



## Keynote Speakers



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***Title: Frontier of Frontend for Conversational Speech Processing***

To deepen and enrich our daily communications, researchers have made significant efforts over several decades to develop technologies that can recognize and understand natural human conversations. Despite significant progress in both speech/language processing and speech enhancement technology, conversational speech processing remains challenging.

Recordings of conversations with distant microphones contain ambient noise, reverberation, and speaker overlap that changes as the conversation progresses. Consequently, recognizing conversational speech is much more challenging than single-talker speech recognition, and frontend technologies such as speech enhancement and speaker diarization are essential to achieving highly accurate conversational speech processing.

For more than two decades, the presenter's research group has explored frontend techniques (source separation, dereverberation, noise reduction, and diarization) for handling realistic natural conversations with distant microphones. In this talk, I would like to talk about the evolution and frontier of frontend technologies for conversational signal processing. Specifically, we will trace the evolution of multichannel signal processing and neural network techniques, including beamforming and target speaker tracking and extraction, which have always played an important role in successive cutting-edge frontends, along with the latest achievements.

### **Biography**

Shoko Araki is a Senior Research Scientist at NTT Communication Science Laboratories, NTT Corporation, Japan where she is currently leading the Signal Processing Research Group. Since joining NTT in 2000, she has been engaged in research on acoustic signal processing, microphone array signal processing, blind speech separation, meeting diarization, and auditory scene analysis.

She was formerly a member of the IEEE SPS Audio and Acoustic Signal Processing Technical Committee (AASP-TC) (2014-2019) and currently serves as its Chair. She was a board member of the Acoustical Society of Japan (ASJ) (2017-2020), and she served as vice president of ASJ (2021-2022). She also served as a member of the organizing committee of several international flagship workshops, ICA 2003, IWAENC 2003, IEEE WASPAA 2007, HSCMA2017, IEEE WASPAA2017, IWAENC2018, and IEEE WASPAA2021 as well as the evaluation co-chair of the Signal Separation Evaluation Campaign (SiSEC) in 2008, 2010, and 2011.

She received the 19th Awaya Prize from Acoustical Society of Japan (ASJ) in 2001, the Best Paper Award of the IWAENC in 2003, the TELECOM System Technology Award from the Telecommunications Advancement Foundation in 2004 and 2014, the Academic Encouraging Prize from the Institute of Electronics, Information and Communication Engineers (IEICE) in 2006, the Itakura Prize Innovative Young Researcher Award from ASJ in 2008, The Young Scientists' Prize for the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology in 2014, the IEEE SPS Best paper award in 2014, and the IEEE ASRU 2015 Best Paper Award Honorable Mention in 2015. She is an IEEE Fellow.