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A probabilistic study of neural complexity

G. Edelman, O. Sporns and G. Tononi have introduced in theoretical biology the neural complexity of a family of random variables, defining it as a specific average of mutual information over subsystems. We provide a mathematical framework for this concept, studying in particular the problem of maximization of such functional for fixed system size and the asymptotic properties of maximizers as the system size goes to infinity.

(Joint work with Jerome Buzzi)