AWC 2022 SCHEDULE
ST JOHN'S - SEPTEMBER 28 TO 30, 2022

Note: All contributed presentations are scheduled for 15 minutes (12 minutes + 3 for questions)

Day 1	Wednesday, September 28	
	SALON AB	**SALON CD**
8:45-9:00	Welcome	
9:00-10:00	KEYNOTE TALK (1 of 2) - **Michael Schutz**	
10:00- 10:30	Coffee Break	
10:30-12:00	MUSICAL ACOUSTICS 1	ARCHITECTURAL ACOUSTICS 1
12:00-13:30	Lunch	
13:30-15:00	OCCUPATIONAL ACOUSTICS 1	ACOUSTIC MATERIALS & NOISE CONTROL
15:00-15:30	Coffee Break	
15:30-17:00	PERCEPTION	UNDERWATER ACOUSTICS - SHIP NOISE 1
18:00-20:00	**Welcome Reception** - Court Garden - Sheraton Hotel	
20:00-??	**Student social event** - stay tuned for details	

Day 2	Thrusday, September 29	
	SALON AB	**SALON CD**
9:00-10:00	KEYNOTE TALK (2 of 2) - **Canadian Coast Guard**	
10:00- 10:30	Coffee Break	
10:30-12:00	MUSICAL ACOUSTICS 2	UNDERWATER ACOUSTICS - SHIP NOISE 2
12:00-13:30	Lunch	
13:30-15:00	ENVIRONMENTAL ACOUSTICS	ARCHITECTURAL ACOUSTICS 2
15:00-15:30	Coffee Break	
15:30-17:00	OCCUPATIONAL ACOUSTICS 2	UNDERWATER ACOUSTICS - GENERAL
17:00-18:00	**Annual General Meeting (AGM)** - all CAA members welcome to attend	
18:00-22:00	**Banquet** - The Rooms, 9 Bonaventure Ave (A 5 minute walk up Military Road. Taxi chits available at AWC Welcome Desk for anyone who requires transportation.)	

Day 3	Friday, September 30	
	SALON AB	**SALON CD**
9:00-10:30	ACOUSTICAL EDUCATION - presentations	ARCHITECTURAL ACOUSTICS 3
10:00- 10:30	Coffee Break	
11:00	**Bus to harbour** with bagged lunch	
12:00	Ship tour, bagged lunch at harbour	
13:00	**Bus to MUN for School of Music tour** (stop at hotel on the way)	
14:30	Return to hotel, coffee break	
15:00-16:00	ACOUSTICAL EDUCATION - panel discussion	SPEECH PRODUCTION
16:00-17:00	**Awards ceremony** and thanks	


MAIN FLOOR
STAIRS TO COURT GARDEN
OPPIDAN
BIVVER
THE LINK @ SHERATON
CLUB LOUNGE
GARRISON
SIGNAL
FRONT DESK
MAIN LOBBY
COAT CHECK
D
C
FORT WILLIAM
B
RECEPTION BALLROOM
MAIN ENTRANCE
RECEIVING
A

Listening to Music: Improving safety-critical sounds by studying the acoustics of musical instruments

Our daily experience is shaped not only by electronic devices, but the ways they convey information. For example, the ubiquity of screens in smart phones and tablets means they now absorb a great deal of our visual attention. In contrast to those visual interfaces, safety-critical devices tasked with conveying time-sensitive information instead use auditory interfaces to avoid reliance on visual attention. These interfaces play a crucial role in high-consequence environments ranging from airplane cock-pits and ship bridges to nuclear power plants and hospital operating rooms. Although the specific tones in each message vary, many rely on highly simplistic "beeps." As they have often been designed with little consideration of human factors, they are widely recognized as suffering from widely recognized problems with masking, learnability, recognition, and annoyance. The well-known complexity of musical sounds raises an intriguing question—is the traditional focus on acoustic simplicity in auditory interface sounds simply misguided?

