

Summary: "Future Sound Tech Solutions" – Meeting #21

Meeting # 21 in the working group "Future Sound Tech Solutions" took place on January 21, 2025.

Agenda

1. Webinars & Physical events during 2025:
 - a. Follow-up on proposals and ideas from meeting # 20 including additional comments and proposals.
 - b. Proposals for possible speakers
 - c. New themes?
2. Collaborative projects, update of proposals, indication of possible project consortia.
3. News from DSC secretariate
4. A.O.B.
- 5.

Ad 1: Proposals for Webinars and Physical Events

#	Subject	Background
15.a	Speech Prediction	<p>Background:</p> <p>Speech Prediction is a topic in its own right - and interests seem high. The aim is to find an approach to overcome the middle frequency range challenge, where existing solutions (see below) appear to fail.</p> <p>Active noise cancellation, ANC, can remove low frequency noise and passive noise cancellation can remove high frequency elements.</p> <p>Some research on speech Prediction exists, but in general it is today still a tiny R&D domain.</p> <p>Potential speakers:</p> <ul style="list-style-type: none"> • Johannes Sars ? (check with Niels Pontoppidan) • Yurii Iotov, Ph.D. Student, AAU in collaboration with Jabra, (contact also Jesper Rindom Jensen, AAU) <p>Yuri has been busy finishing his PhD studies, and we previously decided to wait until he had finished. He is now and has left the university and is working for Oticon. Facundo will contact him and see if he is still interested in participating in a webinar</p> <p>Around the topic of "Deep fake", which was a possible second dimension of the topic, there has been a development that means that for now we will place this in a separate topic, which we will try to get content for, see topic 15.b</p>
15.b	Using AI for speech generation New Topic	<p>A discussion on the topic of "deep fake" concluded that we do not think it is the role of DSC to create a webinar that focuses on how to use AI to create "deep fake" speech. If we are going to delve into this topic, it should be to shed light on how to protect against AI-generated "deep fake" voices, if that is even possible?</p> <p>But a new interesting angle on the topic is the company kimselch, see. ai.kimselch.dk. The company has developed a service, a software tool, where customers can generate a speech audio file of a professional actor's voice from a script. The company's solution is based on having collected large amounts of voice data from some actors hired for the task. When a customer then wants to generate an audio file with a professional voice, the customer writes a script with what needs to be said. The AI tool then generates the audio file. This can involve using speech files for websites, advertisements and other things. The payment model is that you only pay for the audio files you download. As long as you experiment with the tool, there is no charge until the file is downloaded.</p> <p>Kimselch has spent a lot of effort to protect itself against abuse of its solution. Their product is a positive solution for using AI for voice generation.</p> <p>The idea is that we could get the company to talk about their approach to the subject and their results. Whether it will be in the form of a webinar, or a physical event is not yet clear. It should also be interesting to get one or a few other participants, e.g. from the academic environment, to participate in an event. Henrik Føns from IDA (the Danish Association of Engineers) is positively inclined to participate, for example in the form of being a moderator. From DSC's point of view, a collaboration with IDA in this area is interesting.</p>

#	Subject	Background
21b	Augmented sound in a Metaverse society	<p>The aim of this topic is also to look for general trends in augmented sound that could pivot the Danish sound Industry into a future leading technologically position in sound – rather than just wait for trends to come to us from the outside.</p> <p>Directions to investigate could be:</p> <ul style="list-style-type: none"> • System devices • Metaverse, virtual/augmented audio (<i>Metaverse: Improved digital environment where it is possible to move seamlessly between work, play, shopping, socializing and creativity in one digital landscape</i>). <p>Professor Damian Murphy, University of York and results from his Lab seem interesting</p> <p>WG members envision that a real breakthrough will happen, if, and most likely, when large companies, e.g. Apple, bring applications to the market. Then other industries will follow.</p> <p>Awaits revitalization</p>
23	Better tools for ensuring good audio quality in e.g. field recordings, hence reducing the need for dubbing	<p>The theme is interesting, but we need to scope it better.</p> <p>If we continue this theme, we should focus on the middle segment, not the highly professional market and not the market for amateurs, but more on the middle segment.</p> <p>Focus is on producing good quality audio everywhere</p> <p>A Finnish company, Genelec, making monitors have e.g. stated that it is not so much the picking up of sound, rather the reproduction of it when used in home studios. Here automatic equalization, calibration, room control, etc. are at stake. It applies to both making music and professional audio.</p> <p>It was mentioned that 3D audio is gradually entering use in headsets and other sound applications. Here room calibration becomes even more of an issue.</p> <p>To reach out for more info on 3D recording Industry, Torben Ch. proposed to contact Sennheiser that already in 2017 had a first solution released. One person to contact could be Veronique Larcher. Ph.D., Sennheiser.</p> <p>She in turn has recommended us to contact Henrik Oppermann from Schallgeber, who apparently is an expert in the field and has done several activities with Sennheiser. (Birger has contacted Henrik Oppermann after the meeting. We need to define what we want)</p> <p>We expect that there will be a breakthrough in the area emerging from leading hi-tech companies in the foreseeable future.</p> <p>Miika will also try to identify people that could assist in setting up an event on the theme.</p> <p>The subject was not addressed in the meeting and will be taken up again at the next meeting.</p>

