
Multimedia Laboratory

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■ Overview of Our Research

We carry out research on multimedia information processing and multimedia quality assessment. Our main research themes are speech and acoustic information processing, multimedia quality assessment, and biological information processing. We then work to integrate the findings of our research in order to develop application systems, such as high-definition communication systems, acoustic human-machine interfaces, brain-machine interfaces, and e-learning systems.

■ Main Research Themes

● Speech and Acoustic Information Processing

Focus on separation, identification, recognition, and generation of signals in an attempt to develop high-definition communication between humans and machine.

● Multimedia Quality Assessment

Focus on media quality assessment, including subjective and objective quality assessment and QoE (Quality of Experience) evaluation, which is vital to the advancement and diversification of multimedia information processing.

● Biological Information Processing

Focus on separation, identification, classification, and sonification of biomedical signals, with a target to utilize the so obtained information from the brain and the body to control machines (BCI/BMI approach), and to elucidate vital phenomena.

■ Research Facilities

An anechoic chamber, a multipurpose studio, a soundproof chamber, multi-channel audio systems, dry/wet active EEG, and body peripheral (EMG, GSR, respiration) signals recording systems, etc.

■ Joint Researches

RIKEN Brain Science Institute, NTT Communication Science Laboratories, National Institute of Informatics.

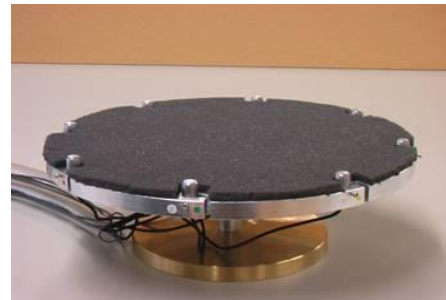


Fig. 1 Audio source separation with an 8ch microphone array



Fig. 2 Acoustic measurement in an anechoic chamber



Fig. 3 Brain signal (EEG) measurement



Fig. 4 Auditory interface by using sound localization