

Summary: "Creative Sound Solutions" – Meeting #04

The meeting started with an appraisal of the recent two webinars involving the working group. The working group had initiated and also strongly supported these webinars through the involvement of several members of the working group taking an active role as presenters in the two webinar events. The two webinars broadcasted were:

- **5G Technology in Pro Audio** September 22, 2021
- **Creating sound for VR applications** September 30, 2021

Consensus, that the focus and quality of the webinars have been good. Strong participation and even many people from other countries also showed strong interest in the events. Although international participation does not count in the balancing of costs vis-à-vis the Danish authorities, it surely helps promote Danish Sound internationally. It also directly supports the obligation for international collaboration, "Internationalization", that DSC has as part of the funding requirements, including collaboration with partners, i.e. companies, knowledge institutions, etc. across boundaries of states in Europe and the rest of the world.

The Chairman expressed his clear satisfaction and thanked the group for the work with the webinars. They have already been demonstrated to obvious success.

Proposals for Webinars

#	Subject	Background
1	'Sound in virtual/augmented reality' (VR/AR)	<p>Webinar completed September 30th, 2021</p> <p>Given the relatively poor sound support when using Zoom for webinars, the sound demonstrations did not offer a quality of the highly sophisticated VR sound cases that they deserve. We encourage people, who attended, to in addition listen to the VR sound examples available at the web of Yann Coppier, which can be found at:</p> <ul style="list-style-type: none"> • www.studio-ovale/absurd-sounds/ <p>Feedback from more attendants in the event, including students, indicate that people also need direction to tools for use in generating of VR sound. Agreement that we need to do more on the subject matter in a future event, e.g. during 1st half of 2022.</p> <p>It was agreed to set up an "on-line workshop" on the subject. Stefania proposes the following:</p> <ul style="list-style-type: none"> • A practical workshop, where participants will be introduced to how to implement sounds in VR environments using the Unity engine. Several sound engines will be introduced (Steam Audio, Juce, Unity sound engine, Dear VR, WWise...) with their advantages and disadvantages, and a practical case study will be implemented from scratch. Participants are encouraged to bring a laptop with Unity installed.

#	Subject	Background
2	Dubbing challenges	<p>It is a challenge in dubbing today that a significant part of dubbing is done using headphones. Many involved sit in crowded workspaces, not under ideal sound conditions in studios. What does that mean in terms of pros & cons compared to working in a traditional sound studio. What type of tool is a headset in this context? What is possible and what is not possible?</p> <p>The trend in broadcast today seems not to be use of advanced sound like Dolby Atmos and surround sound. More and more dubbing are done using headset in dubbing of poor mono sound.</p> <p>May be as much as 90% of dubbing is done using headsets. The emerging pressure to engage deeply in production of podcasts, flow TV etc., where content is produced faster and faster, is a real challenge. DR has e.g. now decided to focus a lot more on such productions for release on a myriad of platforms, and where sound recording is done using very small buttonhole microphones. So although an organization like DR have good studio support and also in the future will have flagship productions that uses advanced surround sound, this may become a minor part of its work. A challenge in dubbing seems to be, if we can devise a more general approach supporting a broader application domain, e.g. on one hand simple mono, given its boundary conditions, and on the other more advanced dubbing when employing surround sound like in movie production.</p> <p>Another challenge is editing with more documentary type of programs, e.g. interviews including ambient noise, voice over, etc. And what about the receiving end, where many people receive audio through streaming to their smart phone, how to ensure calibrated leveling? An issue is also, when you do interviews, how do you break out and ensure re-calibration, since speech intelligibility may be lost in the process? Adding to the challenges is when in noisy environments we are using headphones with noise cancellation. How is that influencing the process?</p> <p>Proposed speakers:</p> <ul style="list-style-type: none"> • Sean Olive, senior fellow, Harman International, LA, USA. (introduction & overview). • Henry John Michaelsen, GiLyd ApS (fixing the challenges) <p>Followed by a panel discussion including, e.g.</p> <ul style="list-style-type: none"> • The two speakers • Morten Brandstrup, TV2 • Lars Nørretranders, DR • Eddy Bøgh Brixen • Allan Holmberg (movie production) <p>We will try to involve Netflix to get the views of advanced surround sound better represented in the panel debate.</p> <p>As discussed in the previous meeting #03, we also hope for a shift in focus from "dubbing" to instead doing "things-right-first time".</p> <p>Dubbing is up to 80% trying to resolve problems that should have been avoided from the start. So one solution could be to spend more money on renting better equipment rather than spending money on exhaustive dubbing work.</p> <p>Furthermore, the industry is suffering from a shortage of key personnel in this area. If we can contribute to improve efficiency by reducing dubbing, users are likely to gain from this in terms of productivity.</p> <p>Cont'd on next page</p>

