Editorial: Multimedia signal processing and communications

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Biographical notes: Lei Shu is currently a Specially Assigned Research Fellow at the Department of Multimedia Engineering, Osaka University, Japan. He has published over 90 papers in related conferences, journals, and books. He had been awarded the Best Paper Award in Globecom 2010. He has served as an Editor of several international journals, e.g., *IET Communications and Wireless Communications and Mobile Computing* (Wiley). He has served as Co-Chair for more than 30 international conferences/workshops, e.g., ISCC 2011, ICC 2012. His research interests include semantic sensor networks, wireless sensor network and sensor network middleware. He is also a member of IEEE.

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Der-Jiunn Deng received his PhD in Electrical Engineering from the National Taiwan University in 2005. He joined the National Changhua University of Education as an Assistant Professor in the Department of Computer Science and Information Engineering in August 2005 and then he became an Associate Professor in February 2009. His research interests include multimedia communication, quality-of-service and wireless networks. In 2010, he received the Top Research Award of the National Changhua University of Education. He has served or is serving as an Editor and Guest Editor for several technical journals. He also has served or is serving on several symposium chairs and technical programme committees for IEEE and other international conferences. He is a member of the IEEE.

Ming-Fong Tsai is currently a PhD candidate studying in the Institute of Computer and Communication Engineering, Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan. He received his MS degree from the Electrical Engineering Department of the National Cheng Kung University in 2006. His current research interests include wireless mesh networks, wireless ad hoc networks, error control coding, wireless multimedia communications, concurrent multipath transmission and multimedia signal processing.

In the past few years, multimedia signal processing and communication over networks have become the driving technology of many novel multimedia applications, such as IPTV, VoIP, video surveillance, online games, digital learning, etc. It is anticipated that multimedia signal processing and communications will continue playing an important role in the internet and stimulating the creation of many interesting and novel applications. This special issue is intended to foster the dissemination of state-of-the-art research in the area of multimedia signal processing and communications. Original research articles are solicited in all aspects of multimedia signal processing and communications including emerging technologies, theoretical studies, practical applications, and experimental prototypes. The call for papers for this special issue attracted many submissions from Asia, Europe, and the USA covering a wide range of topics in the field of internet resource sharing and discovery. Each paper was carefully evaluated by at least two reviewers. This careful evaluation process has allowed us to select six high quality research papers. We strongly believe that the selected papers will make a significant contribution to researchers, practitioners, and students working in this field.

The six accepted papers are divided into two categories. The initial three papers are related to multimedia computing systems and applications, scalable video coding and transmission, multimedia communications, etc. As the bandwidth of channels differ from each other and a user can join at any time to these multicast channels, a synchronisation problem between download and playback is created. The first paper entitled ‘An adaptive harmonic broadcasting scheme with download and playback synchronisation for video on demand’ by Mohammad Saiedur Rahaman et al. proposes an adaptive harmonic broadcasting scheme that deals with the synchronisation problem at the average

bandwidth consumption as traditional harmonic broadcasting scheme. As broadband network services and video streaming systems become more common, high-definition quality stream format has become increasingly popular in live video distribution. The second paper entitled 'A relay path selection method for video streaming on shared terminals' by Yasuhiro Kawano et al. focus on the design of a relay path selection method on community-based resource sharing networks, which is able to select and use suitable stream paths cooperatively in sharing resources. Live streaming services via the internet are rapidly becoming popular. Not only corporations but also individuals begin to provide various contents for these services. The third paper entitled 'P2P network system for private live-streaming distribution' by Takayuki Hisada et al. proposes system includes double mesh P2P network structure for scalable and efficient private live-streaming services, and its detailed design description. In this system, network bandwidth is used effectively.

The next three papers are related to advanced image coding algorithm, multimedia security, multimedia information retrieval, etc. The need for efficient multiview video coding schemes is expected to strongly increase in the near future. The distributed multiview video coding approach seems very promising since it can achieve good compression efficiency while keeping the complexity low. The fourth paper entitled 'Distributed multiview video coding with 3D-DCT transform domain Wyner-Ziv codec' by Jonathan K.K. Loo et al. is to investigate how to improve the classic distributed multiview video coding framework based on transform domain WZ video coding by means of the introduction of the 3D-DCT. The main advantage of this combination resides in the limited computational complexity of the overall framework, which however does not penalise the compression performance since both the spatial and the temporal domain correlation can be exploited due to the use of the 3D-DCT. Smart cards have been widely used in many e-commerce applications and network security protocols due to their low cost, portability, efficiency and the cryptographic properties. A solution is required in which it is not possible for the attacker to launch different attacks on smart card-based authentication protocol. The fifth paper entitled 'An improved and secure smart card-based authentication scheme' by Sandeep K. Sood is to provide a secure smart card-based password authentication solution for the user authentication. The main feature of the proposed protocol is that the legitimate client can easily login on to the server. Background interferences due to text like objects make the text binarisation process difficult. The sixth paper entitled 'Text binarisation for complex multi coloured textual images' by G. Chitrakala and D. Manjula presents a method for text binarisation which works across the localised text region from heterogeneous colour images with multi coloured texts and complex background with text like objects. The method also supplements the variation in font size and uneven illumination of text.

As the guest editors of this special issue, we would like to thank all authors who have submitted papers to the special issue and in particular those whose papers have been accepted for this special issue. Assistance from the editorial staff of the *International Journal of Multimedia Intelligence and Security* is also much appreciated. Also, the guest editors would like to acknowledge all those who have generously given their time to review the papers submitted for consideration for this special issue. Finally, our special thanks go to Dr. Shiguo Lian and Prof. Frank Y. Shih (editor-in-chief) for his valuable support throughout the preparation of this special issue.