Special Issue

Entropy: The Cornerstone of Machine Learning

Message from the Guest Editors

The key feature of science is the description of some quantities in terms of others. To do this, scientists and engineers create mathematical models that describe the relationships in raw input data and methods that build on these models and ultimately produce useful output data. To make these models work, they are trained. In machine learning (ML), a model is a dynamic complex system that consists of many layers, each of which represents a simple mathematical operation. Mathematically, learning is embodied in the procedure for minimizing the objective loss function of the model. But training an ML model as a typical complex dynamic system obeys the second law of thermodynamics. ML is the process of finding a “balance point” or a model configuration with maximum entropy, which corresponds to the most probable value of the loss function . In our special issue, any scientifically based ideas aimed at maximizing the entropy of ML models are welcome: configuring data, structural elements, loss functions and qualitative metrics. We also invite papers showing application of entropy&ML to evaluate the performance of complex systems, including telecommunication networks.

Guest Editors

Prof. Dr. Viacheslav Kovtun

Department of Computer Control Systems, Vinnytsia National Technical University, Khmelnitske Shose Str., 95, 21000 Vinnytsia, Ukraine

Prof. Dr. Krzysztof Grochla

Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, Bałtycka 5, 44-100 Gliwice, Poland

Deadline for manuscript submissions

closed (15 October 2023)

Entropy

an Open Access Journal by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed

mdpi.com/si/132737

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

mdpi.com/journal/entropy

Entropy

an Open Access Journal by MDPI

Impact Factor 2.0
CiteScore 5.2
Indexed in PubMed

mdpi.com/journal/entropy

About the Journal

Message from the Editor-in-Chief

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

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, PubMed, PMC, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Physics, Multidisciplinary) / CiteScore - Q1 (Mathematical Physics)

MDPI