Speech and Audio Processing Laboratory
(Intelligence Media Division)

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Application Code : **IST–9**

Overview

Speech communication plays a key role in human intelligence. We are studying intelligent processing of speech, audio and music exchanged by human beings for automatic recognition, understanding and interaction systems, specifically (1) automatic speech transcription of meetings and lectures, (2) analysis of audio scenes and music signals composed of multiple sound sources, and (3) humanoid robots that make natural interaction by combining non-verbal information.

Research Topics

1. Speech Recognition and Understanding:

   Automatic speech recognition (ASR) of lectures and meetings, and also natural language processing (NLP) for segmenting and extracting information structures, in order to realize intelligent transcription and captioning systems.

2. Audio Scene Analysis:

   Analysis of the real world where multiple persons and a variety of sound sources exist, based on multi-modal sensing and statistical acoustic signal processing.

3. Music Information Retrieval:

   Sound source separation and automatic transcription of music audio signals, applied to an intelligent sound editor that separates singing voice and accompaniment sound.

4. Human-Robot Interaction:

   Spoken dialogue model and systems integrating verbal and non-verbal information for humanoid robots (android) that behaves like and naturally interacts with human beings.

Scope of Area-specific Basic Questions (Master's Program)

Applicants are expected to have background with pattern recognition, machine learning, statistical modeling, digital signal processing, information theory, artificial intelligent, and human interface, as well as some basic knowledge on speech processing. Reference literature is listed and review articles are available in our website ("Projects" page).

Contact

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