

Osseointegrated Prosthesis with Neural Control and Sensory Feedback

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Abstract— The state of the art research and development of the powered prosthetic devices controlled via neural interfaces are aiming at the problems that are preventing natural-like use of an artificial limb. Although in wide use, myoelectric prosthetic hands, interfaced via stumps and controlled using superficial EMG electrodes are known for their poor functionality, controllability and sensory feedback, mainly due to the use of surface electrodes. Furthermore, the interface with the user is established through the soft interface that deteriorate over time. In this paper we will discuss developing of a novel prosthetic hand with improved functionality, smart mechatronic devices for safe implantable technology, and improved paradigms for natural control (action) and sensory feedback (perception) of the prosthesis through the Osseointegrated implant.

Index Terms—Osseointegration, Prosthetic hand, Myoelectric Control, Sensory Feedback

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