REVOLOUD

revoloud „balancing loudness for the perfect fit“

„Loudness is an important aspect when fitting hearing aids. Unfortunately, complaints about loudness are still widespread among hearing aid users. To solve this problem, we have developed revoloud. With revoloud, you can measure and check the individual loudness perception of your customers. The results are visualised simply and clearly using a loudness map.
Natural signals, such as bird chirping and car sounds, with different spectral weightings (low, middle, high and broadband) are presented at different levels (soft, medium and loud), and rated in loudness by the hearing aid user.

Deviations from normal loudness perception are indicated by a colour map and can then be implemented directly by changing the amplification in the hearing aids. revoloud gives you the opportunity to optimise your response to individual needs, make more precise amplification settings and offer your customers the best individual solution.“

Björn Oehne
Products
Hörzentrum Oldenburg
+49 441 2172-138
oehne@hz-ol.de

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HÖRWERK
INNOVATIONSCOMMUNITY

The HörWerk project aims to build a vibrant, practice-oriented hearing expert community in Germany one where professionals from the skilled trades, science, non-academic research, and other key sectors work hand in hand. At its core, HörWerk fosters the exchange of experience, knowledge, and ideas, leading to innovative, real-world solutions for people with hearing impairments.

This community is designed as a space where hearing care professionals are not just recipients of research but active contributors whether by proposing project ideas, engaging in dialogue with researchers, or collaborating on concrete initiatives. To strengthen this collaboration, interdisciplinary teams from research and practice are regularly invited to submit project proposals. These are first reviewed by the community and then selected by a steering committee. A clear benefit: thanks to a shared budget, everyday ideas from the field can be turned into reality without unnecessary delays.

Dr. Melanie Krüger
Research
Hörzentrum Oldenburg
+49 441 2172-139
krueger@hz-ol.de

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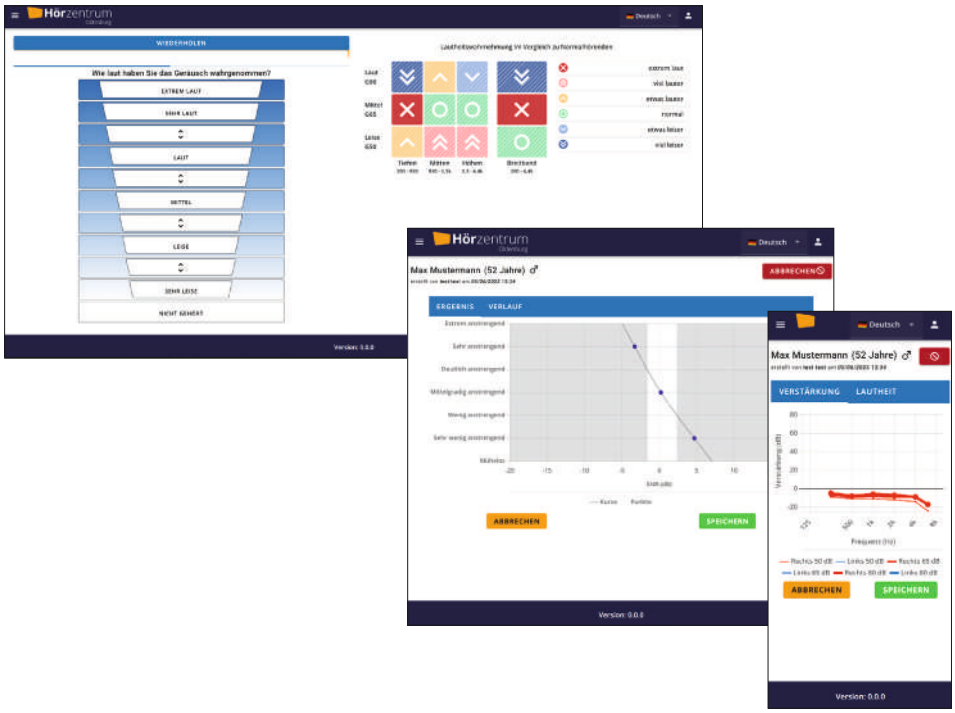
CROSS-PLATFORM

Cross-Platform Hearing Test Libraries:
Enabling Accessible Hearing Screening Through Web

This presentation introduces a suite of cross-platform hearing test libraries Revoloud, MatrixTest, Acales, and TrueLoudness designed to enable accessible, reliable hearing screening using modern web technology. These libraries support implementation of clinically relevant tests and measures on consumer-grade devices such as laptops, tablets, and smartphones. By leveraging the browser as a delivery platform, they remove traditional hardware and distribution barriers, making hearing assessment tools more scalable and inclusive. The libraries are demonstrated through a functional web application and are accompanied by comprehensive documentation and implementation guidelines to facilitate adoption by researchers, developers, and clinicians. This work underscores the potential of open, web-based tools to support global hearing health initiatives and promote equitable access to auditory diagnostics.



