



University of Crete
Department of Physics

Physics Colloquium

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Machine learning for theoretical physics and math

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ABSTRACT

We are now quite used to the idea that deep neural networks may be trained in a variety of ways to tackle cutting-edge problems in science. However, theoretical physics and pure mathematics place a high value on rigor and understanding, whereas deep learning techniques are often stochastic, error-prone, and blackbox. How, then, should we use deep learning in these fields? In this talk I will take two approaches: 1) applying ML in ways that are rigorous and interpretable, including in string theory and knot theory and 2) using ML theory to understand famous problems in new ways, including field theory and flows in the space of Riemannian metrics.

ZOOM link: <https://uoc-gr.zoom.us/j/89892308966>