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FOREWORD

Special Section on Processing Natural Speech Variability for Improved Verbal Human-Computer Interaction

Speech processing techniques such as speech synthesis and speech recognition have been improved by statistical methods and are expected to be fundamental techniques for natural communication between humans and machines. However, to improve verbal human-computer interaction, we need to carefully consider natural speech variability such as speaking styles, emotions, speakers' voices, environmental noise, and different kinds of expressions. Dealing with such variability is a key point for the naturalness of interactions and thus a wide range of related topics, e.g., expressive speech synthesis, voice conversion, speaker and topic adaptation, robust speech recognition, and dialogue strategy, are being studied. In this special section, we aim to present recent progress and significant advances on these research topics.

The editorial Committee received 24 submissions in response to the call for papers for this special section, which spans speech recognition and understanding, speaker recognition, speech synthesis, voice conversion, speech enhancement, noise robustness, and spoken dialogue systems. After a rigorous review process, we accepted 14 papers for publication. In addition to these papers, this special section includes an invited paper contributed by Prof. Koichi Shinoda, which offers a survey on acoustic model adaptation for speech recognition. We hope that this special section provides a perspective on the processing of natural speech variability and also contributes to the progress of speech processing techniques.

The editorial Committee would like to express sincere appreciation to all of the reviewers for their professional and voluntary work in a limited time period. Finally, I would like to express my appreciation for the great efforts of the Editorial Committee Members.

Takao Kobayashi, Guest Editor-in-Chief

Takao Kobayashi *(Member)* received the B.E. degree in electrical engineering, the M.E. and Dr.Eng. degrees in information processing from Tokyo Institute of Technology, Tokyo, Japan, in 1977, 1979, and 1982, respectively. In 1982, he joined the Research Laboratory of Precision Machinery and Electronics, Tokyo Institute of Technology as a Research Associate. He became an Associate Professor at the same Laboratory in 1989. He is currently a Professor of the Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, Yokohama, Japan. From 2007 to 2009, he served as the chair of Speech Committee of the IEICE and Acoustical Society of Japan. His research interests include speech analysis and synthesis, speech coding, speech recognition, and multimodal interface. He is a recipient of both the Best Paper Award and the Inose Award from the IEICE in 2001, and the TELECOM System Technology Prize from the Telecommunications Advancement Foundation Award, Japan, in 2001 and 2008. He is a member of IEEE, ISCA, ASJ, and IPSJ.