

## Special Session for IWANN2015

### Title:

Brain-Computer Interfaces: Applications and Tele-services

### Motivation and objectives:

The Brain-computer Interface (BCI) technology processes the brain activity to provide a non-muscular channel for the transmission of data, messages and commands. BCIs emerged few decades ago as a new communication technology that permitted subjects with severe neuromuscular disorders to communicate and to interact with the outer world. However, recently BCI applications have been also used in totally different areas (e. g. entertainment, evaluation of cognitive workload, neuro-rehabilitation, etc.). In the future, it is expected a qualitative improvement in performance, in terms of information transfer rate and reliability with potential uses in emerging areas of interest, such as Ambient Assisted Living (AAL) or security.

The main goal of this special session is to show the last advances in BCIs, neuro-technologies (e. g. innovative EEG/ECG/fNIRS headsets, integrated stimulation-acquisition devices, etc.), Tele-services (e.g. applications in Telemedicine, tele-rehabilitation programs, tele-control, mobile applications, etc.), innovative biosignals processing algorithms, training techniques and novel paradigms of data transmission by means of BCIs.

### Organizers:

- Dr. Ricardo Ron Angevín ([riron@uma.es](mailto:riron@uma.es)): DIANA research group, Department of Electronic Technology, University of Malaga, Spain. Escuela Técnica Superior de Ingenieros de Telecomunicación. Campus de Teatinos. CP 29071. Tlfn: +34 95 2131352
- Dr. Miguel Angel Lopez ([miguel.lopez@uca.es](mailto:miguel.lopez@uca.es)): Architecture and Technology of Computer, University of Cadiz, Spain. C/ Chile 1, 11002 Cadiz (Spain). tlf: +34 956 015157. email: miguel.lopez@uca.es

The organizers have successfully organized **three special sessions about BCIs in IWANN09 (Salamanca), IWANN11 (Torremolinos) and IWANN13 (Canary Islands).**

- Dr. Ricardo Ron-Angevin received the Engineer of Telecommunication and Ph.D. degrees from the University de Malaga, Spain, in 1994 and 2005, respectively. In 1995, he joined the Escuela Tecnica Superior de Ingenieros de

Telecomunicacion of Malaga, where he is an Associate Professor with the Electronic Technology Department, and he is a member of DIANA research group. He is the Manager and the Coordinator of the Andalusian regional project BRAINS and the Spanish National project INCADI. His research interests include the design of brain-computer interfaces and virtual reality.

- Dr. Miguel Angel Lopez received the Telecommunication Engineer degree and the Master in Telecommunication Technologies from the University of Malaga (Spain) in 1998 and 2011 respectively. He finished his PhD in 2009 in the University of Granada (Spain). Now, he is a lecturer of the University of Cadiz (Spain) and since 2007 his research is focused on the design of psychophysiological paradigms for the detection of the attention to visual and auditory stimuli for BCI applications and ways for data transmission by means of BCIs.

### **Potential contributions:**

- Dr. Ricardo Ron ([rron@dte.ujma.es](mailto:rron@dte.ujma.es)), Dr. Francisco Velasco Alvarez ([fvelasco@dte.uma.es](mailto:fvelasco@dte.uma.es)), Sergio Varona Moya ([sergio.varona@uma.es](mailto:sergio.varona@uma.es)): DIANA research group. University of Malaga, Spain.
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- Liliana Audin Garcia, Jean-marc André et Véronique Lespinet-Najib. Laboratoire IMS UMR 5218, Groupe Cognitique, ENSC-Bordeaux INP 109, avenue Roul, 33400 Talence, France.
- Prof. Dr. Ivan Volosyak ([ivan.volosyak@hochschule-rhein-waal.de](mailto:ivan.volosyak@hochschule-rhein-waal.de)). University of Rhein-Waal, Germany.