

**“Looking for emotions in the absence of sight:  
how sensory deprivation impacts affective experience”**

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Affective abilities are crucial for human social interactions and necessary for optimal functioning in daily life. Indeed, emotional signals are frequently conveyed through nonverbal visual cues, such as facial expressions or body postures, which require a fine-tuned sense of sight to be detected. This variety of visual features provides crucial information about the pleasantness and intensity of one's current experience, which is then promptly interpreted by others to achieve successful interactions and increase the probability of adapted response in a complex social world. The fundamental role of sight in affect is testified by different neuroimaging studies, which show, for instance, how convolutional neural networks can predict the emotional content of images and that activity of the early visual cortex is able to classify distinct emotion categories (Kragel et al., 2019). In line with this, using neuroimaging and a two-hour emotionally charged movie (Forrest Gump, 1994), we recently demonstrated that the same mechanism responsible for the coding of distinct stimulus properties in the primary visual area (i.e., topographic mapping), also supports the organization of affect in right temporo-parietal cortex (Lettieri et al., 2019). In a subsequent study, we also found that the same area is differentially connected with early visual regions based on the pleasantness of the experience (Lettieri et al., 2021).

Of note, converging evidence coming from behavioral science, neuroimaging and artificial neural network point to the crucial role of visual information in affective processing. Therefore, we aim to investigate how visual experience shapes the development of emotional representation in the mind, the body and the brain.

In my talk, I will present findings on the brain correlates of emotions in congenitally blind and early deaf individuals, addressing the role of sensory experience (and lack thereof) in the development of affective abilities and their mental representation. Specifically, I will discuss recent results obtained from a combined behavioral and fMRI study using a naturalistic stimulation to elicit affective responses in healthy and deprived individuals. Moreover, I will present a project that is currently being carried out in french speaking blind participants. The aim of the study is to unveil how and where in the body sight deprived subjects represent emotions and affective reactions.