

Summary: "Future Sound Tech Solutions" – Meeting #08

Meeting # 08 in working group "Future Sound Tech Solutions" took place on August 7, 2022.

The meeting agenda was:

1. Webinars:
 - a. Follow-up on proposals and ideas from meeting # 06 including additional comments and proposals.
 - b. Proposals for possible speakers
 - c. New themes?
2. Physical events during 2022
 - a. Meetings? Workshops? Others?
3. Collaborative projects, update of proposals, indication of possible project consortia
4. Other ideas for Danish Sound Cluster activities
5. A.O.B.

Birger welcomed the two new participants in the working group on "Future Sound Tech Solutions", Professor Tobias Neher, SDU, to serve as regular member, and Pedro Costa, to serve as program manager at Danish sound Cluster. Both shared a short presentation on their positions and interests.

Summary details

See the following pages.

Ad 1a & 1b: Proposals for Webinars

#	Subject	Background
8	"Emerging Acoustic Sensor Technologies and Applications"	<p>Planned for execution late 2022 or early 2023</p> <p>In the future, sensors will be integrated into all kinds of products. Influence on the traditional sensor market?</p> <p>Candidates for speakers:</p> <ol style="list-style-type: none"> 1. Magnus Hemer, Sonion 2. Thomas Jensen, Knowles 3. HBK (Claus Blaabjerg to check)? 4. G.R.A.S. (Niels Kjærgaard/others)? 5. Sergei Rotger Griful (Eriksholm) 6. Others (e.g. Auricle-Pedro Costa)? <p>Postponed to next meeting, when Efren Fernandez Grande, proposer of the topic, is present.</p>
13	Hearables, OTC	<p>Topic is not key on the agenda for hearing aid manufacturers since they are already well informed about the topic.</p> <p>In general, the topic is seen as a really interesting one, not only for the hearing aid industry, but for companies also outside the hearing aid industry. For example, Jabra has recently launched a new product in this domain, and several companies in Denmark seem to be in the process of making developments in the area. Interests are not only restricted to technological gains, but certainly also to audiological achievements.</p> <p>Given the competitive nature of hearables, it may prove difficult to get the involved companies to talk much about the subject, especially when it comes to market predictions.</p> <p>Topic area particularly interesting (in relation to sharing knowledge in a webinar) for SMEs and for attracting students to the sound industry.</p> <p>Suggested names for presentations:</p> <ul style="list-style-type: none"> • Anders Jessen - WSA, director of competitive intelligence, • Frederik Schurizek-Antonsen (FRSH), head of competitor insights, • Jonas will try to identify a person in GN-Hearing. • It would be good also to have someone from an SME or a university to contribute. <p>All members of the WG are encouraged to help in identifying good speakers for the event.</p>
14.a 14.b	Noise cancellation Speech Prediction	<p>Primarily a topic related to headset solutions.</p> <p>The two topic areas should possibly be combined to one webinar, since it could prove difficult to find presenters for two events.</p> <p>Potential speakers:</p> <ul style="list-style-type: none"> • Ph.D. Student at Jabra (Clément will contact). Challenge: ANC topic is highly technical and may be too "deep" for a 20–30-minute presentation in a webinar. • Torben Christiansen, EPOS, or colleague of his may be an option. • The automotive industry, actually their suppliers of audio solutions like Bose, Harman, (e.g. Harman in Struer) and others, could be possible candidates. • University people: Oldenburg University, Germany, e.g. professor Simon Duclou, https://hearing4all.de/en/h4a/people/principal-investigators/ <p>ANC is not used in the hearing aid industry, so the target community is the headset industry. Compensation is used in hearing aids, but not based on ANC.</p>

