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Adriane B. Randolph

Kennesaw State University, arandol3@kennesaw.edu

Melody Moore Jackson

Georgia Institute of Technology, melody@cc.gatech.edu

Steven G. Mason

Neil Squire Society, smason@telus.net

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Adriane B. Randolph
Kennesaw State University
1000 Chastain Road, Bldg. 4
Kennesaw, GA 30144
+1 770-423-6083
arandol3@kennesaw.edu

Melody Moore Jackson
Georgia Institute of Technology
85 5th Street, NW, TSRB 332
Atlanta, GA 30332
+1 404-385-7510
melody@cc.gatech.edu

Steven G. Mason
Neil Squire Society
Suite 220 - 2250 Boundary Road
Burnaby, BC V5M 3Z3
+1 604-714-4123
smason@telus.net

ABSTRACT

In an effort to better understand and fully characterize human interaction with biometrically-based interfaces, the BioGauges method and toolset are presented. BioGauges provide a mechanism for determining the range, reliability, and granularity of control possible for a user operating a biometrically-based interface. We first demonstrate the method with a study of ten able-bodied people characterizing two different continuous biometrically-based interfaces with a thresholded task. Then, we further demonstrate the method by assessing the spatial granularity of two continuous biometrically-based interfaces for five people with varying stages of paralysis due to amyotrophic lateral sclerosis (ALS).

Keywords

Biometrically-based interface, brain-computer interface, electroencephalography, functional near-infrared, galvanic skin response, controllability.