



**MIDDLE  
TENNESSEE**  
STATE UNIVERSITY

**AES 50th International Conference**

**Audio Education**



**Program**

**July 25 - 27, 2013 • Murfreesboro, TN**

## —//— INTRODUCTION —//—

### **WELCOME *to the AES 50th International Conference.***

We're very pleased that you've chosen to take part in the Society's inaugural conference on audio education. The AES has a 65-year track record of promoting and disseminating advancements in the theoretical knowledge and practical applications of audio science, so education has always been central to the Society's mission.

For the first time, though, this conference offers a unique focus on pedagogy, curriculum and learning outcomes to assist audio professionals who teach in the growing number of secondary and collegiate audio engineering and music technology programs worldwide.

The official road to this event began almost two years ago when the AES Conference Policy Committee accepted our formal proposal to organize this event. However, the germ of the idea extends much further back, to conversations within the AES Education Committee and periodic musings among AES executive leaders and local representatives in Michigan, Massachusetts and Tennessee, just to name a few.

We're grateful for the encouragement, suggestions and support we've received from so many individuals and organizations who, together, have helped make this event possible. The contributions of our corporate sponsors have been invaluable, and we thank them for their participation, both financial and physical. Within the Audio Engineering Society, we want to recognize the support of AES headquarters staff, including Executive Director Bob Moses, Deputy Director Roger Furness, Journal Managing Editor Bill McQuaide, Convention Management Director Chris Plunkett and Chief Information Officer Steve Johnson. Thanks as well to Conference Policy Committee Chairs Jan Pederson and Diemer de Vries.

Here in Tennessee, we thank our colleagues in the AES Nashville Section, industry friends on Music Row, and especially our fellow faculty, support staff and graduate assistants in the Department of Recording Industry at Middle Tennessee State University.

We particularly commend and thank the authors and panelists because it's your experience, research and ideas that are the core of this conference, and we thank Papers Chair Jason Corey and Program Chair Alex Case for their excellent work

## — INTRODUCTION —

coordinating the paper review process and managing communications with dozens of contributors to the workshops and panels.

It's impossible for a single conference to address the full range of issues and achievements related to contemporary audio engineering education, but we hope that this event will serve as a baseline for future development and an inspiration for all of us—veterans and novices alike—to find meaning, quality, accuracy and effectiveness in everything we do with and for our students, clients and customers.

Finally, recognizing the importance of documenting our industry's history, we're pleased to announce the availability of the MTSU Center for Popular Music as a permanent and accessible research repository for recordings, documents, interviews and historical artifacts related to audio education. We stand on the shoulders of the pioneers who established the first academic audio programs only a generation ago. Contact us for more information about how you can help to preserve their legacies for future generations of scholars and audio practitioners.

Once again, thank you for being here, and we hope you enjoy the conference!

Michael Fleming and Bill Crabtree  
Conference Co-Chairs



## — PROGRAM —

THURSDAY, JULY 25<sup>th</sup>, 2013

**9:00-10:30 a.m.                      Mass Communication Building Atrium**

Registration, Coffee, Meet and Greet

**9:00 a.m.-5:30 p.m.                Product Demo Rooms**

Product demonstrations from conference sponsors API, SSL, Harman, Genelec, Parsons Audio, Harrison, Focal Press, Waves, Prism Sound and NARAS P&E Wing.

**10:30-11:00 a.m.                    CoE 164**

**(P66) *Are Audio Education Programs Keeping Pace with New Developments in Industry?***

**Author:** David Scheirman

**Abstract:** Educators teaching audio as a career are challenged by the latest developments their students will encounter in the job market. To ensure proper alignment of education programs with recording and sound industry expectations for new employees requires educators to understand changing technologies, tools and workflow. Recent trends that influence design of future curricula are reviewed. Current end-user training approaches taken by a professional audio equipment manufacturer are examined. It is suggested that a challenge for both educators and the vendors whose equipment their students will operate is the establishment of better communication channels to link the two environments.

**David Scheirman** is currently Director of Knowledge Resources for Harman Professional. From 1974-1992 he worked over 3,000 auditorium, arena and stadium shows around the world as well as the Olympic Games and a Presidential Inauguration. In 1997 he joined JBL Professional (Northridge, CA) where he managed that company's global tour sound marketing and product development efforts for 15 years while undertaking executive continuation studies in technology development, strategic marketing and finance at Stanford, M.I.T. and CalTech.

**11:00 a.m.-12:00 p.m.            CoE 160**

**(W12) *Pearl-Cohn High School: A Case Study of Collaboration Between Industry and Education***

**Panel:** Maureen Droney (NARAS P&E Wing), Jeff Balding (NARAS P&E Wing), Laurie T. Schell (*Music Makes Us*, Metro Nashville Public Schools), Susan Stewart (The Recording Academy), Sam Lorber (Pearl-Cohn High School)

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**Abstract:** This panel will discuss a recently completed collaborative project between The Recording Academy's (NARAS) Nashville Chapter and Producers and Engineers Wing, Nashville's *Music Makes Us* program and Pearl-Cohn Entertainment Magnet High School. With help and guidance from P&E Wing members and numerous manufacturers, Pearl-Cohn was able to build and install a world-class recording studio to serve its new recording program.

**11:00-11:30 a.m. CoE 164**

**(P6) *Why Didn't You Learn This at Recording School?***

**Author:** Douglass Bielmeier

**Abstract:** This article explores the areas of skill that New Hires lack as explained in the author's 2013 doctoral dissertation. The paper uses a re-analysis of the mixed-methods survey taken from the original dissertation in order to focus on the specific optional clarification comments made by Employers. It was concluded that New Hires' current curricula failed to teach communication and listening skills, and that the absence of a situated recording studio environment was one of the major factors. This paper also identifies the need for more research that includes the Employers and New Hires and directly involves AET educators and their institutions.

**Douglass Bielmeier** holds a dual-bachelors in Sound Recording Technology and Music Composition from the Hartt School of Music and a Masters degree in Music and Computer Composition from Bowling Green State University. He is a Washington D.C.-area recording engineer, musician, composer and educator, where he has been a Staff Engineer at District Entertainment Studios and a faculty member at the Art Institute of Washington over the last seven years. He is currently a doctoral candidate at Argosy University.

