Special Issue

Information-Theoretic Advances and Emerging Technologies for Cognitive Radio Systems

Message from the Guest Editors

CRSs are transformative in modern wireless communication, addressing spectrum scarcity and enabling dynamic resource allocation in crowded frequency bands. By optimizing spectrum utilization and improving communication efficiency, CRSs are crucial for next-generation networks. Information theory provides the mathematical foundation for analyzing and optimizing critical aspects of CRSs.

Recent advances include mutual information-based channel modeling, entropy-driven spectrum sensing, and rate-distortion techniques for adaptive coding, enabling robust solutions for spectrum sharing and efficient data transmission. However, challenges like mitigating interference in high-mobility environments, ensuring scalability in dense networks, and achieving real-time optimization under uncertainty persist.

This Special Issue invites contributions on entropy-based spectrum sensing, interference modeling, energy-aware communication metrics, adaptive coding techniques, machine learning integration, and computational algorithms for real-time CRS optimization. Join us in advancing the theoretical and practical capabilities of CRSs to meet the demands of next-generation wireless networks.

Guest Editors

Dr. Diluka Galappaththige
Prof. Dr. Chintha Tellambura
Dr. MohammadAli Mohammadi

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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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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

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