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Quantum Earth Mover's Distance: A New Approach to Learning Quantum Data

Tuesday 8 June 2021 12:00 (30 minutes)

In this talk, I will introduce a generalization of the earth mover's distance to the set of quantum states. The proposed distance recovers the Hamming distance for the vectors of the canonical basis, and more generally the classical earth mover's distance for quantum states diagonal in the canonical basis. I will discuss some desirable properties of this distance, including a continuity bound for the von Neumann entropy and its insensitivity to local perturbations, and I will show how these properties make the distance suitable for learning quantum data using quantum generative adversarial networks
Based on https://arxiv.org/abs/2009.04469 and https://arxiv.org/abs/2101.03037.

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