Fraunhofer
IDMT

Fraunhofer Institute for Digital Media Technology IDMT

Division Hearing, Speech and Audio Technology

Application-oriented solutions »Made in Oldenburg«

Our practical expertise

- Acoustic Event Detection
- Personalized Hearing Systems
- Automatic Speech Recognition
- Audio Signal Enhancement
- Audio System Technology
- Mobile Neurotechnologies
- Usage and acceptance studies

photo: HörTech gGmbH

The objective of the Division Hearing, Speech and Audio Technology HSA of the Fraunhofer Institute for Digital Media Technology IDMT is to transpose scientific findings related to hearing perception and man-machine interaction into technological applications. Its applied research priorities are the enhancement of sound quality and speech intelligibility, personalized audio reproduction, acoustic speech recognition and event detection with the help of artificial intelligence. A further focus is the use of mobile neurotechnologies, which facilitate the recording of brain activity and utilization of the resulting data outside the laboratory too.


photo: Humantechnik GmbH

Better sound, less noise!

Everyone hears differently and some better than others. Just as individual needs differ, so too do the personalized hearing systems the Fraunhofer IDMT develops. In the process, new possibilities for bespoke audio technologies are opened up, e.g. for at work, in the home or in vehicles. Depending on the area of application, important aspects such as noise reduction for better protection in noisy workplaces are adressed. In addition, the solutions are ideally suited to help people with a slight to moderate hearing impairment.


photo: Deutsche Telekom

We make it listen!

On the basis of AI technologies, such as machine learning and the use of robust recognition techniques, the division develops different detection systems: Automatic Speech Recognition creates robust solutions for the secure data input without pen or keyboard, the contactless control of machines or for intelligent dialog systems. Acoustic Event Detection enables a reliable monitoring of machine noise and process operations even in noisy environments. Smart sensors detect critical events such as calls for help in emergencies, breakage of glass or sirens of emergency vehicles.

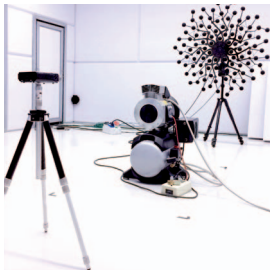
photo: Fraunhofer IDMT

Mobile Neurotechnology

We complement our portfolio of hearing, speech and audio technology with mobile neurotechnology. It is a logical extension of ear-based sensor technology, e.g. for mobile measurement of electrical brain activity using electroencephalography (EEG). Fields of application are the development of novel solutions in healthcare as well as the safe and efficient design of workplaces and man-machine interfaces.

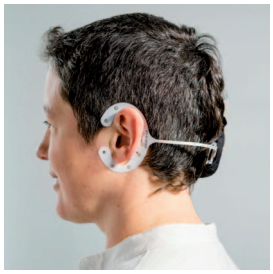
photo: Fraunhofer IDMT (zeegrid.com)

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Cooperation with the IDMT in Oldenburg

- Development of application-specific technologies, including licensing
- Microphoning and signal preprocessing
- Embedding in mobile applications and existing infrastructures
- Evaluation and user studies, e.g. technical evaluation of systems available on the market