Quantum Computing and Cryptography - 08: Tensor Analysis

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/3bb503ee-c669-4fba-8a0e-e7ac7d793005

Description

This nanomodule teaches the concept of tensor products of matrices and vectors needed for quantum computing and cryptography. Students will also implement programs to compute the Tensor product of two matrices.

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/

Notes

For solutions for Final Quizzes please contact Dr. Abhishek Parakh at aparakh@unomaha.edu.

Outcomes

- Implement a program that computes the Tensor product of two matrices.
- Prove properties Tensor products of matrices and vectors.
- Calculate tensor products.

Alignment

The standards and guidelines this learning object is mapped to

- NICE Workforce Knowledge (2017) - K0052: Knowledge of mathematics (e.g. logarithms,

trigonometry, linear algebra, calculus, statistics, and operational analysis).

Links

External links that are associated with this learning object

- User guide