

AI AND SOUND (AIS)



THE AI AND SOUND SECTION (AIS)

DEPARTMENT OF ELECTRONIC SYSTEMS
TECHNICAL FACULTY OF IT AND DESIGN, AALBORG UNIVERSITY

The section works in artificial intelligence, control of sound fields, quantification of speech and sound perception, enhancement and prediction of speech quality and intelligibility, hearing assistive devices, and audiology and hearing rehabilitation.

RESEARCH

KEY RESEARCH AREAS

The research of the AIS section is highly interdisciplinary and combines acoustics, signal processing, information theory, artificial intelligence, and user research.

WHAT WE DO

The section is very active in research for hearing assistive devices and smart hearables on the future. This involves technical audiology, hearing rehabilitation, earphone-based listening research, sound exposure assessment, and optimal real-time algorithms and hardware architectures. The section's systems make use of microphone arrays, cameras, and EEG sensors, and we use artificial intelligence, information theory, and acoustic signal processing for obtaining state-of-the-art performance in areas such as speaker verification, speech intelligibility prediction, and speech enhancement.

LABS

The section has access to the following labs and equipment; Anechoic chambers, sound zone labs, spatial sound setups, eye tracking, EEG and GSR systems, high performance computers, low frequency room, reverberation room, social robots, audiometry room.

COLLABORATION

WHO BENEFITS FROM OUR RESEARCH

Enterprises engaged in sound and acoustics, audio and video equipment, hearing assistive devices, navigation, energy, gaming, and healthcare.

EXTERNAL PARTNERS

The section has established collaboration with numerous external partners, including: Bang & Olufsen, Oticon, GN ReSound, Widex, COWI, Terma, Interacoustics, KeySight, Brüel&Kjær, Radiometer, TC-Electronics, Novozymes, DFDS, TopDanmark, NXP Semiconductors, Spinvox Ltd., Fraunhofer, AM3D, RTX A/S and Binauric SE.

The section also work with a large number of academic partners.

PUBLICATIONS

IMPORTANT PUBLICATIONS

- › [An Algorithm for Intelligibility Prediction of Time-Frequency Weighted Noisy Speech](#)
- › [Distortion-Product Otoacoustic Emission Measured Below 300 Hz in Normal-Hearing Human Subjects](#)
- › [Validating a Real-time Perceptual Model Predicting Distraction Caused by Audio-on-audio Interference](#)
- › [iSocioBot - A Multimodal Interactive Social Robot](#)
- › [A Moving Horizon Framework for Sound Zones](#)



AALBORG UNIVERSITY
DENMARK

KEY PROJECTS

CENTRE FOR ACOUSTIC SIGNAL PROCESSING RESEARCH (CASPR)

The center conducts research and education at Bachelor's, Master's, Ph.D. and post-doctoral level in machine learning, statistical signal processing, auditory perception, information and communication theory with applications to hearing assistive devices.

BETTER HEARING REHABILITATION (BEAR)

The overall vision of the project is to improve hearing rehabilitation in Denmark and around the world through an evidence-based renewal of clinical practice. The structured approach comprises studies of current practice, considerations for new methods, experimental application and refinement of this, evaluation and implementation of the most promising renewals.

VIDEO PRESENTATION



CONTACT

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