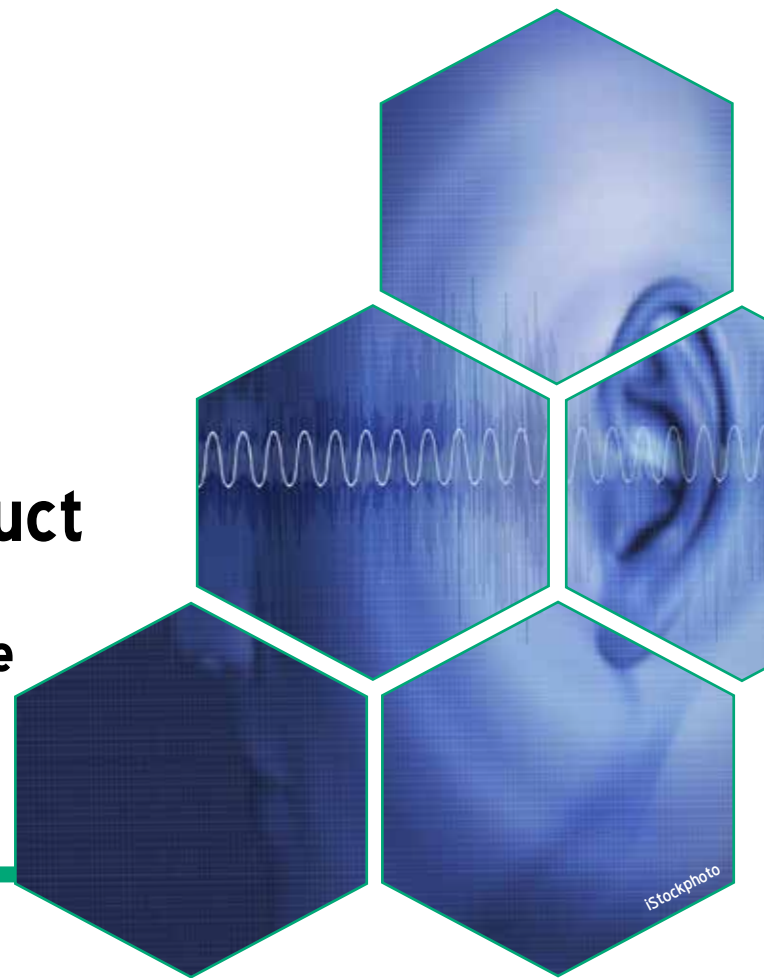




The Engineering Integrity Society

**Sound Quality & Product
Perception Workshop**
Human Centred Design Institute
Brunel University
8 July 2014



This one day event is to be held jointly with the Human Centred Design Institute at Brunel University. The day will be of interest to engineers and managers working in a variety of sectors and will focus on increasing their understanding of the sound quality techniques used to optimise products for refinement and maximise customer perceived quality.

Co-sponsored by:

Sound Quality & Product Perception Workshop

Human Centred Design Institute, Brunel University

8 July 2014



Following a brief introduction, delegates will be divided into small groups to rotate between 3 sessions allowing the opportunity for both hands-on experience and classroom learning. In the afternoon Professor Joseph Giacomini will deliver a session on Perception Enhancement for Automotive Steering Systems.

Sound Metrics Unleashed! - Andrew McQueen, LMS International

This interactive seminar will provide delegates with an introduction to sound quality metrics and their use in industry via a number of practical examples with accompanying background theory. The session will aim to address typical questions such as:

- Why doesn't the decibel level "dB" match my subjective impressions of the sound?
- What are all the different types of sound metrics (loudness, roughness, tonality, modulation etc) and how are they used?
- What is the best metric to use to describe the sound I am hearing?
- How do I reduce a sound to a meaningful representative value?