#	Subject	Background
23b	<p>3D sound recording for use in e.g. test applications</p> <p>New Theme</p>	<p>Recording of 3D-sound, e.g. in connection with being able to carry out product tests in a 3D environment, has increasing interest. FORCE has together with B&O, GN-Hearing, Oticon and others been in the process of creating a library of video and 3D sound recording data sets captured in real life that allows for feature testing of hearing assistive devices (OTC), hearing aids, telecom headsets, TWS earbuds and even AI model training. See https://forcetechnology.com/en/services/acoustics-noise-sound-quality/senselab-download-hoa-ssr-dataset</p> <p>The purpose is to be able to use the data sets in connection with laboratory test tasks. Similarly, AAU in collaboration with B&O has been working on the reproduction side. How can we use spacious recordings to recreate a "sound space", and how the user can select between various data sets?</p> <p>The aim of a webinar about the technical recordings could be to aim at the more technical aspects of this kind of sound recording and how they can be used in different contexts. Persons who could contribute are:</p> <ul style="list-style-type: none"> • Tore Stegenborg or Søren Vase Legarth, Force Technologies about 3D sound recordings and data sets for use when testing products. <i>SenseLab is willing to contribute and talk about the above database and its use.</i> • Christian Sejer Pedersen, AAU about spacious sound recordings and their use to recreate a "sound" space (<i>Jesper has mailed Christian Sejer P., but not yet received an answer</i>). • Hearing Aid companies (Morten and Facundo will check with their respective organizations, if they can contribute) • <i>Lars Tirsbæk of Sonic College is proposed as a speaker.</i> <p>The topic could also suggest how we can bring partners together who can take advantage of the opportunities presented in the webinar, e.g. through an EU-funded project. The webinar will thereby contribute to our strategy of bringing partners together.</p> <p>There is also a desire that, in the context of the webinar, we contribute to conveying project results that have already been collected.</p> <p><i>The focus for the event will be 3D audio used in a test context for audio products. For example, hearing companies are using spacious recordings to test their products. GN informs that they use an anechoic chamber equipped with 50+ speakers. Test material is obtained through recordings in real world sound environments, recording sound/noise employing ambisonic microphones. In addition, they also use computer simulated sound for rendering during test applications. In some cases, virtual testing is used since it is cheaper and faster. WSA employs a similar strategy. They use an anechoic chamber with a 15+ loudspeaker environment.</i></p> <p><i>FORCE offers testing facilities as a service, supporting 3D rendering. In their normal setup, at 5+ loudspeaker setup. In addition, they make available a dataset library, 150+ audiovisual scenes.</i></p> <p><i>Although use of 3D sound in test applications can be difficult to handle and setup and may require costly environments normally outside the availability for most SMEs, it is still highly relevant to focus on the opportunity in a ‘Future Sound Tech’ context. Examples on how larger companies today use the opportunity combined with the fact that service is available makes it realistic also for smaller companies to consider.</i></p>

