7th International conference on Intelligent Human Computer Interaction, IHCI 2015

Preface

Prof. U. S. Tiwary

*Indian Institute of Information Technology, Allahabad, India

Dear Reader,

It is indeed a great privilege to present the proceeding of the Seventh International Conference on Intelligent Human Computer Interaction (IHCI 2015) organized by Indian Institute of Information Technology, Allahabad from 14-16 December 2015. This is one of the rare conferences focussed on Human Computer Interaction. The conference aims to explore new dimensions of HCI science and technologies instead of confining HCI only to various types of interfaces.

In total 105 papers were submitted. The review committee had a very challenging task of selecting high quality submissions. Each paper was peer-reviewed by at least three reviewers. On the recommendation of Program Committee 29 papers were accepted for the presentation in the main conference including 4 special session papers.

This proceeding is organized in five chapters corresponding to each track of the conference as under:
- Signal and Vision based Interaction
- Intelligent Methods and Interfaces
- Modelling Human Cognitive Processes
- Bio-inspired Computation
- Applications

Signal and Vision based processing is an enabling technology that encompasses the fundamental theory, applications, algorithms, and implementations of processing or acquiring information contained in many different physical, symbolic, or abstract formats broadly designated as signals. It uses mathematical, statistical, computational, heuristic, and linguistic representations, formalisms, and techniques for modelling, analysis, synthesis, discovery, recovery, or learning. In this track, six papers have been presented and one of the paper (*A Framework to Plot and Recognize Hand motion Trajectories towards Development of Non-tactile Interfaces*) has received best paper award in the conference. In Intelligent Methods and Interfaces track, nine papers have been presented. In Modelling Human Cognitive Processes track, two papers have been presented, while in Bio-inspired Computation track, only one paper has been presented. Seven papers have been presented in the Applications track.

I would like to express my sincere thanks to all the invited speakers, authors and members of the program committee for their contributions.

Uma Shanker Tiwary
Acknowledgement

We sincerely thank to our honourable director Prof. Somenath Biswas for their whole-hearted support for this conference.

We thank our conference chair, Prof. Mriganka Sur, from deepest corner of our heart. This conference would not have been successful without the support of IIIT-Allahabad. Our sincere thank goes to the entire family of IIIT-Allahabad, including faculty, staff and students for their assistance and hard work in organizing the conference and its proceedings.

We gratefully acknowledge IEEE Signal Processing Society, IEEE Computational Intelligence Society, IEEE computer society for co-sponsoring the conference.

And last but not the least, we express our deep sense of gratitude to all the invited speakers, authors and members of the program committee without their support this conference could not have been successful.

Prof. U. S. Tiwary
Chair,
IHCI 2015
IHCI 2015 Program Committee

**Honorary General Chair**
Mriganka Sur, (MIT, USA)

**Program Chair**
Somenath Biswas (IIIT Allahabad, India)
Uma Shanker Tiwary (IIIT Allahabad, India)

**Steering Committee**
Keith Cheverst (Lancaster Univ., UK)
Ramesh Jain (UCI, USA)
Patrick Horain (Telecom SudParis, France)
Malik Mallem (E. V. d’Essonne University, France)
Jaroslav Pokorný (Charles University, Czech Republic)
Debasis Samanta (Indian Institute of Technology Kharagpur, India)
Tanveer Siddiqui (University of Allahabad, India)
Yong Hoon Kim (GIST, South Korea)
Ling Guan (Ryerson Univ. Canada)
Tom D. Gedeon (The Australian National University, Australia)

**International Program Committee**
Vicki Hanson (Rochester Institute of Technology, USA)
Patrick Horain (Telecom SudParis, France)
Amine Chellali (Evry Val d’Essonne University, France)
Malik Mallem (Evry Val d’Essonne University, France)
Mohamed Abouelenien (University of Michigan, USA)
Ajith Abraham (Machine Intelligence Research Labs, USA)
Catherine Achard (University Pierre et Marie Curie, France)
Mirza Mohd. Sufyan Beg (Jamia Milia University, India)
Pradipta Biswas (Cambridge University, UK)
Jérôme Boudy (Telecom SudParis, France)
A. Enis Cetin (Bilkent University, Turkey)
Niladri Chatterjee (Indian Institute of Technology New Delhi, India)
Keith Cheverst (Lancaster University, UK)
Gérard Chollet (CNRS & Telecom ParisTech, France)
Mohamed Daoudi (Telecom Lille & LIFL, France)
Bernadette Dorizzi (Telecom SudParis, France)
Jagriti P. Galphade (National Institute of Design, India)
Tom D. Gedeon (The Australian National University, Australia)
David Antonio Gomez Jauregui (LIMSI, France)
David Griol Barres (Carlos III University of Madrid, Spain)
Ekram Khan (Aligarh Muslim University, India)
Pavel Krömer (University of Alberta, Canada)
Eric Lecolinet (Telecom ParisTech, France)
Geehyuk Lee (KAIST, South Korea)
Atanendu Sekhar Mandal (CSIR-CEERI, India)
José Marques Soares (Universidade Federal do Ceará, Brasil)
Manuel Montes-y-Gómez (National Institute of Astrophysics, Optics and Electronics, Mexico)
Galina Pasko (Uformia, Norway)
Dijana Petrovska (Telecom SudParis, France)
Jan Platoš (VŠB-TU Ostrava, Czech Republic)
Jaroslav Pokorný (Charles University, Prague, Czech Republic)
Marius Preda (Telecom SudParis, France)
Nitendra Raiput (IBM-IRL, India)
Gerhard Rigoll (Technische Universität München, Germany)
Rémi Ronfard (INRIA / LJK, France)
Debasis Samanta (Indian Institute of Technology Kharagpur, India)
T L Venkatesh (Indian Institute of Technology Kanpur, India)
Tanveer Siddiqui (University of Allahabad, India)
R.M.K. Sinha (JSS Academy of Technical Education, India)
Uma Shanker Tiwary (Indian Institute of Information Technology Allahabad, India)
Nischal Verma (Indian Institute of Technology Kanpur, India)
Qingquan Sun (Oakland University, USA)
Daniel Wesierski (Gdansk University of Technology, Poland)
Anupam Basu (Indian Institute of Technology Kharagpur, India)
Harish Karnick (Indian Institute of Technology Kanpur, India)

