



INFORMATION ON NEXT MEETING

LOCALIZATION OF REFLECTIONS IN AUDITORIUMS & **Visit of most recent facilities at RSR**

Thursday 5th of October 2000, at 17h30 at Radio Suisse Romande, 40 Av. du Temple, 1010 Lausanne

SPEAKERS: Eric van Lancker, LEMA-EPFL

ORGANIZER: Patrick Roe, LEMA-EPFL

LANGUAGE: French

The next AES Swiss Section Meeting will be held on Thursday 5th of October 2000 at the Radio Suisse Romande, Studio 15, in Lausanne on the Topic of "Localization of Reflections in Auditoriums". There will be a technical presentation with demo given by Eric van Lancker after which there will a visit of the latest facilities and installations at the Radio.

Eric van Lancker of LEMA-EPFL will be making a presentation entitled "Localization of Reflections in Auditoriums using Time Delay Estimation". The impulse response or echogram of a hall enables its acoustic properties to be assessed. The system being presented adds the spatial dimension to this time-energy representation. The method is based on the time delay estimation between microphones of a cubic array with 25 cm edges.

Eric van Lancker will start with an overview of array processing techniques for spatial filtering (Beamforming) and for Localization (DOA). He will then present antenna design rules, the algorithms and their implementation, and the expected performance. Eric will then give some examples application such as: avalanche control, underwater

divers orientation system, airplane tracking for active noise control applications and military devices. He will then focus on an auditorium application and present the results of tests carried out in the Stravinsky Auditorium in Montreux.

Experimentation and demonstrations will be presented to facilitate comprehension.

Biographical Notes

Eric van Lancker was born in Tournai (Belgium). He Studied in the Polytechnic Faculty of Mons (Belgium) from 1990 to 1996. He has been an Assistant in LEMA (Laboratory of Electromagnetism and Acoustics) at the EPFL (Swiss Federal Institute of Technology of Lausanne) since 1996. He is currently working on a PhD thesis in the field of acoustic goniometry, which he dearly hopes to finish on time before any of his fears of losing control and throwing his computer through he window come true.

His hobbies include skydiving, snow boarding and scuba diving. His dream is to the Angel Falis (Venezuela), but not quite yet.

REPORT ON PREVIOUS MEETING

AUDIO ON THE INTERNET & General Meeting

Thursday 24th of August 2000, at Technopark, Zurich

Speakers: Gerhard Stoll, Institut für Rundfunktechnik, Markus Erne, Scopein Research, Aarau
Alex Ruegg, Nagra-Vision R&D, Zurich, Daniel Ledermann, Swisscom Research, Ostermundigen

Reporter: Markus Erne, Scopein Research, Aarau

About 70 people gathered for the Swiss Section meeting on the topic "Audio on the Internet" held at Technopark Zurich on the 24th of August 2000.

Markus Erne started with an overview of audio coding algorithms. Starting from the definition lossless and perceptual audio coding, Markus presented not only the principles of redundancy and irrelevancy coding, but the introduced some of the very important psycho-acoustic

principles, underlying the technology of perceptual audio coding. Masking can occur not only in the frequency-domain, where a strong masker may modify the threshold of hearing such that a second signal. The maskee will become inaudible. Therefore most perceptual coding algorithms are based on subband coding, where successive time-domain samples are decorrelated in order to compact the signal energy into a few coefficients. Markus continued with a presentation of the different MPEG

REPORT ON PREVIOUS MEETING (continued)

-standards (MPEG-1, MPEG-2) before focusing on the upcoming MPEG-4 standard, which will offer completely new features such as rendering at the decoder, structured audio, synthetic and natural audio etc. A large variety of audio demos helped to understand and evaluate the different audio coding standards. Finally, Markus presented the principles of audio watermarking, a technology, aimed to trace illicit copies of music. The internet not only offers a platform for chats, Web-applications and E-mail but additionally may help to distribute music such that copyrights may be infringed. An audio demonstration should help to understand that watermarking is a very novel but extremely important technology and Markus concluded his presentation with a statement that more recent research in of "auditory scene analysis" may help to gain a deeper understanding of the perceptual principles.