#	Subject	Background
26	Autonomous Response to Audio	<p>Some companies, e.g. hearing aid companies, are highly interested in how sound influences human bodies, i.e. human nerve systems. In the past, these companies frequently sent students to Roskilde Festival with equipment to measure and indicate the effects that sound had on the human body.</p> <p>Today, some companies instead send students to New York, so that students can experience on their own body how the surrounding sound and noise are influencing them.</p> <p>Some companies also work closely with schools on the topic. However, there are ethical aspects related to this as well, when techniques are transformed into use in other contexts, e.g. the office, at political events, etc.</p> <p>Potential speaker:</p> <ul style="list-style-type: none"> • Jeppe Høy Konvalinka Christensen, Eriksholm Research Lab <ul style="list-style-type: none"> - How daily-life noise impacts stress levels in hearing-aid users, and how this might be linked to listening effort. - How having a good SNR is crucial not only for improving speech intelligibility but also for lowering stress levels. - How big-city noises (New York) can induce stress in young people, and how we can measure this. - How synchrony in heart rate between people might relate to (auditory) engagement in real life. • A possible candidate from SDU (through Jeppe Høy) • Mette Sørensen, RUC (mettes@cancer.dk) see https://www.bmj.com/content/386/bmj-2024-080664 • Jens Hjortkær, DTU (group of Jeremy) <p>The topic is about physiological response to different stimuli. Noise is well known to create a lot of issues in that context.</p> <p>The WG agrees that the topic is highly interesting.</p> <p>Torben Christiansen has been in contact with Jeppe Høy Konvalinka Christensen, Eriksholm Research Lab on the subject. There is acceptance for participation and Jeppe's presentation is quite extensive, so it will probably exceed the normal duration (30 min) for many of our presentations.</p> <p>No progress since the previous meeting. Jeppe will check some details with Torben Christiansen and then establish contacts with the proposed speakers aiming for a webinar late in spring of 2025 or early autumn.</p> <p>Timing: Expected late spring 2025.</p>

#	Subject	Background
28	Cultural, ethical, and social consequences of new use of sound	<p>How will the way we consume music/sound in the future affect the way we interact? What are the social consequences? As audio producers, how do we take this into account? For example, will future use of Auracast have an undesired effect of isolation people socially, since the sound transmitted directly into earbud may counteract social contact to people around. Similar effect when people use artificial vision solutions. In an augmented world, it is important that we make it distinctable, so that people can realize the differences.</p> <p>Also important, that we understand how to handle the negative effects of new sound solutions. It is probably difficult to get people to give formal presentations on the topic, so a panel debate may prove a more efficient way to structure the theme.</p> <p>A new book "Kig op" (Danish) by Jakob Sorgenfri Kjær has been published. He addresses how people cannot find rest, cannot focus, because they are overloaded by massive information streams. Although his focus is on video content rather than audio, a similar effect is likely to influence humans due to massive audio info.</p> <p>In general, it may be important not just to fill our lives up with audio but ensure quality and relevant purpose of surrounding audio. Augmenting audio should be as natural as possible.</p> <p>Many new technological developments add cognitive load to our brains, but our brains are the results of thousands of years of development, so there is limit to how much cognitive load, we can handle on top of what we already handle.</p> <p>In addition, how do we convey emotions through e.g. video/audio connections? Hi-Tech companies are currently identifying a problem with people working remotely that their creativity is dropping, because employees do not meet informally e.g. in front of a coffee machine to exchange ideas.</p> <p>Are nice developments we see in new smart audio solutions also counterproductive in the sense that we at the same time lose out on significant and proven ways of interacting, and if so, what can we do to circumvent the negative effects?</p> <p>Suggestion that we could try to have it set up as a debate in e.g. the lobby of 'Politiken' to reach a wider audience.</p> <p>An important participant is Jakob Sorgenfri Kjær, who in his book has already pointed out very worrying situations where our time is stolen. It is the Tech Giants' strategy to steal as much of our time as possible, because the longer we listen to them, the greater the chance that they can sell us services that we are willing to pay for.</p> <p>In our audio world, the situation could be, for example, that when we finally roll out the new Auracast, Bluetooth LE solution, we must listen to the channel all the time when we move around in airports or other places, to get online information. Obvious for smart companies to serve us advertisements, alternatively make us pay not to get the advertisements, etc.</p> <p>We already know the challenge from school children, which the Tech giants have hijacked, so that children sit for many hours a day with mobile phones turned on to follow games etc. It is difficult to get that time back. Therefore, a debate could focus on what we should do up-front, so that we do not mindlessly end up in a similar addiction with e.g. Auracast solutions.</p> <p>Torben contacts Jakob Sorgenfri Kjær, and based on their conversation, we will take up the topic again.</p> <p>The theme was discussed – once more. And as before, there was agreement on concern. Not for the great opportunities that technologies like Auracast offer. But for the other side of the coin, that the technology lends itself well to being exploited heavily by commercial interests, who see another opportunity to tie users to a new social media, here Auracast.</p> <p>One solution is of course to pull your earbuds out of your ears if you feel abused by advertisements and the need to 'be on' all the time. But as has also been shown with other social media, you can 'opt out'. But the consequences are great, as you then completely isolate yourself in a social context, because everyone else continues to use the same media to communicate.</p> <p>We have difficulty pointing to candidates who can contribute to a debate but recognize that the topic is very important and deserves that we, DSC, get a 'voice in the debate'. In recent years, there has been a growing understanding that we have gone too far in other areas, and efforts are being made today to reduce, for example, schoolchildren's dependence on social media, including through proposals to limit the use of mobile phones.</p> <p>We will continue the discussion at the next meeting, and everyone is encouraged to keep their eyes and ears open for possible candidates for a panel debate on the subject.</p>

