

Special Issue

Information Theory in Neural Coding and Decoding

Message from the Guest Editor

The hypothesis that the brain performs Bayesian inferential predictive processing to perceive the environment and conduct motor control by minimizing prediction errors is gaining an increasing popularity. In this view, perception continuously adds incoming sensory evidence to improve its estimate of the latent states of the world, reducing state-prediction errors. In turn, actions minimize prediction errors at the proprioceptive and at the external sensory level and further reduce latent-state uncertainty through exploration. This principle view about neural processing is embraced in several theories about perception and action – such as Predictive Coding and Active Inference – and makes strong predictions about the type of information content in the brain and its localization.

Guest Editor

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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.

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Editor-in-Chief

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