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Scene-aware Interaction for Human-Robot Communication

Spoken dialog is a key modality for human-machine interaction. In the past, most dialog system research focused on filling values to be used in downstream tasks, such as booking a flight. Recent work has produced chatbots whose grounding in large language models enables them to chat more freely, responding to users reasonably in an open domain. However, such dialog systems cannot understand dynamic scenes in the real world, so they cannot have a conversation about what is happening in their surroundings. To develop machines that can carry on a conversation about objects and events happening around the machines or their users, dynamic scene-aware dialog technology is essential. In this talk, I introduce a new research target: a dialog system that can discuss dynamic scenes with humans. This work lies at the intersection of multiple avenues of research including natural language processing, computer vision, audio processing, and even radio frequency signal processing.

BIOGRAPHY

Dr. Chiori Hori is a Senior Principal Research Scientist at Mitsubishi Electric Research Laboratories (MERL) in Cambridge, MA, where she has worked since 2015. Her research is focused on multimodal scene-aware interaction technologies for human-robot communications. Prior to MERL, she spent eight years at the National Institute of Information and Communication Technology (NICT) in Japan, and before that she was a researcher at Carnegie Mellon University (CMU) and NTT Communication Science Laboratories. At NICT, she was the director of the Spoken Language Communication Laboratory, where she led multiple projects in network-based speech translation systems for the international consortium U-STAR. Dr. Hori has received several awards, including the 24th TELECOM System Technology Award in 2009, the International Cooperation Award from ITU-AJ in 2012, the DOCOMO Mobile Science Award for Social Science Sector in 2012, and the 58th Maejima Hisoka Award in 2013. She served on the editorial board of the journal Computer Speech and Language, and she was a technical committee member of the Speech and Language Processing Group of the IEEE Signal Processing Society. She received her Ph.D. degree from the Tokyo Institute of Technology.