Review Committee
Catherine Achard (University Pierre et Marie Curie, France)
Achintya Singhal (Banaras Hindu University, Varanasi, India)
Amine Chellali (Evry Val d’Essonne University, France)
Amresh Singh (Boston Analytics, Gurgaon, Haryana - India)
Amrita Basu (Jadavpur University, Jadavpur India)
Annappa (NIT Surathkal, India)
Anupam Agrawal (Indian Institute of Information Technology Allahabad, India)
Atanendu Sekhar Mandal (CSIR-CEERI, India)
BS Sanjeev (Indian Institute of Information Technology Allahabad, India)
Daniel Wesierski (Gdansk University of Technology, Poland)
David Antonio Gomez Jauregui (LIMSI, France)
David Griol Barres (Carlos III University of Madrid, Spain)
Debasis Samanta (Indian Institute of Technology Kharagpur, India)
Dipankar Das (Jadavpur University, Jadavpur India)
Bernadette Dorizzi (Telecom SudParis, France)
Ekram Khan (Aligarh Muslim University, India)
Geethyuk Lee (KAIST, South Korea)
George Thê (Federal University of Ceará, Brazil)
Guangchun Cheng (Google Inc Mountain View, CA)
Vicki Hanson (Rochester Institute of Technology, USA)
Jagpreet Singh (Indian Institute of Information Technology Allahabad, India)
Jan Platoš (VŠB-TU Ostrava, Czech Republic)
Jaroslav Pokorný (Charles University, Prague, Czech Republic)
Jérôme Boudy (Telecom SudParis, France)
José Marques Soares (Universidade Federal do Ceará, Brasil)
K S Venkatesh (Indian Institute of Technology Kanpur, India)
Kamal Sarkar (Jadavpur University, Jadavpur India)
Keith Cheverst (Lancaster Univ., UK)
Mirza Mohd. Sufyan Beg (Jamia Milia University, India)
Malik Mallem (E. V. d’Essonne University, France)
Manish Kumar (Indian Institute of Information Technology Allahabad, India)
Manoj Kumar Mukul (BIT Mesra, Ranchi, India)
Manoj Kumar Singh (DST-CIMS, Banaras Hindu University, Varanasi, India)
Marius Preda (Telecom SudParis, France)
Mohamed Abouelenien (University of Michigan, USA)
Mohamed Fazeen Mohamed Issadeen (University of North Texas, USA)
Niladri Chatterjee (Indian Institute of Technology New Delhi, India)
Nitendra Rajput (IBM-IRL, India)
Patrick Horain (Telecom SudParis, France)
Pavan Chakraborty (Indian Institute of Information Technology Allahabad, India)
Pinaki Mitra (Indian Institute of Technology Guwahati, India)
Pooja Jain (Indian Institute of Information Technology Allahabad, India)
Pooja Mishra (Indian Institute of Information Technology Allahabad, India)
Pradipta Biswas (Cambridge University, UK)
Pritish Varadwaj (Indian Institute of Information Technology Allahabad, India)
R K Agrawal (Jawaharlal Nehru University, New Delhi, India)
Rahul Kala (Indian Institute of Information Technology Allahabad, India)
Rajesh Doriya (NIT Raipur, India)
Rajiv Singh (Banasthali University, Banasthali, Rajasthan, India)
Ratneshwer (Banaras Hindu University, Varanasi, India)
Rémi Ronfard (INRIA / LJK, France)
S.Venkatesan (Indian Institute of Information Technology Allahabad, India)
Safeer Afaque (SRMU, Lucknow, India)
Sainul Islam (Indian Institute of Technology Kharagpur, India)
Satish Kumar Singh (Indian Institute of Information Technology Allahabad, India)
Sushanta Karmakar (Indian Institute of Technology Guwahati, India)
T Gayen (Jawaharlal Nehru University, New Delhi, India)
Tanveer J Siddiqui (University of Allahabad, India)
U S Tiwary (Indian Institute of Information Technology Allahabad, India)
Vivek Kumar Singh (Banaras Hindu University, Varanasi, India)
Yong Hoon Kim (GIST, South Korea)