My team explores how specific properties of musical sounds can improve the efficacy of the auditory interfaces allowing doctors to care for patients, captains to navigate billion-dollar commercial ships, and engineers to monitor nuclear power plans. We have shown numerous ways in which small modifications to individual tones can lower annoyance without harming learning, while actually improving their detection. The potential impact of these changes is enormous given the scale of their use. For example, at any given time tens of thousands of commercial ships navigate the globe generating safety-critical information continuously. Medical devices fill hospitals around the world, providing crucial real time updates on patient status. Therefore, even small changes to the efficacy of their auditory interfaces can have meaningful improvements on both safety and well-being.

Dr. Michael Schutz

Écouter de la musique:Améliorer les systèmes auditifs critiques pour la sécurité, en étudiant l'acoustique des instruments de musique

Notre expérience quotidienne est façonnée non seulement par les appareils électroniques, mais aussi par la manière dont ils transmettent l'information. Par exemple, l'omniprésence des écrans dans les téléphones intelligents et les tablettes signifie qu'ils absorbent désormais une grande partie de notre attention visuelle. Contrairement à ces interfaces visuelles, les systèmes critiques pour la sécurité chargés de transmettre des informations urgentes utilisent des interfaces auditives pour éviter de dépendre de l'attention visuelle. Ces interfaces jouent un rôle crucial dans les environnements à hautes conséquences; des cockpits d'avions et des ponts de navires aux centrales nucléaires et aux salles d'opération des hôpitaux. Bien que les tonalités spécifiques de chaque message varient, beaucoup s'appuient sur des "bips" très simplistes. Comme ils ont souvent été conçus sans tenir compte des facteurs humains, ils sont largement reconnus comme ayant des problèmes largement reconnus de masquage, d'apprentissage, de reconnaissance et d'irritation. La complexité bien connue des sons musicaux soulève une question intrigante : l'accent traditionnellement mis sur la simplicité acoustique dans les sons de l'interface auditive est-il simplement erroné ?

Notre équipe explore comment les propriétés spécifiques des sons musicaux peuvent améliorer l'efficacité des interfaces auditives permettant aux médecins de soigner les patients, aux capitaines de naviguer des navires commerciaux d'un milliard de dollars et aux ingénieurs de surveiller les plans d'énergie nucléaire. Nous avons montré de nombreuses manières par lesquelles de petites modifications apportées aux tonalités individuelles peuvent réduire l'irritation sans nuire à l'apprentissage, tout en améliorant leur détection. L'impact potentiel de ces changements est énorme compte tenu de l'ampleur de leur utilisation. Par exemple, à tout moment, des dizaines de milliers de navires commerciaux naviguent sur le globe et génèrent en permanence des informations critiques pour la sécurité. Des dispositifs médicaux remplissent les hôpitaux du monde entier, fournissant des mises à jour cruciales en temps réel sur l'état des patients. Par conséquent, même de petits changements dans l'efficacité de leurs interfaces auditives peuvent apporter des améliorations significatives à la fois à la sécurité et au bien-être

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Dr. Michael Schutz

Use of sound signals in aids to navigation

The Canadian Coast Guard presence is generally noticed and recognized by the iconic red and white ships, hovercrafts and helicopters. However, there is much more to the CCG than this, the services provided by the Canadian Coast Guard are vast and include ice breaking, search and rescue, environmental response, Maritime Security, Marine Communications, Marine Navigation, and many others. It is the responsibility of the Canadian Coast Guard to ensure the safety of all mariners on our waters, protect the marine environment and support Canadian economic growth through the safe and efficient movement of maritime trade in and out of Canada's waters, approximately 243,000 km of coastline, the longest of any country in the world.

One of the services, is the provision of Marine Aids to Navigation to facilitate safe navigation. The Aids to Navigation Program uses aids to navigation to help mariners confirm their positions, stay inside navigable channels, and avoid marine hazards. Nationally, there are approximately 17,000 short-range aids to navigation (fixed and floating). In the Atlantic Region, there are approximately 1500 fixed aids to navigation and nearly 6000 floating aids, that consist of day marks, range marks, small and large buoys, towers, lights, and sound.

