Special Issue

Deep Generative Models for Simulating Physical Systems

Message from the Guest Editors

This Special Issue invites contributions at the forefront of applying Deep Generative Models (DGMs) to address fundamental challenges in physics. DGMs, including Variational Autoencoders (VAEs), Generative Adversarial Networks (GANs), normalizing flows, diffusion models, and autoregressive models, have demonstrated remarkable capabilities in learning and sampling from target probability distributions in the fields of, e.g., high energy physics, statistical physics, and condensed matter physics. DGMs are rapidly transforming numerous subfields of physics that heavily rely on accurate numerical simulations and efficient sampling routines, ranging from collider physics and cosmology to quantum field theory.We seek submissions that explore novel DGM architectures, physics-informed approaches, and innovative applications. This Special Issue aims to highlight both the successes and the outstanding challenges in integrating these powerful machine learning tools to advance our understanding of the universe.

Guest Editors

Dr. Kim Andrea Nicoli

Prof. Dr. Lei Wang

Dr. Anindita Maiti

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Entropy
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
entropy@mdpi.com

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The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

Entropy is an online open access journal providing an advanced forum for the development and/or application of entropic and information-theoretic studies in a wide variety of applications. *Entropy* is inviting innovative and insightful contributions. Please consider *Entropy* as an exceptional home for your manuscript.

Editor-in-Chief

Prof. Dr. Kevin H. Knuth
Department of Physics, University at Albany, 1400 Washington Avenue, Albany, NY 12222, USA

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