#	Subject	Background
29	Competition for students at universities	<p>Competition among Students at Universities to come up with advanced solutions, novel ideas, for Future Sound Tech Solutions.</p> <p>Best idea/concept/solution wins a prize of e.g. 25.000 DKK. Event for Prize Award, where e.g. DR1 and TV2 are invited to broadcast winners and ideas in the news.</p> <p>The WG endorsed the idea. In our next meeting, we will try to frame how such an event can be activated and how we can find sponsorships for the price.</p> <p>Our current financing model does not allow us to pay for student activities. The idea must await that we find alternative funding solutions to pay for an activity. .</p>
30	Audio in use with drones and robots New Theme	<p>It is proposed to focus on the following two areas:</p> <p>Drone Detection</p> <p>The use of audio in drone and robotic applications is a rapidly evolving field, combining aspects of acoustics, artificial intelligence, and robotics to solve diverse challenges. From detecting and identifying drones through their unique acoustic signatures to enabling robots to perform acoustic monitoring in natural environments, the potential applications are vast. These technologies can be used for tasks such as surveillance, environmental monitoring, and human-robot interaction.</p> <p>Potential contributors:</p> <ul style="list-style-type: none"> • MyDefense, Aalborg, Denmark (Jesper) • Squarehead Technology, Norway (Jesper) • Invisio, Copenhagen, Denmark (Jeppe) <p>Drones over your head! For soldiers in modern warfare, the sound of drones is a real nightmare. In the past, soldiers could hide from the enemy. You can't do that today. For a soldier in Ukraine, the reality is that there are constantly many drones hanging over their heads, and that a drone can be the difference between life and death. It can see you, and you can't hide. The sound of drones gives nightmares, probably also PTSD for many years after the war, when a former combat soldier hears sounds that can be reminiscent of drones.</p> <p>The Danish defense talks about introducing drones into future preparedness, but today the Danish military knows almost nothing about drones. We are pure novices. The experience is found on the battlefield in Ukraine.</p> <p>But if a drone detection system can help identify drones early, for example by detecting the sound of the drones, then there is a possibility of being able to protect soldiers better. It is interesting to promote this kind of detection system because the use of drones has changed the course of modern warfare and is certainly a challenge in which detection systems will also play a significant role. (See #30.b)</p> <p>Artificial echolocation</p> <p>A promising area of development is perception based on biomimicry, where systems such as artificial echolocation are designed to mimic natural sonar used by animals like bats and dolphins navigating in low light conditions. In another type of applications echolocation, a company like Teledyne-RESON, Slangerup, market leader in underwater acoustic sensors, state-of-the-art echosounders, multibeam sonar systems, transducers, hydrophones, may be a potential company to include. The company has been involved in e.g. use of sonar in torpedoes. Several other companies in Denmark have deep roots in sonar applications (see #30.a).</p>