**11:30 a.m.-12:00 p.m. CoE 164**

**(P17) *Embedding of Employer and Practitioner Input into Student Portfolios—Results of a Project Commissioned by the UK Higher Education Academy***

**Author:** Mark Thorley

**Abstract:** Whilst employability has become one of the main drivers in audio education globally and in particular in the UK, the meaningful input of employers and/or practitioners into student work is inconsistent. This project, commissioned by the UK Higher Education Academy and carried out by Coventry University, aims to highlight the potential benefits of embedding employer and/or practitioner into the development of student portfolios. Through a distinct two phase engagement, it seeks to examine whether the relevance and quality of student work, together with their aspiration and performance, is improved by industry-orientated involvement.

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**Mark Thorley** is Principal Lecturer at Coventry University where he developed, launched and managed the Music and Creative Technologies Programme. His work now spans research, consultancy and academic leadership. He is a Senior Fellow of the Higher Education Academy and previously was an elected Director of the Music Producers' Guild.

**12:00-1:00 p.m.                      Lunch Hour                      (See Campus Dining Guide for options)**

**1:00-2:20 p.m.                      CoE 160**

***Keynote Address by Bob McCarthy, Senior Education Consultant, Meyer Sound***

**Abstract:** The ultimate challenge to any educator is to teach topics that are new even to him/herself. The field of professional audio is very young, and very rapidly evolving, leaving students and teachers alike in need of updated education. Modern audio education programs offer the opportunity for students to create a firm foundation upon which to launch their careers and later expand or specialize as desired. How can we, as educators, best prepare the next generation for an evolving audio world?

**Bob McCarthy** has been involved in all aspects of source independent measurement (SIM) since the breakthrough technology's inception in 1984 and has travelled worldwide to design and align sound systems for every type of venue. McCarthy created the original 40-hour comprehensive SIM School and has trained hundreds of SIM operators and all of the certified SIM instructors. His teaching style is fast-paced, rigorous, and marked by his ability to explain complex material in an understandable, practical manner. McCarthy recently executed a complete redesign of the SIM course to incorporate his newest alignment and design techniques, including up-to-date information on optimizing modern arrays and utilization of digital processing technology. McCarthy is the author of *Sound Systems: Design and Optimization*, the *SIM Sound Reinforcement Applications Guide* and the *Meyer Sound Design Reference*, a comprehensive guide to designing and optimizing sound systems. For further information on Bob McCarthy, please visit his website: <http://www.bobmccarthy.com>.

**2:20-2:30 p.m.                      Break                      (Refreshments provided in CoE 160 Lobby)**

**2:30-3:50 p.m.                      CoE 160**

***(W1) Audio Education Report Card***

**Panel:** Mark Rubel (The Blackbird Academy), Douglass Bielmeier (Art Institutes), David Tough (Belmont University), Kirk Imamura (Avatar Studios)

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**Abstract:** Professors Doug Bielmeier and Dr. David Tough have been conducting extensive research and administering surveys to examine how employers' need for audio engineers' skills and competencies are being met. How are we succeeding in preparing future engineers, and what areas can most be improved? Following a summary presentation of their results, we will relate the data to experience through a panel discussion including educators, a recently hired audio graduate and an employer. A brief open discussion of proposed solutions and strategies concludes, with suggestions for the facilitation of continued dialogue.

**3:50-4:00 p.m. Break**

**4:00-5:30 p.m. CoE 164**  
**(W10) *Introduction to Sound System Optimization***  
**Presenter:** Bob McCarthy

**Abstract:** This workshop is an introduction to Meyer Sound's in-depth education program. The workshop will be a very broad overview of essential principles involved in the design and measurement of complex sound reinforcement systems. Participants receive a basic grounding in the key parameters of audio measurement (phase response, impulse response) and how they relate to filters and phase alignment. A comprehensive summary of array configuration principles is integrated with a discussion of acoustical prediction theory using Meyer Sound MAPP Online. The seminar also introduces line array theory, outlining how different line array solutions apply in specific applications.

**4:00-5:30 p.m. COMM 191**  
**(W13) *Harman Listening Lab***  
**Presenters:** Sean Olive, David Scheirman

**Abstract:** Research has found that most sound quality percepts fall under the attribute categories of timbre, spatial, dynamic or related nonlinear distortion. Within these four attributes there are additional sub-attributes that describe more specific sonic characteristics of the attribute. *How to Listen* is a desktop software application with training exercises focused on improving your ability to identify, classify and rate different spectral and spatial artifacts simulated and added to music. The software is used at Harman for training and selecting listeners for audio product research, development, and evaluation. Harman has made the software available to the public for free so that they may improve their critical listening skills and appreciation for higher quality sound reproduction. You can learn more about the software and download it at: [www.harmanhowtolisten.blogspot.com](http://www.harmanhowtolisten.blogspot.com).

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**7:00 p.m. Banquet Dinner, DoubleTree Hotel (Main Ballroom)**

All conference authors, delegates and sponsors are invited to dinner and entertainment at the conference hotel. Dinner is included with conference registration. A cash bar will be available, and entertainment is provided by MTSU alumnae Rachel Pearl and Treva Blomquist. The banquet is sponsored by Solid State Logic.

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**8:30-10:30 a.m. Mass Communication Building Atrium**

Coffee provided at Registration/Information Desk.

**9:00 a.m.-5:15 p.m. Product Demo Rooms**

Product demonstrations from conference sponsors API, SSL, Harman, Genelec, Parsons Audio, Harrison, Focal Press, Waves, Prism Sound and NARAS P&E Wing.

**9:00-10:30 a.m. CoE 153**

**(W11a) *Effective College Teaching (Part 1): Planning for Instruction, Designing Effective Lessons and Devising Meaningful Assignments***

**Presenter:** Jane Williams, Professor, MTSU College of Education

**Abstract:** This session will focus on teaching techniques that are grounded in the research about effective college teaching. Specifically in this session: What does the research tell us about the characteristics of effective college teaching? How can we plan and implement classroom lessons and experiences that increase the probability of student learning? How should we approach creating assignments that supplement or solidify student learning and avoid being viewed by students as “busy work?”

**9:00-9:30 a.m. COMM 101**

**(P24) *Critical Listening and Acoustics as an Essential Part of the Audio Production and Sound Technology Curriculum***

**Authors:** Paul Thompson, Ben Mosley, Michael Ward

**Abstract:** Drawing upon current literature, qualitative and quantitative data, this paper describes the authors’ experiences of curriculum development and delivery of a dedicated module in Acoustics and Critical Listening. In addition, it outlines the initial impact this module has had



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on the development of students' skills and knowledge in this area and discusses some of the challenges faced through teaching acoustics and critical listening in the classroom.