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15	Feedback cancellation/suppression/control	<p>Focus here is feedback cancellation in e.g. PA systems (stage performance), speaker phones, hearing aids (microphone control), etc. (but not headsets)</p> <p>Echo cancellation is very different between various types of applications. In hearing aids, one type of solutions is employed, in PA systems different solutions, etc.</p> <p>The theme is huge in Academia as well as in industry. Microsoft (interesting challenge run by Microsoft every year on echo cancellation), Amazon, Baidu and others are active in the field. Super advanced technology is in play using e.g. neural network.</p> <p>Potential speakers from companies such as:</p> <ul style="list-style-type: none"> • Jabra (Clément will find candidate) • TC Electronic (Music Tribe) • Kim Rishøj • Prof. Simon Duclou, Oldenburg University, D • Knud Bach Christensen ?j • EPOS (Torben Christiansen) • Harman (Struer) • Meyer Sound • Demant (Meng Guo)
16	DSP event	<p>Broad focus on DSP. WG not fully clear of status and actions taken, need to be clarified.</p> <p>Two "Beyond DSP" webinars are planned for October.</p> <p>Possible speaker:</p> <p>Roland Baduit (name misspelled?) professor in mathematics, Paris.</p> <p><i>At next meeting we will discuss what is needed beyond what is already in planning - and define focus</i></p>
17	Use of sound with robotics	<p>We touched on the topic in recent webinar, Robot Audition (April 19, 2022). We should focus on making a joint follow up event with the Robot Cluster, 'Odense Robotics':</p> <p>Contact persons:</p> <ul style="list-style-type: none"> • Søren Elmer, Project Director, Odense Robotics, • Jens J. Tybo Jensen <p><i>Discussion postponed to next meeting, when key proposers are present. More work on the topic is needed.</i></p>
18	'Sound Quality in Digital Meetings'	<p>Agreement that we should enforce the activity related to the 'position paper' of 'Sound Quality in Digital Meetings'.</p> <p>Birger will circulate the 'position paper' on "Sound Quality in Digital Meetings" and at the next meeting we will spend time debating how we can use the recommendations of the position paper to obtain more effects, e.g. get research groups to undertake R&D work in the domains proposed. Funding of projects from DSC could focus on themes identified in the position paper.</p> <p><i>Strategy and follow-up actions to be discussed in the next meeting.</i></p>

Ad 2: Physical Events

Sound Day 2022 will take place on November 9, 2022, at DTU SkyLab, Centrifugevej 374, 2800 Kongens Lyngby

Ad 3: Collaborative projects

The call for collaborative projects under DSC closing in August 2022 is under evaluation and projects will be started soon

New round of calls is not likely until January 2023

Next meeting

The next meeting in the working group on "Future Sound Tech Solutions" will take place:

- **Monday October 31, 2022** **14:00 to 15:00**

Appendix 1: Participants in the meeting

Clément Laroche	GN Audio, Jabra	Senior Research Scientist
Jonas Raun Hansen	GN Hearing A/S	Manager, Electro Acoustics
Morten Kroman	WS Audiology	VP R&D Electronics
Niels Pontoppidan	Eriksholm Research Centre	Research Manager
Tore Stegenborg Andersen	FORCE Technology	Senior Researcher
Tobias Neher	SDU, Sundhedsvidenskabelig Fakultet, Klinisk Institut	Professor
Birger Schneider	CHAMAJ Consult ApS	Director
Pedro Costa	Danish Sound Cluster	Project Manager

Appendix 2: Events proposed and promoted by the working group

#	Title	Comments	Event type	Date
1.a	AI/Machine Learning	Workshop (Edge)	On-line	5 April, 2022
1.c	AI in signal processing		Webinar	
2	"Demant Discovery"	Start-up in dialogue with Demant	Networking event	17 March, 2022
4	Audio & privacy	Part of physical conference	Panel discussion	4 May, 2022
5	Sound Quality in Digital Meetings	<ul style="list-style-type: none"> • Position paper • Conference session 	Conference	4 May, 2022
6	Multisensory Processing		Webinar	7 December 2021
7	Sustainable transformation in Audio Companies	Green footprint in sound	Webinar	25 January, 2022
9	Personalization of User Needs		Webinar	1 June, 2022
10	Data Simulation for AI		Webinar	7 June, 2022
11	Perceptual Audio Evaluation		Webinar	13 October, 2021
12	Key Note, Sound Day 2021 "The Sound of Metal"	Oscar Winning Mikkel E.G: Nielsen, Film editor & Nicoals Becker, Sound Designer	Conference, Sound Day 2021	17 November, 2021