

Insight on neural connectivity from information theory

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Measuring directed interactions in the brain in terms of information flow is a promising approach, mathematically treatable and amenable to encompass several methods. In this contribution I will propose some approaches rooted in this framework for the analysis of neuroimaging data. Quantifying the dynamical influences in neural networks in terms of information flow allows to clusters groups of variables in terms of the common information that they share on the future of the system. This information can be either synergistic or redundant. Detecting and isolating synergy and redundancy helps furthermore to perform a correct conditioning when evaluating information transfer in multivariate datasets [1].

Références

- [1] SEBASTIANO STRAMAGLIA, GUORONG WU UGENT, MARIO PELLICORO AND DANIELE MARINAZZO, *Expanding the transfer entropy to identify information circuits in complex systems*, Physical Review E, 86(6), 066211, 2012.