



Topic of the Speech:

Device Smart Wearable for Emotion Recognition from Physiological Signals During the Interaction with a Video Game to Detect Personality Traits

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Professor Mauro Callejas Cuervo is a Systems Engineer and Doctor of Applied Science from the Universidad Antonio Nariño - Colombia. He holds a Master's degree in Computer Science from the Instituto Tecnológico de Monterrey – Mexico - and a PhD in Energy and Process Control from the Universidad de Oviedo - Spain. At present, he is an associate professor in the Faculty of Engineering and director of the Software Research Group at the Universidad Pedagógica y Tecnológica de Colombia. From 2005-2013, he was the editor and co-editor of the Journal of the Faculty of Engineering at that same University.

Professor Callejas-Cuervo has published a large number of articles in scientific journals and has taken part in many specialized events. He is the director and lead researcher of various innovation and technological development projects, mainly focused on the area of biomedical engineering.

His research interests include inertial and magnetic sensor projects in telerehabilitation and the development of active video games, wearable technology, wearable devices, Human Body Metrics, Wearable Devices and Biomedical Engineering, as well as software engineering and business intelligence. He is the director and main researcher in various innovation and technological development projects, mainly focused on the area of health and sports. In August 2017, Professor Callejas-Cuervo was awarded the SCIENTIST MEDAL FOR THE YEAR 2017, in the field of Advanced Materials Science and Technology by the International Association of Advanced Materials. He has been invited as a keynote speaker at the University of Manchester, University of Sheffield and the University of Cambridge in England.

ABSTRACT SUBMISSION



-For invited speaker only

Device Smart Wearable for Emotion Recognition from Physiological Signals During the Interaction with a Video Game to Detect Personality Traits

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ABSTRACT (NO MORE THAN 500 WORDS:)

The purpose of this research is to build an emotion recognition system for the identification of personality traits using physiological signals (Electrocardiogram (ECG), Galvanic Skin Response (GSR), and Electromyogram (EMG)) and videogames. In this work, we present the signal acquisition, processing and feature extraction system for three physiological signals (ECG, GSR, EMG) used to detect the level of arousal of an individual using Russell's model of affect as a reference. Some metrics were extracted from the physiological signals related to the activation of the sympathetic and parasympathetic autonomic nervous system. The system allows for the capture of the three signals, while the test subject is playing a videogame, which provides the emotional stimuli. Then, the three raw signals are conditioned and filtered to extract metrics, such as, beats per minute (BPM), heart rate variability (HRV), number of GSR peaks in the skin conductance response (SCR) and forearm contraction time. To identify and describe the behavior of these four metrics with the arousal level from Russell's model of affect, a sequence alignment is implemented of the behavior of these metrics during a period in which the subject is in a state of relaxation and while playing the game.

Index Terms- Emotion recognition; physiological signals; personality traits; videogames.