Minutes of the TC_SP Meeting, 153 Convention, Nov. 3, 2022, 11 am [ET]

Meeting called to order by Christoph M. Musialik on Nov. 3, 2022, 11:00 am [ET] via Zoom

Attendees: Christoph M. Musialik (Chair), Jayant Datta (V-Chair), Duane Wise, Rob Maher. Jamie excused herself due to a scheduling conflict with another meeting (confusion with clock change in Europe vs US). Rob could only be with us for the first 15 minutes because he had to give a lecture.

Proposed Agenda

1. Introduction
   - A lot of papers submitted. This time not that many papers about ML, AI, etc. Back, a lot about Studio Recording, Music Production, Post Production, Spatial Sound, Audio for AR/VR/XR and Product Development

2. Any contributions to the AES Fall 2022 Convention assigned to TC_SP?
   - "Real-Time Parallel DSP Processing on GPUs" – engineer and marketing person from GPU Audio
   - "50 Years of Parametric EQ" – Duane Wise et al.
   - "A Deep Dive into DAW Digits Part 2: How do you Dither and Noise Shaping Floating Point Processing?" – Jamie Angus-Whiteoak
   - Any other ongoing topics?

3. Scope of activities and topics the TC_SP should represent in the future.
   - The plans to organize tutorials on DSP basics (discussed during the last meeting) not entirely reached, but two announced ideas implemented:
     i. Jamie prepared 2nd part of the tutorial on dithering & noise shaping in floating-point environments, and
     ii. Duane with Udo Zölzer and George Massenburg provided an overview about the history and basics of parametric equalizer
   - It is difficult to find time to prepare such presentations from scratch in the quality that is expected today. Most presentations/tutorials have been created as a result of research, projects, or teaching materials and therefore topics. Custom themes cost a lot of extra work.
   - Any ideas how to proceed?

4. Is there still any interest in preparing tutorials/workshops discussing signal processing basics?

5. Any proposals/commitments to organize or prepare workshops/tutorials/papers?

6. Others have been accepted. No additional points have been declared.

Summary of Discussions:

1. Sharing impressions about recent AES contributions.

2. Potential future topics
   - Audio on GPU provided by GPU Audio. Rob comment: interesting possibility for audio processing with today's powerful graphic engines. However, the presentation was too commercial. Jayant also presented his point of view. A tutorial on: what is similar; what is different from traditional DSP (fixed-point | floating-point | what is similar) would be much more appropriate. Via email correspondence with TC-SP leadership, company (GPU Audio) has agreed to prepare a new, more technically oriented presentation that could be hosted as an AES webinar – **target date: early Jan-2023, owner: Jayant D**
   - Duane, George Massenburg and Udo Zölzer gave impressive overview of the history and basics of parametric equalizer.
   - Jamie analyzed the problem of implementing dither and noise shaping in a floating-point environment, which is characterized by quite unpredictable behavior in terms of processing individual bits.

3. (3&4&5)
   - There is an ongoing need to provide tutorials on the basics in DSP and even in analog technology presented by experienced experts.
   - Rob declared help in providing some topics on DSP basics. **target: AES-155, owner: Jayant D**
   - Jamie sent an email telling: "I'm willing to have a go at basics, and I know James Johnston has been also doing stuff. I think we both have some legacy stuff in the bag that could be useful." **owner: Christoph M will contact both of them**
   - Duane proposed to consider following topics:
       i. Research and development on LIGO (gravitational wave detector which could be called the 'quietest' and most sensitive microphone ever) by prof at MIT Rainer (Ray) Weiss (Nobel Prize). What can he teach us about microphones? **Jayant agreed to contact him**. Duane said he was an audiophile.
       ii. Can a miniature rubidium atomic clock by Microsemi Corp. (subsidiary of Microchip Technology Inc.) provide better audio performance?
   - Directly after meeting Duane sent following announcement: "Per this morning' discussion, I would be in favor of three parametric EQ Zoom sessions with expanded duration:
       i. History at its time of conception, with George Massenburg and possibly Andrew Schoeps
       ii. Novel applications, with Udo Zoelzer
       iii. Integrating dynamics processing—including why PEQ is still relevant, with me."
   - See also the topics listed in the minutes from the previous meeting. **Christoph will get in touch with potential volunteers listed above and try to determine specific topics**.

6. Others
    a. Jayant would like to step down as Vice-Chair of our TC and give someone else a chance. Any proposals? Would you like to take on this position yourself?

Meeting ended at 11:30 am [ET]