Moritz Brandt

Products

Hörzentrum Oldenburg

+49 441 2172-100

info@hz-ol.de

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STUDY-FRAMEWORK

Study-framework at Hörzentrum Oldenburg gGmbH - from standard laboratory tests to tests with maximum ecological validity

„The Hörzentrum Oldenburg gGmbH has been conducting individualised studies with hearing- impaired and normal-hearing people for 25 years. We would be happy to support you in the planning, conception, and implementation of your evidence-based, user-centered assessment of the audiological and technical performance of your products.

Visit e.g., our Concurrent Matrix Test (CCOLSA) Setup offering the opportunity to measure all at once:
- Speech intelligibility in ecologically valid listening situations at positive SNRs
- Steady classifier status through continuous speech presentation
- Flexibility in spatial configurations

IDEAL TO TEST AI HEARING SYSTEMS!“

We offer:

- Study coordination (mono- or multicentre)
- Ethics applications
- Study documents, e.g. Clinical Investigation Protocol (CIP), participant information and consent, ...
- Choice of appropriate measurement methods
- Test person database with over 2000 voluntary test listeners
- Studies according to Good Clinical Practice (GPC) and ISO 14155
- Eperience with Electronic Data Capture (EDC)
- Hearing aid fitting and audiological assessment procedures
- Innovative methods for daily-life investigations
- State-of-the-art laboratories

Jan Heeren
Audiology
Hörzentrum Oldenburg
+49 441 2172-245
heeren@hz-ol.de

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IMFIT

Investigating the Gap Between Aided Speech Intelligibility in the Laboratory, through Modeling and in the Real World

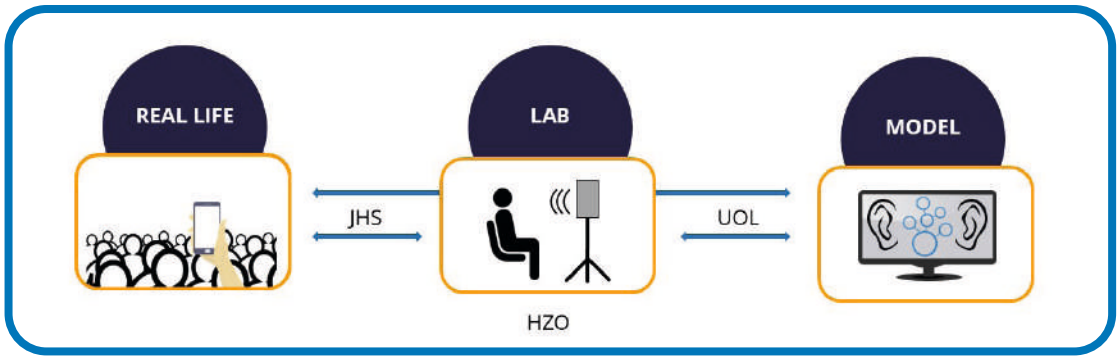
Hearing-impaired listeners with similar audiograms can vary substantially in their speech intelligibility with hearing aids, whether in laboratory measurements or assessments in the real world. To better tailor hearing aid settings to individual needs, reliable predictions of aided speech intelligibility are needed - either through new measurement procedures or refined speech intelligibility models that take individual hearing abilities into account.

The research project IMFIT explores the relationship between aided speech intelligibility as measured in the laboratory, through modeling, and via Ecological Momentary Assessment for subjects with similar audiograms, aiming to identify predictors of real-world aided speech intelligibility.

In an ongoing study, we invited hearing-impaired subjects to characterize their speech intelligibility beyond the audiogram. They completed speech tests in various listening conditions. Individual amplification was provided to ensure audibility.

A normal-hearing control group performed the same tests. The results revealed that while the normal-hearing group benefited from fluctuating noise compared to stationary noise, hearing-impaired listeners showed a decrease in performance.

In the demo you can try out the lab test yourself. We also present the individual measurement results, along with simulations from speech intelligibility models. Additionally, you get a preview of the upcoming study, in which participants will step outside the lab for assessments of aided speech intelligibility in real-world environments.



Theresa Jansen
Research
Hörzentrum Oldenburg
+49 441 2172-100
jansen@hz-ol.de

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VHC OPENMHA

Research tools for self-administered hearing tests in the field

Hearing tests outside the laboratory are essential to broaden the understanding of individual hearing in real-life situations. With the Virtual Hearing Clinic (VHC) and the Portable Hearing Lab (PHL) two research tools were developed that enable aided measurements of hearing loss and hearing aid benefit in the field. The VHC is a remotely accessible framework providing self-administered hearing diagnostics independently of specific hardware. The PHL is a wearable research hearing aid running the open Master Hearing Aid (openMHA) software. These tools are more flexible in terms of accessibility, time, and location than laboratory setups and are envisioned to diversify and increase participant groups and measurement conditions.

