## FOREWORD

## Special Section on Enriched Multimedia–Advanced Safety, Security and Convenience–

Time has changed from the era when copyright protection of commercial music and movie contents was a major topic. Advanced multimedia devices, such as small camera and microphone of high quality, have become available at a price affordable to many people. Smartphones equipped with such devices have enough power to process the captured contents freely by users. As a result, our daily lives are filled with multimedia contents which are ceaselessly generated by anonymous people and consumed in a moment through social network services. In some applications, tremendous pieces of multimedia contents are generated by IoT sensors for decision making by AI to make our activities convenient. They may be also utilized for the training of AI. Reflecting such an environment, new services rapidly emerge one after another, and some of them lead to new problems relating privacy and safety. Therefore, it is important to keep updating technologies for multimedia safety which meet the demand at present. The invited paper of this special section is related to the safety of cloud service for images. Other papers are also relevant to AI technologies and their early stage to some extent.

This special section will provide valuable papers of high-quality researches in the field of protection, creation, enrichment and measurement of multimedia contents. The subject includes technologies for watermarking, information hiding, security, forensics and more. The editorial committee of this special section was based on the Enriched Multimedia (EMM) Technical Group of IEICE, founded in 2011, aiming to promote the research works related to the topics stated above. The editorial committee received a total of six submissions including one invited paper. After a thorough and careful review process, the editorial committee has finally selected four papers: one invited paper, two regular papers and one letter. I would especially like to thank Prof. Motoi Iwata of Osaka Metropolitan University and Prof. Masatsugu Ichino of University of Electro-Communications for their excellent organization of the entire editing process of this special section as Guest Editors. I would also like to express great appreciation to the Editorial Committee Members. Their names and affiliations are listed below. Finally, I would like to take this opportunity to thank all the contributors and reviewers for their efforts dedicated to this research field.

Special Section Editorial Committee Members

- Guest Editors: Motoi Iwata (Osaka Metropolitan Univ.) and Masatsugu Ichino (University of Electro-Communications)
- Guest Associate Editors: Shoko Imaizumi (Chiba Univ.), Masaki Kawamura (Yamaguchi Univ.), Minoru Kuribayashi (Okayama Univ.), Tetsuya Kojima (Tokyo Institute of Technology), Kotaro Sonoda (Nagasaki Univ.), Kazuaki Nakamura (Tokyo Univ. of Science), Hirohisa Hioki (Kyoto Univ.), Harumi Murata (Chukyo Univ.)

Ryouichi Nishimura (NICT), Guest Editor-in-Chief

**Ryouichi Nishimura** (*Senior Member*) was conferred a B.S. degree in 1993 and M.Sc. and Ph.D. degrees in 1995 and 1998, respectively, all from Tohoku University, Sendai Japan. During 1998–2000, he was a Visiting Researcher at ATR, Media Information and Communications Research Laboratories, Kyoto, Japan. He was a Research Associate at Tohoku University during 2000–2004, and then an Associate Professor until November 2006. He is currently a Research Expert at the National Institute of Information and Communications Technology (NICT), Sendai Japan, where he has been working mostly on audio signal processing and remote sensing for disaster management. He is currently the Chair of Technical Committee on Enriched Multimedia of IEICE.



1