**Paul Thompson** is a senior lecturer at Leeds Metropolitan University where he teaches acoustics, psychoacoustics and studio production on the Music Technology and Music Production programs. Paul also continues to work as a freelance recording engineer for both studio and radio productions and his main research interests include informal music learning practices, creativity and cultural production in popular music.

**9:30-10:00 a.m.                      COMM 101**

**(P35) *Ear Training for Non-technical Students Using a Web-based Training System***

**Author:** Akira Nishimura

**Abstract:** This paper focuses on audio education for non-technical students. Ear training accompanied with lectures is intended to promote careful listening to sounds and learning about the factors that control audio quality through audio experiences. A web-based training system implemented by the author for in-classroom simultaneous and individual ear training was used. Quantitative analysis of student learning scores with and without ear training revealed a significant difference. The results of questionnaires at the end of the course revealed that the majority of students evaluated positively both in-classroom and individual use of the web-based training system.

**Akira Nishimura** is a faculty member of Tokyo University of Information Sciences, where he is a professor in the Department of Media and Cultural Studies. He received his B.Eng. and M.Eng. degrees in acoustics from Kyushu Institute of Design in 1990 and 1992 respectively. He received his Ph.D degree in audio information hiding from Kyushu University in 2011. He is a member of Acoustical Society of Japan, Audio Engineering Society, IEEE, and Japanese Society of Music and Cognition as well as a former chair of the AES Japan Section.

**10:00-10:30 a.m.                      COMM 101**

**(P27) *Utilizing Effective Media, Demonstrations and Exercises on the Perception of Sound***

**Authors:** Sandra Guzman, S. Benjamin Kanters, Pantelis Vassilakis

**Abstract:** One of the key challenges in the development of curriculum for future audio professionals is to achieve a balance between theory and practice that fosters the necessary critical thinking skills in order to be successful in the field. Understanding sound perception is a crucial piece in the development of these skills in audio. In courses focusing on hearing physiology and psychoacoustics, we have utilized and developed a range of media, demonstrations and exercises that reference students' interest, as well as knowledge and

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experience from practicum courses. These activities reinforce concepts and nurture the development of creative problem solving and evaluation. Examples of effective teaching tools will be discussed, as well as challenges and pitfalls that may arise.

**Dr. Sandra Guzman** teaches courses in hearing perception including Studies in Hearing, Psychoacoustics, and Perception and Cognition of Sound at Columbia College Chicago. Dr. Guzman has formal training in behavioral science specializing in auditory perception. She also has industry experience assessing various listening experiences such as speech, music, ringtones and user interface sounds (earcons).

**10:00-10:30 a.m.                    COMM 191**

**(P41) *A Collegiate Audio Internship Program: A Comprehensive Model***

**Author:** Daniel Pfeifer

**Abstract:** This paper presents a comprehensive model for a collegiate audio internship program. The model is based on the program currently implemented at Middle Tennessee State University.

**Daniel P. Pfeifer** is a Professor of Recording Industry and the Audio Internship Coordinator at Middle Tennessee State University. He earned a B.M. at Middle Tennessee State University (1983) and M.A. at University of Memphis (1987) in audio engineering and music production. Mr. Pfeifer has consulted with companies such as National Public Radio, Turner Studios, Studer Professional Audio, Automated Processes Inc. (API) and others. He has also received several awards including the MTSU Distinguished Achievement in Creative Activity Award (2008) and the Tennessee Board of Regents Academic Excellence and Quality Award (2001).

**10:30-11:30 a.m.                    Sponsor Hour**

Product demonstrations and interactive sessions with conference sponsors API, SSL, Harman, Genelec, Parsons Audio, Harrison, Focal Press, Waves, Prism Sound and NARAS P&E Wing.

**11:30 a.m.-12:30 p.m.            CoE 160**

**(W3) *Beyond the Recording Studio: Industry Career Options for Audio Program Graduates***

**Panel:** David Scheirman (Harman Professional), Fadi Hayek (Solid State Logic), Scott Pederson (Waves), Buford Jones (Meyer Sound)

**Abstract:** Many of today's audio educators are primarily focused on the recording studio environment. Numerous programs exist to train students in music technology and recording

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techniques. Can today's audio industry effectively absorb each year's new graduates? What are other professional options for those interested in a job working with music and sound? A team of industry veterans will review their own paths within audio and discuss alternative career positions beyond the recording studio environment.

**11:30 a.m.-12:00 p.m.      COMM 101**

**(P37) *Feedback Frequency Identification and Reduction Primer (FFIRP): Development of a Training and Application E-book***

**Authors:** Mike Estep, Chuiyuan Meng

**Abstract:** This study discusses the necessity for and development of the Feedback Frequency Identification and Reduction Primer (FFIRP) e-book. FFIRP will include the following combined training materials: (a) Audio Frequency Theory, (b) Frequency Reference Points, (c) Relative Pitch, (d) Mnemonic Imagery, and (e) a 31-band Graphic EQ App.

**Dr. Mike Estep** is an Associate Professor in the Department of Computing and Technology at Cameron University in Lawton, Oklahoma. Dr. Estep received a B.A. in Music Education and an M.T. in Computer Science from Southeastern Oklahoma State University as well as Ed.S. and Ph.D., both in Computing Technology in Education, from the Graduate School of Computer and Information Sciences at Nova Southeastern University. Dr. Estep is a Senior Member of the Association of Computing Machinery, a Full Member of the Audio Engineering Society, and serves on the Editorial Board for the Journal of Information Systems Education. He is currently pursuing an M.S. in Music Technology.

**12:00-12:30 p.m.      COMM 101**

**(P18) *Sea and Sound Waves: Islands of the North Atlantic and the Challenges of On-line Music Collaboration in a New Scottish University***

**Authors:** Miriam Iorwerth, Mark Sheridan, David Paterson, Bryan Peterson

**Abstract:** The University of the Highlands and Islands has introduced a new B.A. in Applied Music designed to equip music students to work effectively in the contemporary market place and within the unique and remote geography of the Highlands and Islands of Scotland. *Remote Digital Music Collaboration* is a key class which is delivered on-line and by video conference, and teaches audio engineering skills to musicians. Our paper examines these modes of delivery. Data provided by students and staff is used to highlight specific successes and challenges encountered when using technology to collaborate musically over long distances.

**Miriam Iorwerth** graduated from the Tonmeister course at the University of Surrey, England, and is a music lecturer at the University of the Highlands and Islands, Scotland. Prior to

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teaching, she worked in broadcasting automation and spent time in Antarctica as a radar engineer. She is particularly interested in the effect of technology on musical performance.