#	Subject	Background
2	Dubbing challenges (cont'd)	<p>In a sense, the webinar could be seen as a start of a change in a business/strategy approach. In that context, we need to also engage the press, i.e. magazines, etc.</p> <p>The webinar could be followed up by an R&D project under 'Danish Sound Cluster' aiming at proving a change in approach to ensure productivity. Key users may even be willing to contribute financially to such a project.</p>
3	5G microphones and new recording techniques (present wireless spectrum may be lost to other services)	<p>Webinar completed September 22nd, 2021</p> <p>In a year's time, when more solid results are likely to appear in 5G technology for recording, e.g. 5G based microphones, we may run a follow up event on the topic.</p> <p>The "5G Tech event had e.g. participation from The Netherlands, Spain, USA, Switzerland, Germany and even Iran in addition to the Danish attendance. The international consortium around 5G Records that had participated in the event appeared highly satisfied with the event that also serves as part of their dissemination obligation vis-à-vis EU.</p>
4	AI-based solutions	Postponed. We just had the topic in VR event
5	Across boundary solutions, i.e. involve artistic perspectives in audio technical solutions.	<p>Under development. We plan a follow-up discussion with the proposed speakers during SoundDay 2021 and there discuss more, how we can organize the event.</p> <p>Proposed contributors:</p> <ul style="list-style-type: none"> • Jenny Gräf Sheppard, Kunstakademiet, Leader of the Ambisonics Research Lab at the Laboratory for Sound, • Stephen Mcevoy, Kunstakademiet, Teaching Assistant, • Yann Coppier. • Stine Lyngedall (contact Finn Agerkvist, DTU) • Nicolas Becker, Academy Award for Best Sound ("Sound of Metal") • Bjørn Jacobsen, sound designer & composer, Cujo Sound <p>The aim is to have more artistic people influence us (we, the more technical side of sound).</p>
6	Intelligent microphones	<p>The theme 'Intelligent microphones' focus on signal processing, establishing metadata, ensuring such data in the stream, etc. whereas 'sensors of the future' in WG 03 basically focus on hardware technology.</p> <p>Dilemma: Cameras for video recording, even in smart phones, have a lot of support, making videorecording easy and relatively 'professional' for even the novice user. However, with microphones there are no similar support. E.g., in using two adjacent wireless microphones there is no support for interaction, and what about auto leveling?</p> <p>Proposed Speakers:</p> <ul style="list-style-type: none"> • David Josephson, "Josephson" microphones, CA • Eddy Bøgh Brixen • Sennheiser (through Dr. Lola) • Keith Mackelweave, Wave Science Technology (Surveillance industries), London, UK <p>Panelist:</p> <ul style="list-style-type: none"> • Stefan Heise, Jabra • The speakers <p>Time for event: December 2021 or early 2022.</p>

#	Subject	Background
7	Multichannel headphones	<p>An area of high interest and focus of several developments (create good 3D sound perception, achieve "center" impression in sound, etc.</p> <p>Potential speakers:</p> <ul style="list-style-type: none"> • Stephen Smyth, 'Smith Research', Bangor, Northern Ireland UK • Pauli, Eton Audio GmbH • Tom Ammermann, New Audio technology (https://newaudiotechnology.com/) • (Sean Olive, senior fellow, Harman International, LA, USA.) <p>Topic is still not mature</p> <p>Pauli is busy right now but may contribute later on.</p>
8	Optimal sound environments for "large room offices"	<p>Aim is to emulate background noise, which is not perceived as noise to help overcome the challenge of 'silent office space'.</p> <p>Current sound design of "big office workspace" thrives 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.</p> <p>Currently, the theme is premature and a challenge for a webinar, since the planned real-world set-up at Novo (Meyer Sound) has been delayed.</p> <p>The demonstration setup planned for Sonic college will be installed in an atrium, not in an office. Current planning aims at a set up early 2022, and then research related to the topic will follow.</p> <p>Part of a solution is that a new standard for room acoustics is now in place. However, the psychoacoustic part of the solution is still an open issue.</p> <p>Current solutions in restaurants aim at allowing clear understanding at a given table, but masking speech from neighboring tables. Some knowledge can be gained from that.</p> <p>The WG feels that the topic is of high interest, but still is too early for a webinar due to lack of good results.</p> <p>We postpone the topic until late in first half of 2022.</p>

