

Prof. Dr. Torsten Dau
Kongens Lyngby
Dänemark

Emerging trends in technical compensation strategies for hearing aids

Despite tremendous advances in both our understanding of human hearing and in assistive hearing technologies, the benefits vary widely across individuals. There is controversy about the best approach to compensate for the perceptual consequences of hearing loss. One common approach has been to use frequency and level-dependent amplification, based on biological principles (e.g., fast-acting compression), to restore 'normal function', given that peripheral (cochlear) impairment is the most common source of the problem. Other signal processing approaches are more targeted towards supporting or facilitating 'central' processing, including cognitive functions, memory, and auditory attention, particularly in conditions of age-related hearing loss. Furthermore, 'black-box' statistical machine-learning-based approaches, not necessarily guided by auditory processing, have more recently been considered to optimise hearing-aid design. These include approaches that are steered by the listener's attention and intention. This presentation discusses the opportunities and limitations of some of the current strategies for individualised compensation.