Gerhard Stoll of the IRT took over in order to present the perspectives of the broadcasters, within the realm of audio internet applications. Gerhard presented some very interesting statements and figures, showing clearly, that the potential of the internet has been clearly underestimated so far. Gerhard presented an overview of the multiple network protocols, network distribution technologies (uni-cast, multi-cast), concluding, that only a multicast-technology will become successful for broadcast applications. Gerhard additionally presented some figures, clearly indicating that there is a growing demand for audio on internet applications but he additionally raised the point that the quality of service is extremely difficult to achieve but must be monitored. Several tests within the ITU and MPEG-communities have clearly indicated that the current achieved audio quality sometimes is not even close to FM. Additionally only a few current coding schemes support a streaming technology. Gerhard presented some interesting comparisons between different coding algorithms and he concluded his presentation with an even more interesting comparison between "fast-food" and audio on internet applications, concluding that there is much similarity although they share very little in common.

The third presentation by Alex Ruegg of Nagravision, Henning Timcke and Adrian Gschwend, both of Werft 22, mainly covered the streaming technologies, involved in audio and video applications. Alex started with an introduction to the MPEG-2 standard which has become very important especially for video broadcast applications. He compared the different mechanisms for the transport of a bit-stream as well as the different options for the transmission (ATM, SDH, IP, DVD ASI). Alex presented an example of an implementation, using the Real-System Server platform before presenting some underlying principles of allowance and adaptive stream management systems. Alex concluded with a short introduction to the Java Media Framework and a demo of a radio application before Henning Timcke took over, introducing the architecture of the XML-language. Henning presented the difference between live-contents and static contents before highlighting the syntax within a Real-Player Meta-file application. Adrian Gschwend concluded the presentation with an impressive demo of a Real-Player applications, involving both audio and video.

The last speaker of the evening, Daniel Ledermann of Swisscom research focused finally on the quality of service aspect of multimedia internet applications. He very clearly indicated that it is extremely difficult to even define the quality of an audio or a video-transmission. Very often, the subjective quality is used as an anchor for comparison, making it rather difficult to apply objective measures such as S/N-ratio etc. to these applications. Daniel presented some interesting demos and test-results before entering the

difficult question of cascading codecs. A listening demo helped the audience to get an idea what impact the tandem coding or cascading might have to the overall audio quality and Daniel raised the point that the selection of the test material is a very important process for critical listening tests. Finally, Daniel presented a very nice application, the Web-site "LiveSports.ch" where the user can interactively select a sports item, being live or stored on a server, compare different athletes, grab some nice pictures and send them as an E-Mail attachment to friends etc.

Daniel concluded his presentation with a short overview of MPEG-4, MPEG-7 and MPEG-21 applications before concluding that the user is more and more becoming involved in the control and rendering of multimedia applications and therefore the user more and more becomes a Prosumer.

After this interesting meeting, providing lots of information, everybody was ready to gather for the apéro in the foyer and a lot of discussion started before almost 25 participants joined for a dinner at the Technopark-Restaurant.

Report on General Meeting

The General Meeting of the Swiss Section was held after the technical presentations at a swift and efficient pace.

Patrick Roe, the Section Chairman opened the proceedings with a brief review of the 13 Section meetings held over the past 2 years where the average attendance had been of over 40 members per meeting.

Markus Erne, the Section Vice-Chairman and Chairman of the Examination Committee gave a short presentation of the education activities including the organization for the Swiss Government of Sound Technician exams. About twenty out of thirty of the candidates passed the exams in the session held in August 1999 at Radio DRS. The exam costs are covered 75% by the exam fees and 25% by a government grant. The next session will be held in the Summer of 2001.

The Section Secretary, Rolf Ambuehl, then presented the latest situation concerning the section membership which is currently at just under 300 Members. He explained how considerable efforts had been made to reconcile and synchronize the different AES membership data bases.

Alain Roux, the Section Treasurer then gave a brief summary of the financial situation, which is very healthy overall and much as forecast. Some of the invoices for the 1999-2000 period had not yet been received (including all the expenses for the General Meeting) and would therefore be paid during the 2000-2001 period. The great majority of the budget over the two-year period had been spent on the Section Meetings and printing and mailing costs.

The election of the incoming Section Committee then took place. Patrick Roe first of all warmly thanked the three withdrawing Members, Alex Ruegg, Rolf Ambuehl and Antoine Pittet for all their much appreciated contributions. Attila Karamustafaoglu, Patrick Boehm and Joël Godel were proposed in their place. There were 39 votes for and none against. The full incoming committee is therefore as follows: Patrick Roe, Markus Erne, Alain Roux, Walter Koeller, Terry Nelson, Attila Karamustafaoglu, Patrick Boehm and Joël Godel.

Patrick Roe closed the meeting on the good news that Markus Erne had been awarded the AES Fellowship Award "In recognition of his extraordinary contributions in DSP algorithms and his outstanding efforts to establish a formal education program for audio engineers in Switzerland"