

From Dexterity to Experience: a Cross-disciplinary Approach to Neuroprosthesis

Key words: Neuroprosthesis, Dexterity, Experience

Neuroprosthesis aims to restore the complete sense of touch, in the active and passive component, focusing on functionalities, like the feeling of what is touched and the capacity of precise grasping. In the last decade, from an engineering perspective, many studies have been published concerning the frontier of neural elicitation of tactile sensation; mainly, the essay (Zollo et al., 2019) aims to provide an example of the use of sensory information to control the dexterity of a prosthetic hand.

This finding is significant to understand how the concepts of experience and sensation are going to transform the biomedical engineering; from a philosophical perspective, it implies the necessity to rethink of the embodied perception realized by robotics implant.

Starting from the concept of “cyborg relation”, the goal of this presentation is twofold. It aims to investigate the perception through a technological device, implanted in the body; at the same time, it also wants to clarify in which sense a philosophical approach to prosthetic experience is useful from an engineering perspective.

Therefore, this contribution proposes a cross-disciplinary approach in which philosophy can contribute in elaborating a new pathway of understanding the body in which are present, at the same time, the quantification analysis of stimuli and the qualitative dimension of experience.

References:

- Zollo, L., Di Pino, G., Ciancio, A. L., Ranieri, F., Cordella, F., Gentile, C., . . . Denaro, L. (2019). Restoring Tactile sensations via neural interfaces for real time force-and-slippage closed-loop control of bionic hands. *Science Robotics*, 4.