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Preface

The International Conference on Contemporary Computing and Applications (IC3A 2020) was held on 5-7 February 2020 at Dr. A.P.J Abdul Kalam Technical University Lucknow. IC3A 2020 was aimed to provide a platform for researchers, engineers, academicians as well as industry professionals across the globe to share their research outcomes. Furthermore, its objective is to impart research experiences in contemporary computing and applications for educating researchers from academics and industry. We hope you will find the conference and these proceedings interesting and informative.

IC3A 2020 had received a response of 372 submissions out of which from 86 papers were accepted. The Technical program committee which consisted of more than 100 expert reviewers from India and abroad had reviewed the papers. All the papers were subjected to a rigorous peer-review process.

The program committee was lead by M. K. Dutta, K.V. Arya, Subhrajit Banerjee and Vikrant Bhateja. The technical program had 12 sessions. There were sessions on Bio-Medical Signal & Imaging, Data Mining, Image Processing, Intelligent Computing, Communication & Control, Grid Computing, Computing Applications in Architecture and Urban Planning, Embedded Systems & Mechatronics, Device Modelling and System Design, and Material Science & Engineering.

In addition to the regular reviewed contributed papers, the technical program also had thirty three distinguished keynote speakers who presented keynote talks.

1. Prof. Radim Burget, Brno University of Technology Brno, Czech Republic
2. Prof. Carlos M. Travieso Gonzalez, University of Las Palmas de Gran Canaria, Spain
3. Prof. Rossi Setchi, Cardiff University, United Kingdom
4. Prof. Hao Ying, Wayne State University, USA
5. Prof. Aleksandar Poleksic, University of Northern Iowa, USA
6. Prof. Cesare Alippi, Politecnico di Milano, Milano, Italy
7. Prof. Tarek El-Ghazawi, The George Washington University, USA
8. Prof. Jean-Pierre Leburton, University of Illinois at Urbana-Champaign, USA
9. Prof. Dr. Peter Peer, University of Ljubljana, Slovenia, European Union
10. Prof. Stephen Pistorius, University of Manitoba, Canada
11. Prof. Viera Rozinajova, Bratislava, Slovak Republic, European Union
12. Prof. Pierre Maréchal, Toulouse Université Paul Sabatier,Toulouse, France
13. Prof. Nong Ye, Arizona State University, USA
14. Prof. Vaidy Sunderam, Emory University, Atlanta, USA
15. Prof. Khan Iftekharuddin, Old Dominion University, USA
16. Prof. Sokrates T. Pantelides, Vanderbilt University, USA
17. Prof. Doan B Hoang, University of Technology Sydney, Australia
18. Prof. Jont Allen, University of Illinois at Urbana Champaign, USA
19. Prof. Theda Daniels-Race, Louisiana State University, USA
20. Prof. Hamid Vakilzadian, University of Nebraska-Lincoln, USA
21. Prof. Martin Fabian, Chalmers University of Technology, Sweden
22. Prof. Fred Choobineh, University of Nebraska-Lincoln, USA
23. Prof. Suresh Subramaniam, George Washington University, USA
24. Prof. Anna Soffía Hauksdóttir, University of Iceland, Iceland
25. Prof. Israel Koren, University of Massachusetts, USA
26. Prof. Jason O'Kane, University of South Carolina, USA
27. Prof. Xenofon Koutsoukos, Vanderbilt University, USA
28. Prof. Ilangko Balasingham, Norwegian University of Science & Technology, Norway
29. Prof. Gregor Rozinaj, Slovak University of Technology, Bratislava, Slovakia.
30. Porf. Harold Pardue, University of South Alabama, USA

We take the opportunity to thank all the authors who submitted papers in this conference and this conference would not have been a success without your kind support and contribution. We also are very thankful to all the Technical program committee members for their timely reviews. Their expertise in the areas helped in proper evaluation of the papers. We would also like to thank our most beloved and respected Vice Chancellor, Dr. A.P.J Abdul Kalam Technical University Lucknow, Prof. Vinay Kumar Pathak for providing us all the support and motivation. Also special thanks to Vice Chancellor Madan Mohan Malaviya University of Technology Gorakhpur, Prof. S. N. Singh for his all support. We are also so much indebted to all our sponsors and would like to thank them. Finally we thank our Technical Co-Sponsor IEEE UP Section for their Technical support.

Malay Kishore Dutta
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FOA Lucknow, Technical Program Co-Chair IC3A 2020

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2. E-Health Tools on Emotional Detection

Prof. Carlos M. Travieso-Gonzalez
Head of Signals and Communications Department
Institute for Technological Development and Innovation in Communications (IDeTIC)
University of Las Palmas de Gran Canaria (ULPGC), Spain

Short Biography

Dr. Carlos M. Travieso-González is an Associate Professor at University of Las Palmas de Gran Canaria, Spain. He received the M.Sc. degree in 1997 in Telecommunication Engineering at Polytechnic University of Catalonia and Ph.D. degree in 2002 at University of Las Palmas de Gran Canaria, Spain. He was a researcher in more than 34 International and Spanish Research Projects. He is co-author of 2 books, co-editor of 7 Proceedings Book, Guest Editor for international journals and many book chapters. He has over 300 papers published in international journals and conferences and published a patent and two more is under revision.

Abstract

The physiological signals also known biosignals, most common and used for biomedical and biometric identification, are the electrocardiogram (ECG) and electroencephalogram (EEG). ECG measures the electrical activity of the heart and EEG measures the electrical activity of the brain. There are other very rarely used signals that we consider studying as part of this work. For example, the electromyogram (EMG) which is a record of the electrical activity produced by the muscles and nerves and the galvanic skin response (GSR)or skin conductance, which is an indication of psychological or physiological arousal such as fear, anger or other feelings.

The detection of the degree of emotion through physiological signals is a very poorly studied area that can offer a new and efficient system, which deals with using the combination of several physiological signals as a method of identifying the degree of emotion. The objective of this proposal is to analyze the physiological signals that show people's emotions, quantify it and perform an automatic detection, which can become an innovative and robust tool that shows the degree of emotion. To implement the system, digital image processing techniques and artificial intelligence methods will be applied to obtain an objective low-cost emotion measurement system using physiological signals.