



Canadian Association  
of Physicists

Association canadienne  
des physiciens et physiciennes

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## **(I) Interpreting artificial neural networks in the context of theoretical physics.**

*Tuesday 8 June 2021 11:30 (30 minutes)*

Since many concepts in theoretical physics are well known to scientists in the form of equations, it is possible to identify such concepts in non-conventional applications of neural networks to physics.

In this talk we examine what is learned by convolutional neural networks, autoencoders or siamese networks in various physical domains. We find that these networks intrinsically learn physical concepts like order parameters, energies, or other conserved quantities.

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**Session Classification:** TS-2 Quantum Machine Learning (DTP) / Apprentissage automatique quantique (DPT)

**Track Classification:** Symposia Day (DTP) - Quantum Machine Learning