Call for Papers

IEEE Journal of Selected Topics in Signal Processing

Special Issue on Speech Processing for Natural Interaction with Intelligent Environments

With the advances in microelectronics, communication technologies and smart materials, our environments are transformed to be increasingly intelligent by the presence of robots, bio-implants, mobile devices, advanced in-car systems, smart house appliances and other professional systems. As these environments are integral parts of our daily work and life, there is a great interest in a natural interaction with them. Also, such interaction may further enhance the perception of intelligence. "Interaction between man and machine should be based on the very same concepts as that between humans, i.e. it should be intuitive, multi-modal and based on emotion.", as envisioned by Reeves and Nass (1996) in their famous book "The Media Equation". Speech is the most natural means of interaction for human beings and it offers the unique advantage that it does not require carrying a device for using it since we have our "device" with us all the time.

Speech processing techniques are developed for intelligent environments to support either explicit interaction through message communications, or implicit interaction by providing valuable information about the physical ("who speaks when and where") as well as the emotional and social context of an interaction. Challenges presented by intelligent environments include the use of distant microphone(s), resource constraints and large variations in acoustic condition, speaker, content and context. The two central pieces of techniques to cope with them are high-performing "low-level" signal processing algorithms and sophisticated "high-level" pattern recognition methods.

We are soliciting original, previously unpublished manuscripts directly targeting/related to natural interaction with intelligent environments. The scope of this special issue includes, but is not limited to:

- Multi-microphone front-end processing for distant-talking interaction
- Speech recognition in adverse acoustic environments and joint optimization with array processing
- Speech recognition for low-resource and/or distributed computing infrastructure
- Speaker recognition and affective computing for interaction with intelligent environments
- Context-awareness of speech systems with regard to their applied environments
- Cross-modal analysis of speech, gesture and facial expressions for robots and smart spaces
- Applications of speech processing in intelligent systems, such as robots, bio-implants and advanced driver assistance systems.

Submission information is available at **http://www.ece.byu.edu/jstsp**. Prospective authors are required to follow the Author's Guide for manuscript preparation of the IEEE Transactions on Signal Processing at **http://ewh.ieee.org/soc/sps/tsp**. Manuscripts will be peer reviewed according to the standard IEEE process.

Manuscript submission due:	**Jul. 17, 2009**	First review completed:	Oct. 2, 2009
Revised manuscript due:	Nov. 13, 2009	Second review completed:	Jan. 29, 2010
Final manuscript due:	Mar. 5, 2010		

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