press Senior Contributor

Enterprise & Cloud

I write about technology, entrepreneurs and innovation.

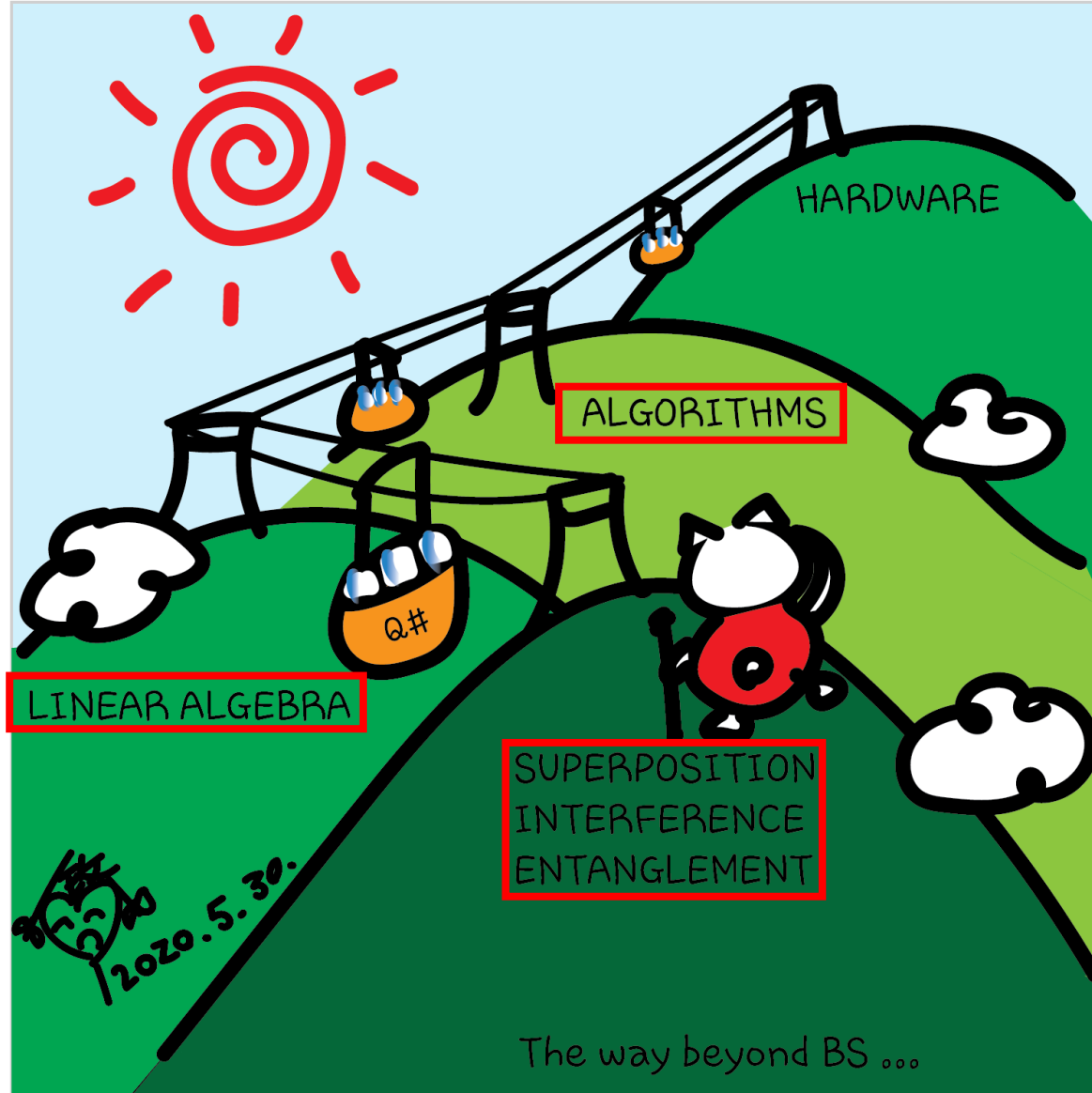
Simulating specific features of a quantum computer on today's "classical" computers leads to "quantum-inspired" algorithms that mimic certain quantum behaviors. This enables organizations to start realizing some of the benefits of quantum computing and learning more about this promising emerging technology before fully-scaled quantum hardware becomes available.



Microsoft offers learning opportunities about quantum computing DR. KITTY YEUNG

"We can have quantum impact right now," says Krysta Svore, General Manager of Quantum Software at Microsoft. "Quantum-inspired solutions allow you to have improvements today," she adds. Svore received her Ph.D. in computer science from Columbia and a B.A. in mathematics from Princeton, where she first encountered quantum

Career Q&A: What if I want to get a job in quantum?





