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THE AUDIO ENGINEERING SOCIETY



# BULLETIN

MARCH 2014

2013-2014

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## Presentation

# Sound System Design for Automobiles

*Dennis Patrick, Nissan-USA*

<b>date</b>	<b>Tuesday, 25 March 2014</b>
<b>time</b>	<b>7:00 PM</b>
<b>where</b>	<b>Ryerson University</b> <b>RCC 204, Eaton Theatre, Rogers Communications Building</b> 80 Gould Street, Toronto, ON <i>Corner of Gould and Church, east of Yonge St (Dundas Subway)</i>
	Pre-Meeting "Dutch Treat" dinner 5:00 pm at the Pickle Barrel (corner of Edward and Yonge, just north of Dundas, in the Atrium)
	<i>For parking info and map, goto <a href="http://www.ryerson.ca/parking/">www.ryerson.ca/parking/</a></i>

## PRESENTATION

The automobile audio system is one of the most popular audio playback venues in which people experience their favorite music. It is an important factor to many when deciding what vehicle to buy.

About the only good thing about reproducing audio in the vehicle environment is that the listening positions are known. The challenges are numerous:

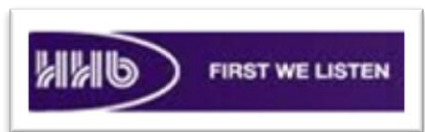
1. The listeners are not ideally positioned with respect to the speakers
2. The listeners are not on-axis to any of the speakers
3. There are many reflective surfaces near the listener's head
4. High ambient noise levels
5. Speaker packaging is far from ideal
6. Many more!

*Continued next page.*

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## PRESENTATION *continued*

What goes into the design of an in-vehicle audio system? Are speakers designed differently for vehicles? How does the vehicle environment create a unique listening experience? How do we quantify sound quality in a vehicle? These are some of the questions that will be answered.

Topics of discussion will include:

- Audio system goals
- Speaker/Woofer Design strategies
- Speaker Packaging considerations
- Head Units/Amplifiers
- Objective/Subjective Level Testing
- Audio System Tuning
- 3D Audio

## BIOGRAPHY

Dennis Patrick, BSEE, Principal Engineer, Nissan

- Graduated with BSEE from Michigan Tech University
- Detroit AES member for last 10 years
- Worked in Automotive Audio for past 21 years holding various positions
- Worked for Ford, Visteon and currently Principal Engr at Nissan
  - Set up Nissan Audio Lab with hardware and custom LabView software
  - Part of team that set up binaural recording capability/process
- Patents:
  - As part of Team - Audio Broadcast Processing Method
  - Application - Vehicle Voice Interface System Calibration Method



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**GTA integration firm seeking Audio Engineer and AV system designer.**

**Salary:**

\$52-\$75k to start with benefits, paid training and a great working environment.

**Work setting:**

Primarily at AVT.ca in Mississauga (L4Y 1M5). Secondly at business centres in the GTA and all over Canada. AVTs Green initiative is that commuting time is not to exceed one hour. Please check your distance to our business before applying. No exceptions pls.

**Tasks for Audio Engineer:**

- Programming and commissioning of digital audio boxes of all types and in all types of live and business environments.
- Ability to be a live operator during town halls and large meetings.
- Service calls
- Design and documentation of systems via Visio and/or CAD

**Tasks for AV system designer:**

- Programming and commissioning of AV control systems of all types and in all types of live and business environments.
- Service calls
- Design and documentation of systems via Visio and/or CAD

**Qualifications for both positions:**

- Audio Engineer must have provable audio knowledge and prowess.
- AV system designer must have the ability to design and program control systems. Crestron, AMX, Extron
- Superior electronic device mastery. Examples required at interview.
- Superior PC and software knowledge.
- Drivers license and vehicle.

Ideal start date for both positions is mid-March. Please send your CV and cover letter to [HR@AVT.ca](mailto:HR@AVT.ca)