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AES Audio Engineering Society - Pacific Northwest Section

Around the Puget Sound, Seattle, Washington, U.S.A.

NOTE: anyone can attend this meeting regardless of their status as an AES member.

AES MEMBERSHIP IS NOT REQUIRED.

**3D Sound for Video Games
Presented by
Lawrence Schwedler - DigiPen
and**

**The Pacific Northwest Section of the AES
Wednesday, June 21st 2017, 7:30pm
DigiPen Institute of Technology**

[Directions to DigiPen](#)

Audio for video games has come a long way since the days of programmable sound generators in the early home consoles. Recent development of virtual and augmented reality for the consumer market has brought about rapid innovation in systems for the realtime rendering of three-dimensional, spatial audio that replicates the way sound waves interact with our ears and head, and with the environment.

This talk will include a brief history of game audio, definition and disambiguation of terminology, and an overview of some of the current methods for rendering spatial audio over headphones and loudspeakers. We will also demonstrate Dr. Edgar Choueiri's BACCH system for binaural audio over loudspeakers, as well as a VR game utilizing a commercial 3D audio plugin.

Presenter's Bio

Lawrence Schwedler is a professional musician with twenty years of experience in the video game industry as a composer, sound designer, and audio director. In 1993 he graduated with a Master of Fine Arts degree in classical guitar performance and electronic music from the University of California at Los Angeles, where he was a founding member of the Modern Arts Guitar Quartet, an avant-garde chamber ensemble which toured Europe, Mexico, Canada and the U.S. He served as audio director for Nintendo Software Technology from 1999 to 2012, after which he left Nintendo to design and direct two degree programs in music, sound design, and digital audio programming at the DigiPen Institute of Technology in Redmond. He holds two United States patents, one for interactive real time music composition and one for interactive wave table sound generation.

June Elections

We will hold our Officers and Committee Elections at the June Meeting.

The four officer seats are up for re-election: Chair, Vice-Chair, Treasurer, and Secretary. Six of the ten committee seats are up for re-election. Five seats are two-year positions, and one is for one-year.

Further election info, including candidate bio sketches can be found at:
<http://www.aes.org/sections/pnw/bio2017.htm> (see below)

Dan Mortensen

AES PNW 2016-2017 Section Chair

n.b. *The material presented at our meetings is the opinion of the presenter and not necessarily that of the Society. You are encouraged to conduct your own research and to form your own opinions before adopting the presented material as Truth.*

Our meetings are open to anyone interested in Audio. AES membership is NOT required for you to attend our meetings.

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AES PNW Section 2017 Election of Officers and Committee

At our June meeting, we will hold our annual elections for the officers and committee positions that form the backbone of our AES section. The committee is in charge of actively planning all logistics for our meetings and activities.

Voting

We need a quorum of 15 members to certify the election. You can vote by one of two ways:

- Attending the June Meeting and casting your vote in person.
- Vote by mail by downloading and printing the [election ballot](#) (right-click the link) and mail it to the address shown on the Ballot. Be sure to put your membership number on the front of the envelope (in the return address or in the lower left corner). This needs to be RECEIVED by June 17, 2017, so that it can be counted on June 19. Full and Associate AES members of the PNW Section can vote in this

election.

NOTE: The address for the ballots is a PO Box. Click on the ballot link to see the address.

For purposes of the quorum, it shall be the sum of the voting members present at the meeting and those members who voted by mail. If we do not have a quorum at the June meeting, then the election shall be conducted by mail.

- Officers hold their positions for one year.
- Committee positions are for two years. There are 10 positions, 5 of them elect every year to ensure continuity in the committee.
- Members and Associate members of the PNW Section may vote.
- Nominations can also be made from the floor at the meeting, or (preferably) submitted in advance to section chair.

Our section's Mission Statement can be found at this [LINK](#).

[More about Elections](#) [BALLOT](#)

Slate of Candidates and Biographical Information

Officers

- **Chair — Dan Mortensen**

Dan is President of Dansound Inc., which specializes in live sound reinforcement and is a dealer for Meyer Sound Laboratories, among other dealerships. He is currently serving as Section Chair, and has previously held the posts of Chair, Vice-Chair, and Treasurer as well as serving on the Committee. After more than 25 years on the Committee, Dan continues to find that serving the AES PNW Section in one capacity or another is still one of his favorite things. If elected, this will be his 8th term as Chair over the last 22 years. He enjoys researching the history of CBS's 30th St. recording studio, home to the Section's late friend Frank Laico; that research can be found online at <http://forums.stevhoffman.tv/threads/history-of-cbs-records-30th-street-studio-nyc-many-pictures.388186/>

- **Vice Chair — JJ Johnston**

JJ received the BSEE and MSEE degrees from Carnegie-Mellon

University, Pittsburgh, PA in 1975 and 1976 respectively.

