Quantum Computing and Cryptography - 16: Multiple Qubits and Entangled Systems

Length	Micromodule
Collection	NSA NCCP
Updated	March 14, 2019
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Academic Levels	Undergraduate, Graduate
Topics	Quantum Computing
Link	https://clark.center/details/aparakh/ba3d0c66-5513-4d0e-bc9a-320f4b81ff8f

Description

In this lesson, students will learn to create joint state representations of quantum systems with multiple qubits and understand the ntotion of entangled quantum systems. Further, students will be learn to perform measurements on joint quantum states and also perform partial-measurements on such states.

The files are named nanomodules but it will take between 1 to 4 hours to complete all the exercises.

Email Dr. Abhishek Parakh at aparakh@unomaha.edu for solutions to the problems.

Note: To get started with Jupyter notebooks please follow the userguide available at: https://sites.google.com/unomaha.edu/userguideqcl/

Outcomes

- Determine measurement outcomes of joint quantum states.
- Create joint state representations of quantum systems with multiple qubits.
- Determine outcomes of partial-measurements on joint quantum states.
- Summarize the notion of entangled quantum systems.

Links

External links that are associated with this learning object

- User guide