This presentation highlights how these tools have been used in recent studies and their potential for future solutions for individualized hearing support. We present recent developments and results including a validation study for remote administration of established measurements, a field study which used the combination of VHC and PHL to assess different amplification settings in real-world environments and also a research platform where experiments can be set up via a dashboard. The studies show the suitability of the tools obtain reliable data in the field. Visit us to experience the VHC in combination with the openMHA in an online demo as well as to try out the experimental setup used in the field study.

Kim Rullmann

Research

Hörzentrum Oldenburg

+49 441 2172-100

info@hz-ol.de

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“SONICGUARD”

Long-term monitoring of bowel sounds

‚In the “SonicGuard” project researchers from the Fraunhofer IDMT in Oldenburg work together with the University of Oldenburg and the Pius Hospital on a long-term monitoring of bowel sounds. For this purpose, a device was developed that uses four sensors attached to the abdomen to record bowel sounds and send them to an analysis platform.

The results are visualized in an app and further digestive data is collected. The project collected data from test subjects and researched a possible correlation between intestinal sounds and physiological factors such as electrolyte levels, digestive stages and caffeine consumption.

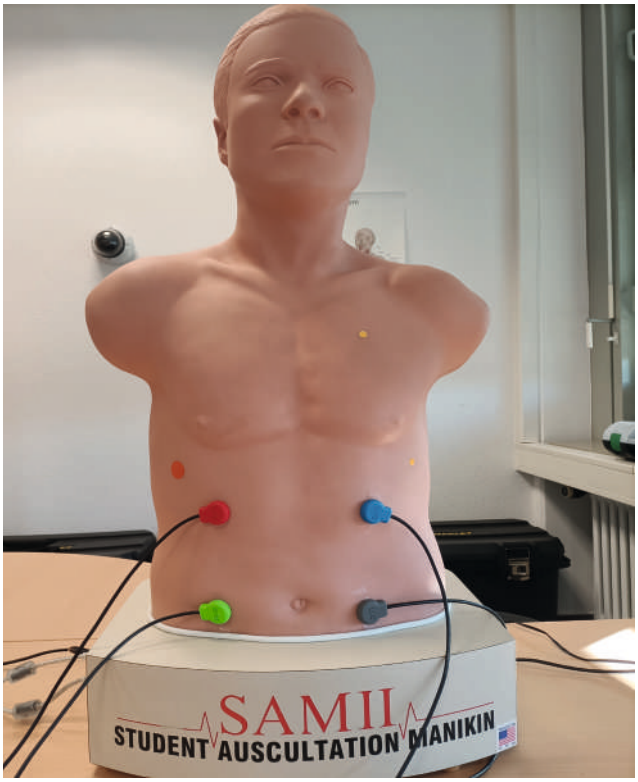

Foto: © Fraunhofer IDMT

Zahra Mansour

Fraunhofer Institute for
Digital Media Technology

+49 441 80097-340

zahra.mansour@idmt.fraunhofer.de

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“PSIO”

Listen easier, understand better

At Fraunhofer IDMT in Oldenburg researchers develop signal processing methods to ensure better speech intelligibility and less listening effort. This demonstrator combines different technologies to optimize the listening experience of the users. Real-time prediction models are used to detect speech activity und to predict listening effort of a media stream (e.g., a broadcast video).

Speech separation technologies are used to segregate voice content from background sounds into two sound objects, which can then be manipulated independently.
For example, background music and sound effects can be reduced to obtain better intelligibility. In addition, the sound of speech and background can be equalized separately to further enhance the perceptual segregation, and to obtain a fully personalized listening experience.

Foto: © Fraunhofer IDMT - Anika Bödecker

Tobias Bruns
Fraunhofer Institute for
Digital Media Technology

+49 441 80097-309

tobias.bruns@idmt.fraunhofer.de

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“MENTAL STATE”

Brain-based vigilance monitoring using mobile EEG

At Fraunhofer IDMT in Oldenburg researchers develop signal processing methods to ensure better speech intelligibility and less listening effort. This demonstrator combines different technologies to optimize the listening experience of the users. Real-time prediction models are used to detect speech activity und to predict listening effort of a media stream (e.g., a broadcast video).

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Foto: © Fraunhofer IDMT - Leona Hofmann

Axel Winneke
Fraunhofer Institute for
Digital Media Technology

+49 441 80097-377

axel.winneke@idmt.fraunhofer.de

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