#	Subject	Background
30a	Drones and robots: Biomimicry/-acoustics	<p>A promising area of development is biomimicry, where systems such as artificial echolocation are designed to mimic natural sonar used by animals like bats and dolphins navigating in low light conditions.</p> <p>Potential speakers/companies:</p> <ul style="list-style-type: none"> Frederike Dümbgen, https://ieeexplore.ieee.org/document/9844245 Jan Steckel, https://scholar.google.be/citations?user=ZYunNBIAAAAJ&hl=en Robin Kerstens, https://scholar.google.be/citations?user=693RB6MAAAAJ&hl=en <p>In another type of applications echolocation, a company like Teledyne-RESON, Slangerup, market leader in underwater acoustic sensors, state-of-the-art echosounders, multibeam sonar systems, transducers, hydrophones, may be a potential company to include. TH company has been involved in e.g. use of sonar in torpedoes.</p> <p>Several other companies in Denmark have deep roots in sonar applications. .</p>
30b	Drones and robots: Drone detection	<p>Humanoid robots equipped with advanced audio perception capabilities are also gaining interest, providing opportunities for improving assistive technologies and enhancing human-robot interaction. The field also touches on sound-based navigation, and auditory scene analysis, which could be beneficial in complex, dynamic environments</p> <p>The use of acoustic solutions in connection with defense-related research and development has obtained focus in these years. Some solutions focus on the use of acoustics, e.g. acoustic arrays with fixed microphones and microphones placed on soldiers in the field to detect drones in the area. Solutions are used in addition to other detection solutions.</p> <p>Companies with such solutions include e.g. MyDefense in Aalborg, Squarehead Technology in Norway and others.</p> <p>Potential speakers/companies:</p> <ul style="list-style-type: none"> Ines Hafizovic, https://www.sqhead.com/drone-detection Robin Kerstens, https://ieeexplore.ieee.org/abstract/document/10465875 MyDefense, Aalborg https://mvdefence.dk/
30c	Drones and robots: Localization/Tracking of humans	<p>Sound control is seen as an opportunity to supplement other sense technologies in connection with e.g. mobile robots on industrial floors, in hospitals and elsewhere.</p> <p>Interesting users could be companies such as:</p> <ul style="list-style-type: none"> Mobile Industrial Robots (MIR) Nilfisk <p>And others</p> <p>Potential speakers/companies:</p> <ul style="list-style-type: none"> Benjamin Yen, https://scholar.google.dk/citations?hl=da&user=WigDXw4AAAAJ&view_op=list_works&sort_bv=pubdate

#	Subject	Background
30d	Drones and robots: Robot audition	<p>The area focuses on how to optimize applications where inherent noise is a problem and the signal/noise ratio must be optimized to achieve useful applications.</p> <p>Is e.g. a challenge in connection with drones, not least if you want to use drones for sound observation.</p> <p>Potential speakers/companies</p> <ul style="list-style-type: none"> Benjamin Yen, https://scholar.google.dk/citations?hl=da&user=WigDXw4AAAAJ&view_op=list_works&sort_bv=pubdate Elisa Tengan, https://sch01ar.google.dk/citations?user=0241cisAAAAJ&hl=en <p>All 4 topics within the ‘Robot & Drone’ area make sense, but it is hardly realistic to be able to find content to make webinars on all 4 areas. Therefore, we agreed to focus on the topic “Robot audition” first. A webinar could then take subtopics from one or more of the other areas, e.g. a post about drone detection.</p>
31	“VLP” (Virtual Listener Panel) New Theme	<p>SenseLab has developed a machine learning model, ‘Virtual Listener Panel’, VLP, for use when listening to recordings of e.g. headphones, and evaluate various attributes in the recorded sound. The model is trained on data from listening tests with expert listeners. It is currently trained on Bass strength, Treble strength, Midtone strength, timbre (dark-light), Brilliance and Bass depth.</p> <p>The next step is to train it on e.g. canned sound, metallic etc. attributes that describe more resonant phenomena. Later come dynamic attributes, such as ‘Punch’.</p> <p>VLP cannot replace listening tests 100%, but it can help companies in their development of e.g. headphones/earbuds etc. in the development phase, where you typically need to test several times to see which way you are moving.</p> <p>Later in the development process, however, you must use listening tests to confirm your results.</p> <p>VLP is a breakthrough in the use of models, and it could be interesting to include the solution in a webinar, perhaps together with other machine learning techniques in connection with the development of audio products.</p> <p>The SenseLab developed database model can be used as input for, for example, with AI-based tools when developing solutions. The data material is unique, no others in the market that offer this kind of thing yet, so it points towards new development methodologies.</p> <p>It is the heart of companies how to optimize their tools, and usually not something that is shared with others. But it could be interesting to test the methodology.</p> <p>The most realistic way to create more interest in ‘Virtual Listener panels’ is to seek to establish a pilot project collaboration, where a company tries to use SenseLabs’ tool in the test phase in connection with the development of audio products. DSC expects in connection with a new round of the cluster program to have the opportunity to support SME companies. We envision a collaboration where at least two companies join forces (at least two SMEs and preferably one or more larger ones, but only SMEs will be able to obtain public support). The working group is encouraged to be aware of the opportunity and possibly. sign up with potential candidates.</p>

