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Talk Title:

Predictive attenuation of self-touch

Abstract:

Self-touch feels less intense and less ticklish than the same touch applied externally. Motor control theories have suggested that cerebellar internal models predict the somatosensory reafference and attenuate, or even cancel, the perception of the actual touch. Despite this influential theoretical framework, little is known about the details of this predictive attenuation phenomenon. Using psychophysics, I will first show that the attenuation of self-touch is (a) a predictive phenomenon, and (b) different from the movement-related gating of somatosensory exafference. By combining psychophysics with functional magnetic resonance imaging (fMRI), I will then show that this perceptual attenuation is reflected in the reduced activity in somatosensory and cerebellar areas during self-touch and positively related to the degree of perception. By manipulating the relationship between the expected and actual time of somatosensory reafference, I will demonstrate that attenuation of self-touch is driven by predictions that are time-locked to the time of the expected feedback both at the perceptual and neural level.

Biographical Information:

Konstantina Kilteni studied Electrical and Computer Engineering at the National Technical University of Athens and she did her PhD studies in Clinical Psychology and Psychobiology at the University of Barcelona. She was a Marie Skłodowska-Curie postdoctoral fellow at the Department of Neuroscience in Karolinska Institutet and she is now an Assistant Professor at the Department of Neuroscience in Karolinska Institutet, and her lab is funded by the starting grants of the Swedish and European Research Council.