**12:30-1:30 p.m.                      Lunch Hour                      (See Campus Dining Guide for options)**

**1:30-3:00 p.m.                      CoE 160**

**(W7a) *Towards a Systematic Ear-Training Curriculum: Effective and Efficient Learning in Audio Education***

**Panel:** Sungyoung Kim (Rochester Institute of Technology), Timothy J. Ryan (Webster University), Jason Corey (University of Michigan), Doyuen Ko (McGill University), Kazuhiko Kawahara (Kyushu University)

**Abstract:** Critical listening is essential for sound recording, mixing and mastering in order to obtain high quality sound. A systematic training curriculum for critical listening can help trainees become expert listeners in a reduced amount of time relative to similar experience gained in a job setting. The workshop aims to discuss the opinions of educators regarding the necessary features and methods for efficient ear training, and to share their in-depth experience, know-how and insights in ear training to link academic training to practical challenges on the job. Furthermore, the workshop aims to outline approaches to technical ear training, provide practical tips for assignments and classroom work, and review the importance of listening in audio education.

**1:30-2:00 p.m.                      COMM 101**

**(P25) *Teaching Analog Signal Flow in the Interactive Virtual Environment***

**Author:** Gabe Herman

**Abstract:** The ability for a student to successfully operate an analog mix console is a baseline skill. However, teaching these systems in an academic studio environment poses many difficult challenges including access to physical resources and teaching methods that facilitate interactive exploration of technical material. The objective of this research is to develop a virtual software simulation of the logic system and user interface of an analog console that provides students a way to learn and practice signal flow operations outside of the classroom. Initial anecdotal results have shown an increase in student understanding of analog systems and increased efficiency in coursework. Further research will pertain to development of various features of the simulator software.

**Gabe Herman** is currently the Assistant Director of The Department of Music Production and Technology and adjunct faculty in the Department of Performing Arts and Music Management

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at the Hartt School of Music in Hartford, CT. He has won awards at over 21 film festivals for his film scores and sound design and has had work featured on multiple national radio programs. Gabe is also the owner and operator of Audiogabriel, where he has worked with such artists as Macy Gray, Bill Kreutzmann (The Grateful Dead), Mike Gordon (Phish), G-Love, JoJo, John Medeski, Bob "Ra-Kalam" Moses, John Lockwood, Tisziji Munoz, Chen Yi, Nat Reeves and Walter Beasley.

**2:00-2:30 p.m. COMM 101**

**(P40) *Thinking Inside The Box: An Overview of a Mixing Techniques and Technologies Course***

**Author:** John Merchant

**Abstract:** The Mixing Techniques and Technologies course currently offered at Middle Tennessee State University was designed to help students develop core conceptual and technological competencies regarding the art and science of audio mixing. This presentation will include an overview of the course topics, assignments and materials as well as review of mixing approaches that connect with students and develop a more solid foundation by focusing on fundamental skills and the value of deliberate practice. Additionally, there will be a discussion of applicable teaching materials, including printed texts, videos, online sites and other available resources.

**John Merchant** is an Assistant Professor of Audio Production at Middle Tennessee State University. He entered the field by working as an intern at Middle Ear Studios, owned by Barry, Robin and Maurice Gibb of the Bee Gees, where he advanced from assistant to Chief Engineer. In 2004, he opened his own studio, RedDoor, in Miami. His credits include Barbra Streisand, Michael Jackson, R. Kelly, Toni Braxton, Celine Dion and Lenny Kravitz, as well as producers Arif Mardin, David Foster, Russ Titelman, Raphael Saadiq, Phil Ramone and many others.

**2:30-3:00 p.m. COMM 101**

**(P53) *Audio Engineering as Cooperation: Learning Experience in a Multi-Professional University Environment***

**Author:** Erik Nordström, Caroline Stenbacka Nordström

**Abstract:** The paper presents a learning environment where recording engineering students work together with studio musician students. A learning environment, in our definition, is a setting for learning experience, and therefore dependent on conditions being as realistic as possible. The purpose of the empirical study was to gather data regarding possible learning experiences among sound engineering alumni that work as professionals in the recording

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industry. Alumni value the campus learning environment highly and consider sociocultural skills acquired to be of high importance for their professional careers, where cooperation with producers and musicians is essential.

**Erik Nordström** is an Assistant Professor in Audio Technology at the Luleå University of Technology in Sweden. He is also a consultant/producer at Opus3 Records. He has engineered for Stockholm Records, Polydor and Caprice Records among others. For the last seven years he has written the column *The Studio* in the Swedish Guitar Magazine *FUZZ*.

**3:00-3:15 p.m.                      Break    (Refreshments provided in CoE 160 Lobby)**

**3:15-4:15 p.m.                      CoE 160**

**(W8) *Integrating Metadata Education into Existing Recording Curricula***

**Panel:** Cosette Collier (MTSU), Alison Booth (Sony Music Nashville), Maureen Droney (NARAS P&E Wing), John Spencer (BMS/Chace), Bil VornDick (producer, engineer, educator)

**Abstract:** Metadata for recorded music is a current hot-topic. This discussion will provide an overview of why metadata is so important, what progress is being made toward more successful implementation, what can be and is being done right now, and why metadata education should become an important part of any entertainment business curriculum. In today's fast changing environment, new opportunities exist for those who understand the need for and implementation of metadata. Schools have a tremendous opportunity, and indeed an obligation, to engage tomorrow's leaders in this vital topic.

**3:15-3:45 p.m.                      COMM 101**

**(P15) *Atlantic Crossing: 20 Years of Music Production and Recording at the University of Stavanger***

**Author:** Mark Drews

**Abstract:** In August 2013, the University of Stavanger will welcome a new class of students to the 20th year of the school's Music Production and Recording program. Originally intended as continuing education for professional audio engineers from the Norwegian Broadcasting Company, the program has evolved into a unique opportunity for mature students to collaborate and enhance their knowledge of music production and recording through practical experience and research. This paper discusses the program's history including early connections to the University of Miami's Music Engineering program and the NRK, the planning and launch of the program, and the experiences, changes, and challenges of the program's first two decades.

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**Mark Drews** is director of music production and recording studies at the University of Stavanger in Norway. From 1984 to 1995, he was senior audio engineer/lecturer at the Syracuse University School of Music and an active independent recording engineer/musician in Central New York. He is also author of *New Ears: The Audio Career & Education Handbook* in addition to being the designer and installer of a variety of audio facilities for music recording and sound for picture.

