Augmented reality improves myoelectric prosthesis training

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ABSTRACT

This paper presents the ARM Trainer, a new augmented reality-based system that can be used to train amputees in the use of myoelectric prostheses. The ARM Trainer provides users with a natural and intuitive method to develop the muscles used to control a myoelectric prosthetic. In addition to improving the training process, the new interface has the potential to mitigate psychological issues arising from amputation that are not addressed by existing approaches (e.g., self-image, phantom limb pain). We conducted an empirical study comparing our system to an existing commercial solution (Myoboy) and found the ARM Trainer to be superior along a number of subjective dimensions (enjoyment, perceived effort, competency, and pressure). We also found no significant difference in terms of muscle control development between the two systems. This study shows the potential of augmented reality-based training systems for myoelectric prostheses.

Full papers will be published in the Conference Proceeding s and will be available to delegates at the conference on Sept. 10.

Full papers will be released on-line in the ICDVRAT archive on March 15.