Information-Theoretic Methods for Deep Learning Based Data Acquisition, Analysis and Security

Guest Editors:

Prof. Dr. Slava Voloshynovskiy
Stochastic Information Processing Group, Department of Computer Science, Faculty of Science, University of Geneva, Geneva, Switzerland

Dr. Benedetta Tondi
Visual Information Processing and Protection Group, Department of Information Engineering and Mathematics, University of Siena, Siena, Italy

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Message from the Guest Editors

The recent advancement of machine learning techniques in general and deep learning (DL) in particular recalls a necessity to carefully rethink many traditional approaches in data acquisition, analysis, processing, and security. At the same time, deep learning, as a glorified signal processing tool, lacks a solid information-theoretical basis and strong connections with the fundamental information-theoretic results in channel and source coding, hypothesis testing, estimation, and security. The goal of this Special Issue is to link deep learning techniques with information theory and thus create a basis for theoretically explainable machine learning and interpretable deep learning solutions.

This Special Issue should serve as a platform for multi-disciplinary researchers interested in sharing their results with other communities using similar techniques. All submitted manuscripts will be subject to peer review, and accepted papers will be available via open access. We welcome the submission of extended conference papers with a clear justification of all extensions with respect to previously published works.

Special Issue

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.

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