#	Subject	Background
9	Use of sound in museums	<p>Hugh variation in how museums try to use sound in their supporting 'story telling'. Some use headsets for a personal direct impression, however that often is a challenge for families visiting a museum. Others use loudspeakers as part of staging an event.</p> <p>Many museums are trying to come up with solutions, e.g.:</p> <ul style="list-style-type: none"> • 'Museet for søfart', Helsingør, • 'Tirpitz Museum', Blåvand • 'H. C. Andersen' Museum', Odense (binaural sound) • 'Moesgaard Museum' • 'Hex Museum of Witches', Ribe • 'Nick Cave exhibition' Black Diamond, Copenhagen. <p>The area lacks standards. However, two basic directions seem to exist:</p> <ul style="list-style-type: none"> • Use of headset (favored by suppliers of headset ☺) • Loudspeakers <p>Potential speakers:</p> <ul style="list-style-type: none"> • Anders Jørgensen, Stouenborg Mobil: 6172 8098, Email: anders@stouenborg.dk • Researcher at Sonic College • Person from e.g. H.C: Andersen Museum, Odense. <p>Theme will be discussed further at our next meeting. More details are likely to be available for the meeting.</p>

Proposals for collaborative projects

#	Subject	Background
A	Intelligent microphones	Development of intelligent microphones, 5G, Metadata, *fingerprint' identification, etc. See also Morten Brandstrup's webinar comments in webinar theme #3
B	Training courses	<p>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.</p> <p>Needs to be focused, e.g. for broadcast, including how the production works in broadcast.</p>
C	Headsets emulating multichannel sound. Alternatively better editing options in headsets (e.g. for TV sound)	<p>Headset with true "room" impression. Today's headsets allow for use of 7.1 sound. However, most solutions appear poor in emulating e.g. "front" sound. "Rear" sound appears OK, but most headsets basically still only offer "mono" in the ear.</p> <p>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".</p> <p>Multichannel sound has been around for 30 years, but users are still only exposed to stereo in headsets.</p> <p>A huge potential could exist, if "true room" perception emerges, hence avoiding the need for huge rooms with ATMOS conditions.</p> <p>In TV broadcast, the need is more towards a 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.</p> <p>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.</p> <p>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.</p>
D	Optimal sound environments for "large room offices"	<p>Current sound designs of "big offices" aims 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 ☺).</p> <p>Possible pre-project based on the challenges outlined under webinar theme #8</p>

Other ideas and needs

We are lacking good candidates for the “Pitch Battle for Researchers” at SoundDay 2021, 17th November 2021.

Candidate profiles: Master, Ph.D., Post Doc

- <https://danishsoundcluster.dk/research-pitch-battle-danish-sound-day-2021/>

- **Next meeting**

Wednesday November 24, 13:00 to 14:00

Appendix: Participants in the meeting

Stefania Serafin	AAU-CPH	Professor
Rune Palving	Den Danske Filmskole	Head of "tone meister" education
Morten Brandstrup	TV2 Danmark A/S	Head of News Technology
Lars Tirsbæk	Sonic College, UCSYD	Underviser
Eddy Bøgh Brixen	ebb-consult	Konsulent, ejer
Lars Nørretranders	DR	Area Manager
Birger Schneider	CHAMAJ Consult ApS	Director/owner
Torben Vilsgaard	Danish Sound Cluster	Director
Shelley Uprichard	Danish Sound Cluster	Project Manager