

Bioarm, a Prothesis without Surgery

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Abstract : Robotics provides answers to amputees. The most expensive solutions surgically connect the prosthesis to nerve endings. There are also several types of non-invasive technologies that recover nerve messages passing through the muscles. After analyzing these messages, myoelectric prostheses perform the desired movement. The main goal is to avoid all surgeries, which can be heavy and offer cheaper alternatives. For an amputee, we use valid muscles to recover the electrical signal involved in a muscle movement. EMG sensors placed on the muscle allows us to measure a potential difference, which our program transforms into control for a robotic arm with two degrees of freedom. We have shown the feasibility of non-invasive prostheses with two degrees of freedom. Signal analysis and an increase in degrees of freedom is still being improved.

Keywords : prosthesis, electromyography (EMG), robotic arm, nerve message

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