

3rd International Workshop on Machine Learning and Quantum Computing Applications in Medicine and Physics



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Utilizing Gaussian Boson Sampling for Hyperspectral Data Reduction

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Gaussian Boson Sampling (GBS) is a photonic sampling process whose output probabilities can be related to graph-theoretic problems, including clique finding. In this talk, I will discuss the application of GBS to the band-selection problem in hyperspectral satellite data, where the goal is to identify a reduced set of spectral bands while preserving the relevant information.

Although GBS was originally formulated as a photonic process, it is also possible to explore its implementation on qubit-based quantum architectures, which are currently more widely accessible. I will present our recent construction that enables such a mapping. Finally, I will discuss the advantages and limitations of employing GBS to satellite data analysis.

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