SEMINARIO

Resting state networks as spatio-temporal priors for natural vision

Dott. Viviana Betti

Department of Psychology, Sapienza University

In the absence of a task, the cerebral cortex exhibits slow fluctuations of activity that are highly organized in large-scale spatio-temporal structures or resting state networks (RSNs). Resting state fluctuations are of great interest since they have been linked to task related activity patterns. A fundamental question today is the functional role of spontaneous activity, and what information, if any, is coded in these intrinsic patterns of correlated activity.

In this talk, I will present the idea that the role of the intrinsic brain connectivity is to preserve and maintain an internal model of the environment that is built through the integration of information from visual and bodily inputs. Bodily inputs reflect the physical and the functional interaction that our body establishes with the external environment. In this vein, the hand has a special role because it is the primary means of interaction with the surrounding. This idea is based on recent studies using Magnetoencephalography (MEG) - a method with high temporal resolution and good spatial resolution. Here, we studied changes in static and dynamic functional connectivity, topology and integration measured with alpha and beta Band Limited Power (BLP) correlation at rest or during the observation of normal or time-scrambled movie clips. We showed that the audiovisual stimulation reduced the connectivity in alpha, reorganized the overall topology and changed the dynamics of nodal centrality. In contrast, the beta band intrinsic topology and dynamics of integration at rest were similar to those measured during the observation of normal movie sequences but altered for time-scrambled movies. Taken together, these findings suggest that the similarity between network connectivity at rest and during natural vision reflects an adaptation of the spontaneous activity to the naturalistic environment and common behaviors.

10 Gennaio 2018 ore 11:30

Dipartimento di Ingegneria Informatica, Automatica e Gestionale Antonio Ruberti
Aula A6 (via Ariosto 25)

Per Informazioni contattare: Prof. Daniela Iacoviello (iacoviello@diag.uniroma1.it)