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# Spatial-temporal interactions in the human brain: neurophysiological and neuropsychological studies.

Massimiliano Oliveri\*<sup>†1</sup>

<sup>1</sup>Psychology Department, Univesita di palermo – Università di Palermo, Palermo, Italy

## Abstract

Increasing evidence indicates that the representations of space and time interact in the brain but the exact neural correlates of such interaction remain unknown. Psychophysical experiments document the presence of spatially localised distortions of sub-second time intervals and suggest that visual events are timed by neural mechanisms that are spatially selective. Experiments with supra-second intervals suggest that time could be represented on a mental time-line ordered from left-to-right, similar to what is reported for other ordered quantities, such as numbers. Neuroimaging and neuropsychological studies show that processing of temporal information recruits a distributed network in the right hemisphere and suggest a link between deficits in spatial attention and deficits in time perception. However, studies on patients with focal brain lesions suggest that while a right hemispheric network is critical for explicit timing, a left hemispheric network is necessary for mediating the effects of prismatic adaptation on spatial and temporal perception, as well as for implicit timing.

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\*Speaker

<sup>†</sup>Corresponding author: [massimiliano.oliveri@unipa.it](mailto:massimiliano.oliveri@unipa.it)