Preface

The Intelligent Human Computer Interaction conferences bring together scientists, engineers, computer users, and students to exchange and share their experiences, new ideas, and research results about all aspects (theory, applications, and tools) of intelligent methods applied to human–computer interaction and to discuss the practical challenges encountered and the solutions adopted. The previous two IHCI events (2009, 2010) were held in Allahabad, India. The Third Intelligent Human Computer Interaction (IHCI 2011) conference was held from August 29 to 31, 2011, in the historical city center of Prague, Czech Republic. The conference was organized by the VŠB—Technical University of Ostrava, Czech Republic, and the Charles University in Prague, Faculty of Mathematics and Physics, Czech Republic.

This book has five parts. The first part is focused on user interface and interaction, and the second and fifth parts present papers from the area of knowledge discovery. Other parts are focused on technological and theoretical background and applications and tools supporting the human–computer interaction.

Christopher J. Martin et al. present a preliminary study as a part of research aimed at designing and implementing an agent which detects negative emotions in a human user and expresses its own emotional reaction. Based on the theory of Situational Awareness, Andrea Pandurino et al. illustrate how five major "interface demons" are particularly relevant for RIA engineering and undermine an effective dialogue between users and RIA interfaces. Julius T. Nganji et al. propose the use of the Image Description Assessment Tool (IDAT), a Java-based tool containing some proposed heuristics, for assessing how well an image description matches the real content of the image on the Web. Šárka Zehnalová et al. are focused on engaging more interactive ways to image search based on four typical scenarios and introduce their own user interface of the Xingle testing system where all the scenarios are implemented. To improve the classification accuracy, Pavel Bobrov et al. propose to use Independent Component Analysis for μ-rhythm identification in data corresponding to motor imagery task performance during Brain–Computer Interface training and operation.

Vivek Kumar Singh et al. present an experimental work on evaluating hard and soft flat clustering algorithms for categorizing text documents. Erqiang Zhou and Bing Wu show that the Natural Language Interface can greatly reduce the efforts for writing or understanding queries on information systems. Siham Boulaknadel and Fadoua Ataa Allah present preliminary results of experiments with a corpus for Standard Amazighe language. Hussein Soori et al. describe very simple rules for stemming Arabic words.

Garnett Wilson et al. describe a novel fuzzy logic system designed to meet the real-world demand for providing intelligent ranking to large repositories of documents previously encoded with non-fuzzy (crisp) metadata. The goal of Manoj kumar Rajagopal et al. is to capture style from real human motion so that it can be rendered with a virtual agent that represents this human. Steven Vercruysse and Martin Kuiper use JavaScript and the new HTML5 canvas element to create a software module, GraphVis, for the online visualization and exploration of large relationship networks. Hong-Chi Shih et al. propose a Reduce Identical Event Transmission Algorithm (RIET) for Wireless Sensor Networks. Azeem Lodhi et al. are focused on providing representational support for business processes and they describe extensions of an existing modeling language. Omar S. Soliman et al. propose an automatic localization and boundary detection of retina images using basic filters to support ophthalmologists for the detection and diagnosis of harmful eye diseases. The study of Mohamed Achraf Dhouib et al. aims to make a profit of the technological diversity of several Decision Support Systems used to detect distress situations.

Takashi Matsuhisa investigates a communication logic based on the multimodal logic S5n, and it is treated from a multi-modal logical point of view. Radim Nedbal proposes a fully declarative language for encoding preferences conditional to the current state of the world represented as a relation database instance. Ivo Lašek and Peter Vojtáš evaluate various approaches to a user profile modeling for news recommendations. Petr Gajdoš and Jan Platoš describe the advantages of a Graphics Processor Unit (GPU) in parallel computation of Self-Organizing Network including a comparison with a multi-threaded CPU. Alexander A. Frolov et al. introduce a new Expectation-Maximization method which maximizes the likelihood of a Boolean Factor Analysis solution.

Anupam Srivastava et al. present a generic interactive framework based on human cognition where the system can learn continuously from the Internet and from its interaction with users. Aboul Ella Hassanien et al. introduce a hybrid scheme that combines the advantages of pulse coupled neural networks (PCNNs) and support vector machine in conjunction with type-II fuzzy sets and wavelets to enhance the contrast of the original images and feature extraction. Štěpán Minks et al. are focused on the strength extraction between authors from the DBLP database based on their association. Miloš Kudělka et al. propose a novel method for detecting local communities in social networks and describe an experiment based on student data.

We would like to express our sincere gratitude to the program committee, local organizing committee, and the numerous reviewers who helped us evaluate the

papers and make IHCI 2011 a very successful scientific event. Gratitude is also expressed to Professor Janusz Kacprzyk, editor of the series publishing this book as well as to the Springer team for its excellent work. We hope that every reader will find this book interesting and inspiring.

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