The intent of this discussion is to focus on the sound component of the aids to navigation network by providing a historical overview on the use of audible aids to navigation, from the early compressor fog horns and lighthouses to the current use of electronic fog detectors that trigger automated fog horns. The Aids to Navigation Program will explain how safe navigation routes are identified and the type of aids identified with a focus on sound. The Maritime and Civil Infrastructure group will identify and discuss some of the equipment used, such as horns, bell and whistle buoys and the installation, maintenance and associated challenges!

DFO Aids to Navigation and Maritime and Civil Infrastructure groups

Utilisation de signaux sonores dans les aides à la navigation

La présence de la Garde côtière canadienne est généralement remarquée et reconnue par les emblématiques navires, aéroglisseurs et hélicoptères rouges et blancs. Cependant, la GCC est bien plus que cela, les services fournis par la Garde côtière canadienne sont vastes et comprennent le déglaçage, la recherche et sauvetage, l'intervention environnementale, la sécurité maritime, les communications maritimes, la navigation maritime et bien d'autres. Il est la responsabilité à la Garde côtière canadienne d'assurer la sécurité de tous les marins sur nos eaux, de protéger l'environnement marin et de soutenir la croissance économique canadienne grâce à la circulation sécuritaire et efficace du commerce maritime à l'intérieur et à l'extérieur des eaux canadiennes, soit environ 243 000 km de côtes, le plus long de tous les pays du monde.

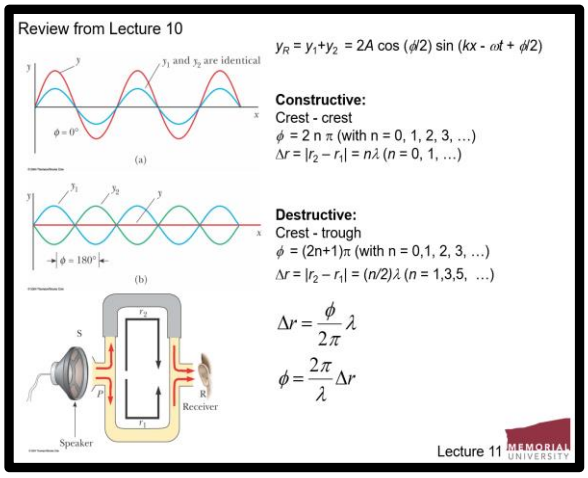
L'un des services est la provision d'aides maritimes à la navigation pour faciliter la sécurité de la navigation. Le Programme d'aides à la navigation utilise des aides à la navigation pour aider les navigateurs à confirmer leurs positions, à rester à l'intérieur des voies navigables et à éviter les dangers maritimes. À l'échelle nationale, il existe environ 17 000 aides à la navigation à courte portée (fixes et flottantes). Dans la région de l'Atlantique, il y a environ 1 500 aides fixes à la navigation et près de 6 000 aides flottantes, qui consistent en balises de jour, balises de distance, petites et grandes bouées, tours, feux et son.

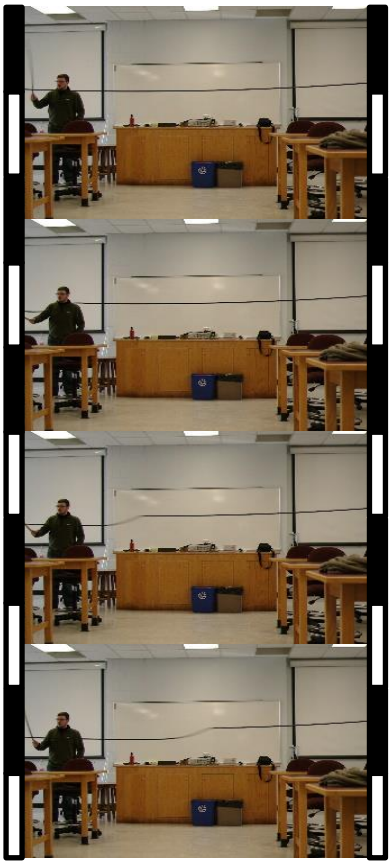
Le propos de cette conférence est de se concentrer sur la composante sonore du réseau d'aides à la navigation en fournissant un aperçu historique de l'utilisation des aides sonores à la navigation, depuis les premiers phares et cornes de brume à compresseur jusqu'à l'utilisation actuelle de détecteurs de brouillard électroniques qui déclenchent des cornes de brume automatisées. Le Programme d'aides à la navigation expliquera comment les itinéraires de navigation sécuritaires sont identifiés et le type d'aides identifié en mettant l'accent sur le son. Le groupe d'Infrastructure maritime et civile identifiera et discutera de certains des équipements utilisés, tels que les avertisseurs sonores, les bouées à cloche et à sifflet, ainsi que l'installation, l'entretien et les enjeux associés à ceux-ci!