Cambridge,
Cavendish – BA,
M.Sci. (condensed
matter
experimental
physics)



Harvard – PhD
Applied Physics
(plasmonic circuits)



Intel – Hardware
engineer, research
scientist (Silicon
Photonics), UX
designer (open-
source hardware)



Microsoft – Sr.
Program Manager +
Creative
Technologist (The
Garage -> Quantum
Systems)

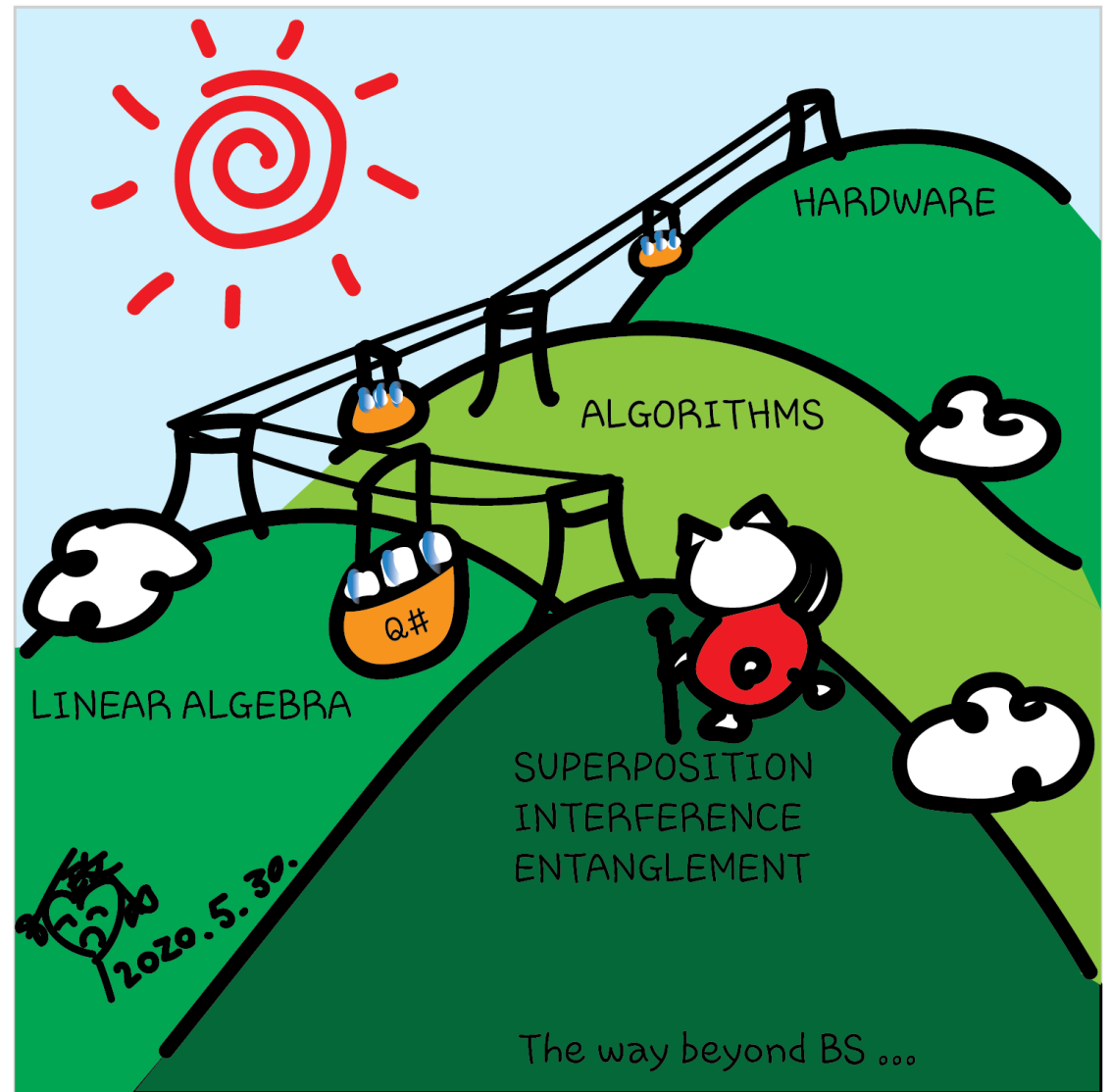
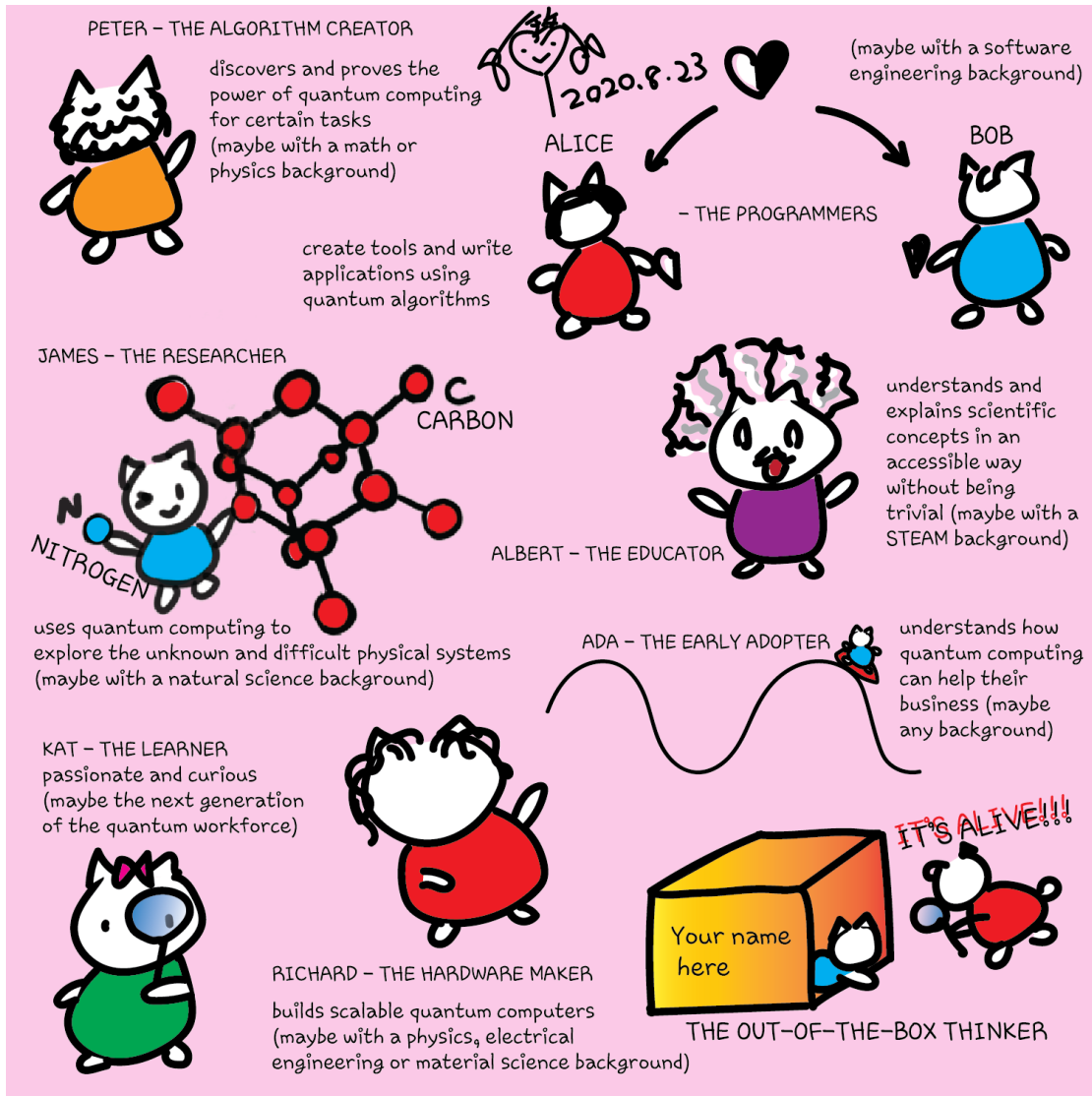
Art + Music

Wearables

Art by Physicist –
Fashion design



Microsoft –
Fashion tech &
content
creation



Contribute and demonstrate your skills

- [**microsoft/Quantum**](#): Samples and tools to help get started with the Quantum Development Kit.
- [**microsoft/QuantumLibraries**](#): Standard and domain-specific libraries for the Quantum Development Kit.
- [**microsoft/QuantumKatas**](#): Self-paced programming exercises for learning quantum computing and the Q# programming language.
- [**microsoft/qsharp-compiler**](#): The Q# compiler, Visual Studio extension, and Visual Studio Code extension.
- [**microsoft/qsharp-runtime**](#): Simulation framework, code generation, and simulation target machines for the Quantum Development Kit.
- [**microsoft/iqsharp**](#): Jupyter kernel and Python host functionality for Q#, as well as Docker images for using IQ# in cloud environments.
- [**MicrosoftDocs/quantum-docs-pr**](#): Source code for the documentation published at <https://docs.microsoft.com/quantum>.



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No class on Aug 30

Special project
Catch up on past classes

