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Special Session on "Robot Audition and its System Integration"

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Abstract of proposed special session:

Advanced auditory technologies in robotics have been studied for over a decade as so-called robot audition, which enabled wide variety of software and robot services by integrating the robot audition technologies into various systems such as drone audition, bird song/frog chorus analysis, in-vehicle information systems, and so on. This session is proposed to share and discuss the cutting-edge technology of robot audition, to foster its application with system integration, and to set a roadmap of further research issues in robot audition for system integration. The scope covers from core components of robot audition to end-user level applications.

Brief description of the area of interest with special focus on why we should believe this is an interesting and significant topic?

The indispensability of robot audition is twofold: to communicate with people for providing services and information interactively, and to perceive the surrounding environments for robot's autonomous behaviors and sharing contexts with people. The former has been studied in robotics through human-robot interaction scenarios and applied to other fields such as in-vehicle information systems. The latter has been studied to extend robot audition to become deployable outdoors through rescue and surveillance missions (drone audition) and natural environment monitoring and animal observations (bird song/frog chorus). These use cases obviously show that system integration aspects of robot audition are getting more significant.

Topics of interest include, but are not limited to:

- Robot audition (sound source localization, separation, tracking, classification, …)
- Auditory scene analysis/understanding
- Speech processing
- Field-oriented auditory systems
- Drone audition
- Acoustic natural environment monitoring
- Acoustic simulation
- Multimodal integration (audio-visual, etc)
- Dialogue system