**3:45-4:15 p.m. COMM 101**

**(P54) *A Review of the Status of Audio Engineering Education in Australia***

**Author:** Mesia McKinnon-Bassett

**Abstract:** After the late 1980s, Australian educational institutions that traditionally offered vocational-level courses began to gain accreditation to deliver degree-level programs, resulting in rapid growth within the private sector. Since there is little published information available detailing how effectively private colleges offering audio engineering and sound production qualifications in Australia (specifically Sydney) have adapted to this shift, a questionnaire consisting of 27 long answer questions was therefore administered to staff across all three private audio engineering providers in Sydney. The questionnaire was designed to investigate if there is a cultural divide between academic and vocational cultures as the literature suggests. There appeared to be a strong correlation between the literature and the state of current audio engineering education as reported by the respondents in regards to: cultural divisions between academic and vocational cultures, attitudes towards different aspects of vocational and academic practice and processes, and opinions of staff at these institutions towards the current state of audio education.

**Mesia McKinnon-Bassett** is an independent researcher based in Dubai, UAE.

**4:15-5:15 p.m. CoE 160**

**(W2) *Current Practices in the Delivery and Assessment of Internships in Audio Education***

**Panel:** Daniel Wujcik (Belmont University), Daniel Pfiefer (MTSU), John Krivit (New England Institute of Art)

**Abstract:** Three institutions will present current practices employed in audio internships found at the public, private/non-profit, and for-profit level. An overview of methods and models used, instruments developed to measure student performance, and the results produced as applied to continuous program improvement and accreditation will be examined.

**4:15-4:45 p.m.**

**COMM 191**

***(P42) Communication, Collaboration, Creativity and Communities of Practice: Music Technology Courses as a Gateway to the Industry***

**Authors:** Steve Parker, Bob Davis

**Abstract:** The growth in popularity of music technology degree programs in the UK was paralleled by a decline in the informal apprenticeship system that had traditionally provided a gateway to employment in the recording industry. This paper examines the changes in approaches to training in higher education and compares it with the apprenticeship system of the past. Using interviews with industry professionals, current students and recent graduates who have achieved some success in the industry, the paper maps the significant changes in this training model against changes in the professional environment. Our findings suggest that the educational models used over the past 20 years have tended to focus on areas such as tools and technology rather than the social, aesthetic and human skills that the apprenticeship model promoted. We argue that some 20 years after the initial development of Music Technology courses here in the UK, this is an ideal time to reconsider the nature of music technology programs.

**Bob Davis** is senior lecturer in music technology at Leeds Metropolitan University.

**4:45-5:15 p.m.**

**COMM 191**

***(P55) Professional Certification's Place in Higher Education***

**Author:** Adam Olson

**Abstract:** Universities and places of higher learning sometimes face difficulty trying to incorporate industry standard certifications offered by companies such as Avid, Apple and Adobe. In many cases, certification courses relieve instructors from having to write new outlines and adapt curriculum to work with new features released in software updates. These updates may negate the need for previous software and/or hardware methods. The courses can lower overall cost of hardware and software upgrades as well. Though there are many benefits of industry standard certifications, there is also drawbacks curricula face in offering these courses, which will be covered. This paper also explores several other options that may be incorporated to make such offerings possible.

**Adam Olson** graduated from BYU with a degree in Recording Technology. He went on to study audio at the Conservatory of Recording Arts and Sciences in Tempe, AZ. After his time at Quad Recording Studios in New York, Adam decided to pursue a Masters degree in Recording Pedagogy in Denver, Colorado. It was there that he opened Studio Prime and continued to teach Digital Audio Workstations such as Pro Tools, Logic, and Cubase. Adam currently teaches audio recording at Shenandoah University.



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**6:15 p.m. Studio Crawl and Dinner/Reception**

Buses leave the DoubleTree hotel at 6:15 and 6:45 p.m. and head to Nashville and Music Row for studio tours and a dinner reception. Behind-the-scenes tours will be provided at Ocean Way Studios and “Historic” RCA Studio B, with the reception to follow at the former RCA Studio A, now operating as Ben’s Studio. Transportation, food and drink are included for all conference authors, delegates and sponsors. The Nashville Studio Crawl is sponsored by API.

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**8:30-10:30 a.m. Mass Communication Building Atrium**

Coffee provided at Registration/Information Desk.

**9:00 a.m.-5:00 p.m. Product Demo Rooms**

Product demonstrations from conference sponsors API, SSL, Harman, Genelec, Parsons Audio, Harrison, Focal Press, Waves, Prism Sound and NARAS P&E Wing.

**9:00-10:30 a.m. CoE 153**

***(W11b) Effective College Teaching (Part 2): Student Participation, Students’ Learning Needs and Characteristics of Millennials***

**Presenter:** Jane Williams, Professor, MTSU College of Education

**Abstract:** This session will focus on teaching techniques that are grounded in the research about effective college teaching. Specifically in this session: How can we (and why should we) plan for active student involvement in the classroom? What impact does the variety of student learning styles have on the effectiveness of our instruction? Why does the current generation of college students act the way they do?

**9:00-9:30 a.m. COMM 191**

***(P43) Teaching Audio Signal Processing Theory without Calculus or Complaints***

**Author:** Will Pirkle

**Abstract:** This paper examines the methodology the author has been using in the classroom for ten years to teach complex audio signal processing without calculus or an abundance of stuffy engineering theory. The process includes leveraging students’ high-school math knowledge and the way they were taught to solve math problems to show them how to analyze digital filters using nothing more than addition and multiplication. Next, help the students make the decision that embracing a few complex-math ideas will ultimately save them time over rote calculations.

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Finally, provide them with tools to let them hear the results of the math that they developed. Hearing the algorithm in real time is the final proof that the theory really does work and effectively engages the student to internalize the information.

**Will Pirkle** is an Assistant Professor of Music Engineering Technology at the University of Miami Frost School of Music. His latest book is *Designing Audio Effect Plug-ins in C++* (Focal Press).

**9:00-9:30 a.m. COMM 101**

**(P60) *Education for Music Production in Africa: An Imperative for Progress***

**Author:** David Gleeson

**Abstract:** One major disruption in the production chain has been the demise of recording studios that traditionally provided engineers and producers with on-the-job skills training. In the West, universities and other institutes have filled this education gap and the music industry continues to function despite broader problems. For the African continent, however, the education gap has yet to be filled. Given that Africa now boasts the highest mobile device growth rates in the world, an ideal platform for music distribution is already in place. But the chain to that platform is broken at least in part by a lack of production skills. Education is urgently needed. This paper proposes a pilot scheme in Zimbabwe partnering corporations, government, musicians and other stakeholders to provide the human skills required to adopt new technologies in the music industry.

