Introduction to the ICME2010 Special Issue

This special issue is dedicated to the 2010 IEEE International Conference on Multimedia and Expo (ICME) which was held in Singapore on July 19–23, 2010. ICME was revamped in 2010 by raising the acceptance criteria, adopting a double blind review process, and increasing the paper length. As a result, the conference quality was improved significantly. All in all, ICME 2010 received 630 regular papers and 48 special session papers from over 39 countries submitted to the main conference. After rigorous review, eventually 180 regular papers and 36 special session papers were included in the main conference. Among the regular paper submissions, the top 15% were accepted as oral presentations and additional 15% were accepted as poster presentations. The papers presented at ICME2010 cover a wide range of topics and are representative of the research trends and advances in multimedia. Given that both the IEEE TRANSACTIONS ON MULTIMEDIA (TMM) and ICME are sponsored by the same societies, we believe that it is beneficial to the research community at large to have a special issue that allows the top conference papers to be published quickly in the Transactions.

All the papers accepted for oral presentations at ICME2010 were invited to submit an extended version to this special issue. In total, we received 59 complete submissions. All the papers received at least three reviews. The reviewers were instructed to follow the same review criteria as those for regular TMM papers. In addition, it is required that the extended version must contain at least 30% new content compared to the conference version. After all the reviews were received, the guest editors held a teleconference meeting to make final decisions for all the submitted papers. Out of the 59 submissions, due to the tight publication schedule for the special issue, only 15 papers that received an AQ decision (Accept with Mandatory Minor Revisions) were considered to be included in the special issue. A number of papers that received an RQ decision (Revise and Re-submit) were converted into regular TMM paper submissions.

The revised versions of all the 15 AQ papers were received by the due date stipulated. When the authors of the AQ papers submitted their revised versions, they were asked to submit a document stating their response and action to each specific comment of the reviewers. The guest editors checked the documents carefully before they accepted the papers. At the end, all the 15 papers were accepted and included in this special issue. These papers cover a wide range of topics in multimedia including user interface, content understanding, mobility, 3-D processing, storage, and forensics.

It is an honor for us to serve as the guest editors of the first ICME special issue. Its success is attributed to the tremendous support and dedication from many people in the multimedia research community. We would like to thank all the authors for submitting such high-quality papers to this special issue and all the reviewers for working so hard to provide thoughtful and timely reviews. Without their efforts, it would have been impossible to ensure the paper quality of this special issue. In addition, we would like to thank both the ICME steering committee and TMM steering committee for their strong support of this special issue. In particular, we would like to thank Drs. Wenjun Zeng and Philip A. Chou for providing many helpful suggestions throughout the process. We would like to thank Drs. Sheila S. Hemami and Mihaela van der Schaar, the past and current Editors-in-Chief of TMM, for their support and assistance during the course of organizing this special issue. Last but not least, we would like to give our special thanks to Ms. Rebecca Wollman for her invaluable professional assistance in the paper review and production process.

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Dr. Liu has served in the technical committees for many international conferences. He was the co-chair of the 2003 ICCV Workshop on Multimedia Technologies in E-Learning and Collaboration, the technical co-chair of 2006 IEEE International Workshop on Multimedia Signal Processing, and the technical co-chair of 2010 International Conference on Multimedia and Expo. He is an associate editor of *Machine Vision and Applications* journal.

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Dr. Sun was the Editor-in-Chief of the IEEE TRANSACTIONS ON MULTIMEDIA (TMM) and a Distinguished Lecturer of the Circuits and Systems Society from 2000 to 2001. He received an IEEE CASS Golden Jubilee Medal in 2000, and was the general co-chair of the Visual Communications and Image Processing 2000 Conference. He was the Editor-in-Chief of the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY (TCSVT) from 1995 to 1997. He received the TCSVT Best Paper Award in 1993. From 1988 to 1991, he was the chairman of the IEEE CAS Standards Committee and established the IEEE Inverse Discrete Cosine Transform Standard. He received an Award of Excellence from Bellcore for his work on the digital subscriber line in 1987.