Interactive Assessment of Vehicle Sound Quality: Target Setting and Jury Evaluation - Roger Williams, Bruel & Kjaer

Over the last decade, the techniques available for assessment and development of vehicle sound quality have undergone huge advances. Gone are the days when the sound quality engineer would base his work around listening to, analysing and jury testing recorded files. These days, the sound quality work flow, from recording to final sign-off by engineering managers, is a much more intuitive, interactive and ultimately, reliable process which uses an NVH Simulator for auralisation and evaluation. This session will give an overview of how this process is used to understand the sounds you experience in a vehicle and to create target sounds which can be assessed whilst freely driving rather than for predefined operating conditions.

Laser Vibrometry - See What's Happening to your Structure - Roger Traynor, Polytec

Non-contact laser vibrometry is a powerful tool to measure sound and vibration from almost any surface, without mass-loading and therefore any modification of the structure's response. Polytec will give a live workshop demonstration of the use of a scanning vibrometer on a lightweight structure, with further examples of vibration/sound quality comparison of damped/undamped vehicle floorpans and sports motorbikes. The measurement examples will show the vibration amplitudes and frequency mix, vibration energy 'hotspots'/'quiet spots' distribution and hence noise source location on the structures.

Perception Enhancement for Automotive Steering Systems - Prof. Joseph Giacomini, Director of the Human Centred Design Institute, Brunel University

Automotive steering systems have become more intelligent and make many more decisions, thus a greater degree of communication with the driver is necessary in order to keep the driver informed and happy about the state of the automobile. In recent years research has identified the most critical frequency bands and most critical scaling factors for vibratory (haptic) feedback, but the "dictionary" of the key cognitive cues is still relatively incomplete. Individual vibratory transients (bumps) often provide an unmistakable cognitive cue which informs the driver of a specific physical event or situation, in exactly the same way as a word from a spoken language or a symbol of mathematical notation.

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On-going research is defining the basic dictionary of vibratory transients (bumps) which can be used by the steering system controller to provide clear and unmistakable communication with the driver. The communication achieved by the vibratory transients (bumps) can be shaped so as to emphasise information about the dynamic state of the automobile, or emotional engagement, or other target human interpretations.

Booking Form

	EIS Member	Non EIS Member
Delegate	£100+VAT	£140+VAT
Student/Apprentice	£25+VAT	
	UK	Rest of the World
Personal Membership of the EIS	£25 per year	£30 per year
Insert in delegate pack	£35+VAT	£50+VAT
I enclose a cheque for £_____ made payable to the Engineering Integrity Society		
I wish to pay by bank transfer		
Name:		
Company:		
Address:		
Telephone:		
Email:		
Please list any special dietary requirements		
Car Parking Required	Yes	No

Please return completed forms to the following address:

Engineering Integrity Society, 17 Harrier Close, Cottesmore Rutland, LE15 7BT, UK

Telephone: +44(0)1572 811315 Email: info@e-i-s.org.uk

This event is held jointly by the EIS and the Human Centred Design Institute.

The Human Centred Design Institute (HCDI) brings together a group of experts from four Brunel University Schools who develop the knowledge and skills required to design products, services and systems which are physically, perceptually, cognitively and emotionally intuitive. Human centred design involves techniques which communicate, interact, empathise and stimulate the people involved, obtaining an understanding of their needs, desires and experiences which often transcends that which the people themselves actually knew and realised.

The Engineering Integrity Society is an independent not-for-profit organisation which aims to inspire all engineers, both experienced and newly qualified, across a broad spectrum of technologies. The Society is committed to promoting events and publications, providing a forum for engineers to discuss present industrial needs, new technologies and to stimulate both company and personal development.

The EIS annual subscription rates are £25 for UK residents and £30 for non-UK residents. Upon joining the Society you will also have the additional advantages of preferential attendance rates at EIS events, together with selected events held by some of the associated organisations. In addition you will have access to CDs containing archived copies of EIS presentations.

The EIS pleased to acknowledge the support of the following organisations:

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