JJ temporarily retired in 2002 but worked 26 years for AT&T Bell Labs and its successor AT&T Labs Research. He was one of the first investigators in the field of perceptual audio coding, one of the inventors and standardizers of MPEG 1/2 audio Layer 3 and MPEG-2 AAC, as well as the AT&T Bell Labs or AT&T Labs-Research PEXM (perceptual transform coding) and PAC (perceptual audio coding) and the ASPEC algorithm that provided the best audio quality in the MPEG-1 audio tests.

Most recently he has been working in the area of auditory perception of soundfields, electronic soundfield correction, ways to capture soundfield cues and represent them, and ways to expand the limited sense of realism available in standard audio playback for both captured and synthetic performances. He was most recently employed by DTS Audio and his current status is retired.

Mr. Johnston is an IEEE Fellow, an AES Fellow, a NJ Inventor of the Year, an AT&T Technical Medalist and Standards Awardee, and a co-recipient of the IEEE Donald Fink Paper Award. Mr. Johnston has presented many times for the PNW Section, most recently on the issues surrounding "Dynamic Range." In 2006, he received the James L. Flanagan Signal Processing Award from the IEEE Signal Processing Society, and presented the 2012 Heyser Lecture at the AES 133rd Convention: *Audio, Radio, Acoustics and Signal Processing: the Way Forward*.

- **Secretary — Gary Louie / University of Washington, School of Music**

Gary has been the recording engineer for the University of Washington School of Music since 1979, previously earning his BSEE at the UW. He has served as AES PNW Section Chair, Vice Chair, Committee, and most recently, Secretary since 1993. Gary is also the co-author, with Glenn White, of the *Audio Dictionary* 3rd Ed.

- **Treasurer — Lawrence Schwedler**

Lawrence Schwedler has worked in the video game industry as a composer, sound designer and audio director for twenty years. In 1993 he graduated with a Master of Fine Arts degree in classical guitar and electronic music from UCLA, where he was a founding member of the Modern Arts Guitar Quartet. From 1999 to 2012 he served as audio director for Nintendo Software Technology, where he co-authored two U.S. patents for adaptive music and audio. In August

2012, he left Nintendo to direct the new undergraduate programs in music and sound design at the DigiPen Institute of Technology in Redmond.

Section Committee

- **Greg Dixon**

Greg Dixon teaches courses in Advanced Composition and Sound Design at DigiPen. He holds a Ph.D. in music composition with a specialization in computer music from the University of North Texas, where he worked as a composition teaching fellow, recording engineer, and technical assistant for The Center for Experimental Music and Intermedia (CEMI). Greg received his M.M. in Music Composition and B.M. in Music Engineering Technology from Ball State University.

His compositional research focuses on electronic music and interactive music systems for games, acoustic instruments, sensor technologies, and human interface devices.

Greg has worked for more than fifteen years as a professional sound engineer, which has greatly influenced his strategies for designing sounds in the studio. In addition, he has served as a producer, recording engineer, arranger, performer, mixer, and mastering engineer on dozens of commercially available recordings in a wide variety of genres.

- **Colin Isler**

A lifelong musician and tinkerer, Colin grew up playing cello and guitar and fumbling around with TVs and computers in the wooded Seattle suburb of Lake Forest Park. He studied electrical engineering and signal processing at the University of Michigan, where he joined the AES in 2004 as a student member and received his BSEE in 2005. After university, he returned home to Seattle and began working for Rane Corporation, first as a manufacturing test engineer and later as an R&D engineer. Twelve years later, he continues to design DSP systems, firmware and circuit boards for Rane DJ and Rane commercial audio products at the Mukilteo office of InMusic Brands. Colin can be found on stage in the Puget Sound area or writing, recording and soldering in his home studio in Greenwood.

- **René Jaeger**

After graduating from Jesuit taught Fairfield Prep, René Jaeger

studied Physics (briefly) at Boston College in Massachusetts. Then, after a several year sabbatical of self-discovery, he began his audio career in the 60s at Karg Laboratories, famous for its vacuum tube, crystal controlled FM tuner.