**David Gleeson's** career began more than 20 years ago at Decca's recording center in Belsize Park, London. After later working at Abbey Road Studios, David moved to California where he worked for two years on the scoring stage at Skywalker Sound. In 1998, he founded a post-production studio in Marin County with sound designer Ren Klyce and editor Malcolm Fife. He has won one Grammy Award and received several other Grammy nominations. David is also a graduate in physics of the University of London.

**9:30-10:00 a.m. COMM 191**

**(P13) *Learning About Harmonics by Means of a Vacuum Tube Guitar Amplifier***

**Author:** Toshihiko Hamasaki

**Abstract:** The traditional electric guitar system, composed of pickups and a vacuum tube amplifier, is a typical analog sound generator with harmonics. The colorful spectrum is created by controlling various non-linearities originated from biasing of the circuit elements, especially the triode vacuum tube of the head amplifier. In this paper, a Marshall JCM800 2203 model (recognized as the industry benchmark) is employed to demonstrate that the system is one of the

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best tools for learning about harmonic distortion sounds associated with the generation mechanism by measurement and SPICE simulation (Simulation Program with Integrated Circuit Emphasis).

**Toshihiko Hamasaki** is a professor at the Hiroshima Institute of Technology in Japan. He earned his Ph.D at Hiroshima University in 1984 and has since specialized in high-speed device physics as well as DAC/ADC design. In 2004, he won the Texas Instruments Fellow award and became a senior member of the IEEE.

**9:30-10:00 a.m.                      COMM 101**

**(P33) *Creating a System to Assist the Educator in the Training of the Novice Boom Operator***

**Author:** Peter Damski

**Abstract:** One of the challenges facing teachers of production sound for film is providing a meaningful classroom experience for their students. The optimal learning experience for production sound students takes place during actual on-set shoots. The goal of this paper and the system described herein are intended to provide a realistic training experience for the novice boom operator when working in a classroom environment. The paper will discuss the conception, design and construction of the Boom Training System. In addition, implementation and student review will be described.

**Peter Damski** is a professor of sound design at the Savannah College of Art and Design in Savannah, Georgia. His credits include *Will & Grace*, *Mad About You*, *My Wife and Kids*, and *Hannah Montana*, to name a few. His work on *Mad About You* earned a Primetime Emmy Award for Outstanding Sound Mixing in 1994 and 1995.

**10:00-10:30 a.m.                      COMM 191**

**(P57) *A Simple, Educational Microphone Preamplifier Design to Support the Teaching of Introductory Electronics to Students of Audio***

**Author:** Robert-Eric Gaskell

**Abstract:** This paper describes an educational microphone preamplifier design (the “EMP”) intended to teach the basic concepts of electrical engineering that may be useful to students in undergraduate audio engineering and sound recording programs. The design is broken up into simple sub-circuit modules that can be built and tested as part of a laboratory section of a larger course when supported by a series of lectures on basic DC and AC circuit theory. In laboratory exercises, students may swap components within the included design to learn about the function of each sub-circuit. The combined sub-circuits provide students with a low-cost yet high quality microphone preamplifier.

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**Robert-Eric Gaskell** is a recording engineer, researcher and analog electronics designer. He has been teaching audio electronics at the graduate, undergraduate, and professional-certificate levels for the past seven years. He is currently a Ph.D candidate at McGill University in Sound Recording.

**10:00-10:30 a.m.                    COMM 101**

**(P23) *The Case of the Unsuccessful Student: Exploring an Assessment Model Used at a Canadian For-Profit Postsecondary Institution***

**Author:** Benjamin Coulas

**Abstract:** This paper describes a case study showcasing a unique assessment model called the Practical Applied Skills Exam (PASE) used at a private, for-profit, post-secondary institution in Canada. The PASE creates a practical situation with the instructor acting as a client and the student acting as an audio engineer. A high level of competency is required to pass the PASE, and students that fail are required to retake the course. The article discusses pedagogical and organizational implications using structural, human resource, political and symbolic frames of reference. The benefits and drawbacks of the PASE need to be understood to inform academic practices that support the goals and values of the institution and the needs of the audio industry.

**Ben Coulas** graduated from the Recording Arts Master Program at the Center for Digital Imaging & Sound and has since received a Provincial Instructors Diploma and a Diploma in Adult Education from Vancouver Community College. He has designed workshops, courses and complete programs including a Bachelor's Degree program currently being offered at post-secondary institutions in the United States. He currently teaches full time at The Art Institute of Vancouver, where he has received awards for teaching and service excellence and is furthering his education at Simon Fraser University pursuing a Masters of Educational Leadership (Post-Secondary Education) that will be completed in Summer 2013.

**10:30-11:00 a.m.                    Break**

**11:00 a.m.-12:00 p.m.           CoE 160**

**(W6) *Audio Education at the Masters Level and Beyond***

**Panel:** Michael Fleming (MTSU), Jan Berg (Luleå Institute of Technology), Leslie Gaston (University of Colorado Denver), Jamie Tagg (McGill University)

**Abstract:** This interactive discussion will explore the factors that distinguish post-graduate programs in audio and music technology from their undergraduate counterparts. Faculty members, program administrators and a current graduate student will share their perspectives on

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the traditions and specialized nature of post-graduate training. In what ways do these traditions help or hinder the development of effective college teachers for undergraduate audio students?

**11:00-11:30 a.m.                    COMM 191**

**(P46) *Recording Our Future: A Collaborative Audio Production Learning Experience***

**Author:** Daniel Wood

**Abstract:** Oswego Middle School general music classes have teamed up with SUNY Oswego audio production students and faculty via SUNY Oswego's Adopt-a-School program to offer middle school students expanded opportunities for creative musical expression through the use of audio recording technology and MIDI sequencing. Through project-based recording activities, middle school students explore the process of communicating musically and develop original compositions. Further, middle school students become familiar with the process of song writing and musical creation, increase their college awareness and begin exploring future career paths.

**Dan Wood** has taught audio engineering and production classes for the Department of Music at SUNY Oswego for the past fifteen years. Dan earned a B.S. in Sound Recording Technology from SUNY Fredonia and a M.S.Ed in Vocational-Technical Education from SUNY Oswego. He has engineering credits on several gold and platinum albums, including work from the recording artists Public Enemy, Ice Cube, A Tribe Called Quest, and the French group I a.m.

