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THE AUDIO ENGINEERING SOCIETY



# BULLETIN

APRIL 2015

## 2014-2015 AES TORONTO EXECUTIVE

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Day-Long Presentation

## Network Audio Systems

A primer on the State of the Art

**date** Saturday, 25 April 2015  
**time** 9:00 AM – 4:30 PM  
**where** Ryerson University  
 Oakham House, Tecumseh Room  
 63 Gould Street, Toronto, ON  
 Corner of Gould and Church, east of Yonge St (Dundas Subway)

*For parking info and map, goto [www.ryerson.ca/parking/](http://www.ryerson.ca/parking/)*

This event requires ticketed registration. Please go to

<https://eventbrite.ca/event/16398700956/>

**Open to members and non-members.**

## PRESENTATION

The traditional paradigm of transmitting audio and video media content over point to point dedicated cabling is being supplanted by methods of moving media content over networks, in particular Ethernet, LANs and IP based WANs.

This day-long event will provide a basis of understanding of data networking in general while exploring the latest developments in methods, protocols, standards, and applications of networked audio.

Check us out on these social media sites.



AES TORONTO APPRECIATES THE CONTINUING SUPPORT OF



PLEASE POST - MEMBERS AND GUESTS WELCOME

## EVENTBRITE TICKETS

Student (Non AES Member)	\$25.00
Student (AES Member)	\$20.00
Non AES-Member	\$50.00
AES Member	\$35.00

To register, please go to <https://eventbrite.ca/event/16398700956/>

## SPONSORS

The Toronto AES thanks the following sponsors for their support of our Network Audio Systems event:



## PROGRAM SCHEDULE

9:00 am

### **Network Fundamentals**

Patrick Killianey, Yamaha Commercial Audio Systems

*Ethernet networks are becoming a bigger part of our professional lives, forming the basis of production audio transport, intercoms, remote control and lighting. Through this transition, basic network administration will no longer be a separate discipline – it will become part of the audio technician’s tool box just as soldering and Ohm’s Law are today.*

*This session follows a practical approach to networking fundamentals designed for audio technicians. Many of us gained our skills “on-the-job” by setting up our home network. This session aims to reaffirm what is correctly known, dispel myths and fill in the gaps between to form a solid foundation and offers a mechanical and operational understanding of: IP Address, Subnet Mask, Gateway, Reserved LAN Ranges, Router Basics, DNS and Automatic IP Configuration (DHCP and Link Local).*

10:15 am

### **AVA Networks**

Kevin Gross, Independent Engineering Consultant

*Digital audio networking was pioneered by the telephone companies in the 1960s. Digital audio came into use in professional applications starting in the late 1970s. Standard digital interconnect for professional applications emerged in the 1980s. It wasn’t until the mid-1990s that real-time network distribution as we currently know it was born.*

*This tutorial will follow the evolution of real-time digital audio networking, examining design decisions and changes in the underlying network technology that has enabled advancement to the current state of the art. Some of the specific networking technologies to be covered include: VoIP, CobraNet, MaGIC, Ethersound, A-Net, AES47, Livewire, AES50, ACIP, Dante, AVB, Q-LAN, RAVENNA and AES67. Historical perspective on the topic should give attendees an indication of where audio networking is headed.*

11:30 am

### **High Performance Audio Networks**

Patrick Killianey, Yamaha Commercial Audio Systems

*The earliest audio networks had to work around the inherent limitations of early Ethernet networking tools available at the time. The current crop of networked audio platforms certainly enjoy benefit from higher network speeds, but more importantly, they take advantage of networking standards developed and brought to prominence by VoIP phones and streaming technologies.*

*This session covers how these network enhancements operate and the benefits they bring. To bring theory in to practice, a live Dante™ system will be used to demonstrate the principles described and examples of real-world installations will be discussed. Key elements discussed will include delivery methods TCP and UDP, packet prioritization using QoS, and distribution schemas such as Unicast, Broadcast, Multicast and IGMP Snooping.*

- 12:15 pm      **Lunch**
- 1:15 pm      **Dante for Musicians**  
Warren Cooper, Audio-Technica
- Dante is a combination of software, hardware, and network protocols that deliver [uncompressed](#), multi-channel, [low-latency digital audio](#) over a standard [Ethernet](#) network. This presentation will focus on how musicians can best leverage the Dante enabled technology such as personal in-ear mixers, etc.*
- 2:15 pm      **Ravenna, Masscore and Pyramix**  
Norm Verrall, HHB
- Ravenna and Masscore technology have vastly increased a PC's ability to handle multiple low-latency audio streams. This presentation will demonstrate Pyramix's implementation of these technologies.*
- 3:15 pm      **Open Control Architecture**  
Morton Lave, Steven Saffer, TC Applied Technologies
- The Open Control Architecture (OCA) is a standards initiative currently being worked on in the AES X210 task group. An overview of OCA will be presented. A part of the presentation will also discuss the topics of media stream connection management and device discovery.*

## BIOGRAPHIES

### Warren Cooper, Audio-Technica



Warren Cooper is a highly respected veteran audio engineer, consultant, session guitarist, Humber College Continuing Education Instructor, and manufacturer's representative with over 30 years of pro audio work experience. He previously managed the Long & McQuade Store in North York for over a decade in the 1990's, taught recording software programs at Humber College continuing education, session guitarist, recording engineer for many artists, and has had the opportunity to be involved with some great projects, both live and install.

