

Working Group "Healthcare & Welfare" – Meeting 19

Summary of Meeting #19, September 24, 2024

Agenda

1. Webinars & physical events in 2024/2025:
 - a. Follow-up on proposals and ideas from meeting # 18.
 - b. Suggestions for speakers
 - c. New themes?
2. Collaborative projects.
3. News from the DSC Secretariat
4. A.O.B..

Ad 2: Webinarer & fysiske events i 2024

#	Subject	Background
7.a	Speech analysis, pathology, speech recognition	<p>Follow up on the first webinar on the CoRal Project - Danish Speech Dataset</p> <p>Point of contacts:</p> <ul style="list-style-type: none"> • Dan Saatrup Nielsen, Senior AI Specialist, Alexandra Institute • Martin Carsten Nielsen, Co-Founder at Alvenir Natural Language Processing • Lars Maaløe, Co-Founder & CTO at Corti Adj. Assoc. Professor of Machine Learning <p>No contact with the consortium since the last meeting, so uncertainty as to when it makes sense to do a follow-up to the project's first webinar. Dan Saatrup apparently has a lot about his ears at the moment.</p> <p>Jeppe to contact Dan before the next meeting.</p>
12.a	Practical use of sound in the healthcare system	<p>Focus on: ISOBEL project</p> <p>IDA together with Danish Sound Cluster held a physical event on January 15, 2024. Søren H. Nielsen and Kim Rishøj, Sound Focus, Martin Bo Møller and Søren Bech, Bang & Olufsen and Eva Wennerwald, Wavecare took part here. There were about 50 participants for the lecture, which lasted 2 hours.</p> <p>We plan a follow-up event, including involving others as well. Suggestions for others</p> <ul style="list-style-type: none"> • Christian Sejer Pedersen, Mo Zhou, Peter Koch, Jan Østergaard, all AAU <p>Not a high priority, as a physical meeting in the area has already been held under the auspices of IDA. Isobel ended November 2023. Christian Sejer Pedersen, Mo Zhou, AAU, have presented results in a presentation at Forum Acusticum 2023, Torino, so they may have material that is easier to translate into a webinar. However, Mo Zhou is no longer at AAU.</p> <p>Some doubt whether it makes sense to repeat the results of a project that has already been presented under IDA's auspices. There is also little doubt that the results have been developed to a usable level in the hospitals. They are perhaps better suited for use in the new Super hospitals, where the focus is on single rooms.</p> <p>We decided to contact Kim Rishøj and Søren H. Nielsen, whether it would make sense to do a webinar about the results, and if so, find an angle that is different from the IDA event.</p> <p>If the answers from Rishøj and Søren H. Nielsen do not turn out to be convincing, we will drop the topic.</p>