**11:00-11:30 a.m.                    COMM 101**

**(P62) *Capturing Artifacts to Track the Knowledge, Skills and Dispositions of Recording Arts Students***

**Author:** Lorne Bregitzer

**Abstract:** Tasked with capturing artifacts, a recording arts program inside a larger college faces many challenges. Since these artifacts are designed to show off the knowledge, skills, and dispositions of the students, making them stand out on a website amongst fellow students' work in allied fields such as digital animation and film presents a challenge to recording arts faculty. Creating compelling web-ready media requires that the artifacts created are visually appealing and convey the students' understanding.

**Lorne Bregitzer** is an Assistant Professor at the University of Colorado Denver. He has written a book, *Secrets of Recording*, as well as created Pro Tools tutorial videos for Focal Press. Lorne has engineered recordings for artists such as Eminem, NSYNC, Styx, Blues Traveler, D'Angelo, Henry Rollins, The Samples, Mark O'Connor and many others.

**11:30 a.m.-12:00 p.m.    COMM 191**

***(P56) Experimental Comparison of Two Versions of a Technical Ear-Training Program: Transfer of Training on Tone Colour Identification to a Dissimilarity-Rating Task***

**Authors:** Mark McKinnon-Bassett, William Martens, Densil Cabrera

**Abstract:** Two versions of a technical ear training (TET) program were developed, both of which required participants to identify the center frequency of a parametric filter that had been applied to a pink noise signal. One group of participants made center-frequency reports by continuously adjusting the center frequency of a variable filter applied to the test stimulus until it matched that of a previously presented standard stimulus. In contrast to this ‘Identification by Continuous Adjustment’ (ICA) version of the tone colour identification training program, a second group of participants made center-frequency reports by guessing the center frequency without continuously adjusting the filter frequency as participants could in the ICA condition. This alternative training was termed the ‘Identification by Successive Approximation’ (ISA) version, and was used exclusively during a six-week technical TET course by half of the participants, with training sessions running in parallel with those of the other half of the participants engaged with the ICA version. Among a variety of post-training tasks, all of which were performed to examine the potential transfer of training to related tone colour identification tasks, was a dissimilarity-rating task in which nine synthetic conga sounds were presented for paired comparison. A clear difference in the derived two-dimensional spatial representation resulted from separate INDSCAL (INDividual DifferencesSCALing) analyses of the dissimilarity data obtained from the two training groups.

**Mark McKinnon-Bassett** is a Ph.D candidate at the University of Sydney where his research is focused on the relative influence of training method on tone colour discrimination. He is currently the Campus Academic Coordinator and Senior Lecturer at the SAE Institute in Dubai.

**11:30 a.m.-12:00 p.m.    COMM 101**

***(P49) Encouraging Students Towards Meaningful Subjective Comparisons***

**Author:** Bradford Swanson

**Abstract:** As instructors emphasize the importance of our students “using their ears” to make important decisions in their creative processes, we call upon them to listen subjectively to qualities of equipment, instruments, performances, media types, algorithms and production possibilities. Preparing situations where they can compare these items critically and earnestly can be challenging. Neglecting to account for certain variables can have significant implications on what they hear and in turn their subjective perceptions. By creating carefully controlled experiments and experiences in our classrooms and studios, hopefully we can model a rigorous research approach that they will take with them whenever they are recording, while also

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promoting critical listening and careful decision making throughout an audio/recording curriculum

**Bradford Swanson** is a New York based engineer, musician and educator. He is a 2001 graduate of Shenandoah University and received his M.M. in Sound Recording Technology from the University of Massachusetts, Lowell in 2012. He has worked extensively as a keyboardist and arranger, touring and recording with Mason Jennings, Lindsay Lohan, Boyz II Men and JT Hodges. He has also been active as a production manager and front-of-house engineer, including work for The Bad Plus, The Jazz at Lincoln Center Orchestra, Darcy James Argue's Secret Society, Kurt Elling, Regina Carter and Miguel Zenon.

**12:00-1:00 p.m.                      Lunch Hour                      (See Campus Dining Guide for options)**

**1:00-2:00 p.m.                      CoE 160**

**(W5) *Assessment Tools: Grading the Creative***

**Panel:** Phil Valera (Barton College), Christopher Plummer (Michigan Technological University), Curtis Craig (Penn State University)

**Abstract:** A panel-led discussion using example assignments and assessments provided by audio educators will examine the relationships between assignments, assessments and learning. Starting with how assessment tools help organize an instructor's critical response and evaluation of a project, we will discuss how that can increase clarity and consistency. Special focus will be placed on how assessment supports or undermines the encouragement of creativity and self-motivated learning.

**1:00-1:30 p.m.                      COMM 101**

**(P50) *Constructionist Learning with Pure Data: A Graphical Environment for Audio and MIDI Programming***

**Author:** Aaron Reece

**Abstract:** An understanding of the fundamental concepts of digital audio, synthesis, and MIDI is essential to success in the fields of audio and music technology. While computer software should support such understanding, commercial software often hides the mechanics of audio and MIDI processing under a layer of outdated skeuomorphs and limitations inherited from analog equipment. Audio programming languages assume a high level of preexisting theoretical knowledge. Pure Data, in contrast, encourages Constructionist learning with its intuitive and engaging user interface. This presentation describes several Constructionist aims and provides

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examples of how Pure Data can be utilized in an audio, synthesis, or music technology course to achieve these goals.

**Aaron Reece** has been making music with computers for 30 years. He is a composer and oboist, and a graduate of Northwestern University, West Virginia University, and the Eastman School of Music. In addition to programming synthesizers with Pure Data, he enjoys building and playing harpsichords.

**1:30-2:00 p.m. COMM 101**

**(P45) *Approaches to Signal Flow Pedagogy: A Black Box Model and Scalable, Interactive Studio Modeling Using Prezi Presentation Software***

**Author:** Ian Anderson

**Abstract:** Mastery of signal flow is arguably the most important skill for students of audio engineering to possess. Few, however, will argue against the notion that supervised time in studio facilities benefits a student's grasp of signal flow far greater than lecture hall presentation, inherently limited by linear lecture structures and a lack of hands-on time with equipment. This paper describes an alternative approach to signal flow pedagogy that can be employed both in and out of the classroom/studio utilizing Prezi, a web-based presentation software application. An experiment was designed to test whether this alternative pedagogical approach proves more effective in preparing students for a set of tasks than a more commonly used presentation and study aid. Results show statistically insignificant though discernible learning outcomes that warrant further investigation.