In 2005, he became the Ontario Sales Manager for Erikson Audio, where he continues to represent some of the best pro audio hardware and software product lines to pro audio retailers, rental companies, and installation companies.

Warren has pursued a lifelong passion for recording and live sound, represents several companies with network audio products, and constantly hosting many clinics for recording and live based products and looks forward to what the future brings with the constant evolution in our industry. He joins us today to share his vast experience and knowledge.

### Kevin Gross, AVA Networks



Kevin Gross conceived and developed the CobraNet system for transport of real-time, high-quality audio over Ethernet networks. He is an active contributor to the AVB standards efforts and has helped QSC deploy the audio networking component of their Q-LAN.

He has had a hand in the systems and network design in many projects utilizing CobraNet such as Wembley stadium, The U.S. Senate, the 2000 Olympics in Sydney and theme parks such as Disney's Animal Kingdom and Tokyo Disney Sea.

Kevin holds several patents, has written papers and articles and presented on numerous AV networking topics. In 2006 he was awarded an AES fellowship for his contributions to digital audio networking.

Before audio networking, Kevin worked at WaveFrame Corp. and helped develop an Oscar award-winning digital audio recording and editing system and at Peak Audio, Inc. developing and managing early deployments of Peavey's MediaMatrix digital signal processing system.

Kevin is now an independent engineering consultant to AV and network equipment manufacturers and systems designers.

#### **Patrick Killianey, Yamaha Commercial Audio Systems**



Patrick Killianey brings over 15 years of experience spanning a variety of professional audio sectors, including Live Sound, Distributed Audio, Recording Production, Control and Automation. Patrick has been involved in system and UI design, project management, automation programming and industry education initiatives.

At Yamaha Commercial Audio Systems, Patrick's focus is on the mass transition towards networked audio, acting as an internal subject matter expert and educator to the industry.

#### **Morten Lave, TC Applied Technologies**



Morten Lave, CEO/Managing Director of TC Applied Technologies is an expert in digital and analog design, IC design, firmware and software design and digital signal processing.

He received the equivalent of a master's degree in computer science from Aarhus University in 1990 after completing a bachelor's degree in physics. From 1989, he was employed at TC Electronic in a small R&D department; he implemented software, firmware and DSP code for all TC Electronic products released in the first half of 1990s.

Morten left TC Electronic in 2003 to set up TC Applied Technologies, a fab-less semi-conductor company focusing primarily on the development and delivery of semiconductors and IP supporting audio networking technologies for the professional and consumer electronics sectors. These technologies include the DICE series of chips and the JET PLL.

#### **Steven Saffer, TC Applied Technologies**



Picture and BIO to follow.

Norm Verrall, HHB Canada



Norman Verrall is a respected industry veteran who studied electronics for 2 years at John Abbott College in Montreal, followed by 2 more years of study at George Brown College in Toronto, graduating with honours. His previous and ongoing operational and technical training is extensive.

He was then hired as the Technical Manager of Manta Electronics in 1977. In 1985, he became the Technical Manager at Studer Canada until 1999, when he assumed his current role as the Sales Manager of HHB Communications Canada.

His career started before the now mature analog to digital audio transitional era, and his wide and expansive history with analog and digital music production, reproduction, and archiving methods and systems qualifies him as one of the most knowledgeable pro audio professionals in the world.

## ELECTIONS



# Have you a hankering for Ultimate Power?

## CALLING FOR NOMINATIONS FOR THE **TORONTO SECTION EXECUTIVE COMMITTEE**

POSITIONS INCLUDE:  
Chair, Vice Chair, Secretary, Treasurer

Chief Bottle Washer could be available too, but you'd have to sweet-talk Dan out of holding that one.

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# Toronto AES Masters of Audio Series



**CHECK OUT OUR NEW TORONTO AES MASTERS OF AUDIO SERIES, FEATURING:**



[Toronto AES Seminar 2008](#)

## **The Roots of Our Toronto Sound**

A video of Recollections and Reflections on the 40th Anniversary of the Toronto Section of the AES with interviews featuring many of the studio owners, managers, designers, music producers and recording engineers, live sound company owners, professional engineers, scientists and gear designers who were or are active in the Toronto pro audio world over the last forty years.

[Tribute](#)

## **Neil Muncy**



Neil Muncy, Audio Engineer, 1938 - 2012, was a friend, colleague, teacher, and mentor to several generations of audio practitioners. Toronto AES held a special tribute evening, featuring thoughts and memories of those who knew him as a friend, who worked with him as a colleague.

We present video from this tribute, along with an audio series of interviews conducted by Alan Hardiman with Neil Muncy featuring stories and anecdotes from Neil's long career as a techno guru, designer and engineer.



[RETROSPECTIVE](#)

## **Audio Research Group**

The university of Waterloo's Audio Research Group is an important legacy of Drs John Vanderkooy and Stanley Lipshitz, out of which resulted significant research and graduates who now hold leading positions in prominent audio companies of the world.

We profile the work of an important education force in our audio society and the impact it had on its alumni and their careers.

[www.torontoaes.org/masters\\_of\\_audio/index.html](http://www.torontoaes.org/masters_of_audio/index.html)



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