



**Centro Interuniversitario di Ricerca
sull'Elaborazione Cognitiva in Sistemi
Naturali e Artificiali**

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Il Dottor

Franco Pestilli
New York University

Giovedì 22 Settembre 2005, in Aula Riunioni, Dipartimento di Psicologia, alle ore 17.00 terrà un seminario su:

Effects of transient attention on contrast sensitivity

The visual system is composed of a bank of neurons acting as filters sensitive to limited spatiotemporal characteristics of the stimuli. Notwithstanding the limited bandwidth, their functioning is energy-costly. Given the limited energy available to us at each moment, the massive amount of visual stimulation received by our eyes is far more than we can process effectively.

To cope with such limits the visual system must continually modify how it allocates neural resources. Visual attention is the system deputed to optimize the use of our limited neural processing. Its effects span very different time scales so that specialized subsystems are employed for long lasting (i.e., more than 300 milliseconds) and brief (i.e., less than 300 milliseconds) visual events. Sustained attention is the slower subsystem that operates voluntarily in case of longer visual events; transient attention is the fast subsystem operating involuntarily with brief visual events.

A way in which visual attention could help optimizing performance while containing our bio-energetic expenditures would be by prioritizing some aspects of the visual scene while reducing the processing of others. I will present psychophysical and imaging evidences in humans on the effects of transient attention on one of the most basic dimensions of vision (contrast sensitivity) that agree with this view.

Psychophysical results are consistent with transient attention limiting neural expenditures by enhancing contrast sensitivity at the attended location and reducing contrast sensitivity at unattended ones. Imaging results demonstrate that transient attention enhances contrast sensitivity at the attended location by increasing neural processing since the earliest stages of the visual pathways.

Mi è gradito rivolgere l'invito.

Il Direttore
Marta Olivetti Belardinelli