**Ian Z. Anderson** is an Assistant Professor of Communication and Recording Industry Studies at Butler University in Indianapolis, Indiana. His work with Prezi, including all works referenced by this paper, can be accessed through his Butler webpage:  
<http://blogs.butler.edu/ianzanderson/>

**2:00-2:15 p.m. Break (Refreshments provided in CoE 160 Lobby)**

**2:15-3:15 p.m. COMM 191**

**(W7b) *Towards a Systematic Ear-Training Curriculum: Effective and Efficient Learning in Audio Education***

**Panel:** Sungyoung Kim (Rochester Institute of Technology), Timothy J. Ryan (Webster University), Jason Corey (University of Michigan), Doyuen Ko (McGill University), Kazuhiko Kawahara (Kyushu University)



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**Abstract:** This will be a hands-on interactive continuation of W7a (Friday, 1:30 p.m., CoE 160).

**2:15-2:45 p.m.**

**CoE 164**

**(P21) *From Practice to Research and Back Again: Research Skills in Audio Engineering Education***

**Authors:** M. Nyssim Lefford, Jan Berg

**Abstract:** Given the rate and nature of change in media technology, future audio engineers should expect to manage production scenarios of greater complexity using less proven techniques. Meeting these challenges will require, in addition to knowledge of essential recording technology and established methods, analytical skills, the ability to self-direct inquiry and flexible, open-ended capacities in problem solving. We have designed an undergraduate audio technology course that provides opportunities to develop these capacities. Our approach situates students in an authentic research environment. By deconstructing and assessing published research, contrasting varied approaches, vetting solutions, evaluating results and designing their own research plans, students gain knowledge and skills that support professionalism in both the research lab and the recording studio.

**Nyssim Lefford** received a Bachelor of Music in music production and engineering and in film scoring from Berklee College of Music; from the Massachusetts Institute of Technology, she received her M.S. for work on networked music collaboration and Ph.D for research on auditory perception, preferences and the generative processes of musical creators. She pursued postdoctoral studies at University of Prince Edward Island, Music Cognition Lab. Outside of academia, she has been a senior researcher at Sweden's Interactive Institute. Nyssim is an Assistant Professor of Audio Technology at Lulea University of Technology.

**2:45-3:15 p.m.**

**CoE 164**

**(P65) *Undergraduate First Semester Audio Project***

**Author:** Christopher Plummer

**Abstract:** There is currently a focus on the importance of first year experiences in the retention and success of undergraduate students. The Visual and Performing Arts department at Michigan Technological University developed a first semester course that immediately engages students in production work and supports a transition to self directed learning in a structured creative environment. This paper provides details of that course in a format that helps readers apply the ideas in other courses and diverse settings.

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**3:15-3:30 p.m.**

**Break**

**3:30-5:00 p.m.**

**CoE 160**

**(W4) *Accreditation, Certification, and Licensure: A Place in Audio Education?***

**Panel:** S. Alex Ruthmann (New York University), Wesley Bulla (Belmont University), Adam Olson (Shenandoah University)

**Abstract:** ABET (Accreditation Board for Engineering and Technology) claims “accreditation is proof that a collegiate program has met certain standards necessary to produce graduates who are ready to enter their professions.” The National Association of Schools of Music (NASM) states that accreditation indicates standards are adhered to “in a fashion that provides a base of academic strength and operational integrity.” AVID asserts “certification is a tangible, industry-recognized credential that can help you advance your career and provide measurable benefits to your employer.” This session will cover the differences in accreditation, certification, and licensure and explore the educator's perspective of the motivations, process, pros and cons, and the pre- and post-accreditation experience.

**6:30 p.m.**

**Lower Broadway Honky Tonks**

Buses leave the DoubleTree Hotel for an evening of music and fun in Downtown Nashville's Lower Broadway district.

Round-trip transportation is provided for those who selected and paid for this optional excursion during registration. If you wish to enjoy a seated, restaurant dinner, we encourage you to make a reservation in advance. See the Honky Tonk Dining Guide for listings with locations, website addresses and phone numbers. Note: some establishments are first-come first-served only.

Special note: Ear-plugs are essential for safe appreciation of some of the more popular bars and performance venues! Don't say we didn't warn ya!



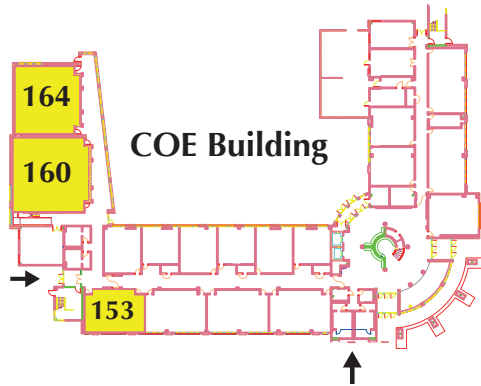
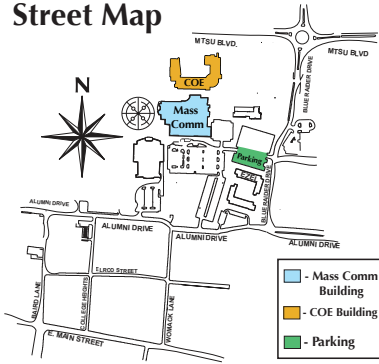
# AES 50th International Conference Map

July 25th - 27th, 2013

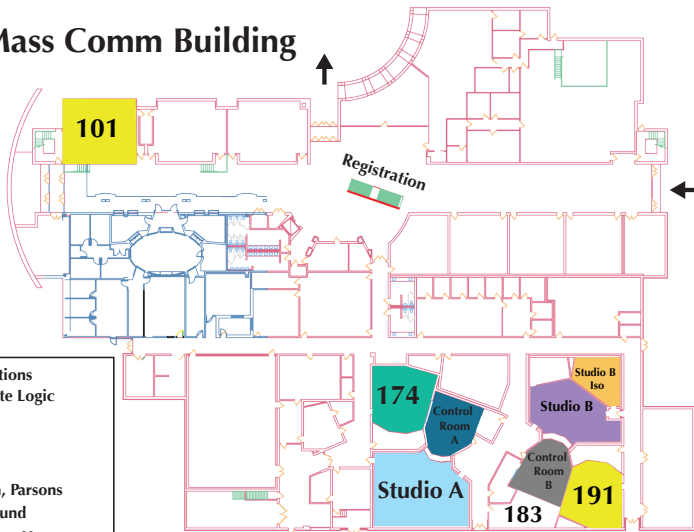
Middle Tennessee State University, Murfreesboro Tennessee



## Street Map



## Mass Comm Building



- Presentations
- Solid State Logic
- API
- Waves
- Genelec
- Harrison, Parsons
- Prism Sound
- Focal Press, Harman, N.A.R.A.S.

**GENELEC**  
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