Groupes d'Aides à la Navigation et Infrastructure maritime et civile MPO

ACOUSTICAL EDUCATION
PANEL DISCUSSION

Have you ever wanted a better way to present acoustics ideas to your class? Or, maybe you need to explain to a client how your product will improve results? All of us have the challenge of presenting our ideas to an audience. And, in the case of acoustics, there are many ideas that are not immediately obvious to people without background training. Please join us for a panel discussion to share what works for you and maybe what does not work. We'd be pleased to have people share their problems so we can all brainstorm for a solution.





Dr. Len Zedel is Professor and Head of the Department of Physics and Physical Oceanography at Memorial University of Newfoundland.

His research interests focus on how acoustic systems can make measurements of physical ocean processes. He has 30-years-experience in teaching and loves to include demonstrations and real-world examples in lectures at all levels.

Dr. Benjamin Zendel holds the Canada Research Chair in Aging and Auditory Neuroscience and is an Associate Professor in the Faculty of Medicine at Memorial University of Newfoundland.

Dr. Zendel is a hearing and music scientist whose research is focused on the intersection of music, aging, cognitive neuroscience, and auditory perception. In his research he explores the possibility of using music and music training to improve hearing abilities in older adults. In the classroom Dr. Zendel loves to use auditory perceptual illusions to demonstrate how the auditory system works.

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9:00-10:00	KEYNOTE TALK (1 of 2) - **Michael Schutz**	
10:00- 10:30	Coffee Break	
10:30-12:00	MUSICAL ACOUSTICS 1	ARCHITECTURAL ACOUSTICS 1
	1. Is melodic expectancy vocally constrained? Evidence from two listening experiments **- Paolo Ammirante**	**1.** Corriger l'acoustique dans un cas d'école existante pour le bien-être des enfants et faciliter le travail du personnel éducatif **- Jean-Philippe Migneron**
	2. Using feedback to manipulate the tonal hierarchy **- Sarah Anne Sauvé**	**2.** The determining impact of architecture on sound in the built environment: Applications in sound masking systems and indoor noise sources **- Viken Koukounian**
	3. Differences between blocked and interleaved music-training on the ability to detect out-of-key notes and the associated brain responses **- Ozgen Demirkaplan**	**3.** Living with upstairs neighbors: recent studies on impact sound in residential buildings **- Markus Mueller-Trapet**
	4. Exploring the neurophysiological interaction between pitch and timing cues for the perception of metre **- Stephen Cooke**	**4.** Acoustic Design Challenges of the Tom Patterson Theatre **- Payam Ashtiani**
		5. Hybrid Assessment Method Web App For Impact Noise Insulation Performance Prediction In Building **- Mathieu Wahiche**
12:00-13:30	Lunch	
13:30-15:00	OCCUPATIONAL ACOUSTICS 1	ACOUSTIC MATERIALS & NOISE CONTROL
	1. Governance and noise exposures on board fishing vessels in Atlantic Canada **- Om Prakash Yadav**	**1.** Finite element design of acoustic metamaterial based on parallel Helmholtz resonators with embedded membranes **- Zacharie Laly**
	2. Using FRAM to support noise exposure management onboard vessels **- Muhammad Sabah Ud Din Ersum**	**2.** Numerical analysis of honeycomb structure with embedded membrane for transmission loss improvement **- Zacharie Laly**
	3. Occupational noise risk perception among fish harvesters in Newfoundland and Labrador **- Om Prakash Yadav**	**3.** Experimental characterization of acoustic materials in the presence of airflow at higher sound pressure excitations using a transfer matrix method **- Zacharie Laly**
	4. Auditory alarms in ship bridges: Understanding current challenges and limitations **- Robert Brown**	**4.** Acoustic Analysis of Electric Ducted Fans **- Joana Rocha**
		5. Vibration Analysis of an Electric UAV Wing Model **- Joana Rocha**
		6. Estimating sound absorption coefficient under various sound pressure fields by combining an automated test bench to sound field reproduction and advanced post-processing techniques **- Magdeleine Sciard**
15:00-15:30	Coffee Break	