The attempted development of a high performance PLL synthesized tuner brought him to a job at Adams-Russell, where he learned much about the techniques of low noise, broadband RF devices catering to the Military's cold war activities. A chance meeting with David Blackmer began a nine year romp at dbx, designing audio compressors and noise reduction systems. Among the fun projects were low noise bipolar and fet preamp designs for moving coil pickups, which led to the design of a fet preamp for Charles Fischer (Cambridge Records), which was used in one of his ribbon microphones. He then moved on to Lexicon doing a-d and d-a converter development as well as the legendary PCM-60 digital reverb, culminating in the even more legendary 480L reverb. A brief stay at New England Digital (they went banko) ended with a move to California to the Grass Valley Group. Further corporate turmoil led to moving to the PNW, where he worked for Mackie Designs/Loud Technologies designing mixers and a class D power amplifier.

In addition to the above, René has done consulting work for instrumentation, medical and professional audio companies, managed the development of the Pacific Microsonics Model One HDCD mastering converter, and partnered in the founding of Berkeley Audio Design. After retiring last September, René is devoting himself to the perfection of audio reproduction at home and other household activities.

- **Steve Malott**

Steve Malott has participated in AES meetings for many years but has only seriously put his money where his mouth is for a few years (by joining AES). As a broadcaster (and former SBE student member), audio engineer, producer and educator, Steve is continually surprised by the talent unearthed and the diverse opportunities available to anyone who has more than a passing interest in audio. After serving his second term as Governor for the Recording Academy and participating in Producer's and Engineer's Wing, Grammy U and membership activities, Steve's goal is to negotiate a closer alliance between the two organizations, with an eye towards more cooperative cross-participation for both groups. Among the topics Steve is interested in pursuing for PNW AES:

- The economics of audio equipment (who decides to make

- o what, and how much money do they make doing it)
- o Math for struggling audio engineers (and why it's good to understand it)
- o Sharpening listening skills: a primer for audio professionals
- o Why is it sometimes \$150 mics seem to sound as good and work better than \$5,000 mics?
- o Why don't most audio engineers win national awards or substantial industry recognition?

Steve says, "I'm always interested in great hardware or software demos, along the lines of:

- o Mic Shootout
- o A-D / D-A Shootout
- o Loudspeaker Shootout
- o Codec Shootout

and the ever-popular — DAW Shootout.

Even if not elected I am still interested in moving NARAS and AES closer together in membership and participant activities."

- **Dr. Michael Matesky**

Dr. Michael Matesky is the designer and owner of Opus 4 Studios (audio and video recording) where he also engineers. Born and raised in Los Angeles, where his father worked in the studios and taught music at USC, he has an MM in cello, and a DMA in conducting from the University of Washington. He is a composer and arranger, President of Opus 4 Music publishing company, studio musician, music contractor, founding cellist in the Opus 4 String Quartet, and occasional Gypsy jazzman with undeniable traces of evidence found at www.opus4studios.com. He has recorded both as cellist and conductor at what is now known as Abbey Road Studios. He has performed before the Queen of England and two US Presidents. Dr. Matesky is currently serving on the PNW Section Committee.

- **Jamie Simmonds**

Hailing from Brighton, UK, Jamie Simmonds is a Millennium Award-winning music producer and DJ who specializes in hip-hop, theatre, and original soundtracks. He produced the music and performed in three off-Broadway plays with Baba Brinkman since 2011, developing a unique style called "texture scratching" which modulates the mood and tone interactively on his turntables in a live theatre setting. As a producer and engineer, Jamie has worked

with several mid-scale UK labels such as K7 and Crammed/SSR, as well as major label artists like Alison Goldfrapp and Leftfield. He is currently working with a number of New York's most respected underground rap artists.

Currently he is a faculty member at Shoreline Community College.

- **Bob Smith**

Bob has a BSEE from the University of Washington and has worked in the Biomedical industry for over 30 years. The last 20 years he has spent developing acoustic research and audio engineering disciplines for Medtronic / Physio Control to improve speech intelligibility for medical device voice prompting and voice recording systems in noisy environments. He is responsible for voice prompting in 30+ languages. The department now handles acoustic measurements of components such as drivers, microphone capsules and system measurements including Thiele-Small parameters, polar plots, waterfalls, frequency response, impulse response, several speech intelligibility methods, etc. When he's not playing acoustic/audio monkey for his corporate master, he runs an acoustic lab, soundSmith Labs. From time to time, he can also be found recording local musical talents. Currently he is comparing several hardware and software acoustic / audio measurement systems to assess how much they vary and to the degree they converge on similar results. noise assessments and their effect on speech intelligibility.