Humans are an exquisitely social species, whose survival critically depends on their ability to understand actions, intentions and emotion of others. In my talk I will present a series of data that indicate that our brain is endowed with a specific mechanism –mirror mechanism- that enables us to understand all these aspects of others’ behavior.

I will show first that, for the so-called “cold” actions (those devoid of a emotional content), the mirror mechanism is localized in specific parieto-frontal circuits. Neurons of these circuits –mirror neurons- discharge both when we do a specific action (e.g., grasping an object) and when we observe another person performing the same action.

I will present then a series of new data indicating that the activity of mirror neurons enables us not only to understand what another person is doing (the girls is grasping an apple), but also the intention of that person (the girls is grasping an apple in order to it, or to throw it away).

Finally I will review evidence showing that the mirror mechanism exists also for understanding “hot” actions, such as disgust and fear. The mirror mechanism for these actions is located in a circuit whose nodal center is located in the insula.

I will conclude discussing some social and ethical implications of these findings.