



SAPIENZA  
UNIVERSITÀ DI ROMA

Dottorato di Ricerca in Neuroscienze del Comportamento  
Scuola di Dottorato in Neuroscienze

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Visuo-motor interactions in action perception

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Aula Luciani – CU027 (ground floor)

HOST: Stefano Ferraina (stefano.ferraina@uniroma1.it)

## Abstract:

Primates engage in complex social interactions that are based on a high level of understanding of the actions of their conspecifics. This process is a sensory-motor accomplishment. Indeed, brain imaging and behavioral studies in humans as well as neurophysiological experiments in monkeys have provided strong evidence that action observation activates motor processes in the observer's brain. Despite more than two decades of research it is still unknown which characteristics of an observed action are encoded in the visual responses of motor areas.

Here, I will present results from brain imaging experiments in humans and neurophysiological recordings in the monkey showing that the visual responses of motor areas (1) encode several low-level characteristics of observed actions and (2) are plastic and can be modified by visuo-motor training. Furthermore, analysis of population responses recorded in the monkey pre-motor cortex suggests that visually responsive neurons are active also during action planning and encode information that is complementary to that of purely motor neurons.

Finally, I will present preliminary results in humans suggesting that grip type might be encoded in the power of invasively recorded local field potentials.