

Session 2

Francesca Ferroni

Perceiving and Experiencing Architectural Environments: A look at architecture from *within*

How do people perceive and experience architectural environments? The experience of a space or place is not merely a visual perceptual one as it is usually assumed. Architecture experience can be understood in terms of its bodily grounding elements. It is a complex multisensory fusion of countless factors. Indeed, we engage environments with all our senses, specifically in the space immediately surrounding our body, the peripersonal space (PPS), where we usually interact with objects and people. PPS refers to a buffer plastic zone between us and the world. In this portion of space, tactile and proprioceptive information concerning specific body parts are integrated with visual and/or auditory inputs from the environment. Seminal electrophysiological studies on monkeys and humans have widely demonstrated that such multisensory integration processes can be plastically modified after motor training performed with a tool in far space. The current models about the mechanisms underlying PPS plasticity have mostly taken into account the effect of “contingent factors” such as the multisensory stimulations provided to the actor during action performance with a tool. However, one intriguing question is how multisensory integration processes underlying PPS plasticity interact with the experience of “contextual factors” in the surrounding space.

For instance, how does architectonic space influence PPS plasticity? Previous studies highlighted a relationship between external space and bodily self-consciousness during multisensory bodily illusions or other embodied processes. However, to date, the effect of architectonic space on PPS plasticity is an uncharted research territory. Additionally, it is well known that PPS representation is deeply influenced by individual psychological and psychiatric factors, as well as broader diversity dimensions such as social factors and emotional states. In this context, architectonic environments can either exacerbate these challenges or, when designed inclusively, provide support, and enhance PPS plasticity, fostering a sense of safety and belonging.

Inclusive architectural design thus requires considering diverse psychological and psychiatric needs, ensuring spaces promote accessibility and well-being for all. Through the careful use of materials, spatial arrangements, and multisensory stimuli, environments can actively shape PPS dynamics, accommodating varied bodily and sensory experiences. In this lecture, I will introduce the neuroscientific foundation of PPS and discuss our recent findings that bridge neuroscience and architecture. I will specifically address how psychological and psychiatric factors influence PPS plasticity and how architectonic design can respond to these challenges. Finally, I will speculate on the implications of all these findings for architecture and how inclusive design principles can reshape architectural environments to support diverse needs, fostering equity and well-being in our interactions with space.