Danish Sound Cluster

Summary: "Creative Sound Solutions" – Meeting #02

At the **meeting on June 3, 2021**, 14:00 – 15:10 more detailed discussions and planning of webinar events took place, and ideas for project themes were aired as well. A summary of the meeting is included below:

Proposals for Webinars

#	Subject	Background
1	'Sound in virtual/augmented reality' (VR/AR)	• First presentation on the VR/AR theme, Stefania Serafin will provide a more general overview of the topic. That will serve as an overview to put things in perspective. Stefania is speaker No. 01. • Second presentation will be given by Cheol-Ho Jeong together with a spin-off company of DTU in Iceland (Finnur) and Cheol and Finnur will offer a joint presentation on a case with Henning Larsen Architects. Presentation 1 & 2 will each have a duration of about 30 minutes. • Third presentation is by Yann Copier and is a more artistic approach to virtual reality (envisaged to be 'mind breaking'). We allow for 1 hour for this presentation including a discussion session on questions and answers. The webinar could possibly be ready for the August/September timeframe (2021)
2	Dubbing challenges	The topic is not yet mature for a webinar, and we lack good presenters. Hence, it is proposed to let this theme rest for now until we have more substance and people, who can contribute to a webinar. The theme will be taken up again at a later point in time.
3	5G microphones and new recording techniques (present wireless spectrum may be lost to other services)	Present wireless approach used for microphones (Sub700) is inefficient due to poor compression. Furthermore, the spectrum may be lost in a few years to other service solutions (telecom 6G). A webinar could be built upon the results of EU project 5G-RECORDS (https://www.5g-records.eu). We should contact Dr. María Dolores (Lola) Pérez Guirao from Sennheiser R&D to serve as the main speaker and have her propose other speakers for the event. Professor Lolo can also include a talk on current developments in 'Program Making and Special Events' (PMSE). She has earlier on given a talk on "Audio PMSE and 5G". Timeframe: September-October. Proposal: Include Danish start-up SOWA sound on their wireless approach to loudspeakers.
4	AI-based solutions	The first AI webinar proposed by the group will act on June 16, with Prof. Lars Kai Hansen, DTU Compute, speaking on "AI and audio". We plan to organize a follow up event at a later point in time focusing more on 'AI and signal processing'. Possible speakers on that event could be: • Cumhur Erkut, AAU (differential DSP from Google) Efren Fernandez Grandes & Cheol-Ho Jeong, DTU (Cheol: virtual reality production)

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5	Across boundary solutions, i.e. involve artistic perspectives in audio technical solutions.	Important, when we discuss more straight forward sciences in audio that we also include the artistic perspectives and research. Here Yann Coppier can fit in on the artistic perspectives. The theme 'across boundary solutions, is not on its own right, rather an angle to other themes and the planning of these.
6	Intelligent microphones	Current developments in the field of microphones include use of AI, array-building, recognition, "fingerprint microphone control", etc. The intelligence is available. Proposed speakers: • Eddy Bøgh Brixen • Morten Brandstrup, TV2 • Activity 8, WG3 (Efren Fernandez Grande) Line up the development directions: intelligent microphones, integrated microphones, array-based microphones, microphones in products in general. Impact on measurement industry.
7	Multichannel headphones	An area of high interest and focus of several development (create good 3D sound perception, achieve "center" impression I sound, etc. (see also description of project area 3). Possible speakers: • Pauli, Eton Audio GmbH
8	Optimal sound environments for "large room offices"	Current sound design of "big office workspace" aims at a workspace with good acoustical damping, low background noise, low reverberation time, no ventilation noise, etc. As a result, however, basically an in-humane silent work environment is obtained, where no one dares even to drop a clip on the table (too noisy ☺). New trend is now to bring back noise to the office to mask some of the inconveniences. It may even be necessary to introduce the use of headsets to overcome the challenge, although the use of headsets in this context is far from desirable. However, it proves necessary, if e.g. more people simultaneously are active in the room on separate video meetings. It is a huge challenge to obtain a pleasant working environment from an acoustical perspective. Aims at using sounds, that are not sounds, but perceived as silence, i.e. non-disturbing noise/silence. Several papers on the subject exists. Today's situation of using traditional noise removing design practices is a bit alarming. People find the office space unattractive despite the high focus on acoustical improvements. The battle for access to meeting rooms is evident in many such places, people are running away with their mobile phones, etc. Adding to the challenge is that Covid 19 has sent many people to work at home, and when they return to the office, office space has been reduced, and they no longer can have their own desk, but are herded around to obtain a desk on the days, they come to the office. Need for different classification of workspace depending on the character of the work. No speakers yet defined.

Proposals for collaborative projects

#	Subject	Background
A	Intelligent microphones	Development of intelligent microphones, 5G, Metadata, *fingerprint' identification, etc. See also comments in webinar theme #3
B	Training courses	Training courses focusing on optimal recording 'in the field', at an advanced level but also at a more general level to reduce subsequent editing significantly. Needs to be focused, e.g. for broadcast, including how the production works in broadcast.
C	Headsets emulating multichannel sound. Alternatively better editing options in headsets (e.g. for TV sound)	Headset with true "room" impression. Today's headsets allow for use of 7.1 sound, but emulation quality e.g. "front" sound is poor. "Rear" sound appears OK, but headsets basically still only offer "mono" in the ear. Necessary to obtain better headset technology, if multichannel sound in headset should have a future. Essential to obtain an impression of "Dolby ATMOS in a big room". Multichannel sound has been around for 30 years, but users are basically only exposed to stereo in headsets. A huge potential could exist, if "true room" perception emerges, hence avoiding the need for huge rooms with ATMOS conditions. In TV broadcast, the need is towards a more stable "center-sound picture". Currently the challenges are that basically all TV sounds are edited in huge rooms, where may be 40 people are sitting side-by-side editing, and hence are forced to using headsets during editing. However, during the editing, they need to arrive at a good sound as experienced by a viewer on a traditional TV set. The next generation of young people will only see TV on an iPad or an iPhone and obtain sound through earpieces or simple headsets. Believes that the need for true "room sound" thus may diminish significantly. The real challenge is that you no longer obtain the sound from huge "B&O speakers" pointing towards the viewer/listener, when watching TV. Instead sound comes from small loudspeakers at the back of the TV set pointing away from the viewer/listener. Hence, there is a need for a calibration unit that could simulate and adapt the sound in a room, that is far from ideal in a sound context and where the TV set is placed incorrectly from a sound perspective.
D	Optimal sound environments for "large room offices"	Current sound designs of "big offices" aim at a workspace with good acoustical damping, low background noise, low reverberation time, no ventilation noise, etc. As a result, basically an in-humane environment is obtained, where no one dares just to drop a clip on the table (too noisy ☺). Possible pre-project based on the challenges outlined under webinar theme #8

Next meeting

Tuesday August 10, 14:00 to 15:00

Appendix: Participants in the meeting

Stefania Serafin	AAU-CPH	Professor
Rune Palving	Den Danske Filmskole	Head of "tone meister" education
Cheol-Ho Jeong	DTU Elektro, Elektroteknologi	Assistant professor
Eddy Bøgh Brixen	ebb-consult	Consultant, owner
Brian Slott Kristiansen	Danmon Group Systems A/S	CEO
Birger Schneider	CHAMAJ Consult ApS	Director/owner
Torben Vilsgaard	Danish Sound Cluster	CEO
Shelley Uprichard	Danish Sound Cluster	Project Manager

Two persons were absent.