



Information-Theoretic Methods in Deep Learning: Theory and Applications

Guest Editors:

Dr. Shuangming Yang

Dr. Shujian Yu

**Dr. Luis Gonzalo Sánchez
Giraldo**

Prof. Dr. Badong Chen

Deadline for manuscript
submissions:
closed (15 May 2024)

Message from the Guest Editors

In recent years, researchers have revealed that Information theoretic learning (ITL) provides a powerful paradigm for analyzing neural networks by shedding light on the layered structure, generalization capabilities and learning dynamics. For example, the information bottleneck theory has demonstrated great potential to solve critical problems in deep learning, including understanding and analyzing black-box neural networks, and serving as an optimization criterion for training deep neural networks. Divergence estimation is another approach with a broad range of applications including domain shift detection, domain adaptation, generative modeling, and model regularization.

With the development of ITL theory, we believe that ITL can provide new perspectives, theories, and algorithms to the challenging problems of deep learning. Therefore, this Special Issue aims at reporting the latest developments on ITL methods and their applications.





entropy



an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Kevin H. Knuth

Department of Physics, University
at Albany, 1400 Washington
Avenue, Albany, NY 12222, USA

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.

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*)

Contact Us

Entropy Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/entropy
entropy@mdpi.com
[X@Entropy_MDPI](#)