#	Subject	Background
16.a	Self-test of the need for hearing aids, remote test of hearing disabled, etc.	<p>As a supplement to On-line services, AAU under the BEAR project is currently working on at to produce solutions so that a potential user of hearing aids can sit in their own living room and decide whether there is a need for a hearing aid or not. Among other things. PhD student at Dorte.</p> <p>Suggestions for contributions from:</p> <ul style="list-style-type: none"> • Palle Rye, Ph.D. student with Dorte at AAU, but is late • UAUD project at SDU, Jesper Hvass Schmidt, Teleaudiometry <p>WHO has, among other things, a self-test APP, "hearWHO", which can be downloaded to mobile phones. Its purpose is to achieve early identification of hearing loss with the aim of e.g. to be able to counter that exposed/predisposed persons are exposed to additional influences which intensify hearing loss.</p> <p>Focus: Ariane Laplante Levesque, who sits at WHO in Copenhagen, https://www.linkedin.com/in/ariane-laplante-levesque/.</p> <p>The UAUD project at SDU could be a focal point for part of a webinar. Palle Rye's part is not realistic now for use in a webinar.</p> <p>The discussion revealed that the working group sees two important topics in the area, namely:</p> <ol style="list-style-type: none"> 1. Remote diagnostics & patient safety 2. Trends in the OTC market, especially after Apple's emergence of new earbuds, which have been approved by the FDA for medical use <p>Both topics are very important and something the group agrees the DSC needs to address. The first is specifically aimed at a professional market for testing, the second is a subject of expected market focus.</p> <p>We choose to go after two subjects, so subject area '2. Trends in the OTC market' transferred to a new topic 16.b</p> <p>In the topic 'Remote diagnostics,' the following could perhaps contribute:</p> <ul style="list-style-type: none"> • Professor Jesper Hvass Schmidt, Faculty of Health Sciences, Clinical Department - UAUD project, SDU (Jeppe) • Dr. Lena Schell-Majoor, (Tobias)
16.b	<p>Trends in the market to OTC (Over the Counter hearables)</p> <p>New theme</p>	<p>After being promising for some time, the OTC market, and the companies that bet on the market, have languished.</p> <p>Apple's new introduction of earbuds to help the hearing impaired may contribute to revitalizing the market. Apple's product has obtained FDA approval for medical use.</p> <p>What are the boundary conditions for this in the US?</p> <p>What is happening in the EU in the legislative area</p> <p>What developments do you imagine will come to the OTC market?</p> <p>Important to get people who know the current development in the market to give their assessments and then follow up with a panel discussion among people with insight into the market.</p> <p>We should not focus on getting the manufacturers of hearing aids to participate, as the topic is too close to their business, but people in these companies too, if they can contribute with market knowledge.</p> <p>People who might be interesting to include or ask for references:</p> <ul style="list-style-type: none"> • Andrew Sabin, www.hearadvisor.com. He is currently employed by Bose Corp. • Kuba Maazur, Apple, has provided data to the WHO study • Peter Thorndahl, formerly Apple employee • Alex Cost, GN

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18.a	Approval of products, e.g. CE marking of products.	<p>Proposed program:</p> <ol style="list-style-type: none"> 1. Søren Storm, Dansk Standard project management-oriented approach to CE approval 2. Kim Boll Jensen, Bolls "How can an SME meet CE requirements, a case example." Not yet commitment 3. Jacob Steensen or colleague, FORCE Technologies "Approval of wireless interfaces in products" Jakob Steensen has reported back positively about taking part. Details to be agreed upon. 4. Panel discussion <p>Target group: SME companies. Proposal to also send out invitations through e.g. DTU's mentoring program (Deep Tech monitoring) to get many SME companies and start-ups talking. Still under development.</p>
18.c	Approval of products that require medical approval. New subject	<p>Medical approval of products is a challenge, not least for start-ups and SMEs. Approval to eg. FDA in the USA and European requirements, including DS/EN/ISO 13485, and where to start?</p> <p>Large companies in the area, not least the hearing aid companies, deal with the challenge as an integral part of their general quality organization. They have the experience of how to attack approval in the individual markets. For an SME, the challenge is often great, because they lack experience and do not have a quality organization that supports this.</p> <p>A webinar could focus on:</p> <ul style="list-style-type: none"> • Oticon's regulatory team is willing to contribute 30 - 60-minute submissions on the challenge. Thomas Krohn, Principal Compliance Specialist, tkro@demant.com • Can GN-Hearing and/or WSAudiology contribute? (Birger has send mails to WG members from the two companies, Jesper Bolt will check in his organization) • SME: Ausculpto start-up, Aalborg, Birger has been in contact with Samuel Erik Schmidt at Ausculpto. He recommends that we instead contact his colleague Claus Bo Vöge Christensen, who has more experience in the process of approval og medical products. After the meeting last Ausculpto unfortunately announced that they cannot contribute to a webinar. • Ernst-Ulrik Haxthausen, Adix, SME experience <p>Once a team has been set up, we plan to set up a planning meeting, where we can coordinate the focus of the individual contributors.</p>

