Contribution ID: **1448** Type: **Poster (Student, Not in Competition) / Affiche (Étudiant(e), pas dans la compétition)**

Quantum Model for Machine Learning Applications

Tuesday 14 June 2016 19:24 (2 minutes)

The field of machine learning has been revolutionized by the recent improvements in the training of deep networks. Their architecture is based on a set of stacked layers of simpler modules. One of the most successful building blocks, known as a restricted Boltzmann machine, is an energetic model based on the classical Ising Hamiltonian. In our work, we investigate the benefits of quantum effects on the learning capacity of Boltzmann machines by extending its underlying Hamiltonian with a transverse field. For this purpose, we employ exact and stochastic training procedures on data sets with physical origins.

Author: KULCHYTSKYY, Bohdan (University of Waterloo)

Co-authors: Dr ANDRIYASH, Evgeny (D-Wave Systems); Dr AMIN, Mohammad (D-Wave Systems); Prof. MELKO, Roger (University of Waterloo)

Presenter: KULCHYTSKYY, Bohdan (University of Waterloo)

Session Classification: DCMMP Poster Session with beer / Session d'affiches, avec bière DPMCM

Track Classification: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)