#	Subject	Background
32	OTC hearing aids Resumed Theme	<p>On September 9, 2024, Apple announced that the latest model of the company's mobile phone/earbuds will also be able to be used as an OTC hearing aid. The software is FDA approved.</p> <p>The functions are intended for people over 18 years of age with mild to moderate hearing loss.</p> <p>With Apple's entry into the OTC market, interest in OTC may have been created again. In Denmark at least the 'Høreforeningen' has shown interest, not least because the new hype can support acceptance of the use of professional hearing aids. But even though the Apple product offers the option of self-testing, the 'Høreforeningen' advises that you get a professional hearing test done.</p> <p>An OTC hearing aid is in fact to be considered a traditional hearing aid, but where a procedure has been introduced by law so that the user can avoid involving a dispenser in the fitting of hearing aids. So, OTC is basically software, and where the users adapt to the hearing aid themselves. How well the users succeed in this is always open to speculation. Several professional hearing aid manufacturers also have OTC products in their portfolio, but do not sell OTC convincingly today. Apparently, no one really does.</p> <p>For the user, it can be difficult to understand why one OTC product is better or worse than another, since all products in the marketing are touted as being really good, but with very large differences in price. Since there is no professional dispenser in the loop, a user is left in a dilemma as to what is good and should one choose a traditional hearing aid instead.</p> <p>There may also be the challenge that an OTC product does not work optimally, but the user, who may not know any better, gets used to a chosen solution and does not arrive at an optimal solution to their hearing problems.</p> <p>It is important to note that OTC only concerns hearing aids, where the dispensing task is different. Instead of using a professional dispenser, users can adjust their hearing aid themselves using support software.</p> <p>This option now exists, but only in the USA, where the procedure has been allowed. In fact, several states in the USA have had the option previously through dispensation, but now it applies generally. However, only in the USA and not, for example, in Europe</p> <p>Several Asian manufacturers see OTC as a great opportunity, others are skeptical, and the OTC market still seems to be underdeveloped.</p> <p>At the next meeting, Morten will give a “down to earth” presentation of what OTC really stands for today.</p> <p>We will take it as the first item at the meeting.</p>

Next meeting

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

- **Tuesday, March 25, 2025, 14:00 – 15:00**

Agenda:

1. Introduction to OTC, the basics – Morten Kroman
2. Webinars, Physical events and potential Projects during 2025:
 - a. Follow-up on proposals and ideas from meeting # 21 including additional comments and proposals.
 - b. Proposals for possible speakers
 - c. New themes?
3. Collaborative projects, update of proposals, indication of possible project consortia.
4. News from DSC secretariate
5. A.O.B.

Appendix 1: Participants in the meeting

Facundo Ramón	GN Hearing	Senior Research Scientist
Morten Kroman	WS Audiology	VP R&D Electronics
Tore Stegenborg Andersen	FORCE Technology	Senior Researcher
Birger Schneider	CHAMAJ Consult ApS	Director
Jeppe Lindegaard	Danish Sound Cluster	Program 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 & Nicolas Becker, Sound Designer	Conference, Sound Day 2021	17 November, 2021
	AI in Audio Applications	Conference event at Digital Hi-Tech Summit, Bella Center	Conference	26 October, 2022
19	AI in Audio Applications		Webinar	13 December, 2022
8	Emerging Acoustic Sensor Technologies and Applications		Webinar	14 March, 2023
14	Feedback and noise cancellation		Webinar	9 May, 2023
17	Use of sound with robotics		Webinar	23 May, 2023
27	AI in Music & Sound		Webinar	26 October 2023
25	Immersive Audio & Quality Development in Digital Meetings		Webinar	30 April 2024
21a	"Auracast is the Future of Audio!"		Webinar	25 September, 2024