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Eriksholm Research Centre – A World-Class Research Facility Located in Denmark

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Bo Westergård

35 km north of Copenhagen – and 50 km away from Oticon's headquarters – you find Eriksholm Research Centre. Here researchers make audiological discoveries with the potential to provide significant end-user benefits in future hearing care. Uwe Hermann is senior director of Eriksholm Research Centre.





Uwe Hermann, R&D Head of the Eriksholm

Uwe Hermann is R&D Head of the Eriksholm Research Centre (part of Oticon) in Denmark.

He has 30+ years of international experience in Information & Communication Technologies, Wireless Communication and Semiconductor Industries.

He is working for Oticon since September 2013. Before he worked for Siemens since 1996. His career track at Siemens ranged from a position as VP software development to Principal Consultant for the board of directors. Amongst

Research Centre in Denmark.

other tasks he build up the global university network “Centers for Knowledge Interchange” of Siemens with MIT, UC Berkeley, Tsinghua and Tongji University, Technical University of Denmark etc.
As a lecturer at University Duisburg-Essen he was from 1992 till 2013 his academic activities included teaching master courses on network protocols and architectures of mobile radio systems.
Uwe has been internationally engaged as a chairman and member of various boards and organizations, like the advisory board of the IDA institute in Copenhagen or his chairmanship of the VDE working group on "Engineering Profession, Society and Technology" in Frankfurt, Germany. (VDE = “Verband der Elektrotechnik Elektronik Informationstechnik e.V.” is the German correspondent to IEEE)
Uwe Hermann holds a Master Degree ("Dipl. Ing. Univ.)" in Electrical Engineering from University of Erlangen-Nuernberg.

Bo Westergård (BW): Exactly which type of research is done at Eriksholm Research Centre?
Uwe Hermann (EH): “We work in two main tracks. We discover technological means of improving the sound quality in future hearing solutions and we explore the psychological and behavioral aspects of living with a hearing loss. Both research tracks share the overall goal to enable Oticon to better help and support people with hearing loss.”

BW: Why is Eriksholm Research Centre situated 50 km away from Oticon’s headquarters when it is part of Oticon’s research and development?”
EH: “At Oticon’s headquarters, research is typically focused on improving Oticon’s portfolio of products and solutions. Eriksholm Research Centre was founded in 1977 to establish the ideal conditions for independent audiological research. Back then it was decided that an important prerequisite was that the researchers should be physically situated away from the product based agenda at Oticon’s headquarters, to have the freedom to immerse themselves into broader audiological themes.”

BW: Has the research centre achieved an independent role today?
EH: “Yes, definitely! Today, Eriksholm Research Centre is established as a strong, independent research partner linking academia and the hearing care industry. Most of the centre’s research projects are carried out in close collaboration with leading research institutions from all over the world. By bringing experts together, we form close, mutually beneficial partnerships and create research synergies. This increases the value and the quality of both the research and its results.”

BW: Does Eriksholm Research Centre also follow Oticon’s “People First” philosophy?
EH: “Yes, our research begins and ends with people. All our projects are initiated on the basis of experienced needs of people with hearing loss, or of hearing care professionals. This can be small or bigger challenges relating to the daily use of hearing aids, or it can be how people with hearing

loss and their relatives deal with living with hearing loss. At Eriksholm Research Centre, we collaborate with hundreds of hearing aid users. These people are the backbone of our work. It is of immense value to our work that hearing aid users help us test ideas either in our laboratories, at home or in other sound environments. And being part of Oticon ensures that our scientific insights are applied in solutions that empower people with hearing loss."

BW: This concerns primarily technology – how about the behavioural part of your research?
EH: "We also involve people in behavioral research. This could be hearing aid users we invite to participate in a focus group, which is a round table discussion about specific topics, or they fill out questionnaires we send to them to gather new knowledge on how they use their hearing aids or how they deal with their hearing loss. But obviously, we are also interested in hearing the hearing care professionals' points of view. That's why we also involve hearing care professionals by inviting them to focus groups or to help us collect data."

BW: What are your main areas of research?
EH: "Our research work addresses four main trends in audiology. First we have a focus area called "Cognition, hearing and hearing aids." Cognitive Hearing Science uses an interdisciplinary approach to understand the interactions between hearing and cognition. This new research area includes technology development such as complex digital signal processing to design hearing aid features capable of addressing challenging everyday environments. Current research directions of interest to Eriksholm Research Centre include the assessment of cognitive load and attention of a listener under real-world conditions, as well as using cognitive assessment to predict and assess hearing aid outcomes.

Another focus area is "E-Audiology and e-Health Care." We see that people seek and find information about hearing care on the internet before they contact a hearing care professional for the first time. During the clinical phase, hearing care professionals go online to establish the best possible solution for their patients and in the subsequent, post-clinical phase patients can be followed up and supported online.

Then we have a focus area called "Behavioural Research." This covers the psychological and behavioral aspects of living with a hearing loss. Not all people with hearing loss seek help, obtain hearing aids, or achieve satisfactory outcomes. We study the hearing aid dispensing processes to learn how people with hearing loss decide to seek help for their hearing and to obtain hearing aids, how these are provided to them, how they use their hearing aids, and whether they achieve satisfactory outcomes or not.

Our final focus area is called "Almost unlimited processing power" and refers to the huge potential of the new generation of hearing aid processors, making it possible to develop algorithms which open up whole new opportunities in audiology. One challenge which we hope to eliminate is that elderly hearing-impaired listeners have limited temporal fine structure sensitivity. This prevents them from perceiving auditory details, also in the audible parts of the sounds, and it diminishes their ability to participate in situations with competing voices. The goal of Eriksholm's research within this area is to identify audiological concepts that can help people with hearing loss participate actively in situations with competing voices. "

BW: How do you communicate your results?
EH: "Eriksholm's research results are communicated through different channels. We present them at national and international conferences, we publish articles in leading, international scientific magazines, and we share knowledge on our website at www.eriksholm.com. Our annual report, summarizing our research activities, is also available on our website. To be visible on the research scene is part of our efforts to become a continuously more attractive collaboration partner within

audiological research. That way we can maintain the high quality in our work and also make sure that our results remain relevant for implementation in Oticon’s products and support solutions, to the benefit of the hearing aid user.”