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Mechanical Prosthesis Controlled by Brain-Computer Interface

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Abstract : The purpose of our research is to study the possibility of people with physical disabilities manipulating mechanical prostheses through brain-computer interface (BCI) technology. The brain-machine interface (BCI) of the neural prosthesis records signals from neurons and uses mathematical modeling to decode them, converting desired movements into body movements. In order to improve the patient's neural control, the prosthesis is given a natural feeling. It records data from sensitive areas from the body to the prosthetic limb and encodes signals in the form of electrical stimulation to the brain. In our research, the brain-computer interface (BCI) is a bridge connecting patients' cognition and the real world, allowing information to interact with each other. The efficient work between the two is achieved through external devices. The flow of information is controlled by BCI's ability to record neuronal signals and decode signals, which are converted into device control. In this way, we could encode information and then send it to the brain through electrical stimulation, which has significant medical application.

Keywords : biomedical engineering, brain-computer interface, prosthesis, neural control
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