#	Subject	Background
20	Access to data from the hearing care service	<p>Researchers' access to hearing care data.</p> <p>Discussion:</p> <p>Challenges with data ownership have not been clarified, in addition there are requirements around GDPR, validity of data, etc. Danish legislation in the area is restrictive in an international context and makes it difficult to share data. There is also consideration that results must be unbiased, so that you can e.g. do not give trial participants access to their own previous answers in questionnaire surveys, as this will influence answers, etc.</p> <p>With regard to the interconnection of data, there is a development underway in e.g. the project "InHear", which runs at Aalborg University Hospital,</p> <p>To get an update on the status, the Danish Health Data Agency should be contacted, as they are behind "InHear".</p> <p>https://www.inhear.dk/</p> <p>https://sundhedsdatastyrelsen.dk/da/strategier-og-projekter/hoereomraadet/ny_model_digital_visitation/inhear</p> <p>Søren Jakobsen,</p> <p>Jeppe has been in contact with Henrik Jacobsen and Søren Jacobsen, but they have declined due to other working activities. Contact to Lene Dahl Siggaard has not yet been successful. Lene Siggaard is a doctor (doing a PhD in the field) and not a technician in the field, so there is little doubt whether she covers the more technical aspects, which are high on our interest profile. Therefore, it would only be interesting if Jeppe could persuade Søren Jacobsen and/or Henrik Jacobsen to participate, even if they were initially unable to participate. If necessary, we can postpone the event until the beginning of 2025.</p> <p>OEHR (Open Electronic Health Record) is a platform for health data. Used in several areas with success. https://openehr.org/</p> <p>Can we possibly use this platform to move forward with the subject?</p> <p>Through his involvement in an EU company related to audiology, Tobias may be able to contact some international people who work on the subject. Lars has also come across the same topic at a recent audiology conference. Lars will try through his notes to identify people that we should contact. Both Tobias and Lars will try to find more relevant information at the next meeting.</p> <p>Not addressed at the meeting</p>

#	Subject	Background
21	<p>Music in relation to dementia</p> <p>New subject</p>	<p>Projects underway or recently completed under DSC focus on the use of music in dementia.</p> <p>There is great interest in the subject, although research in the area still seems weak. Dementia seems to be closely related to loss of hearing. Hearing aid companies claim this and are supported on such views by US clinical studies.</p> <p>Jeppe has been collecting more information on the subject. Have been in contact with Jesper Hvass Schmidt and Manuella Lech Cantuaria, both SDU have produced a publication "Hearing loss increases the risk of becoming demented". They would like to participate in an event. Søren Riis from Cochlear, who also likes to participate.</p> <p>A date of October 9, 2024 has been set for a webinar entitled "Hearing loss and dementia".</p> <p>The original topic "Music in relation to dementia" is still at a very early stage of planning. Jeppe has been in contact with the conservatory in Aarhus. Here you are working on a project about music in intensive care units, but you are still quite early in the project. We take up topics when there is more information and try to find others who can also contribute.</p> <p>Planning of webinar completed</p>
22	<p>Practical use of AI in industry</p>	<p>In practical use of AI in the audio industry, e.g. in connection with hearing aids, we are faced with the fact that AI offers some possibilities, but an understanding of classic signal processing is also essential. There are examples of a company (now acquired by META) which has offered an AI module that could be used in connection with hearing aids, but where the integration in practice proved largely impossible.</p> <p>It is not necessarily the same people, who have an AI understanding, who can implement the solution, as it requires classical signal processing understanding. We are up against the fact that there are fewer and fewer young people who want an education in signal processing, but who instead focus on AI. But AI by itself does not solve many problems.</p> <p>How do we get the students to understand that there is a need for something else and more, or should the entire part of their education actually take place in the companies after graduating from university?</p> <p>A webinar could focus on:</p> <ol style="list-style-type: none"> 1. Presentation by an industrialist on the issue (Søren will try to find a lecturer). 2. Post from a person with a good understanding of the situation at universities. It is pointed out e.g. at Jesper Jensen, AAU and Demant. Søren contacts him. <p>We want to strengthen the food chain of good engineers for the area supplemented with existing ways of handling the challenge with AI</p> <p>The discussion revealed that an interesting way forward could be to look more into the field of Physics-informed neural networks (PINNs), also referred to by some as Theory-Trained Neural Networks. Dorte stated that at Internoise in Nantes, F, in August 2024, the area had received good interest. It covers solutions in AI where you try to use physical information embedded in e.g. differential equations to help compensate for a weak data base when training an AI system. In Nantes there were, among other things, be submission from Sarah Verhulst, Ghent Uni.</p> <p>Jesper Jensen, AAU and Oticon and Lars Bramsløw are estimated to be able to contribute more information to the development of the area.</p> <p>Søren makes contact with the two before the next meeting.</p>
23	<p>Speech Analysis and Mental Health Detection</p>	<p>The subject focuses on research within speech that defines the degree of depression. Jens Nedergaard from DSC has been in contact with a researcher at the University of Lund, Sweden on the subject.</p> <p>It is a bit of a continuation of an earlier event in the area.</p> <p>Not addressed at the meeting</p>

