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Physiological Computing Systems

First International Conference, PhyCS 2014
Lisbon, Portugal, January 7–9, 2014
Revised Selected Papers

Springer

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Preface

The International Conference on Physiological Computing Systems (PhyCS 2014) was held in Lisbon, Portugal, during January 7–9, 2014, with the organization and sponsorship of the Institute for Systems and Technologies of Information, Control, and Communication (INSTICC).

This was the first in a series of annual meetings of the physiological interaction and computing community, and serves as the main international forum for engineers, computer scientists, and health professionals, interested in outstanding research and development that bridges the gap between physiological data handling and human-computer interaction. In 2014, PhyCS had the cooperation of the ACM SIGCHI, FP7 EMOTE, FP7 CuPiD, and FP7 ABC and also had the support and collaboration of Philips Research, Carnegie Mellon | Portugal, MIT | Portugal, Fraunhofer AICOS, and several other partners.

Physiological data in its different dimensions, either bioelectrical, biomechanical, biochemical, or biophysical, and collected through specialized biomedical devices, video and image capture, or other sources, is opening new boundaries in the field of human-computer interaction into what can be defined as Physiological Computing. Given the topical nature of this subject, PhyCS 2014 brought together people interested in creating novel interaction devices, adaptable interfaces, algorithms, and tools, through the study, planning, and design of interfaces between people and computers that are supported by multimodal biosignals. Researchers attending PhyCS sought to extend the state of the art by harnessing the power of physiological data to refine the symbiosis between humans and computers in such a way that the resulting interactive experiences lead to richer and improved outcomes.

Papers accepted in the event related to synergetic disciplines such as biomedical engineering, computer science, electrical engineering, affective computing, accessibility, usability, computer graphics, arts, etc., and addressed topics such as the design of new wearable devices that make physiological data acquisition more pervasive, the design of user interfaces capable of recognizing and adapting to changes in the physiological state of the user, and/or the creation of algorithms to enable robust and seamless control of computational resources using physiological data sources as input.

The conference received 52 submissions of which only 13 papers have been accepted as full papers. This volume is a collection of the best 10 papers, resulting in a final acceptance rate of approximately 20 %. We would like to express our gratitude, first of all, to the contributing authors of the technical papers, whose work and dedication made it possible to put together an exciting program of high technical quality. We would also like to thank all the members of the international Program Committee and auxiliary reviewers, who provided a comprehensive set of thoughtful reviews, helping us with their expertise and time. We would also like to thank the invited

speakers for their invaluable contribution and for sharing their vision in their talks. We are especially grateful to the INSTICC Steering Committee whose invaluable work made this event possible.

October 2014

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