

Special Issue

Evolution of Community Complexity

Message from the Guest Editors

This Special Issue aims to advance the understanding of novel behaviors and collective intelligence at the group level by developing a unified theoretical framework. We propose the "Community First" hypothesis, which posits that the formation of groups leads to a second level of individuation, driving the evolution of diversity and autonomy. This hypothesis will be investigated through an interdisciplinary approach involving experimental biology and theoretical modeling. One central aspect of this research is analyzing the "hierarchical structure of mutual information" to decode the complexity of inter-individual relationships. By breaking mutual information into redundancy, synergy, and uniqueness, we aim to provide new insights into how collective phenomena emerge and evolve. This Special Issue seeks contributions that combine experimental, computational, and theoretical perspectives to explore collective dynamics and individuality. It particularly encourages studies leveraging novel data analysis methods to bridge the gap between empirical data and unified theories of collective intelligence.

Guest Editors

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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

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