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 interindividual 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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Editor-in-Chief

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