
Preface

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Biographical notes: Hiroaki Nishino received his Doctoral degree of Engineering from Kyushu University, Japan in 2002. He is currently a Professor in the Department of Computer Science and Intelligent Systems, Faculty of Engineering, Oita University, Oita, Japan. His research interests include virtual reality, computer graphics, and human-computer interaction. He has served as a Workshop co-Chair of VENOA2009-2014.

Yong-Moo Kwon received his PhD degree at Hanyang University of Seoul KOREA in 1992. He has worked for Korea Institute of Science and Technology since 1983, where he is now a Principal Researcher. His current research interests include network collaboration technology, web-based collaborative authoring, tangible media technology, social curation and storytelling technology. He has served as a Workshop co-Chair of VENOA2009-2014.

A computing system is an environment for fusing computer and network technologies, and providing a foundation for inventing and innovating new technologies in ubiquitous society. There are so many ongoing research activities in various fields to make the computing system a constantly-evolving infrastructure such as designing algorithms to optimise network structures, developing education systems to train students and engineers, inventing groundbreaking applications to improve daily life, and implementing new human-computer interaction methods to make computers and networks more user-friendly entities.

The aim of this special issue is to present latest research achievements related to interactive computing systems including system design and development with innovative algorithms and interaction methods. The target application domains include 3D computer graphics, augmented reality (AR), mobile communications, and network applications. Authors of high quality papers presented in the Fifth International Workshop on Virtual Environment and Network-Oriented Applications (VENOA-2013), which was held in conjunction with the Seventh International Conference on Complex, Intelligent and Software Intensive Systems (CISIS-2013), were encouraged to submit extended version of their papers under the theme of this special issue. We finally accepted seven papers for inclusion in this special issue based on a two rounds of rigorous reviews.

In the first paper, Cha and Kim propose a micro-payment model applicable for electronic commerce

environments with mobile devices. Smart phones now are used in everyday matters not only phone calls and e-mailing but also commercial transactions. The authors develop a new payment model facilitating a purchasing procedure based on near field communication (NFC) and location-based services (LBS) technologies. The authors discuss how the proposed method can effectively support traditional business transactions with small retailers.

In the second paper, Akase and Okada present a system allowing a user to easily designing furniture layouts in a 3D virtual space. Because designing a 3D model requires technical know-how and aesthetic sense, mastering the 3D modelling skill is a challenging problem especially for novices. They adopted a technique called interactive evolutionary computation (IEC) enabling even novices to easily generating their own 3D models. The proposed method automatically generate a variety of 3D models through a set of simple interactions with users and some optimisation functions customised for the furniture layout task.

In the third paper, Kaneko and Okada propose a method for understanding human emotions based on verbal information. Appropriately using human emotion is an important issue for providing rich and practical interactions between users and application systems. They devise a data model describing the relationship between Japanese emotion words and their emotional intensities, extracting user's emotion from verbal messages. They design and

develop a facial expression system using the proposed method to evaluate the effectiveness of the proposed method.

In the fourth paper, Iguchi presents a hands-on network learning system called NetPowerLab. The best way for mastering practical network engineering skills is to provide students an environment for actively solving practical problems. The proposed system enables teachers to predefine a set of problems with the answers for automatically reporting the students' scores, encouraging the students to actively work on the problems. The system also supports a function to feed the learning context back both to the students and the teachers. The author verifies the usefulness of the system via evaluation in a classroom.

In the fifth paper, Chew et al. propose an access-points (APs) selection method optimised for wireless mesh network (WIMNET). Wireless network is an indispensable gateway for connecting mobile clients to the internet. Optimising the placement of APs is a crucial issue to achieve good performance with minimum set of APs. They propose an active AP selection algorithm for achieving the maximised throughput with minimum number of APs targeted for the emerging high-speed IEEE802.11n protocol. They show the effectiveness of the proposed method through extensive simulations.

In the sixth paper, Nishimura et al. presents a digital contents browsing system based on AR. AR is a technical tool for connecting virtual information to real-world objects. The authors develop an AR system providing users a handy way to manage multimedia information with a real booklet. The system projects a media content such as a text page, a presentation slide, and an image on an AR marker printed on each booklet page, and the users can browse the contents by simply flipping the booklet pages. The system also allows the users to activate some functions with their simple gestures.

In the last paper, Fujimura proposes a method to produce haptic sensation by using a visual effect called motion blur. Although the haptic sense is an important modality for implementing a realistic and stable interaction method, a specific hardware device is required for producing different haptic sensations to the normal interaction environment. The author designs a method to induce a haptic illusion by leveraging a visual effect without using any real haptic devices.

As we conclude this overview, we would like to thank all the authors for submitting the high-quality papers, and highly appreciate the reviewers' wonderful efforts to make this special issue publication possible on time. Finally, we would like to express our gratitude to Prof. Fatos Xhafa Editor-in-Chief of *IJSSC* journal for his strong encouragement and great support.