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Electroencephalography and the Mechanical Operation of an Exoskeletal Arm CODY HELMS, Univ of Northern Colorado, KOURTENEY ZADINA, Colorado State University — Great advancement in technology has opened the doors for research in the field of prosthetics, specifically prosthetics controlled by the mind. Every action we take within our daily lives requires our brains to produce electrical activity. This activity generates brain waves that can be observed and recorded using electroencephalography (EEG). Utilizing machine learning algorithms trained to determine which brain waves are associated with moving an arm, it is possible to control a pneumatic exoskeletal arm with nothing more than your thoughts. Our research focuses on measuring brain wave activity during particular movements of the body. We attempt to find brain waves corresponding to the movement of raising and lowering the arm by using EEG hardware. We hope this work could, someday, be applied in operating a prosthetic arm that amputees or physically disabled people could use.

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