Hand prosthetic controlled via augmented reality

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Video Byte

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Abstract

Restoring hand motion to people experiencing amputation, paralysis, and stroke is a critical area of research and development. While electrode-based systems that use input from the brain or muscle have proven successful, these systems tend to be expensive and difficult to learn. One group of researchers is exploring the use of augmented reality (AR) as a new way of controlling hand prostheses. A camera mounted on eyeglasses tracks LEDs on a prosthetic to execute opening and closing commands using one of two different AR systems. One system uses a rectangular command window to control motion: crossing horizontally signals “open” along one direction and “close” in the opposite direction. The second system uses a circular command window: once control is enabled, gripping strength can be controlled by the direction of head motion. While the visual system remains to be tested with patients, its low cost, ease of use, and lack of electrodes make the device a promising solution for restoring hand motion.