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Humanlike Smart Electronic Gloves for Prosthetic and Robotic Controls

An electronic glove platform enhances existing prosthetic hands with mechanical softness and physical warmth, improving humanlike social touch capabilities.

There are approximately 2 million people in the United States that have undergone an amputation and thus require a prosthetic, with an estimated 185,000 new amputees every year (Advanced Amputee Solutions LLC). Prosthetic development has advanced over the past 10 years, but there still remains many issues with the current generation of prosthetics. The advancement of prosthetic hands is of particular concern given the importance of social touch such as handshake, gentle strokes and pats, and even high fives. Disfigurement of the hands affects psychological well-being. Current prosthetic hands allow for artificial skin, but complex geometries lead to poor mechanical/electrical couplings, limiting humanlike social touch.

A Purdue University researcher has developed an electronic glove (e-glove) in which various commercial gloves can serve as a platform for functional sensors. It can work with existing prosthetic hands by utilizing their intrinsic ergonomic designs. In addition, the e-glove incorporates the mechanical softness and physical warmth to replicate humanlike social touch.

Advantages:

-Simple solution

-Fits all prosthetic hands

-Improved humanlike social touch

Potential Applications:

-Prosthetic hand improvement

-Assistive robotic hand improvement

-General prosthetic development

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Authors
Chi Hwan Lee

Further information
Patrick Finnerty
pwfinnerty@prf.org

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