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Dr. Zhang is the Founding Editor-in-Chief of the IEEE TRANSACTIONS ON AUTONOMOUS MENTAL DEVELOPMENT, an Associate Editor of the International Journal of Computer Vision, and an Associate Editor of Machine Vision and Applications. He served as Associate Editor of the IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE from 2000 to 2004, an Associate Editor of the IEEE TRANSACTIONS ON MULTIMEDIA from 2004 to 2009, among others. He has been on the program committees for numerous international conferences in the areas of autonomous mental development, computer vision, signal processing, multimedia, and human-computer interaction. He served as a Program Co-Chair of the International Conference on Multimedia and Expo (ICME), July 2010, a Program Co-Chair of the ACM International Conference on Multimedia (ACM MM), October 2010, and a Program Co-Chair of the ACM International Conference on Multimodal Interfaces (ICMI), November 2010. He is serving as General Co-Chair of the IEEE International Workshop on Multimedia Signal Processing (MMSP), October 2011.

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Dr. Chen is an Associate Editor of the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY. He served as an Associate Editor of the IEEE TRANSACTIONS ON IMAGE PROCESSING from 1992 to 1994, a Guest Editor of the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY in 1999, and an Associate Editor of Pattern Recognition from 1989 to 1999.
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Dr. Tan currently serves as the secretary of the Visual Signal Processing and Communications (VSPC) Technical Committee of the IEEE Circuits and Systems Society, a member of the Multimedia Signal Processing (MMSP) Technical Committee of the IEEE Signal Processing Society, and a voting member of the ICME Steering Committee. He is an editorial board member of the EURASIP Journal on Advances in Signal Processing and EURASIP Journal on Image and Video Processing, an associate editor of the Journal of Signal Processing Systems, and was the General Co-Chair of the IEEE 2010 International Conference on Multimedia and Expo.

Oscar C. Au received the B.A.Sc. degree from the University of Toronto, Toronto, ON, Canada, in 1986, and the M.A. and Ph.D. degrees from Princeton University, Princeton, NJ, in 1988 and 1991, respectively.

After being a postdoctoral researcher in Princeton University for one year, he joined the Hong Kong University of Science and Technology (HKUST) as an Assistant Professor in 1992. He is/has been a Professor of the Department of Electronic and Computer Engineering, Director of Multimedia Technology Research Center (MTrec), and Director of the Computer Engineering (CPEG) Program in HKUST. His main research contributions are on video and image coding and processing, watermarking and light weight encryption, and speech and audio processing. Research topics include fast motion estimation for MPEG-1/2/4, H.261/3/4 and AVS, optimal and fast sub-optimal rate control, mode decision, transcoding, denoising, deinterlacing, post-processing, multi-view coding, scalable video coding, distributed video coding, subpixel rendering, JPEG/JPEG2000, HDR imaging, compressive sensing, halftone image data hiding, GPU-processing, software-hardware co-design, etc. He has published about 300 technical journals and conference papers. His fast motion estimation algorithms were accepted into the ISO/IEC 14496–7 MPEG-4 international video coding standard and the China AVS-M standard. His lightweight encryption and error resilience algorithms are accepted into the China AVS standard. He has five U.S. patents and is applying for over 60 more on his signal processing techniques. He has performed forensic investigation and stood as an expert witness in the Hong Kong courts many times.

Dr. Au is a Board of Governor member of the Asia Pacific Signal and Information Processing Association (APSIPA). He is/was an Associate Editors of the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY (TCSVT), IEEE TRANSACTIONS ON IMAGE PROCESSING (TIP), and IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS, PART 1 (TCAS1). He is on the Editorial Boards of Journal of Signal Processing Systems, Journal of Multimedia, and Journal of Franklin Institute. He is/was the Chairman of CAS Technical Committee on Multimedia Systems and Applications (MSATC) and a member of CAS TC on Video Signal Processing and Communications (VSPC), CAS TC on DSP, SP TC on Multimedia Signal Processing (MMSP), and SP TC on Image, Video and Multidimensional Signal Processing (IVMSP). He served on the Steering Committee of IEEE TRANSACTIONS ON MULTIMEDIA (TMM), and IEEE International Conference of Multimedia and Expo (ICME). He also served on the organizing committee of IEEE International Symposium on Circuits and Systems (ISCAS) in 1997, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) in 2003, the ISO/IEC MPEG 71st Meeting in 2005, International Conference on Image Processing (ICIP) in 2010, and other conferences. He was General Chair of Pacific-Rim Conference on Multimedia (PCM) in 2007, and chaired both IEEE ICME and Packet Video Workshop in 2010. He won best paper awards in SiPS 2007 and PCM 2007. He was an IEEE Distinguished Lecturer (DLP) in 2009 and 2010, and has been keynote speaker three times.