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The mirror mechanism: a mechanism for understanding action and emotion of others

Mirror neurons are a distinct set of motor neurons that discharge both when the monkey executes a specific motor act and when it observes another individual doing a similar act. In the first part of my talk, I will review the basic functional properties of monkey mirror neurons located in the premotor cortex. I will first describe their motor properties. I will show then that mirror neurons code the goal of a motor act. Finally, I will review their visual properties showing that mirror neurons represent a mechanism that allows a direct understanding of what the agent is doing.

Mirror mechanism also exists in humans. I will present EEG, fMRI and TMS data proving it and will show that, although there are other mechanisms through which one can understand the behaviour of others, the mirror mechanism is the only one that allows understanding others from the inside providing the observer with a “first-person” person grasp of others’ motor goals, intentions and emotions.