15:30-17:00	PERCEPTION	UNDERWATER ACOUSTICS - SHIP NOISE 1
	1. Identifying Hidden Hearing Loss **- Alicia Follet**	**1.** The MARS project: identifying and reducing underwater noise from ships in the St. Lawrence estuary - **Olivier Robin**
	2. A comparison between CROS hearing aids and bone-anchored hearing aids for patients with single-sided deafness: a listening effort-based pilot study - **Olivier Valentin**	**2.** Identification of sources and their directivity in the global underwater radiated noise from a merchant ship - **Hugo Catineau**
	3. The effect of vowel lengthening on the intelligibility of occluded Lombard speech **- Xinyi Zhang**	**3.** Realistic corrections for ship source levels measured at Canadian acoustic ranges **- Cristina Tollefsen**
	4. A Whispered Christmas: Phonetic Expectations and Type of Masking-Noise Influence Auditory Verbal Hallucinations **- Mark Scott**	**4.** Assessment of the underwater noise levels from a fishing vessel using passive acoustic monitoring and structure hull vibration **- Khaled Mohsen Helal**
	5. Study of Auditory Localization with a Wearable Microphone Belt Providing Haptic Feedback - **Ana Tapia Rousiouk**	
18:00-20:00	**Welcome Reception** - Court Garden - Sheraton Hotel	
20:00-??	**Student social event** - stay tuned for details	

Day 2 — Thursday, September 29

	SALON AB	SALON CD
9:00-10:00	KEYNOTE TALK (2 of 2) - **Canadian Coast Guard**	
10:00- 10:30	Coffee Break	
10:30-12:00	MUSICAL ACOUSTICS 2	UNDERWATER ACOUSTICS - SHIP NOISE 2
	1. BRAMSBioBox: Developing an open research platform for audio and biosignals monitoring **- Jérémie Voix**	**1.** Experimental model to predict underwater noise produced by structural radiation **- Jacopo Fragasso**
	2. Measurements of mechanical properties of Adirondack spruce **- Olivier Robin**	**2.** Influence of Background Noise in Propeller Induced Noise Measurement in Atmospheric Towing Tank - **Md Saiful Islam**
	3. Classifying the perception of different instruments using single trial EEG **- Praveena Satkunarajah**	**3.** Interface forces identification using component TPA in-situ method for transfer path analysis (TPA) - **Hamdi Ben Amar**
	4. Some Extensions on C. V. Raman's Study on Drums - **Udayanandan Kandoth Murkoth**	**4.** Identification of the dynamic stiffness of vibration isolation interfaces by TPA engineering methods - **Houssine Bakkali**
		5. Hybrid Model for Acoustic and Vibration Predictions Based on Vessel Induced Acoustic Vibration: A Review - **Solomon Ochuko Ologe**
12:00-13:30	Lunch	
13:30-15:00	ENVIRONMENTAL ACOUSTICS	ARCHITECTURAL ACOUSTICS 2
	1. What is representative in monitoring environmental noise? **- Peter VanDelden**	**1.** Wireless Loudspeaker Technology for More Efficient Sound Transmission Testing **- Jeremy Thorbahn**
	2. The Impact of Working From Home on Post Pandemic Traffic Distributions and Noise Assessment - **Kathryn Katsiroumpas**	**2.** Comparison of speech privacy metrics for open-plan and closed offices **- Rewan Toubar**
	3. Soundscapes from an urban environment bordering on a green space **- Dale D Ellis**	**3.** 2022 Comparison of the Acoustic Design Requirements of LEED, WELL and Green Globes **- Jessie Roy**