Next Meeting

- **Monday December 02, 2024, 14:00-15:00**

Appendix 1: Attendees in the meeting on June 18, 2024

Jesper Bünsow Boldt	GN Hearing A/S	Sr. Manage Research
Søren Pyndt Jørgensen	Oticon A/S	Principal Platform Architect
Tobias Neher	SDU, Sundhedsvidenskabelig Fakultet, Klinisk Institut	Professor
Birger Schneider	CHAMAJ Consult	Director
Jeppe Lindegaard	Danish Sound Cluster	Program Manager

Appendix 2: List of potential themes

Addressed or proposed in previous meetings but for now put on list of potential topics. Waiting for the topics to be better matured – or the need better identified.

#	Subject	Background	Proposers
11	APP and software	Target group: young people with an interest in sound.	Birger Schneider
12.c	Music therapy	<p>Therapeutic approach to the use of music. Relationship between music therapist and client, the use of music.</p> <ol style="list-style-type: none"> 1. Professor Hanne Mette Ridder, AAU (music therapy, among other things in connection with dementia)? 2. Artists who use music in therapy as a kind of "music medicine", rather than actual therapy (where there is a relationship between therapist and client), e.g. Niels Eje and Inge Mulvad Eje (CD series "Musicure" <p>Kira will consider proposals for concretization.</p>	Dorthe Hammershøj Kira Vibe Jespersen

Appendix 3: Events proposed and developed by the Working Group or in its focal area

Topics that the Working Group has initiated, or indirectly helped to initiate.

#	Title	Comments	Event type	Date
8 & 9	The new Bluetooth LE Audio standard		Webinar	22 June 2021
1	Make listening safe		Webinar	6 October, 2021
10	Online-tjenester til høre-rehabilitering mm.		Webinar	18 January 2022
12.b	Noise and its Effect on our Health"		Webinar	7 April 2022
13	Music interventions in HealthCare	Based upon DSC project updating older "White paper" in the area	Webinar	14 September 2022
7.b.	Speaker Separation		Webinar	23 November 2022
14	" Assessing Real-life User Experience to Improve Hearing Technology"		Webinar	31 January 2023
14	"Sensors, Methods and Tools for Ecological Momentary Assessment"		Webinar	9 February 2023
	"Hearing restoration"		Webinar	19 April 2023
	Hearing aid speech enhancement processing with ML and AI		Webinar	5 September 2023
	Better Hearing Treatment		Physical vent, Odense	24 April, 2024
	Hearing Loss & Dementia		Webinar	9 October, 2024