Preface

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Biographical notes: Leonard Barolli is a Professor in the Department of Information and Communication Engineering, Fukuoka Institute of Technology (FIT), Japan. He received his BE and PhD Degrees from Tirana University and Yamagata University in 1989 and 1997, respectively. He has published more than 250 papers in journals and international conferences. He has served as a Guest Editor for many international journals. He has been PC Chair and General Chair of many international conferences. He is Steering Committee Chair of CISIS international conference. His research interests include intelligent systems, broadband networks, ad hoc and sensor networks. He is a member of IEEE, IPSJ and SOFT.

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Networks of today are going through a rapid evolution. Different kinds of networks with different characteristics are emerging and they are integrating in heterogeneous networks. For these reasons, there are many problems which may occur at different levels in the hardware and in the software design of communicating entities and communication networks. These kinds of networks need to manage an increasing usage demand, provide support for a significant number of services, guarantee their QoS, and optimise the utilisation of network resources. Therefore, architectures and algorithms in these networks become very complex and it seems imperative to focus on intelligent methods and mechanisms, which can enable the network to perform adaptive behaviour.

The aim of this special issue is to present innovative researches, technologies as well as developments related to intelligent algorithms and methods for networking, wireless communications and their applications.

Authors of high quality papers in the theme of this special issue and presented in the *IEEE International Conference on Advanced Information Networking* (AINA'2008) and workshops were encouraged to submit extended version of their papers for possible publication. Based on a two rounds of rigorous reviews, six papers were accepted for inclusion in this special issue.

In the first paper, Wallin et al. provides statistical analysis of data collected from a real-world alarm flow and then presents a quantitative characterisation of the alarm situation. Using data from the trouble ticketing system as a reference, the authors examine the relationship between mechanical classification of alarms and the human perception of them. Using this knowledge of alarm flow properties and trouble ticketing information, the authors suggest a neural network-based approach for alarm classification. Tests using live data show that their prototype assigns the same severity as a human expert in 50% of all cases, compared to 17% for a naive approach.

In the second paper, Sakurai and Orihara propose a method that acquires a more appropriate classification model for a risk search system to analyse the corporate reputation information included in bulletin board sites. The proposed method uses expressions related to a specific label, refines the imbalance of textual examples, and acquires a classification model from selected examples. Their method was applied to articles collected from three bulletin board sites that deal with topics concerning electrical and electronic products or their services, and generated refined classification models. The effectiveness of their method is verified through comparative experiments with an over-sampling method and an under-sampling method.

The third paper by Nishino et al. presents an approach to construct a networked online education system among physically separated participants targeted at teaching handwritten characters. In addition to visual and acoustic information, their system provides a haptic channel to intuitively learn remote instructor's fine motor skills through the sense of touch. The instructor's handwriting motions are sent to the learner's system and replayed via the learner's haptic interface device. The learner can intuitively acquire a writing skill by mimicking the instructor's brush-strokes through the haptic interactions. The implemented system also supports a function for the instructor to check the learner's writing exercise and give them some advice to improve the writing ability. The authors developed the system and conducted two experiments to validate the potential capability of the haptic modality for teaching handwritten characters. They quantitatively analyse how the haptic interactions contribute to increase the learning performance from an end-user's viewpoint. The authors also evaluated the proposed system to check how effectively can support an online training session in a simulated long-haul networking environment.

In the fourth paper by Hayashi et al. a method for discriminating between personal and non-personal Web pages is proposed. The proposed method can support surveys of personal opinions about products and services. In order to detect personal Web pages in any content, the authors focused on four kinds of subjective expressions: negative meaning expressions, sentence-final particles, interjections, and specific symbols. In the proposed method, the subjective expressions are extracted from pages and then the pages are scored by quantitatively evaluating the subjectivity in the pages. In order to examine the effectiveness of the proposed method, the authors have evaluated

the proposed method using 1200 Web pages collected from four categories of product, tourist spot, restaurant, and movie. By comparing the performances of the proposed method with categorisations by a general search engine, the authors show that the performances have been significantly improved in each category.

The fifth paper by Imai et al. proposes a new Knowledge Circulation Framework (KCF) for ubiquitous service provision called uKCF. In the uKCF, the authors added two features to the original KCF: representation of accumulated knowledge to express different situations among ubiquitous information environments, and a knowledge circulation scheme based on the similarity of the environments. They applied uKCF to service control for a ubiquitous videoconferencing system and show that the proposed system can provide better and more stable service by improving adaptability to various ubiquitous computing environments.

In the last paper, Enokido and Takizawa propose a purpose-based synchronisation protocol for multiple transactions in a multi-agent system. In the proposed protocol, the multiple agents cooperate with each other by manipulating distributed objects. Objects have to be consistent and secure in presence of multiple conflicting transactions. A transaction issued by an agent is assigned with a subfamily of roles which are granted to the agent. The subfamily of the roles is a purpose of the transaction. Even if transactions issue methods according to the purposes, illegal information flow might occur. The authors define legal, independent, illegal, and possibly illegal types of information flow relations among purposes. Then, they discussed the Purpose-based Marking (PM) protocol to prevent illegal information flow. They also propose a releasing mechanism of purpose marks to improve the throughput of the system. They evaluate the Purpose-based Marking and Releasing (PMR) protocol in terms of the number of transactions aborted and show that proposed system has a good behaviour.

As we conclude this overview, we would like to thank all the authors for submitting their high-quality papers, and greatly thank the reviewers for their good work to make possible the publication of this special issue on time. Finally, the guest editors would like to express their deepest gratitude to Dr. David Taniar Editor-in-Chief of IJBIDM Journal for his strong encouragement and support.