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WSA

Novel Multi-Dimensional technology for Context-Aware Hearing in Real-World Environments

Real-world listening environments are dynamic, complex, and shaped by social interaction. Current Artificial Intelligence approaches in hearing aids, however, are largely focused on noise reduction, which may limit access to the broader acoustic context.

To address this, we introduce a multi-dimensional approach to acoustic processing that enables hearing aids to interpret and respond to multiple sound aspects in real time. This approach, referred to here as Acoustic Intelligence, is a multi-dimensional AI framework based on four specific deep neural networks embedded throughout the signal-processing chain, jointly supporting continuous analysis and adaptation of the input signal.

Acoustic Intelligence underpins four functional components: multi-speaker tracking and enhancement (Real-Time Conversation Enhancement AI), natural own-voice perception without individual calibration (Own Voice Processing AI), continuous environmental adaptation (Ambient Scene Adaptation AI), and context-aware noise management (Dynamic Noise Control AI).

Together, these components improve speech understanding in group conversations and enable a more natural, context-sensitive listening experience. Initial study results showing the benefits will be presented.