	4. Influence of Locomotive Speed and Throttle Profiles in Noise Modelling **- Gillian Redman** **5.** Analysis of ventilation coefficient and atmosphere stability during the post-monsoon **- Priyanka Singh**	**4.** The Evolution of RR-331 The Guide for Flanking Noise in Buildings **- Jeffrey Mahn** **5.** The role of spectrum in subjective interpretation of speech privacy estimates: an analysis of prominent metrics **- Viken Koukounian**
15:00-15:30	Coffee Break	
15:30-17:00	OCCUPATIONAL ACOUSTICS 2	UNDERWATER ACOUSTICS - GENERAL
	1. Hearing protectors' comfort evaluation in the laboratory **- Said Ezzaf** **2.** Impact of Coronavirus Face Masks on the Perceptual Evaluation of Hearing Protectors Comfort **- Olivier Valentin** **3.** Effect of the error on the sound speed and microphone position on acoustic image obtained with a spherical microphone array **- Julien St-Jacques** **4.** Toward detecting and classifying non-verbal events and biosignals in hearables **- Malahat H. K. Mehrban**	**1.** Modelling Split-Beam Sonar **- Axel Belgarde** **2.** Remote Detection of Ocean Sound Speed Profile Using Acoustic Profiling Techniques **- seyed Mohammad Reza Mousavi** **3.** Investigating Seasonal and Spatial Changes in Acoustic Backscatter Characteristics on the south coast of Newfoundland **- Nurul B. Ibrahim** **4.** Measurements and modelling of a one-year under-ice acoustic propagation data set **- Sean Pecknold** **5.** Bayesian inversion of ocean acoustic data for seabed geoacoustic profiles **- Stan Dosso**
17:00-18:00	**Annual General Meeting (AGM)** - all CAA members welcome to attend	
18:00-22:00	**Banquet** - The Rooms, 9 Bonaventure Ave (A 5 minute walk up Military Road. Taxi chits available at AWC Welcome Desk for anyone who requires transportation.)	

Day 3 — Friday, September 30

	SALON AB	**SALON CD**
9:00-10:30	ACOUSTICAL EDUCATION - presentations	ARCHITECTURAL ACOUSTICS 3
	1. Teaching acoustics using smartphones **- Olivier Robin** **2.** Demonstrating wave interference using room acoustics **- Len Zedel** **3.** Acoustics outreach activities made easy **- Cristina Tollefsen** **4.** Teaching Concepts of Acoustical Waves in Air. How They Travel and How they Interact with Room Surfaces to Shape Indoor Acoustical Environments **- William Gastmeier** **5.** New and old trends in teaching of building acoustics to future architects **- Jean-Philippe Migneron** **6.** Modal propagation through a cylindrical pipe **- Len Zedel**	**1.** Factors Affecting the ASTC Performance of Double Wood Stud Shear Walls in Mid-rise Residential Construction **- Anil Joshi** **2.** Impact Sound Insulation Performance of Floating Floor Assemblies on Mass Timber Slabs under Different Excitation Sources **- Jianhui Zhou** **3.** A study of dry linings in mass timber construction **- Wilson Byrick** **4.** Comparing Low Frequency Sound Isolation of Different Structures **- Sarah Mackel** **5.** Assessing and Controlling Wind Induced Noise from Perforated Aluminum Balcony Railing Panels **- Nathan Gara**
10:00- 10:30	Coffee Break	
11:00	**Bus to harbour** with bagged lunch	
12:00	Ship tour, bagged lunch at harbour	
13:00	**Bus to MUN for School of Music tour** (stop at hotel on the way)	

14:30	Return to hotel, coffee break	
15:00-16:00	ACOUSTICAL EDUCATION - panel discussion	SPEECH PRODUCTION **1.** Initiation and maintenance of lingual bracing posture - **Nicole Ebbutt** **2.** Comparing Velum Velocity in Québécois French Nasals - **Annabelle Purnomo** **3.** The estimation of tongue stiffness during phonation: An investigation using ultrasound shear wave elastography - **Chenhao Chiu**
16:00-17:00	**Awards ceremony** and thanks	