

Artificial Limb Laboratory - The Study of Embodiment of Prosthetic Hands



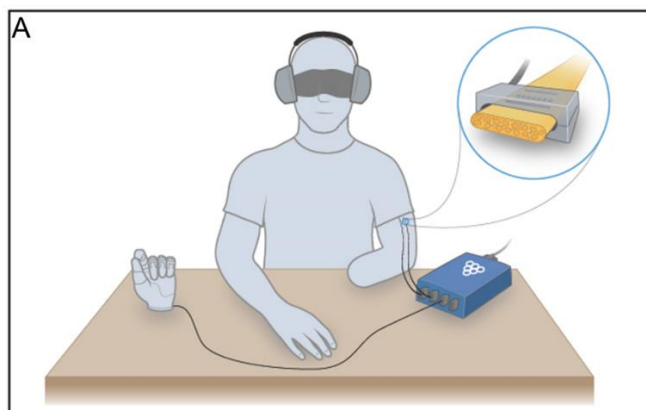
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Abstract:

My research mission is to enable the embodiment of artificial devices by providing physiologically appropriate somatosensory feedback. Using neural interfaces, biomechatronic devices, and machine learning, I plan to blur the lines between man and machine by eliciting perceptions of our natural body using the artificial devices. Today, prosthetic hands are numb. They provide no tactile or proprioceptive sensory information back to the user. The lack of sensory feedback has been shown to reduce the utility of a prosthesis by half. The prosthesis is seen as a tool, not as an incorporated part of the body schema. Only now are there chronically implantable technologies which can provide physiologically appropriate sensory feedback to upper limb amputees to recreate tactile and proprioceptive percepts. Here I will detail our ongoing study focused on the embodiment of prosthetic hands. First, I will demonstrate how people with upper limb amputation can identify the hand posture of their prosthetic device using artificial somatosensory percepts (see figure). Second, I will present the various electromechanical prosthetic components and algorithms which we developed to further enhance the capabilities of prosthetic limb users. Finally, I will describe the ways we translate these technologies from the lab bench to the clinic through commercialization projects and companies.



February 22nd, 2021

12:00 – 12:50pm

<https://cuboulder.zoom.us/j/97978318855>



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